Operating instructions

Log Wood & Pellet heatingsystem

pelletfire

20-40

INTRODUCTION

Dear Customer!

Your heating system is powered by a HERZ pelletfire boiler system and we are pleased to be able to count you as one of our many satisfied owners of a HERZ system. The HERZ boiler is the result of years of experience and continuous improvement. Please remember that in order to be able to work properly, a well-designed product also needs to be operated and maintained correctly. We definitely recommend that you should read this documentation carefully while paying particular attention to the safety instructions. Compliance with operating procedures is required for any claims made under the manufacturer's warranty. In the event of any faults or defects, please contact your heating specialist or the HERZ Customer Service department.

Yours sincerely

HERZ – Energietechnik

Warranty / Guarantee (general information)

HERZ boiler systems come with a 5-year warranty on the boiler body, storage tanks and HERZ solar collectors. We generally guarantee freedom from defects of mobile objects purchased for a period of 2 years, to a maximum of 6.000 hours of operation. For non-moving purchased items, the guarantee is generally for a period of 3 years to a maximum for 9.000 hours of operation. Parts subject to wear are excluded from the warranty/guarantee. Furthermore, claims under warranty will not be applicable if there is no return flow temperature boost or it is not working properly, if commissioning[1] is not carried out by specialist personnel authorised by HERZ, in the case of operation without a buffer storage tank with a heating load of less than 70% of the rated output (manually stoked boilers must always be operated with a sufficiently dimensioned buffer storage tank), if hydraulic diagrams[2], not recommended by HERZ are used and if a non-prescribed fuel[3], Wood pellets for non-industrial use after ENplus, Swisspellet, DINplus or ÖNORM M 7135 resp. pellets after EN ISO 17225-2; Wood chips after EN ISO 17225-1/4 according to the following specification: Property class A1, A2, B1 respectively G30, G50 according to ÖNORM M7133 resp. log wood is used.

Any claim to warranty services requires maintenance to be carried out on an annual basis by specialist personnel authorised by HERZ.

The general warranty period will not be extended if work is carried out under warranty. In the event of a warranty claim, the due dates for payments owed to us will not be deferred. We will only provide a guarantee if all the payments owed to us for the product supplied have been made.

The warranty will be carried out at our discretion by repairing the item purchased or replacing any defective parts, by exchanging the item or by reducing the price. Parts or goods replaced are to be returned to us at our request free of charge. Wages and costs paid out in connection with installation and removal are to be paid for by the purchaser. The same applies to all warranty services.

The Supplier shall under no circumstances be liable to the Customer, for any direct, indirect or consequential costs incurred by the Customer for works carried out on HERZ equipment.

Subject to technical modifications.

Version 04/2015

[1] Maintenance by the manufacturer

[2] Recommended hydraulic diagrams can be found in the installation manual while hydraulic balancing will be carried out by the heating contractor

[3] Furthermore, the quality of the heating water must be in accordance with ÖNORM H5195 (current version) or VDI 2035

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1 SAFETY NOTES

- Before commissioning, please read the documentation carefully and pay attention to the safety instructions given in particular. Please consult this manual if anything is unclear.
- Make sure that you understand the instructions contained in this manual and that you are sufficiently informed regarding the way in which the biomass boiler system works. Should you have any queries at any time, please do not hesitate to contact HERZ.
- For safety reasons, the owner of the system must not make any changes to the construction or the state of the system without consulting the manufacturer or his authorised representative.
- Make sure that there is a sufficient supply of fresh air to the boiler room (please heed the relevant national regulations)
- All connections are to be checked before the commissioning of the system in order to make sure that they are leak-tight.
- A portable fire-extinguisher of the prescribed size is to be kept by the boiler room. (Please heed the relevant national regulations).
- When opening the door to the combustion chamber, make sure that no flue gas or sparks escape. Never leave the combustion chamber door open unattended as toxic gases may escape.
- Never heat the boiler using liquid fuels such as petrol or similar.
- Carry out maintenance regularly (in accordance with the maintenance schedule) or use our Customer Service department. (The minimum maintenance intervals specified in the TGPF are to be observed).
- When carrying out maintenance on the system or opening the control unit, the power supply is to be disconnected and the generally valid safety regulations are to be heeded.
- In the boiler room, no fuels may be stored outside the system. It is also not permitted for objects which are not required for the purpose of operating or carrying out maintenance on the system to be kept in the boiler room.
- When filling the fuel bunker using a pump truck, the boiler must always be switched off (this is stamped on the cover of the filling connection). If this instruction is not heeded, flammable and toxic gases may get into the storage room!
- The fuel bunker is to be protected against unauthorised access.
- Always disconnect the power supply if you need to enter the fuel bunker.
- Always use low-voltage lamps in the storage room (these must be approved for this type of use by the relevant manufacturer).
- The system is only to be operated using the types of fuel prescribed.
- Before the ash is transported further, it must be stored temporarily for at least 96 hours in order to let it cool down.
- Should you have any queries, please call us on +43/3357 / 42840-840.
- Initial commissioning must be carried out by the HERZ Customer Service department or an authorised specialist (otherwise any warranty claim will not be applicable).
- Ventilate the pellet storage area for ~ 30 minutes before going in.
- The boiler meets the requirements of the Association of Swiss Canton Fire Insurance Companies or national fire safety regulations. The customer himself shall be responsible without exception for ensuring that these regulations are complied with on site!

