

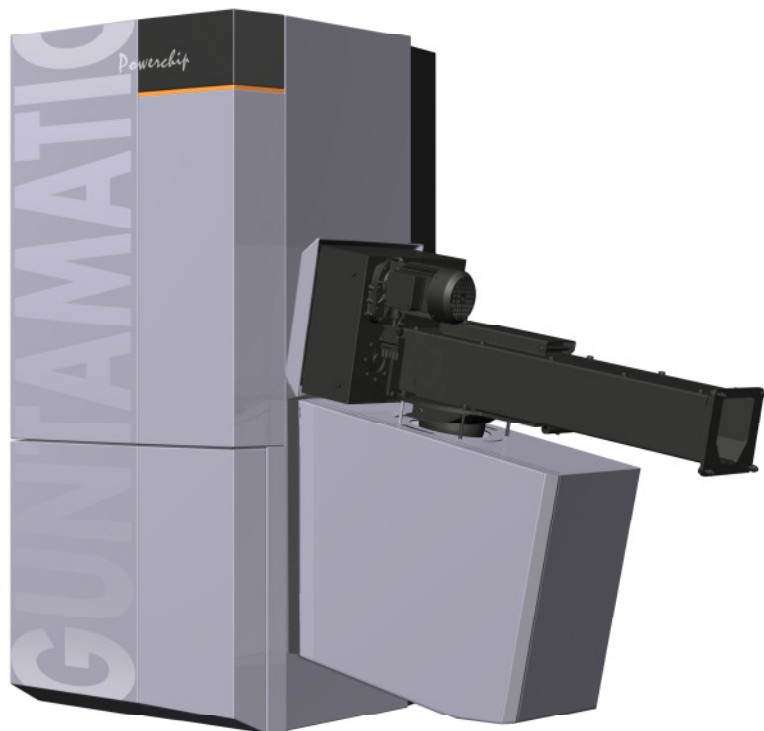
Woodchip boiler

englisch

POWERCHIP / POWERCORN 50 Special

Operating Instructions / System Log Book

PH-01



GUNTAMATIC

EN-B30-009-V12-0315

Information about 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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You have made an excellent choice with the purchase of your GUNTAMATIC boiler.

It is a product of many years experience in boiler-making and it is our sincere wish that your heating system provides you with many years of satisfaction.

These instructions are intended as a guide to operation and maintenance. Even the best boiler cannot operate effectively without proper care and maintenance, so please read through these instructions carefully and have your appliance commissioned by an engineer authorised by GUNTAMATIC. Most importantly, you should follow the safety instructions in Section 2.

Brief description The POWERCHIP firing is a modern biomass boiler. The Feed is occurred from the store room with agitator and spiral feed.

Type approval The boiler is designed as a Class 5 appliance as defined by the draft standard ÖNORM EN 303-5 (CEN/TC7/WG 1 – Doc. N 36-D) of 15/12/1996 and the agreement of the [Austrian] Federal States according to Art. 15a BVG, in accordance with the Austrian fire safety regulations, safety systems, CE and on safety measures for small combustion heating systems and the combustion heating system approval regulations (LGBl. 33/1992) of the Federal State of Styria. The original type approval certificates are available for inspection at the manufacturer's offices.

Further information The documentation consists of the following documents:

- Planning Document
- Installation instructions
- Operating instructions

If you have any questions, please consult our Customer Support.

2 Important notes

BS-01

Your boiler has been designed and produced in accordance with the latest technical advances and all applicable safety regulations. Nevertheless incorrect operation, the use of unapproved fuels or the failure to carry out necessary maintenance and repairs can result in personal injury or damage to property. You will avoid dangerous situations by only using the boiler for the purpose for which it was designed and by operating, cleaning and maintaining it correctly. Only start up the heating system when it is in perfectly safe working order.

2.1 Intended use

BS-01

The boiler is designed for heating central heating water and for use as a central heating boiler.



Do not use the boiler to burn rubbish!

Burning rubbish will cause extensive corrosion and consequently to a substantial reduction in the service life of the boiler.

2.2 Operating the heating system

BS-01

The heating system may only be operated and cleaned by demonstrably trained persons (as per check-list). Children, unauthorised persons or persons with a mental impairment may only enter the boiler room under the supervision of an authorised person. When unsupervised, the boiler room/fuel store must be locked and the key kept in a place where it is inaccessible to such persons.



Even if the opposite is requested, servicing and repair work may only be carried out by authorised specialists.

2.3 Guarantee and liability

BS-01

Guarantee and liability claims for personal injury and/or property damage are inadmissible if they are attributable to one or more of the following causes:

- use of the boiler for purposes other than that intended
- failure to follow the instructions, guidance and safety precautions given in the documentation
- incorrect commissioning, operation, maintenance or repair of the boiler
- operation of the boiler when safety systems are inoperative
- unauthorised modifications

2.4 Safety instructions

PH-01

To prevent accidents, small children should not be allowed into the boiler room or the fuel storeroom. Please follow the safety instructions below. By doing so, you will protect yourself and prevent damage to your heating system.

Power switch



The power switch must remain switched on at all times and may only be switched off when the system is not in operation.

Mains plug



Risk of fatal injury from electric shock.

The mains power supply is brought to the boiler via the plug marked Mains. That plug and other components of the system remain live even when the Power switch on the control panel is switched off.

Repair work



Repair work may only be carried out by authorised technicians.

Touching live electrical components can cause fatal injury.

Even when the Power switch is "OFF" some components of the system are still live.

Therefore, when carrying out repair work it is imperative that the power supply to the heating system is disconnected by means of the "mains plug" or a circuit breaker.

Emergency:

In the event of electric shock, disconnect the power supply immediately. Administer first aid. → Call the duty doctor.

Fault rectification



If faults occur, the causes must first be eliminated on the basis of the information message on the display (F0...) before resuming operation by means of the "Quit" button.

Unauthorised modifications



Do not make any unplanned changes to the settings or any modifications to the heating system.

Loss of guarantee entitlement.

Servicing work



Service the boiler regularly or make use of our Customer Service.

Emptying ash



Glowing embers can cause fires.

Only remove the ash from the boiler or store it in non-combustible containers.

Boiler cleaning



Touching hot components can cause skin burns.

The boiler must only be cleaned when it is cold (flue gas temperature < 50 °C)

Flue gas fan



Risk of injury from rotating parts.

The fan must only be removed when it is disconnected from the power supply (unplugged).

Gaskets



Risk of gas poisoning.

It is possible that flue gas could escape if gaskets are damaged.

Have defective gaskets replaced by an authorised technician.

Emergency:

Take the person affected into the open air immediately.
Call the duty doctor.

Air supply



Risk of suffocation

Inadequate air supply can be fatal.

Make sure there is an adequate supply of air.

Note:

If there is more than one boiler in the same room, a greater supply of fresh air must be provided.

Flue draught regulator



Risk of detonation.

A flue draught regulator with a pressure surge compensator is an essential requirement.

Safety clearances



Fire risk.

Do not store any flammable items in the close vicinity of the boiler.

Follow the local regulations.

when heating



Attention Danger of deflagration!

When the boiler is running please don't open the boiler door or cleaning openings

Filling the storeroom



Combustible gases in storeroom!

When filling the fuel storeroom from a tanker truck or using a pressure-filling system, it is imperative that the boiler is shut down.

If this rule is ignored, flammable and poisonous gases can be drawn into the storeroom.

Entering the storeroom



Attention LIFE DANGER!

In all biogenic substances may occur during storage in the formation of gases. You can enter the storeroom after 2 hours lifting.

Storerooms with a high level might be measured (the quality of air) from authorised stuff before you enter the room.



Risk of injury!

Only enter the store room when the system is switched off. Always shut off the power supply before entering.

Affix a sign to the storeroom door.

Keep the storeroom doors locked.

Protection against freezing



Anti-freeze function.

The system can only perform its freezing prevention function if sufficient fuel is available and there are no faults.

Fire extinguisher



Provide a fire extinguisher.

There must be a fire extinguisher placed immediately outside the boiler room door.



Warning of dangerous electric voltage



Warning of rotating components



Warning of hot surfaces



Warning of deflagration



grounding



Observe operating or installation instructions



Separate electric system from the mains



Pull angle plug aside



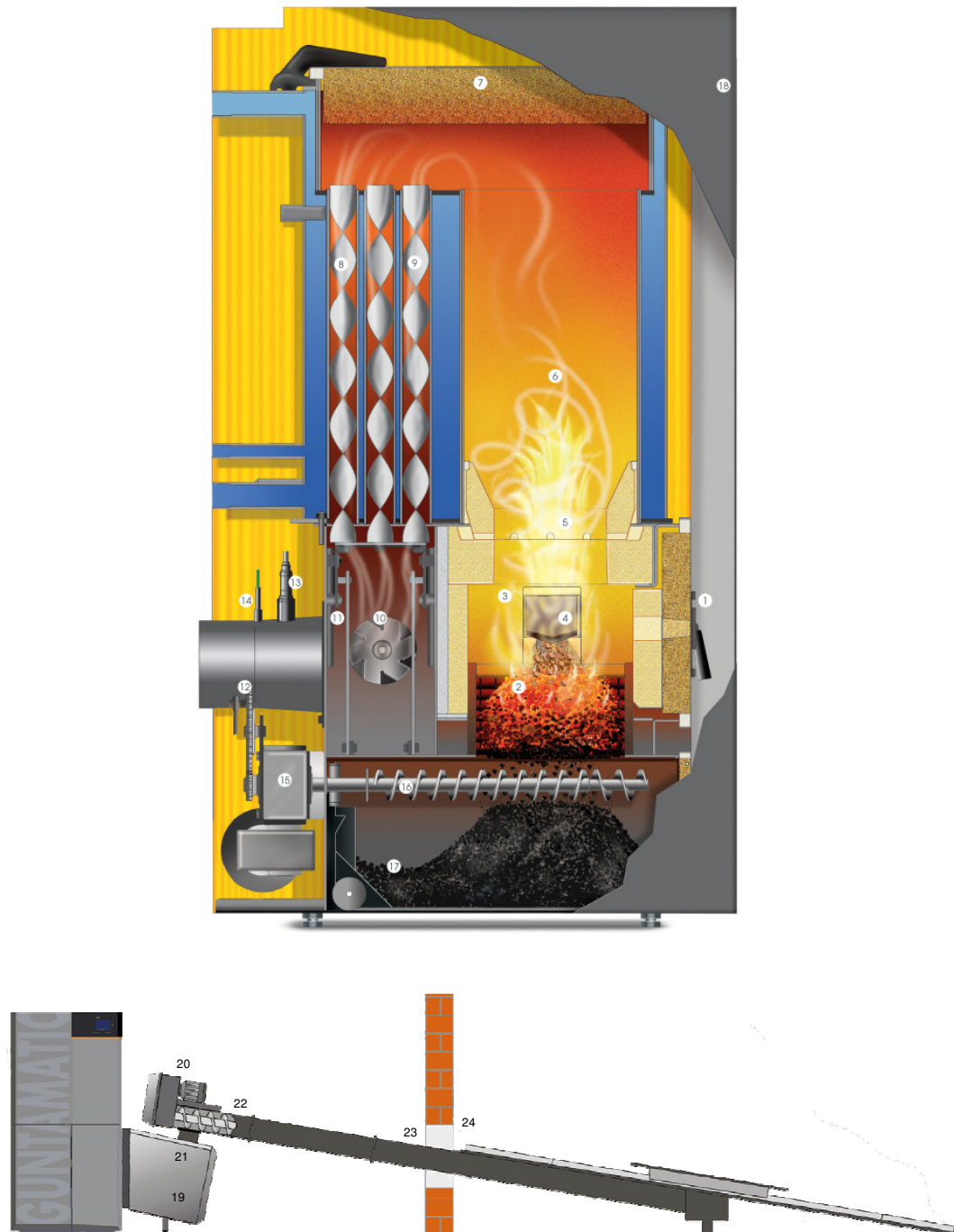
power Supply

Kabel flexibel
cable flexible

Do not use rigid cable for installations

3 System components

PH-01



- | | |
|---------------------------------------|---|
| 1. Firebox door | 14. Flue gas sensor |
| 2. Stepped grate – primary air | 15. Grate cleaner motor |
| 3. Combustion chamber | 16. Ash auger |
| 4. Fuel spout | 17. Wheeled ash box |
| 5. Swirl jet – secondary air | 18. Menu-based controller |
| 6. Reaction tube | 19. Drive motor G1 |
| 7. Inspection cover | 20. Drive motor A1 |
| 8. Helix baffles | 21. Fire safety flap with positioned motor (RSE) |
| 9. Tube-type heat exchanger | 22. Sprinkler in out feed auger enclosure (RHE) |
| 10. Flue draught fan | 23. Temperature monitor (TÜB) |
| 11. Heat exchanger cleaning mechanism | 24. Manually operated fire extinguishing facility (HLE) |
| 12. Flue pipe | |
| 13. Oxygen sensor | |

To prevent the boiler overheating, the controller reduces the heat output in certain situations. If the boiler still threatens to overheat, the controller responds according to a set of defined safety levels.

Safety level 1 **15°C above specified temperature**

The drive motor stops the fuel feed system and the flue draught fan shuts down.

Safety level 2 **Boiler temperature above 90°C**

All heating pumps and the cylinder charging pump are switched on to carry heat away from the boiler.

Safety level 3 **Boiler temperature above 100°C**

The STL (safety temperature limiter) trips and switches all boiler control functions off while the heating circulation pumps continue to run. The system remains switched off even if the boiler temperature drops back below 90 °C. The system must not be started up again until any faults have been rectified and the boiler has been checked.

Power failure

The controller, the flue draught fan and all circulation pumps switch off due to lack of electricity if there is a power cut. The glowing fuel bed on the grate continues burn with the natural draught of the flue. As this operating mode is not ideal, a larger amount of ash collects on the grate as well. As soon as the electricity supply is restored, the controller takes control of the heating system again.

Opening ash box or firebox door

- The drive motors stop feeding the boiler with fuel
- The flue draught fan switches to maximum extraction speed
- After the ash box/firebox door is closed, normal operation is resumed

On stoker duct

The stoker duct and feeder box are designed to be completely air-tight as far as the fire safety flap. That means that any burn-back is extinguished by lack of air. The fire safety flap is tested and approved as a burn-back prevention device. A positioner motor opens and closes the flap. Fuel delivery does not start until the flap is completely open. If the event of a fault or a power failure, the flap closes automatically of its own accord. When the boiler is in operation, the controller prevents burn-back into the stoker auger by replenishing the fuel. In addition, a sensor monitors the temperature in the vicinity of the stoker auger. In that way, burning fuel is continually pushed back out of the auger duct. This burn-back prevention system always functions unless the electricity supply to the boiler system is cut off.

On the fuel store outfeed unit **Required in all countries**

In addition, between the end of the fuel out feed unit and the burn-back prevention device there is a sprinkler unit that is used instead of the temperature monitor with **fuel stores with a capacity not exceeding 50 m³** and is triggered at 55°C. When the sprinkler is triggered, the sloping out feed 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.

Overfill prevention The overfill prevention function is triggered by the switch on the overfill cover. The fuel out feed unit then runs in reverse for 5 seconds and then for 5 seconds forwards. If the cover switch trips again, the out feed unit immediately stops.

Fuel stores > 50 m³ **Requirement in Austria**

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.

Manually operated fire extinguishing facility (HLE)

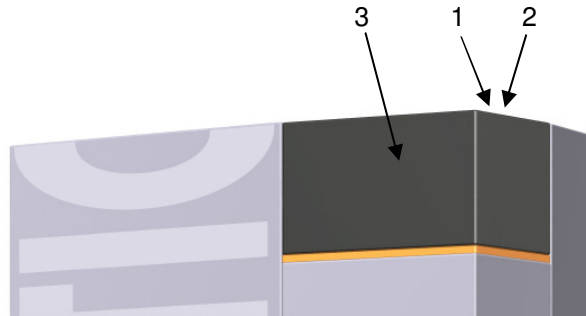
This fire extinguishing facility is for the purpose of combating a fire seated in the fuel storeroom/bunker/silo in the area of the out feed unit and is manually actuated. It consists of conduit piping with a minimum size of DN 20 and is to be fitted in the fuel storeroom immediately above the fuel conveyor close to its exit point through the wall or ceiling and positioned so as to obtain the maximum possible fire extinguishing effect. The conduit piping is to be connected directly to a pressurised water supply and provided with a stop tap located in the boiler room. That tap must be identified by a sign carrying the inscription "**Fuel storeroom fire extinguisher**". The design of the fire extinguishing facility must be such that it cannot be damaged by the delivery of fuel into the fuel store or by the fuel out feed equipment.

5 Control panel description

BS-01

The appliance has a large touch-screen control panel with a menu-based interface. All setting and query options are shown on the display. All settings can be entered by pressing the "buttons" on the touch screen. Any system messages are displayed on the screen.

PH-01



Power switch (1) Normally remains permanently switched on. The power switch may only be switched off when the system is not in operation.



The system must also be disconnected from the mains by unplugging the power lead when carrying out repairs or servicing work.

STL (2) Excessive temperature (approx. 100°C) trips the safety temperature limiter (STL) located under the cap (2); → appliance operation is suspended; → if the STL has tripped, identify and eliminate the cause and then press in the STL (button) with a thin object.

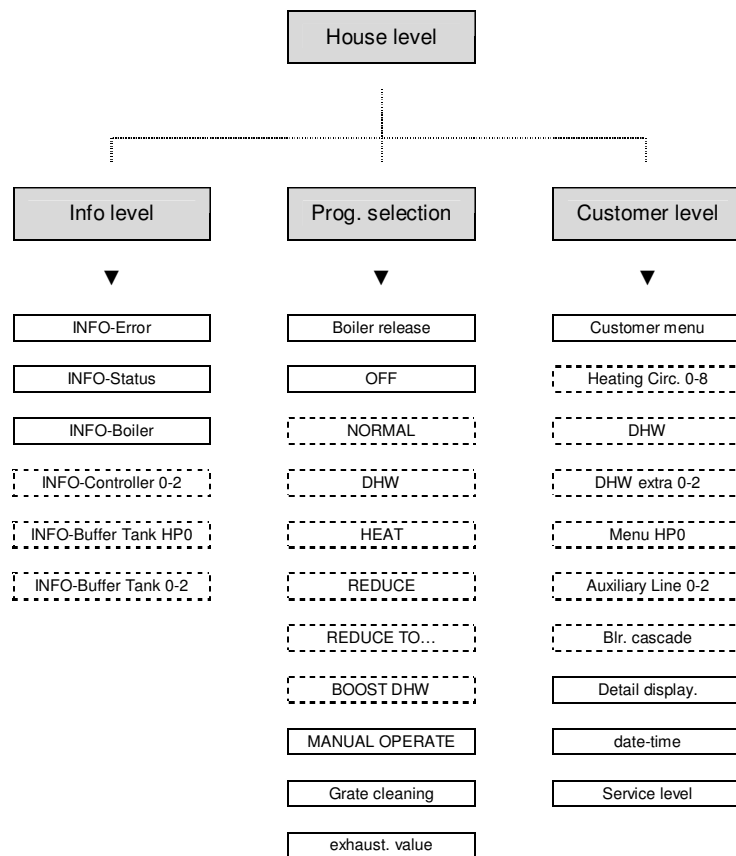


The system must not be started up again until any faults have been rectified and the boiler has been checked. If necessary, a heating engineer must be called in.

Touch-screen display (3) Pressing lightly with your fingertip on the relevant buttons on the display opens the various program levels, menus and submenus. All settings are made directly on the touch-screen display.



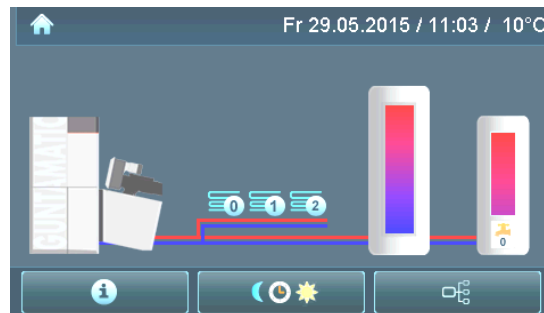
Never use sharp objects such as ball-point pens or the like to operate the touch screen.