2 Warning notes

	Risk of injury from incorrect handling of the equipment. Material damage may also occur.
	Warning – hot surfaces.
	Warning – injury to hands.
	No access for unauthorised persons.

However, adherence to guidelines for transportation, installation, operation and maintenance notices as well as technical data (in the operating instructions, product documentation and on the equipment itself) which are not specifically highlighted, is also vital to avoid breakdowns which may directly or indirectly cause major personal or material damage.

General note

For reasons of clarity and possible permutations, this documentation does not contain all detailed information and cannot take account of every conceivable operating or maintenance scenario. Should you require further information or encounter specific problems, which are not handled in detail in the documentation supplied, you can obtain the required information from your specialist dealer or direct from HERZ.

People (including children) who are not in a position to use the equipment safely due to their physical, sensory or mental capacities or their inexperience or lack of knowledge should not use this equipment without supervision or instruction by a responsible person.

Basic safety information

Due to its functionally limited electrical and mechanical characteristics with regard to usage, operation and maintenance, if the equipment is not able to work according to its appropriate use or improper interference occurs, it may cause serious health and material damage. It is therefore conditional that the planning and implementation of all installations, transportation, operation and maintenance will be carried out and supervised by responsible, qualified persons.

When operating electrical equipment certain parts are inevitably under electrical tension or mechanical stress. Only appropriately qualified staff may work on the equipment. Staff must be basically familiar with the content of these and all other instructions. The smooth and safe use of this equipment is dependent upon appropriate transportation and storage as well as designated operation and careful maintenance. Notes and indications on the equipment must also be observed.

2.1 Installation

General notes

In order to guarantee correct functioning of the equipment, the installation of the equipment must be carried out with adherence to the relevant standards and installation regulations of the manufacturer.

Manufacturer documents for the devices and components being used the equipment are available from HERZ upon request.

2.2 Operation and maintenance

2.2.1 General notes

	In order for the system to be operated and maintained safely, it must be operated and maintained properly by qualified personnel while heeding the warnings in this documentation and the instructions on the systems.
	The system must not be opened until “HEATING OFF” is displayed as otherwise there will be a risk of deflagration (explosion).
	In unfavourable operating conditions, the temperatures of parts of the housing may exceed 80°C.
	If the door to the ash pan is opened during operation, the fuel supply will be shut off and the boiler will switch to the burnout phase. After that, it will go into the operating mode “HEATING OFF“.

2.2.2 Operation

General safety notes

	Covers which prevent contact with hot or rotating parts or which are required in order to direct the flow of air correctly and thus ensure the effective functioning of the system must not be opened during operation.
	In the event of a fault or unusual operating conditions such as the emission of smoke and flames, the system is to be switched off immediately by operating the emergency stop button. The HERZ Customer Service department is then to be notified immediately.

- If the main switch is operated on the boiler room door or if there is a power failure, the system will be taken out of operation immediately. The remaining quantity of residual fuel will burn independently without giving off any toxic gases provided that the chimney draught is sufficiently high. Therefore the chimney must be designed and produced in accordance with DIN 4705 or EN 13384. When it is switched on again, the system is to be checked in order to make sure that it is fully functional and the safe operation of the whole system must be guaranteed!
- If the residual oxygen content in the flue gas drops below the minimum of 5% required, the fuel supply will be stopped automatically and will not be activated again until the residual oxygen content has risen to more than 5% (message displayed: MIN O2 [%] 5.0, see chapter boiler Status IV)
- The noise generated by the machine during operation does not present any danger to health.