Menus shown with a dashed border only appear if activated on the Commissioning menu.



About the selection buttons, you switch to the different levels.



Info level

*)

Program selection
see Chapter 6.1

**)

Customer level
see Chapter 6.2

***)














INFOBOX

- *) - Error messages, Temperatures, Scold and operational states, Buffer and Heating circles could be requested.
- **) - Programmes for boilers and heating circulations could be chosen;
- the boilers release could be broken;
- ***) - the attitudes for boilers, heating circulations could be changed
- the attitudes in the service area and the parameter menu could just changed from authorised GUNTAMATIC staff.

6.1 Program selection

PH-01

- | | | |
|--|------------------------------|---|
|  | Boiler release | with the attitude "OFF" the boiler doesn't start |
|  | Program OFF | Heating and hot water switched off → Anti-freeze function active |
| 1)  | Program NORMAL | Heating and hot water on as per timer programme |
| 1)  | Program DHW | Hot water as per timer programme DHW summer → Heating mode switched off |
| 1)  | Program HEAT | Heating mode → Day and night (hot water heating as per timer programme) |
| 1)  | Program REDUCE | Low-temperature mode → Day and night (hot water heating as per timer programme) |
| 1)  | Program REDUCE TO | Low-temperature mode until a specified time → Hot water as per timer programme |
| 1)  | Program BOOST DHW | Max. duration 90 min |
|  | Program MANUAL OPERATE | Constant heating to specified boiler temperature → Set on User menu |
|  | Grate cleaning | Manual opening of grate for cleaning purposes |
|  | Emission testing | Programme for issuances measurement |



back to House level

see Chapter 6.0















INFOBOX

- 1) Only shown if one or more heating circuit controllers are activated.

6.2 Customer level

PH-01

- | | | |
|--|---|-----------------------------------|
|  | Customer menu | see Chapter 6.2.1 |
| 2)  | Heating Circuit 0-8 | see Chapter 6.2.2 |
| 2)  | DHW 0-2 | see Chapter 6.2.3 |
| 2)  | DHW extra 0-2 | see Chapter 6.2.3 |
| 2)  | Charge pump 0-2 | see Chapter 6.2.4 |
| 2)  | Buffer pump 0-2 | see Chapter 6.2.4 |
| 2)  | Shunt pump 0-2 | see Chapter 6.2.4 |
|  | Buffer- / Z-pump HP0 | see Chapter 6.2.5 |
|  | Boiler cascade | see Chapter 6.2.6 |
|  | Detail View. Attitudes, measured data and conditions aren't advisable! | |
|  | Date/Time | Dates and time could be attitude! |
|  | Service level | see Chapter 6.2.7 |



back to House level

see Chapter 6.0












INFOBOX

- 2) the selection buttons could be active with an heating circulation system;

6.2.1 Customer menu

PH-01

-  Ash emptiedMenu option Ash emptied → Press "YES" to confirm after emptying ash box
-  Ash WarningMaximum time in hours until ash warning is triggered → 0h = Ash warning deactivated
-  De-ashmanual deashing with automatic Ash suction system (turns automatically off)
- 3)  FuelFor selecting fuel setting → Sets the type of fuel being used
- 4)  Release HCR 0-2the state of operating of trunk blink system is influenced
-  Fill augerManual filling of outfeed auger→ A1 + G1
-  De-ash curfewno deashing while the blocking time is running
-  Ash-factorthe adaption of ash suctions interval in 0,1 steps (high Number = more suction)
-  LanguageMenu language setting



back to Customer level.....

see Chapter 6.2











INFOBOX

- 3) **without** Corn/Miscanthus revetment Hack chips / pellets
with Corn/Miscanthus revetment Hack chips / pellets / barley / triticale / miscanthus
- 4) **AUTO** the trunk blink system will be turned automatically turned ON/ OFF;
OFF the trunk blink system is turned off;
NONSTOP the trunk blink system function isn't opened;

6.2.2 Heating Circuit

BS-01

- 5)  Run pumpHeating circuit control status
-  Time programFacility for setting heating and low-temperature times
- 6)  Target temp. dayFacility for setting daytime required temperature
- 7)  Target temp. nightFacility for setting night-time required temperature
- 8)  Room effectFacility for setting room effect/thermostat function
- 9)  Heat CurveFacility for setting heating characteristic
- 10)  Night off OTChangeover from low-temperature mode to night-time set temperature
- 11)  Turn off OTOutside temperature mode cut-off for heating circuits



back to Customer level.....

see Chapter 6.2









INFOBOX

- 5) **AUTO** Heating circuit is switched ON/OFF according to demand and timer programme.
OFF The heating circuit is switched off.
NONSTP The pump runs continuously; with mixer-valve heating circuits, the mixer valve is not operated.
- 6) Modulation to "daytime required temperature" is only possible in conjunction with a room stat or room controller; raising or lowering the required temperature shifts the heating curve up or down accordingly.
- 7) Modulation to "night-time required temperature" is only possible in conjunction with a room stat or room controller; in addition, the outside temperature must be below that set in menu option "Night OFF OT" (hysteresis 2°C).
- 8) **0% – 100%** In case of am high outside temperature ("plus degrees") the pre temperature will be raised to the wished room temperatures through an higher room influence;
T1C° - T3 °C the overshoot of room target temperature, the heating circle will be turned off;
- 9) A higher heating characteristic figure produces a higher required flow temperature at the same outside temperature.
- 10) If the temperature drops below the set temperature during the low-temperature phase, the boiler heats to the required night-time temperature.
- 11) The set outside temperature is exceeded during the heating phase, the heating circuits are switched off.

6.2.3 DHW / extra DHW

PH-01

- 12)  Run pumpHot water circuit control status.
-  Time program DHWFacility for setting hot water charging times.
-  Time program DHW SummerFacility for setting summer hot water charging times.
-  DHW targ t.Facility for setting required hot water temperature.
- 13)  DHW PriorityFacility for setting hot water priority.
-  Boost DHWallows unique warm water loading outside programmed boarding times



back to Customer level.....

see Chapter 6.2








INFOBOX

- 12) **AUTO** Charging pump is switched ON/OFF according to demand and timer programme.
- OFF** The charging pump is switched off.
- NONSTP** The charging pump runs continuously.
- 13) **no** During charging of DHW cylinder, heating circuits can be enabled.
- yes** During charging of DHW cylinder, heating circuits cannot be enabled (factory setting = recommended).

6.2.4 Charge pump, Buffer pump or Shunt pump

PH-01

- 14)  Run pumpinfluences the system state of trunk blink
- 15)  Charge program.....influences the boarding system of the buffer system
-  Time program.....influences the trunk blink
-  Buffer Target.....influences the buffer target temperature
- 16)  Buffer min.....influences the buffer minimum temperature



back to Customer level.....

see Chapter 6.2











INFOBOX

- 14) **AUTO** the trunk blink is in dependence from the requirement and time programme;
- OFF** the trunk blink pump is turned off;
- NONSTP** the trunkblink is running permanent,
- 15) **Full** the trunk blink will be loaded till the buffertarget (above (T 3) temperature is reached and the temperature difference sensor ("bottom T2") is less then 10 degrees
- Part** the trunk blink buffer (above T 3) will be loaded so long, till the buffertargettemperature is loaded automatically
- 16) if the buffer min temperature will be fall bellowed, the buffer will be load auomatically to the buffer target temperature;

6.2.5 Pump HP0

PH-01

- 17)  Run pumpStatus of pump HP0.
-  Boiler target Temperatureinfluenced the boilers target temperature (manual)
- 18)  Charge program.....Facility for setting thermal store charging programme.
-  Time program bufferFacility for setting thermal store charging times.
-  Buffer Target.....Facility for setting the thermal store required temperature → Sensor (T3)
- 19)  Buffer min.....Facility for setting the thermal store minimum temperature → Sensor (T3)
-  Buffer loading min.....influenced the minimum bufferloading (just with 5 sensor buffer management)
- 20)  Part load limitinfluenced the boiler's power (just with 5 sensor buffer management)



back to Customer level.....

see Chapter 6.2







INFOBOX

- 17) **AUTO** Thermal store pump is switched ON/OFF according to demand and timer programme.
- OFF** The thermal store pump is switched off.
- NONSTP** The thermal store pump runs continuously.
- 18) **Full**..... The thermal store is fully charged.
Charging switches off when the required thermal store temperature at T3 is reached and also the required thermal store temperature minus the parameter TSbtm-Boff (-10 °C) is reached at T2.
- Part**..... The thermal store is partially charged.
Charging switches off when the required thermal store temperature is reached at T3 (= parameter TS top-B off)
- 19) If the attitude "Minimum temperature" is below the boiler will be load automatically;
- 20) If the buffer part Kad border is the inclination from "RLM Delta T" linear to "RLM Delta min" reduced, through that the boilers temperature will rise in a cycle and the wished reduce of boilers temperature will be reached.