2.2.3 Maintenance

Before starting to carry out any work on the system, but especially before opening covers protecting live parts, the system is to be properly disconnected from the power supply. Besides the main circuits, attention is also to be paid to any existing additional or auxiliary circuits in the process. The normal safety rules according to ÖNORM are:

- Disconnect all poles and all sides!
- Ensure that the system cannot be switched on again!
- Check to ensure that no voltage is connected!
- Earth and short-circuit!
- Cover adjacent live parts and locate hazardous areas!

	These above-mentioned measures must not be reversed until the system has been fully installed and maintenance has been completed.
	Personal dust masks and gloves must be worn when carrying out maintenance work in the combustion chamber or the ash collector or on flue gas-carrying parts, when emptying the ash pan, etc.!
	Extra-low-voltage lamps are to be used when carrying out maintenance work in the storage room. Electrical equipment in the storage room must be designed in accordance with ÖN M7137!

In order to prevent any maintenance errors, if maintenance is not carried out properly, it is recommended for maintenance to be carried out regularly by authorised personnel or by the HERZ Customer Service department.

Spare parts must only be obtained directly from the manufacturer or a distribution partner. The customer will not be exposed to any health risks as a result of the noise generated by the machine. Details on the residual risks can be requested from the residual risk analysis at HERZ if required.

3 FUELS

The HERZ pelletfire – boiler should be operated with the fuels and their properties which are described in this chapter.

3.1 Wood chips

The HERZ – pelletfire is suitable for burning logs to operate central heating systems for closed hot water installations. Smaller split logs enable higher boiler performance than whole ones. We recommend triangular firewood with side lengths of 50cm and edge lengths of 8cm. Too coarse or too long firewood may lead to reduced performance and hollow fire. The heat value of the wood is primarily dependent on its moisture content. The heat value decreases with increased moisture. The combustion of wood with high moisture content also causes a decrease in the degree of efficiency of the boiler.

Wood should therefore be stored for at least two years in a dry, ventilated place. Oak needs to be stored for about a year longer. Dry bark displays a heat value similar to wood but there is more likely to be increased formation of ash.

The burning of unsuitable fuels could lead to uncontrolled combustion. The guarantee becomes invalid! Operational faults and consequential damage are likely to occur.

Possible consequential damage:

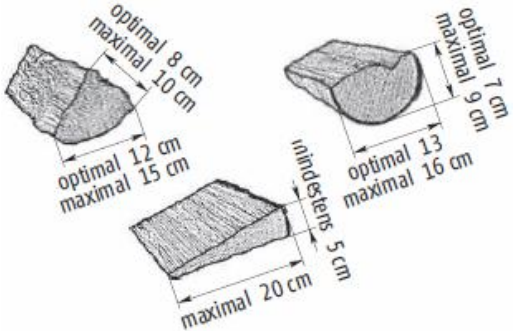
- Damage to the thermodynamic combustion chamber, the lambda probe, the flue gas probe due to aggressive residues in the boiler.
- Sooting or corrosion in the filling area due to condensation as a result of using fuel that is too moist.
- The escape of flue gas from the airflow apertures through uncontrolled combustion (deflagrations).

Combustion time at nominal load up to

	Combustion time in hours			
Type	**FS 18**	**FS 20**	**FS 30**	**FS 40**
Softwood	5	6,5	6	3,5
Hardwood	6	8	7	4,5
Woodchips	3	4	3,5	2,5

3.2 Suitable fuels

The firewood must be air dried, that is, dried at least one year with water content below 20%, preferable half-meter logs with an average diameter of 10cm. Are the cleavage planes of the log much longer, according to the log should be thinner, in extreme cases 20 to 5cm.



Small sized material may be burned only as admixture. From the smaller material may be added less. Wood briquette with 6 to 10 cm diameter according EN 14961-3.

Only one oversized log each boiler filling

To split a root stock to such thin pieces is very hard work. Per boiler filling maximum one large root stock piece are burned up in the stack.

Type of wood	Calorific values (by wood moisture 25%) in kWh/ster
Beech	1890
Oak	1930
Pine	1520
Spruce	1330

We recommend the use of beech wood. Do not mix different types of wood. The use of one type of wood promotes a consistent burn-off. However, if it cannot be avoided to use different types of wood, the boiler must be filled in layers (softwood below, hardwood above).

3.3 Not suitable fuels

When burning wet fuel with more than 30% water content, condensation water formation and corrosion on the walls of the filling chamber occur.

Furthermore should not be burned:

Garbage, plastics, paper and cardboard (only for starting the fire) sanding dust, wood shavings, wood chips smaller than thumb-size, coal and coke, the respective Clean Air Act (state law) usually prohibited fuels such as old railroad ties, plastics, particle board, impregnated wood...

3.4 Wood pellets

Wood pellets for non-industrial use after ENplus, Swisspellet, DINplus or ÖNORM M 7135 resp. pellets after EN ISO 17225 according to following specifications:

- Property class A1
- The maximum permissible fines content in the fuel store must not exceed 8% of the fuel volume stored (determined using a perforated screen with holes 5 mm in diameter)!
- Fines content at loading: <1,0 m-%
- Calorific value at as-delivered condition > 4,6 kWh/kg
- Bulk density BD at as-delivered condition > 600 kg/m³
- Mechanical Strength DU, EN 15210-1 in as-delivered condition, m-%: DU97,5 ≥ 97,5
- Diameter 6mm

The nominal power and the emission values can be guaranteed up to a maximum water content of 25 % and a minimum calorific value of 3.5 kWh/kg of the permissible fuel.

From a water content of about 25% and a calorific value <3.5kWh/kg a reduced output is expected.

Foreign bodies such as stones or metal particles should be prevented from entering the system! Sand and soil lead to more ash and slagging.

According to the fuel there may be a formation of slag, which may need to be removed by hand.

Is a different fuel on the order named and explicit on the order confirmation noted, the system can also be operated with this fuel.

In the case of non-compliance, any warranty or guarantee will be rendered null and void. The burning of unsuitable fuels could lead to uncontrolled combustion. Operational faults and consequential damage are likely to occur.

Is a different fuel on the order named and explicit on the order confirmation noted, the system can also be operated with this fuel.

Note: The system is set to the agreed fuel at the commissioning. This setting (fan speed settings, fuel settings, flow/backflow fan, cycle time, and so on) should not be changed by constant fuel quality

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3.5 Storage area

The storage must conform to ÖNORM M 7137:

- Filling pipe maximum 30m
- Sloping floor 35° - 40°
- A rubber mate opposite the blow-in supports
- Protection against water and moisture
- Dust proof
- Fire protection category F 90
- Filling nozzle near outside wall
- Easy to access
- No electrical installation in the storage room
- Wall thickness minimum. 12cm on both sides Plaster or 10 cm cement

3.5.1 Filling

	At least 1 hour before filling of the storage the boiler must be in the operating condition „Heating OFF“.
	After filling the corresponding lock cover must be attached.

4 STARTING UP A COLD SYSTEM

After a long period of not being used, you should take particular note of the following points when starting up the system:

- Where the equipment has cooled down, the boiler requires a proportionate amount of time to reach temperature if all heat consumers are switched on during the heating up process. Therefore, firstly put only one small heating circuit into operation and only switch the other heating circuits on when the boiler has reached its operating temperature. The first start-up should only be carried out by HERZ factory customer service or persons authorised as such.

5 HANDLING OF THE HEATING SYSTEM

5.1 Sealing the boiler

It is imperative that all doors are closed during operation so that no leak air can disrupt the combustion process. If this is not observed then damage to the boiler may result.

5.2 Operation with low performance decrease

Should fuel be burned in the transition period (spring or autumn) it is vital to ensure that for low decreased performance (less than 50%) the filling shaft is not completely put on. Decreased performance of less than 50%, means the boiler and the chimney may become clogged with soot. It is also possible that smoke may develop in the chimney. The firestar boiler should therefore basically be operated equipped with a correctly dimensioned buffer (according to EN 303-5). Recommended dimensions are listed in the document “installation instructions.