6.2.6 Boiler Cascade

PH-01

- 21)  swap boilerFor setting time until boiler changeover → 0h = no boiler changeover.
- 22)  engage timeFor setting time delay before next-stage boiler cuts in.
- 22)  Switching on value.....Attitude of OUT (**ON**) and OFF (**OUT**) of boiler's output
- 23)  AT ReleaseAttitude of boiler's clearance



back to Customer level.....

see Chapter 6.2
















INFOBOX

- 21) when the run in the cascade as lead boiler the parameters set in the boiler replacement operating hours more than the boiler has been running with the fewest operating hours is the "leadership" that is passed to this after boiler replacement starts the boiler with the fewest operating hours as the first.
The connected time when the 1 (30 minutes) has expired and the boiler 1 with the switching-on power in the parameter P A 1 set power (100%) is running, the 2 boiler is switched on;
- turn off the boiler
when the overall performance from both boilers the in the parameter P AUS adjusted performance (80%) fell below the second boiler will turned off again;
- 22) When the set for a particular boiler room temperature (AT-release) is exceeded, the boiler can not be started in the cascade;

6.2.7 Service level

PH-01

	Reset data.....	see Chapter 6.2.7.1
	error list	all error messages will be saved with date and time !
	test program.....	all components could be tested !
	Begin Service.....	see Chapter 6.2.7.2
24) 	Parameter HC 0-8	see Chapter 6.2.7.3
24) 	Parameter DHW 0-2	see Chapter 6.2.7.4
24) 	Parameter extra DHW 0-2.....	see Chapter 6.2.7.4
24) 	Parameter HP0	see Chapter 6.2.7.5
24) 	Parameter AL 0-2	see Chapter 6.2.7.6
24) 	Parameter RLM	see Chapter 6.2.7.7
	System settings	see Chapter 6.2.7.8
	Parameter Menu	For entrance or technical changes you have to contact the GUNTAMATIC staff!

 back to Customer level..... see Chapter 6.2











INFOBOX



































22) the numbers of shown parameters are dependent from the system configuration;

6.2.7.1 Reset data

BS-01

	Cust.parameter.enter.....	For importing stored customer data if necessary.
	Cust.parameter.save	
	Load Factory setting	Imports only the modified parameters of a new software version.
	Run Time Reset.....	For resetting duty hours counter is to 0.
	Reset service time	For resetting service interval timer to 0.
	Reset Programing.....	Loads factory settings → The system then has to be reconfigured!
	Lambdakalib. reset	For resetting calibration after replacing the oxygen sensor.

 back to Service level..... see Chapter 6.2.7

		System	(* = PC50 S)	<u>selection:</u>	Powerchip / * Powercorn	
		Type		<u>selection:</u>	20-30 / 40-50 / 75 / 100 kW	
		delivery		<u>selection:</u>	RW	
		Transfer auger		<u>selection:</u>	yes / no	
25)		grain lining		<u>selection:</u>	yes / no	
26)		Ash removal auger		<u>selection:</u>	yes / no	
		Fuel	(* only with grain lining)	<u>selection:</u>	pellets / * barley / * tritic. / chip / * miscanthus	
27)		HCR 0-2		<u>selection:</u>	no / CAN-Bus / SY-Bus / yes	
		• DHW avail 0-2		<u>selection:</u>	yes / no	
		• Run HC 0-8		<u>selection:</u>	None / pump / Mixer	
		○ Flow temp 0-8 max		<u>selection:</u>	10°C – 90 °C	
28)		○ Heat Curve 0-8		<u>selection:</u>	0,1 – 3,5	
29)		○ Room Stat HC 0-8		<u>selection:</u>	None / RFF / RS-Full / RS-HK / RS-HKR	
30)		• Status Aux. 0-2		<u>selection:</u>	None / ZUP / PUP / LAP / ERW	
31)		• Source	(Status LAP)	<u>selection:</u>	Buffer 0 / Buffer 1 / Buffer 2 / Buffer HP0	
32)		• extra 0-2		<u>selection:</u>	None / DHWP / Extrnl.	
33)		Run HP0		<u>selection:</u>	Z-pump / Buffer pump / pump	
34)		Sensor HP0		<u>selection:</u>	Boiler / HCR0 / HCR1 / HCR2	
		Return mixer		<u>selection:</u>	yes / no	
		Fill auger		<u>selection:</u>	OK / OFF	
		Cust.parameter.save		<u>selection:</u>	yes / no	



back to Service level

























see Chapter 6.2.7

**INFOBOX**

- 23) the attitude "YES" is just allowed when a heat exchanger with installed grain living is built.
- 24) the attitude "YES" is just with an installed ash suction system possible
- 25) **no** there is no connection to the heating circle rule;
SY-Bus the attitude is right, if the boilerintern rule will be used as heating circle 0;
CAN-Bus the attitude is right, when the wall mounted machine is used as heating circle 0;
yes the attitude is correct, when the wall mounted is used as heating circulation 1 or 2;
- 26) **0,5 – 0,7** the elementary attitude for unterfloor heating;
1,2 – 1,4 the elementary attitude for the radiator;
- 27) **None** No room stat connected.
RFF Analogue room stat is connected.
RS-Full Digital room controller is connected (facility for setting all heating circuits).
RS-HC Digital room controller is connected (facility for setting assigned heating circuit only).
RS-HCC Digital room controller is connected (facility for setting one heating circuit controller).
- 28) **ZUP, PUP, LAP** the right elementary attitude for the radiator
ERW the attitude is correct if a second heating circulation is attributed into another trunk blink;
- 29) the attitude determinates from which trunk blink the energy will be drawn;
- 30) the function "Extra" will be activated, if the HKO,3 or 6 is running without an mixer;
WWP an additional warmwatermemory could be runned;
Extern an external burner could be requested for the cascadefunction;
- 31) **Z-Pumpe** Attituted for construction without buffermemory without heating circulationsensor;
Pufferpumpe attituted for construction with backup memory ;
Pumpe attituted for construction without backup memory and without regulator;
- 32) the attitude says, which control unit the sensor of HP0 buffer is connected;

6.2.7.3 Parameter HC 0-8 Heat screed

BS-01

	Run HC	<u>selection:</u>	None / pump / Mixer	
	Room Stat HC	<u>selection:</u>	None / RFF / RS-Full / RS-HK / RS-HKR	
	Mixer runtime	<u>selection:</u>	10 – 300 sec	
	Flow temp min	<u>selection:</u>	10°C – 90°C	
	Flow temp max	<u>selection:</u>	10°C – 90°C	
	Boiler overhear.....	<u>selection:</u>	0°C – 20°C	
	HCP Release	<u>selection:</u>	20°C – 100°C	
	Move parallel.....	<u>selection:</u>	-10°C – 30°C	
	Heat screed.....	<u>selection:</u>	yes / no	
	• Flow increase.....	<u>selection:</u>	0°C – 10°C	
	• increas after	<u>selection:</u>	1 – 5 days	
	• Est. Flow min.	<u>selection:</u>	10°C – 30°C	
	• Est. Flow max.	<u>selection:</u>	25°C – 60°C	
	• Screed holdtime.....	<u>selection:</u>	0 – 20 days	
	• Start heat screed	<u>selection:</u>	yes / no	



back to Service level.....

see Chapter 6.2.7








The screed drying parameters must be set in consultation with the floor layer.



Maintaining the specified temperatures is not possible in modulating control mode but only when using automatic mixer valves. Maintenance of the specified temperatures cannot be 100% guaranteed – due to various safety circuits and special boiler functions, in exceptional cases the temperatures can be significantly exceeded. If that is a problem in terms of damage to building work, the screed drying function should be operated manually.

6.2.7.4 Parameter DHW 0-2 / extra DHW 0-2

PH-01

	DHW / extra DHW avail	<u>selection:</u>	yes / no	
	DHW min.....	<u>selection:</u>	1°C – 30°C	
	DHWP release	<u>selection:</u>	20°C – 90°C	
	Boiler overhear.....	<u>selection:</u>	0°C – 20°C	



back to Service level.....

see Chapter 6.2.7

6.2.7.5 Parameter HP0

PH-01

	Run HP0.....	<u>selection:</u>	Z-pump / Buffer pump / pompe	
	Autorise HP0.....	<u>selection:</u>	65°C – 80 °C	
	Po-Load ON	<u>selection:</u>	0 °C – 20 °C	
	Po-Load OFF	<u>selection:</u>	0 °C – 20 °C	
	Pu-Load OFF	<u>selection:</u>	0 °C – -20 °C	
	Delta T Rem.....	<u>selection:</u>	0 °C – 50 °C	
	Diff-Boiler-Buffer	<u>selection:</u>	0 °C – 50 °C	
	Sensor HP0.....	<u>selection:</u>	Boiler / HKR0 / HKR1 / HKR2	
	Additional Sensor.....	<u>selection:</u>	yes / no	



back to Service level.....

see Chapter 6.2.7

6.2.7.6 Parameter Auxiliary Line 0-2

PH-01

	Status Aux.....	<u>selection:</u>	None / ZUP / PUP / LAP / ERW	
	Rel. Auxiliary	<u>selection:</u>	40 °C / 65 °C – 80 °C	
	Po-Load ON	<u>selection:</u>	0 °C – 20 °C	
	Po-Load OFF	<u>selection:</u>	0 °C – 20 °C	
	Pu-Load OFF	<u>selection:</u>	0 °C – -20 °C	
	Source..... (LAP)	<u>selection:</u>	Buffer 0 / Buffer 1 / Buffer 2 / Buffer HP0	
	Delta-T Rem.....	<u>selection:</u>	0 °C – 50 °C	
	Diff-Boiler-Buffer	<u>selection:</u>	0 °C – 50 °C	



back to Service level.....

see Chapter 6.2.7

6.2.7.7 Parameter Return Mixer

PH-01

		Run RLM.....	<u>selection:</u>	AUTO	
		RLM running time	<u>selection:</u>	10 – 300 sec	
		return target temperature	<u>selection:</u>	40 °C – 90 °C	
35)		RLM Delta T	<u>selection:</u>	5 °C – 30 °C	
36)		RLM Delta T min.....	<u>selection:</u>	5 °C – 30 °C	
37)		Soft start	<u>selection:</u>	yes	



back to Service level.....

see Chapter 6.2.7



INFOBOX

- 33) fixes the desired inclination between boiler's temperature and boilers return temperature;
- 34) fixes the desired inclination for the part load limit;
- 35) raised the boiler return temperature for the attituted value (porpuse = the boilers target temperature is faster reached);