5.3 Overheating of the boiler

Should the boiler temperature exceed maximum boiler temperature, the safety temperature limiter switches the controls off and the warning light illuminates. After the equipment has cooled off under about 75°C, the Safety Temperature Limiter (STL) should be tripped by unscrewing the covering cap (press the knob). Then screw up the covering cap again afterwards. Before re-starting the cause of the overheating should be identified and corrected.

Thermal flow protection

If the boiler overheats then the “thermal flow protection” opens automatically (at 95°C) via a sensor and cold water flows through the heat exchanger. The boiler water is thereby cooled off and dangerous operating conditions are prevented. The water heated up in the heat exchanger must be able to run away freely (directly into the waste water channel). After the boiler water has cooled off to about 90°C the "thermal flow safeguard” automatically interrupts the cold water feed. After cooling off, the equipment pressure and/or water level of the equipment is to be controlled and if necessary the missing amount of water topped up. According to DIN 4751 sheet 2, the operator is obliged to regulate the functioning of the “thermal flow safeguard” and the heat exchanger belonging to it at least once a month by activating the test button. Furthermore this safety instruction is to be monitored once a year by the manufacturing company or another competent organisation.

Note:

Where there is a combined non-functioning of the “thermal flow protection” and heat exchanger, the set-up of the equipment is prohibited!

5.4 Sweating of the boiler

During long-term operation it should be guaranteed that the return flow temperature does not fall below 65°C. For this reason a return flow temperature bypass is obligatory.

Note:

Corrosion damage caused by too low return flow temperatures, do not come under the guarantee or warranty claims.

5.5 Taking out of operation

The mains switch should not be turned to “OFF” during the burn-off but only after complete burn-off. (Status: unit off **(1)**)

6 BOILER OPERATION

The heating operation is performed with log wood or pellet. Due to the separate combustion chambers there can be flexible switched between log wood and pellets operation

6.1 Preparation for heating up

If possible, store enough fuel for two or three combustion processes near the boiler room.

Prepare firewood

The firewood must correspond to size (circumference 8 – 10cm) and dimensions to the size of the boiler. Firewood without bark burns better.

6.2 Heating up

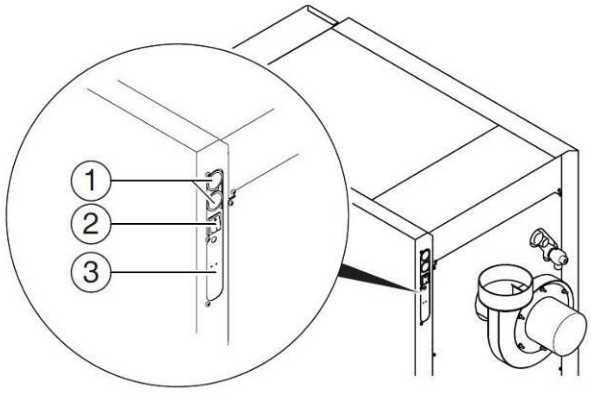
	Warning: Risk of system damage due to improper maintenance! Wrong position or lack of firebricks inside the boiler can lead to damage or destruction of the boiler. ■ Before heating up the boiler, check the position of the firebricks.
	Warning: Risk of system damage due to improper maintenance! Excessive fuel feeding can cause overheating and damage to the boiler. ■ Adapt the amount of fuel to the energy absorption capacity of the heating system.
	Crucial for the clean burn-off in the boiler are the correct operation of the boiler as well as a sufficient feed pressure of the exhaust system. When heating up with log wood there may occur a greater smoke production at the chimney.

In the following a possibility for the heating up of the boiler is described. Depending on the ambient conditions (draft, exhaust system, wood, and so on) other heating up processes may be better.

Get familiar with the boiler and find out the best handling for you to use. Test the best opportunity for heating up the boiler.

Please note always the safety notes!

■ Switch on the main switch [2] and regulator (-> On/Off – button, page 18). The regulator displays status 1.



1 … Cable bushing

2 … Main switch

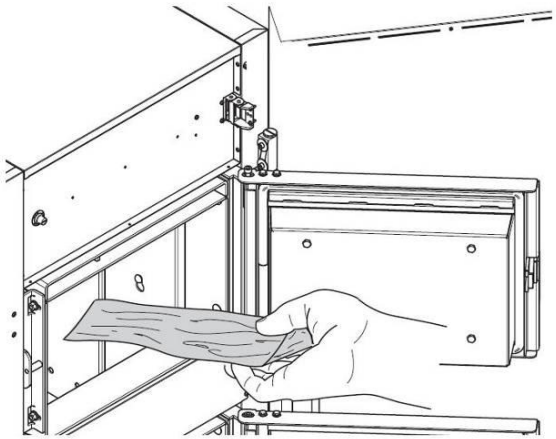
3 … Electric supply

■ After the casing door is opened the “burning” phase (Status: 2) starts automatically.

	If it is not desired or necessary to heat up the boiler, this process can be interrupted with a long press of the On/Off button.

■ To form a good flame it is recommended that the lower third of the filling shaft be filled with small pieces of wood.

■ After that normally chopped wood (size around 8cm) can be used for filling.



■ Then open the lighting up door (4) and light up with an oil ignition, wood shavings or cardboard.

■ When the flue gas temperature is 120°C, close all doors.

By sufficient feed pressure a fire bed (draft) is built up and the wood in the filling room is burning from bottom to top.

	Too short and thick wood logs lead to an uneven burning behavior. Too short and thin wood reduces the burning time. → Only use wood logs according to specification
	During operation, all doors must be closed to ensure that no false air can disturb the combustion process.
	The heating-up time can change due to the cleaning condition of the boiler, the local conditions, the used fuels and the weather changes (low pressure in the exhaust system.

The boiler operates according to the principle of the lower burn-up. The control device controls the boiler automatically and completely.

6.3 Boiler in combinaton mode (Automatic mode)

If after burning off of the log wood heat will be required from the boiler or heating circuits, the boiler operation will start automatically with pellets.

In combination mode the boiler works as a automatically fed system. After power up the boiler is ready for operation.

The start of the combustion occurs automatically after heat id requested or at a defined starting point. When at this time the boiler is filled with log wood, the ignition of the log wood starts with the pellet burner. After burning off of the log wood and if there is a heat request, the boiler starts automatically in pellets mode.

6.4 Feeder system (Pellet)

The fuel is transported from the fuel storeroom by means of a feeder screw with flat spring stirrer for burnback protection devices. It then passes through the drop shaft and the burnback protection device. The burnback protection device is driven by a spring-loaded servo-motor. If the servo-motor has no power supply then the flap closes independently. Then the plug-in screw feeds the fuel upwards. These are then directed to the combustion chamber via a drop level. The fuel level reached is crucial for the boiler capacity and the operating condition of the equipment.

6.5 Type of feed

The operation of the pelletfire based on a pulse-no-pulse ratio which controls the feed system. All the values are to be set via the menu “Fuel values” (only available in the service area). These feed values are corrected by the combustion control system.

6.6 Combustion air control

Differentiation is made between primary and secondary air in the combustion air supplied. The primary air is supplied directly into the embers. Using secondary air an attempt is made to fully develop the flame arising from the primary air. The air supply is supplied via a lateral opening (underneath the lateral panelling).

The flue gas ventilator is a suction fan and this is located at the back of the boiler. It generates low pressure in the boiler. The secondary and the primary air are sucked out by this low pressure.

The blower is time-controlled by the variable-speed electronic control. The blower speed is controlled according to the boiler temperature and rectified by the lambda control.

6.7 Boiler operation

The equipment goes into operation automatically when heat is required due to its built-in automatic ignition.

The heat requirement can be weather-driven, and can be used in conjunction with a remote sensor (optional) from any heating circuit. It is also possible to generate demand using a room thermometer. The boiler can also switch on the equipment via its heat requirement.