6.2.7.8 System settings

PH-01

		System	(* = PC50 S)	<u>selection:</u>	Powerchip / * Powercorn	
		Type	(* = PC50 S)	<u>selection:</u>	20-30 / 40-50 / * 12-50 / 75 / 100 kW	
		delivery		<u>selection:</u>	RW	
		A1/G1 pellets / barley / ...		<u>selection:</u>	0,30 = pe / ba / tr --- 0.80 = ch / mi	
		Transfer auger		<u>selection:</u>	yes / no	
		A2/A1 pellets / barley / ...		<u>selection:</u>	1,00 = pe / ba / tr / ch / mi	
		grain lining		<u>selection:</u>	yes / no	
		Ash removal auger		<u>selection:</u>	yes / no	
		Fuel level 1		<u>selection:</u>	no	
		Fuel level 2		<u>selection:</u>	no	
		Fire tong		<u>selection:</u>	yes	
		Boiler cascade		<u>selection:</u>	no / A / B / C / D	
		Grate drive		<u>selection:</u>	ABM	
		Suction fan		<u>selection:</u>	idle	
		HKR 0-2		<u>selection:</u>	yes / no / CAN-Bus / SY-Bus	
		Outside sensor		<u>selection:</u>	yes	
		Lambda probe		<u>selection:</u>	NGK	
		Lambda heating		<u>selection:</u>	AUTO	
		Lambda calib.		<u>selection:</u>	yes / no	
		Lambda probe corr.		<u>selection:</u>	corr max. ± 6,0 mV	
		Lambda curve		<u>selection:</u>	0,0%	
		TK corr. 80 °C		<u>selection:</u>	80 °C	
38)		PC-Monitoring		<u>selection:</u>	Terminal / DAQ / GSM-Modul	
		GSM call Nr. 1-3		<u>selection:</u>	telephone number	
		SD-Logging		<u>selection:</u>	ON / OFF	
		SD-Data		<u>selection:</u>	overview	
		CID-Code		<u>selection:</u>	Manufacturer ID	
		Network		<u>selection:</u>	yes	
		DHCP		<u>selection:</u>	manuall	
		IP-Adress		<u>selection:</u>	Enter free network IP address	
		Menu structur		<u>selection:</u>	3.1	
		time ABS pump		<u>selection:</u>	60 sec	
39)		HCP Cut In		<u>selection:</u>	90 °C	
40)		Resid.ht.use		<u>selection:</u>	70 °C	
41)		HCP Frost TA		<u>selection:</u>	-3 °C	
41)		HCP Frost TV		<u>selection:</u>	3 °C	
42)		TÜV Function		<u>selection:</u>	-	
		Fault		<u>selection:</u>	not disable	



back to Service level

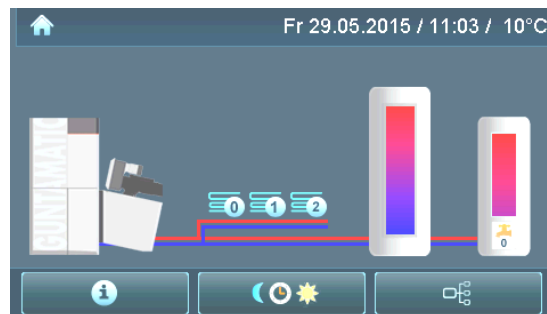
see Chapter 6.2.7



INFOBOX




- 36) **Terminal** Data querying via Windows hyper terminal/display.
DAQ Data querying via online recorder (only usable at factory).
GSM-module Data querying, information messages and boiler control via GSM module.
- 37) all heating circulations ON, till the temperature on the boiler and the buffer memory went under 90 degrees.
- 38) pump HP0 on till the boilers temperature is below 70 °C.
- 39) If the outside temperature falls under the HKP frost TA the attitudet value, turn on all heating circuit pumps. If the HKP Freeze is active, the parameter HKP freeze is the flow temperature. (antifreeze function);
Attention: Through a disturbance the anti freeze function can be failed → plan an immersion heater!
- 40) the boilers temperature will be higher, till the **STB** breaks the function

7.1 Activating a heating programme




press Program selection

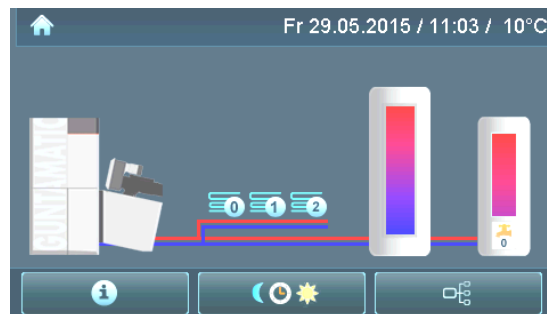


Program OFF		heater and warm water off
Program NORMAL		heater and warm water on
Program DHW		just warm water on

Further information Program selection see Chapter 6.1

 back to House level see Chapter 6.0

For every heating circulation could programmed circuit times up to three "ON/ OUT" times. With block programming all days in a week could be attitudes.



1) press the COSTUMER LEVEL



2) press on the heating circle button



3) press to the watch programme



- Programme „DAILY“
(press 1 x on the day)
- Programme „WEEKLY“
(press 2 x on the same day)



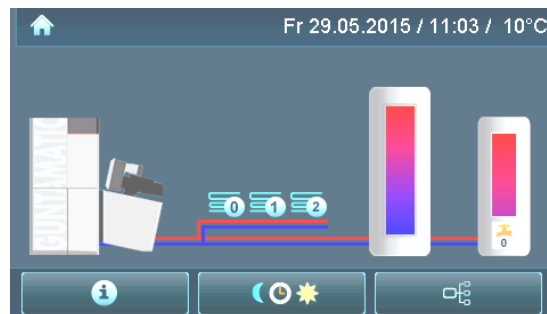
back to House level.....

see Chapter 6.0

7.3 Changing the heating characteristic

PH-01

Through changing of the heating curve could be adapted on the room temperature.
The heating curve could be changed daily in a maximal tenth par area.



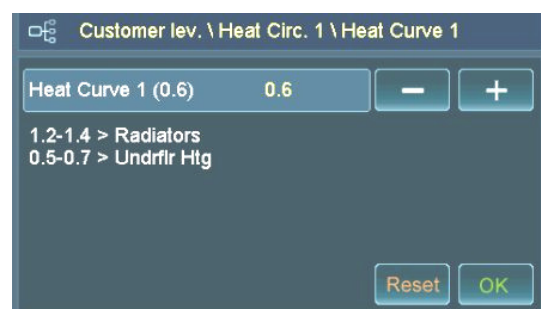
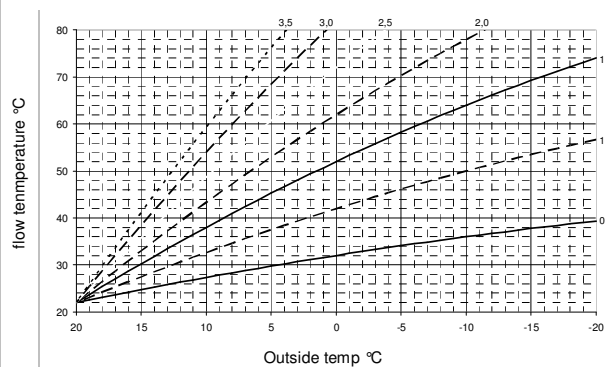
1) press the COSTUMER LEVEL



2) press on the heating circle button



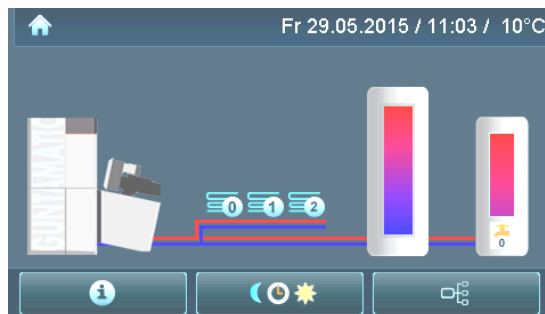
3) press on the heating curve button



back to House level.....

see Chapter 6.0

Through changing the target temperature the warm water temperature could be modified.



1) press the COSTUMER LEVEL






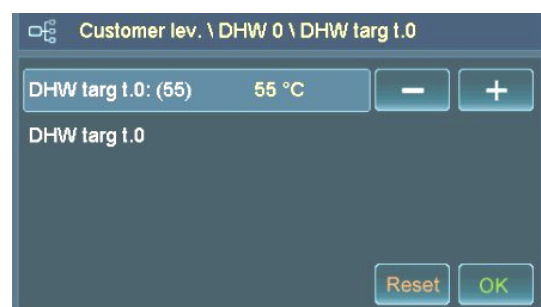
2) press the warm water button



3) press the set temperature button



- „CHANGE" with  or 
- „SAVE" with 



back to House level.....

see Chapter 6.0

7.5 Analogue room stat

BS-01

Installation site Fix the room stat on an internal wall at a height of approx. 1m - 1.5m. The most effective room is the one that is most frequently occupied. In that room, the radiators must not be fitted with thermostatic radiator valves (valves must be fully turned on).

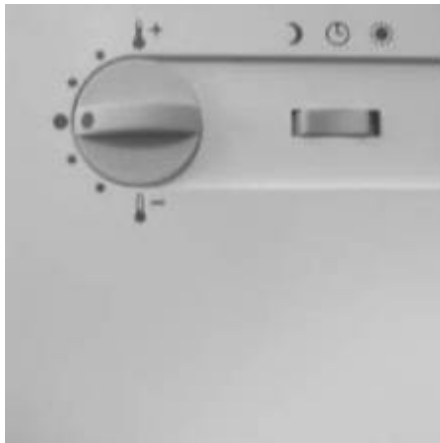


The room stat should not be fitted in a position where it will be exposed to warm sunshine or the heat from a stove.

adjust the room temperature The control knob on the room stat allows adjustment of the required room temperature preset on the Heating Circuit menu. Setting the control to a position in the positive range (+) raises the room temperature by up to 3°C. Setting it to a position in the negative range (-) lower lowers the room temperature by up to 3°C.



This means that the room temperature shown in the Detail View will be inaccurate. The room temperature shown will only match the actual temperature when the control knob is in the centre position



Low: Low-temperature mode → if, during the low-temperature phase, the outside temperature falls below the temperature set in the parameter "Night OFF OT", the system heats to the room temperature set in the parameter "Night-time Required Temperature".



Normal: Heating and low-temperature modes on as per timer programme.



Heating: Continuous heating to "Required Daytime Temperature".

Initial commissioning Initial commissioning and basic adjustment of the system may only be carried out by GUNTAMATIC engineers or authorised GUNTAMATIC agents.

Day-to-day operation Clean the heating system precisely according to the instructions in the section Cleaning/Care. The amount of cleaning work required is heavily dependent on the quality of the fuel used and lower-quality fuels may necessitate more cleaning work.

Shutting down the system The system only needs to be shut down at the end of the heating season, if faults occur or in order to refill the fuel store. To do so, set the system to the programme "OFF" and allow it to cool down for approx. 120 minutes. The system can then be shut down.

If the system is not used for extended periods (summer) also isolate it from the power supply by disconnecting the mains plug in order to prevent unnecessary lightning damage.

Restarting Before starting up the system again in the autumn/winter, carry out the annual check of the control and safety systems to ensure they are safe and functional. We recommend that you take out a maintenance contract so that the system operates safely and economically.

Checking system pressure The operating pressure is normally between 1 bar and 2.5 bar. If the system pressure is too low, malfunctions may result. If necessary top up the water in the heating system.

Completely draining and refilling the system or topping up a system filled with anti-freeze or treated water must only be carried out by a heating engineer.

Topping up the heating system water

- The heating system water must be cold when topping up → make sure the heating system water temperature is below 40 °C.
- Add water slowly until the required system pressure is indicated on the system pressure gauge.
- Bleed the heating system.
- Check the system pressure again and add more water if necessary.

Expansion vessel Check the air pressure in the expansion tank (circa 1,5 bar)
If necessary call a plumber!

Pressure-relief valve Check the securityfunctions to the right functions
If necessary call a plumber!

Boiler room ventilation Control the air dut for free passage
If necessary call a plumber!

Temperature-relief valve Check the safety device on right function!
If necessary call a plumber!

Sprinkler system Check the safety device on right function!
If necessary call a plumber!

Manual fire extinguisher The water supply and the fire water reservoir with the sign "Fire extinguisher fuel storage (HLE)" have to be check for proper conditions.
If necessary call a plumber!

8.2.1 Woodchips

To achieve a smooth heating of the furnace, the quality of the fuel has to be right. Only with high-quality wood chips should help to ensure a reliable and trouble-free operation of the plant. The price should be evaluated always behind the quality requirements and it is therefore strongly advised to use only good quality.

Important quality criteria:

- low dust
- maximum Water content = 35% (W35)
over 35% Water content just restricted storable!
- ideal Water content = up to 20%
- drying time if possible 0,5 – 1,5 Years;

Properties

Calorific value spruce hack chips	ca. 750 kWh / srm
Calorific value beech hack chips	ca. 1050 kWh / srm
Weight spruce hack chips	ca. 180 kg / srm
Calorific value beech hack chips	ca. 270 kg / srm
Fusion point	ca. 1200°C
Ash content	ca. 1,0%

Quality classes

Use just hack chips with the quality class EN 14961-4, P16B (G30) or P45 A (G50)

burn just P45A (G50) with excellent hack chip quality

Woodchips P16B (previous G30)

<u>course part</u> → max. 20%	Cross section max. 3 cm ² Length max. 8,5 cm
<u>main part</u> → 60 to 100%	nominal length 30 mm Cross section bt. 2,8 und 16 mm
<u>fine part</u> → max. 20%	Cross section under 1 mm

Woodchips P45A (previous G50)

<u>course part</u> → max. 20%	cross section max. 5 cm ² Length max. 12 cm
<u>main part</u> → 60 to. 100%	nominal length 50 mm Cross section zw. 5,6 und 31,5 mm
<u>fine part</u> → max. 20%	Cross section under 1 mm

There are a number of points to observe when ordering wood pellets in order to ensure that they are of perfect quality. Reliable and trouble-free operation of the boiler and the conveying systems can only be guaranteed with high-quality pellets. Therefore we strongly advise that only quality-assured products are used that are guaranteed as such by the manufacturer. The price should always be a secondary consideration after the quality criteria. If the required quality criteria are not met, problems with combustion or conveying, increased wear and pellet consumption can result. Therefore, you should not accept quality standards that do not meet the above requirements.

Important quality criteria:

- Lowest possible dust content;
- Surface should be shiny and very hard;
- No additives or binding agents;
- The ideal length is 20 mm

Properties

Calorific value	ca. 4,9 kWh / kg
Bulk weight	ca. 650 kg / m ³
Pellet size (length)	5 – 30 mm
Diameter	5 – 6 mm
Water content	8 – 10 %
Fusion point	ca. 1200 °C
Ash content	< 0,5 %

Quality classes Use just EN plus pellets with the quality class A1/ A2.



Storage must completed in a dry area !

If the pellets are in Contact with water or moisture they swell and disintegrate

Advanced cultivation, harvesting and storage methods combined with optimum conveying and metering qualities make grain an economical and convenient fuel. Fundamentally, all types of feed grain are suitable. The best suited to combustion are grain types with husks and a low protein nitrogen content such as triticale. As the fusion point of grain ash (clinker formation) is around 700°C (wood ash 1200°C), it is advisable to add approx. 0.3 - 0.5% by weight of slaked lime (calcium hydroxide $\text{Ca}(\text{OH})_2$) to the fuel before use for boilers with ratings up to 50 kW and 0.5 - 0.8% for boilers with ratings over 50 kW. That increases the calcium content of the fuel, thereby raising the ash fusion point.

Important quality criteria:

- low protein content
- low nitrogen content;
- low fines;
- low content on hast and bowl content;
- use maximum 13% residual moisture

Properties

Calorific value barley	ca. 4,3 kWh / kg
Calorific value triticale	ca. 4,5 kWh / kg
Bulk weight barley	ca. 650 kg / m ³
Bulk weight triticale	ca. 700 kg / m ³
Fusion point barley	ca. 750 °C
Fusion point triticale	ca. 720 °C
Ash content barley	ca. 1,5 - 2,5%
Ash content triticale	ca. 1,5 - 2,0%



Must not be stored with a residual moisture content of more than 13%.

The dried straw is harvested annually from the 3rd year on from April to May using a forage harvester. The crop should have a maximum moisture content of 20% when harvested. Miscanthus has to be stored dry. As the fusion point of miscanthus ash (clinker formation) is around 900°C (wood ash 1200°C), it is advisable to add approx. 0.3 - 0.5% by weight of slaked lime (calcium hydroxide Ca(OH)_2) to the fuel before use for boilers with ratings up to 50 kW and 0.5 - 0.8% for boilers with ratings over 50 kW. That increases the calcium content of the fuel, thereby raising the ash fusion point.

Important quality criteria:

- dry;
- no long fibres
- low fines

Properties

Calorific value	ca. 4,0 kWh / kg
Bulk weight	ca. 80 kg / Srm
Fusion point	ca. 900°C
Ash content	ca. 1,5 – 5,0%



Miscanthus has to be stored dry.

8.3 Filling the fuel store

PH-01

First-time filling For the optimal storage property, the storeroom has to be absolutely dry.

For the first filling and after the first depletion you haven't fill the store room complete. The fuel for the time being only to a maximum of 50 cm high pour into the storage room and spread evenly over the agitator and the spring arms. Then in the customer menu by snail fill the agitator can short run, so that the spring arms can move under the agitator cover plate. Thereafter, the storage space can be further filled.



On no account must the fuel store be filled while the heating system is in operation!

The heating system must be set to "Off" mode at least one hour before the fuel store is filled!

Refilling Before filling, and especially before refilling, the condition of the storeroom/remaining fuel should be examined. Residual fuel should be completely used up and/or dust removed so that old fuel and dust does not accumulate over a period of years. Broken pieces of wall or plaster and foreign objects of any kind (pieces of wood, stone, metal, etc.) can cause faults and/or damage throughout the system.

Maximum bulk storage height

Woodchips	max. 5,0 m
Miscanthus	max. 5,0 m
Pellets	max. 2,5 m
Grain fuel.....	max. 2,5 m



Failure to observe the above limit can result in damage to the agitator and the fuel outfeed unit.

All guarantee claims will then be void.

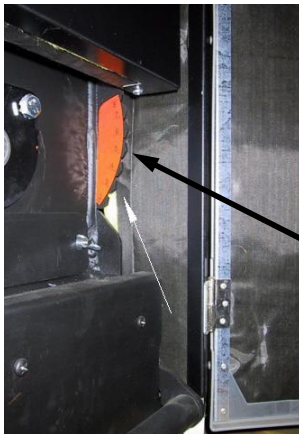


Risk of injury from rotating parts.

Only enter the store room when the system is switched off. Always shut off the power supply before entering.

8.4 Combustion air setting

PH-01



After every change of fuel or after the boiler has not been used for an extended period, the combustion air setting should be checked/reset.

The adjuster lever for the combustion air is located on the right above the right-hand ash box (see illustrations below).

Powerchip 20/30

	Position	CO2 at 100% Power
Woodchips	6-7	10 – 12%
> 25% moisture	7	10 – 12%
Pellets	6	10 – 12%
Miscanthus	6	10 – 12%
Barley	8	8 – 10%
Triticale	5	8 – 10%
Rod at hole 30		

Powerchip 40/50

	Position	CO2 at 100% Power
Woodchips	6-7	10 – 12%
> 25% moisture	7	10 – 12%
Pellets	7	10 – 12%
Miscanthus	6	10 – 12%
Barley	8	8 – 10%
Triticale	5	8 – 10%
Rod at hole 40		

Powerchip 75/100

	Position	CO2 at 100% Power
Woodchips	4	10 – 12%
> 25% moisture	7	10 – 12%
Pellets	5	10 – 12%
Miscanthus	5	10 – 12%
Barley	8	8 – 10%
Triticale	7	8 – 10%

Powercorn 50 Special

	Position	CO2 at 100% Power
Woodchips	6-7	10 – 12%
> 25% moisture	7	10 – 12%
Pellets	6	10 – 12%
Miscanthus	6	10 – 12%
Barley	8	8 – 10%
Triticale	6	8 – 10%
Rod at hole 30		

**Glowing embers can cause fires.**

Only remove the ash from the boiler or store it in non-combustible containers.

**Touching from hot parts could lead to burned skin injury!**

Before the ash cleaning let it cool down on minimum a half an hour

The ash boxes have to be emptied at intervals varying from every couple of days to 20 weeks depending on the amount of fuel used, its quality and heat output. The higher the ash content, the shorter the intervals at which the ash must be removed. This is especially the case with lower-quality fuels with a high ash content (e.g. bark) or a significant amount of foreign matter. The accumulated ash obviously contains the residues of the fuel in concentrated form. If you only use environmentally safe fuels, the grate ash represents a high-quality mineral fertiliser.

empty the ash Turn the Machine to "OFF" and let it cooling out. Dann beide Aschebehälter nach vorne herausziehen und entleeren.

Attention: The Ash ton could be hot.

Check the seals of the ash container for proper condition. Then both ash container again-slide and lock. Put the construction to the at least adjusted heating programme.

Resetting the ash warning

If the ash warning appears on the display, it has to be reset on the "User" menu. To do so, go to the "User" menu and select the option "Ash emptied", change the setting to "YES" and press the "OK" button to confirm. The ash warning has now been reset to the maximum number of hours before it is next triggered. The time until the ash warning is issued is preset and can be adjusted to suit the fuel being used by selecting "Ash Warning" on the User menu on the User Level.



Attention! Risk of injury

For safety reasons you must only carry out servicing and cleaning when the heating system is switched off and disconnected from the mains, and has cooled down.



Caution! Danger of Life

Servicing work inside the fuel storeroom must only be carried out under the supervision of a second person, who must be outside the storeroom.

Boiler The sophisticated cleaning system on a GUNTAMATIC heating system means that regular cleaning work is substantially reduced. All that is required is regular emptying of the ash.

Depending on the utilization of ash and the heating system must be carried out interim cleaning and general cleaning, which are described on the following pages carefully. The flue must be regularly swept. At the same time, the flue connecting pipe, the flue gas box and the boiler heat exchanger should be cleared of fly-ash.

If the heating system is subject to exceptionally high loads, more extensive cleaning may be required.

Panelling If the casing panels or the controls become dirty, they are best cleaned with a soft, damp cloth. Use only gentle, solvent-free cleaners to dampen the cloth. On no account should solvents such as alcohol, white spirit or thinners be used as they will attack the surface of the boiler.

Fuel store The fuel out feed auger and the fuel store must be completely emptied (vacuumed out) at least once every 3 years so as to prevent problems with the out feed system due to dust accumulation.

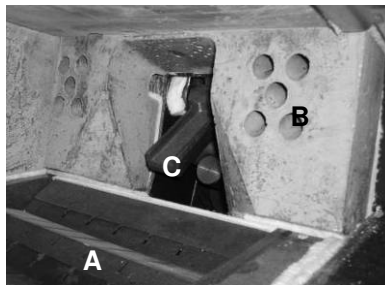


Attention risk of injury !

Cause of safety reasons the maintenance or cleaning works could just leaded, if the construction is separated from the network.

Information Interim cleaning must be carried out at intervals of between 1 week and 3 months depending on the fuel burned, the quantity of fuel used and how dirty the boiler is, and involves the following steps.

Perform the following steps in sequence of:



- 1) Set the system to the programme "**OFF**" (see User settings) and allow it to cool down for at least 1 hour.

- 2) Remove ash from stepped grate (A) using a fire tool.

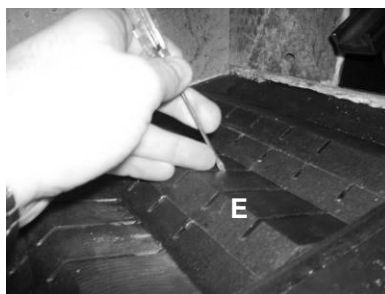
- 3) On the User menu, start the function "**Clean grate**" (see Section) and allow the stepped grate (A) to clean it self for a few minutes.

Danger of injury through mobile parts



- 4) Clean out the air slots (D) in the grate using a small flat-bladed implement such as a screwdriver (E) to clear them of combustion residue.

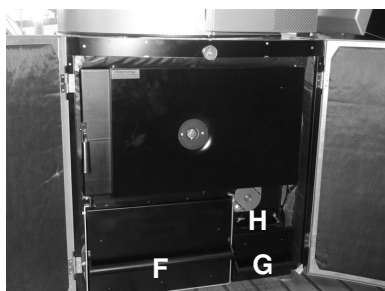
- 5) Check and clean the top air vents (B).
(only on systems with outputs > 50 kW)



- 6) Check that the fuels spout (C) moves freely.
(move up and down several times)

- 7) Pull out the ash boxes on the left (F) and right (G) and empty them.

Danger of fire with rest ember !



- 8) Refit and fasten the ash boxes. Unscrew the inspection cover (H) and remove the ash from underneath the grate.

- 9) Close and tightly reseal firebox door, ash boxes and inspection cover.

- 10) Choose in the Costumer menu the parameter "Clean the ash" and confirm it with "YES" and "OK"

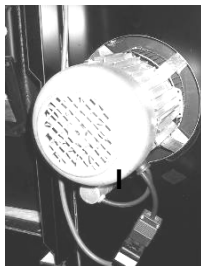


Attention! Risk of injury

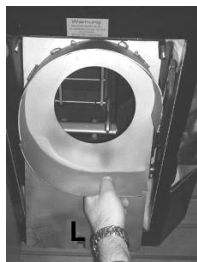
Cause of safety reasons the maintenance or cleaning works could just leaded, if the construction is separated from the network.

Information The general cleaning is executed with minimum on every half a year. For that you have to fulfil following steps (1- 10)

Follow the steps in the right order:



- 11) Unplug the flue draught fan (I), lift up and remove the cover panel (J) of the flue draught fan, unscrew the wing-nuts on the flue gas box and remove the flue draught fan (I). Lift up and remove the flue gas box adjuster plate (L). Check the fan blade for dirt and clean if necessary.



- 12) Pull out the locking pin (M) of the heat exchanger cleaning mechanism and pull out the lower end plate (N) of the helix baffles by a distance of 1 cm. Open the heat exchanger inspection cover on the top of the boiler and remove the helix baffles (O) from above.

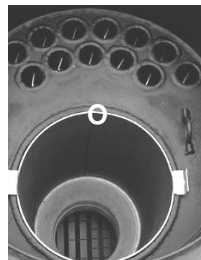


- 13) Clean out the heat exchanger tubes (O) using the tube brush supplied, then clean all fly-ash from the top of the heat exchanger (O) and the flue gas box (O).

- 14) Pull the flue gas sensor (P) out of the flue connecting pipe, clean it and refit it.

- 15) Clean the oxygen sensor (Q) in the flue pipe socket from the inside using a vacuum cleaner, then brush it with a fine brush and vacuum it once again. On the outside of the flue pipe socket, check that the oxygen sensor is firmly fitted (must not be loose) using a size 22 open-ended spanner. If the sensor is loose, carefully tighten it.

You don't have to clean the Lambda sond with high pressure cleaner!



- 16) Carefully reassemble and refit the boiler components removed and check that all inspection covers are leak-tight .

Cleaning at end of heating season

If you shut down the boiler for an extended period in the summer months, complete cleaning must be carried out. Afterwards, all metallic components of the firebox, heat exchanger and flue gas box must be sprayed with an oil-based corrosion-proofing spray.

10 Fault messages

PH-01

	Category	Origin	Message	Reset	Possible causes
F01	Note	Input TKS1 open longer than "t safe" (door switch)	Firebox door or ash box open (F01)	Automatic	Door switch defective, connector faulty, door or ash box open
F03	Fault	CO2 check: in "control mode" after time parameter "t reignition" if CO2 is < "CO2 safe" for longer than "t safe min"	Combustion fault Check fuel, grate or air vent (F03)	Quit. button	No fuel, incorrect air setting, incorrect flue draught, defective oxygen sensor
F04	Fault	Boiler temperature BTactual > "BTW"	Boiler temperature too high. Check flue draught and boiler sensor. (F04)	Quit. button	Boiler or pump malfunction, boiler sensor defective
F05	Fault	Flue gas check in "control mode" after time param. "X25" if FGT actual + 0.5xBT actual < "FGTb" - "FGT safe" for longer than "t safe min" (when output betw. 30 and 100%)	Combustion fault Check fuel, grate or air vent (F05)	Quit. button	No fuel, incorrect air setting, incorrect flue draught, defective flue gas sensor
F06	Fault	Fuel spout "ON" for longer than param. "T overfill"	Firebox overfilled Check ash box, fuel spout. (F06)	Quit. button	Ash box full, fuel spout sticking, oxygen sensor defective
F07	Fault	After 2 reignition cycles another reignition condition is present within time window "t reignition" from start of control cycle	Ignition not possible. Check fuel (F07)	Quit. button	No fuel, ignition fan defective, incorrect air setting, defective oxygen sensor Connection faulty
F09	Note	Fuel level in storeroom below fill level sensor (optional)	Check fuel store (F09)	Automatic	Fill level sensor (optional) defective, no jumper across terminals 28-30
F10	Fault	Fire safety flap fails to open in time "t flap"	Fire safety flap not opening. Check fuel chute. (F10)	Quit. button	Drop-down blocked, fire safety motor defective (check in test program)
F11	Fault	No response from Hall-effect sensor A1 within time param. "t safe A1"	Grate cleaner motor sticking or jammed (F11)	Quit. button	Ash box full, grate cleaner jammed, grate jammed, motor or lead defective (check in test program)
F13	Fault	Overfill cover "OFF" for longer than "t safe": A1=0%	Outfeed conveyor overfilled, check fuel chute (F13)	Quit. button	Fire safety flap closed, fuel chute overfilled
F15	Fault	Fire safety flap fails to close in time "t flap" Opening angle >5%	Fire safety flap not closing. Check fuel chute. (F15)	Quit. button	Drop-down blocked fire safety motor defective (check in test program)
F16	Fault	STL tripped	Warning STL high-temperature limiter tripped (F16)	Press STL, Quit. button	Boiler or pump malfunction, check fuses, STL test
F17	Fault	Maximum number of reversing phases exceeded for G1 excess current	Excess current on drive motor G1 (F17)	Quit. button	Stoker labouring – foreign object
F18	Fault	Maximum number of reversing phases exceeded for A1 excess current	Excess current on drive motor A1 (F18)	Quit. button	Out feed auger labouring – foreign object
F19	Note	Param. "O2 sensor" or adjusted setting above the limits of param. "mV top" or "mV btm"	Oxygen sensor readings above limits. Test oxygen sensor (F19)	Quit. button	Oxygen sensor dirty or defective, carry out oxygen sensor test, clean sensor
F20	Fault	TKS Ash ton longer then 20 Minutes to "OFF"	open the ash ton (F20)	Automatic	open the ash ton
F21	Fault	Length of an oxygen sensor pause longer than "t stop"	Oxygen sensor pause timeout. Test oxygen sensor. (F21)	Quit. button	Oxygen sensor reading incorrect, connection faulty (carry out oxygen sensor test), check flue draught (FGT too low)

	Category	Origin	Message	Reset	Possible causes
F23	Fault	Ash was not cleaned	Empty ash box (F23)	Quit. button	Ash box not emptied or counter not reset after emptying
F24	Fault	Stoker temperature higher than "T stoker"	Stoker temperature too high. Check fuel chute. (F24)	Quit. button	Fire safety flap not air-tight, service cover on fuel chute not air-tight
F25	Fault	Ash bin full or ash extractor motor jammed	Ash auger not moving freely or jammed (F25)	Quit. button	Ash bin full to brim or foreign object blocking ash duct Ashton or caping not in a closed position
F26	Fault	Temperature in ash bin higher than "T max bin"	Ash bin temperature too high. Check bin (F26)	Quit. button	Glowing embers in ash bin Ash extraction system not air-tight (ash bin, vacuum hoses, inspection covers)
F27	Fault	Overfill cover "OFF" for longer than "t safe"; A1=0%	Feed auger overfilled – check transfer unit (F27)	Quit. button	Drop-down overfilled Foreign object
F29	Fault	Maximum number of reversing phases exceeded for A2 excess current	Excess current on drive motor A2 (F29)	Quit. button	Labouring Foreign object
F30	Fault	Router module – drive motor G1 not connected	Router module – G1 not connected (F30)	Quit. button	-
F31	Fault	Router module – drive motor A1 not connected	Router module – A1 not connected (F31)	Quit. button	-
F32	Fault	Router module – drive motor A2 not connected	Router module – A2 not connected (F32)	Quit. button	-
F33	Fault	Motor G1 cut-out tripped	Router module – motor G1 cut-out tripped (F33)	Quit. button	Motor overheated Jammed
F34	Fault	Motor A1 cut-out tripped	Router module – motor A1 cut-out tripped (F34)	Quit. button	Motor overheated Jammed
F35	Fault	Motor A2 cut-out tripped	Router module – motor A2 cut-out tripped (F35)	Quit. button	Motor overheated Jammed

11 Rectifying faults

PH-01

Fault	Cause	Remedy
Control panel cannot be switched on	<ul style="list-style-type: none"> Power supply disconnected Fuse blown 	<ul style="list-style-type: none"> Check external mains plug and/or power supply lead between circuit boards Check fuse in supply lead and on the control panel circuit board
Smoke escaping into boiler room	<ul style="list-style-type: none"> Flue pipe leaking Flue draught regulator unfavourably positioned Flue not clear or not providing any draught 	<ul style="list-style-type: none"> Eliminate leaks Consult flue installer Check flue
Heat output too low	<ul style="list-style-type: none"> Boiler very dirty Heating system inadequately balanced Boiler priority active Flue draught in chimney flue too low 	<ul style="list-style-type: none"> Carry out complete cleaning Balance heating system and heating pumps Wait until boiler charging has finished or deactivate boiler priority Increase flue draught in chimney flue if necessary
Detonation	<ul style="list-style-type: none"> Detonation is only possible if the firebox is overfilled. 	<ul style="list-style-type: none"> Carry out complete cleaning or consult engineer if necessary
Difficult to limit output	<ul style="list-style-type: none"> Flue draught is too great Wide demand fluctuations on the part of heating system components 	<ul style="list-style-type: none"> Re-adjust flue draught regulator Stagger heating system component demand over time
burning failed	<ul style="list-style-type: none"> Lambda probe dirty Lambda probe loose Lambda probe not in service combustion air dirty 	<ul style="list-style-type: none"> clean the lamdaprobe fix the Lambdaprobe reface the Lambdaprobe clean the combustion channel
Overheating Fault code F04 STL tripped	<ul style="list-style-type: none"> The amount of heat produced cannot be dissipated – it may be that a heating pump has failed or is not running. 	<ul style="list-style-type: none"> Ensure heat dissipation by switching on pumps, opening mixer valve or turning on hot water taps. The cause of the boiler overheating must be identified (if it happens frequently a heating engineer should be called in). Check fuses on the boiler circuit board
Drive motor too noisy	<ul style="list-style-type: none"> Noise transmission 	<ul style="list-style-type: none"> If necessary, place the adjustable feet of the boiler on rubber pads
Fan too noisy	<ul style="list-style-type: none"> Fan is dirty Fan or blades loose Noise created by bends or rigid connecting pipe junctions with chimney flue Fan bearing defective 	<ul style="list-style-type: none"> Clean fan Eliminate cause Fit insulators/sleeves Order replacement motor

Repair work may only be carried out by authorised technicians.

Touching live electrical components can cause fatal injury.



Even when the Power switch is "OFF" some components of the system are still live.

Therefore, when carrying out repair work it is imperative that the power supply is disconnected by means of the "mains plug" or a circuit breaker.

- 1) Set the system to the programme "OFF" and allow it to cool down for at least 10 minutes.
- 2) Switch the Power switch to "0" and unplug the mains plug on the back of the boiler to fully disconnect it from the power supply.
- 3) Unfasten the controller cover and remove it.
- 4) Locate the defective fuse with the aid of the wiring diagram in the installation instructions and replace it.
- 5) Press in the fuse holder 2-3 mm using a medium-sized screwdriver and turn it half a turn anticlockwise to release it. The holder and fuse will then pop out a few mm.
- 6) Remove the blown fuse and replace with a new one.
- 7) Insert the fuse holder, press it in 2-3 mm and secure it in position by turning it half a turn clockwise.

System operator:

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System installer:

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Boiler system:

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Make:

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Type:

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Year manufactured:

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Heating output:

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The following checks are to be carried out regularly on the automatic wood-burning boiler system by the system operator when it is in operation:



- **Weekly visual inspection**

Once a week the entire boiler system including the fuel store is to be visually inspected. Any deficiencies identified are to be rectified immediately.

- **Monthly checks**

The following monthly checks are to be carried out and, if a log book is maintained, should be recorded in the log book:

- Flue gas passages clean (flue gas channels in boiler, flue connecting pipe and smoke trap)
- Controller functioning properly
- Fault indication/warning system(s) functioning properly
- Combustion air and flue draught fans functioning properly
- Firebox in good order
- Portable fire extinguisher ready for use
- Correct storage of ash
- No combustibles stored in boiler room
- No accumulation of combustible deposits on roof
- Fire safety closures (fire doors self-closing)

- **Servicing**

The heating system must be serviced and inspected in accordance with the regional, local and statutory regulations of the country of use.

Year:	System operator:						Serviced by:						
Monthly Check	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Remarks
Controller													
Warning system(s)													
Fans													
Firebox													
Portable fire extinguisher													
Ash storage													
Items stored in boiler room													
Deposits on roof													
Fire safety closures													
Smoke trap cleaning													
Signature/initials													

Year:	System operator:						Serviced by:						
Monthly Check	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Remarks
Controller													
Warning system(s)													
Fans													
Firebox													
Portable fire extinguisher													
Ash storage													
Items stored in boiler room													
Deposits on roof													
Fire safety closures													
Smoke trap cleaning													
Signature/initials													

Year:	System operator:						Serviced by:						
Monthly Check	Jan	Feb	Jan	Feb	Jan	Feb	Jan	Feb	Jan	Feb	Jan	Feb	Remarks
Controller													
Warning system(s)													
Fans													
Firebox													
Portable fire extinguisher													
Ash storage													
Items stored in boiler room													
Deposits on roof													
Fire safety closures													
Smoke trap cleaning													
Signature/initials													

Year:	System operator:						Serviced by:						
Monthly Check	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Remarks
Controller													
Warning system(s)													
Fans													
Firebox													
Portable fire extinguisher													
Ash storage													
Items stored in boiler room													
Deposits on roof													
Fire safety closures													
Smoke trap cleaning													
Signature/initials													

Year:	System operator:						Serviced by:						
Monthly Check	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Remarks
Controller													
Warning system(s)													
Fans													
Firebox													
Portable fire extinguisher													
Ash storage													
Items stored in boiler room													
Deposits on roof													
Fire safety closures													
Smoke trap cleaning													
Signature/initials													

Year:	System operator:						Serviced by:						
Monthly Check	Jan	Feb	Jan	Feb	Jan	Feb	Jan	Feb	Jan	Feb	Jan	Feb	Remarks
Controller													
Warning system(s)													
Fans													
Firebox													
Portable fire extinguisher													
Ash storage													
Items stored in boiler room													
Deposits on roof													
Fire safety closures													
Smoke trap cleaning													
Signature/initials													

Year:	System operator:						Serviced by:						
Monthly Check	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Remarks
Controller													
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Firebox													
Portable fire extinguisher													
Ash storage													
Items stored in boiler room													
Deposits on roof													
Fire safety closures													
Smoke trap cleaning													
Signature/initials													

Year:	System operator:						Serviced by:						
Monthly Check	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Remarks
Controller													
Warning system(s)													
Fans													
Firebox													
Portable fire extinguisher													
Ash storage													
Items stored in boiler room													
Deposits on roof													
Fire safety closures													
Smoke trap cleaning													
Signature/initials													

Year:	System operator:						Serviced by:						
Monthly Check	Jan	Feb	Jan	Feb	Jan	Feb	Jan	Feb	Jan	Feb	Jan	Feb	Remarks
Controller													
Warning system(s)													
Fans													
Firebox													
Portable fire extinguisher													
Ash storage													
Items stored in boiler room													
Deposits on roof													
Fire safety closures													
Smoke trap cleaning													
Signature/initials													

If you require more system log book pages, please photocopy them

14 **PARAMETER CHANGES**

BS-01

BS-01

[illegible]

15 HEATING CIRCULATION SETTINGS 15 BS-01

BS-01

[illegible]

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