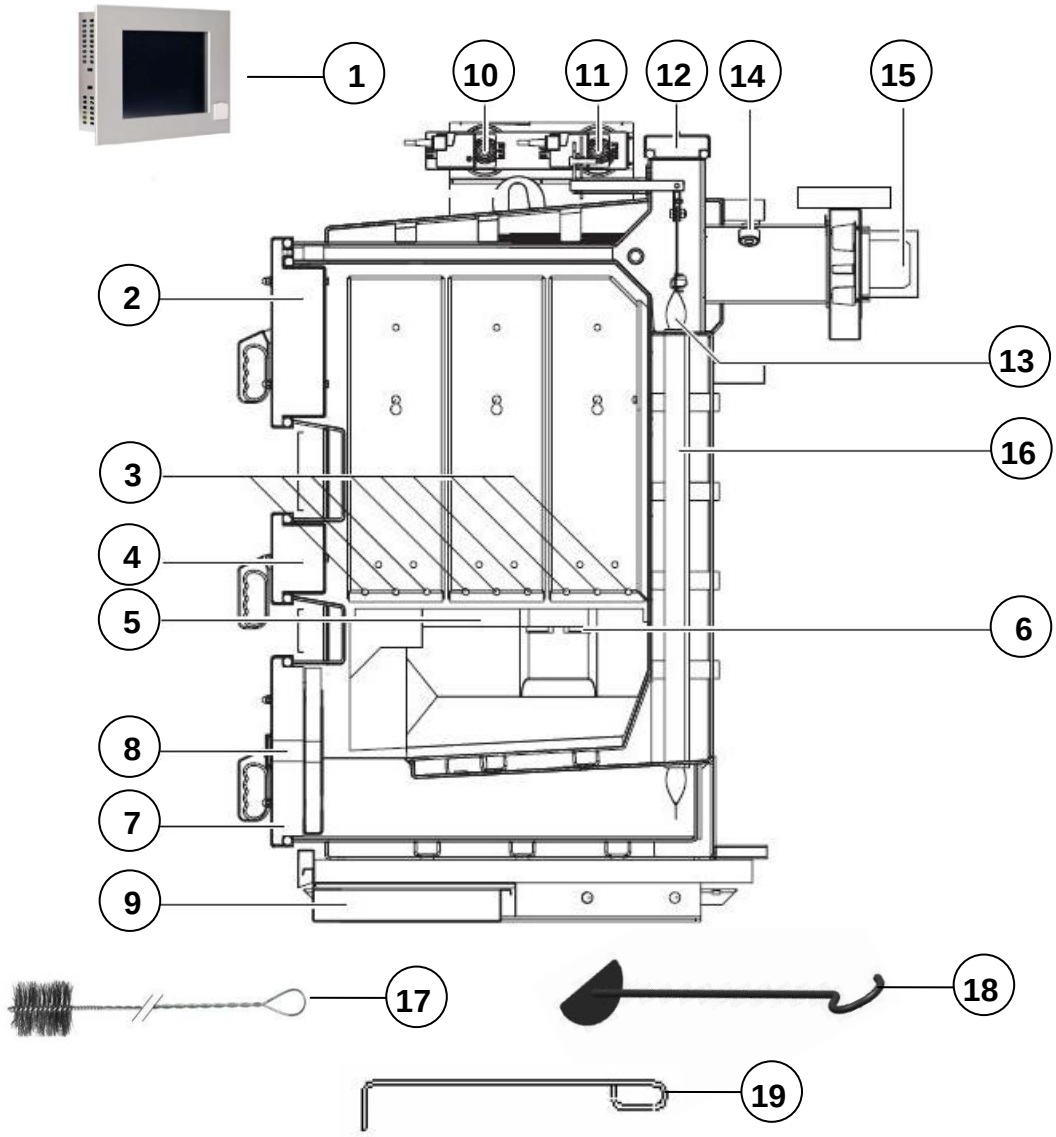
The control or local data of the boiler capacity can be adjusted or changed.

The regulation prevents boiler temperatures falling too low as this can affect the life expectancy of the boiler.

Boiler temperatures that are too high are not permitted for operational safety reasons.

Any elongation fissures on the insulation plates or combustion chamber bricks do not affect their functioning and therefore do not represent a claim against the guarantee.

7 SYSTEM



Legend:

1 … T-Control
2 … Filling shaft door
3 … Primary air feed
4 … Lighting-up door
5 … Burner plate
6 … Secondary air aperture
7 … Ash doors
8 …. Viewing glass
9 …. Ash tray
10 …Secondary air aperture
11 …Primary air aperture
12 …Cleaning cover
13 …Turbulators
14 …Lambda sensor
15 … Ventilator
16 … Heat exchanger pipes
17 … Cleaning brush
18 … Bellows for burner plate
19 … Bellows for primary air feeds

7.1 Re-heating

Depending on the wood type and quality the burning time of a filled boiler by nominal capacity is about three to eight hours.

	By intermediate opening of the front door or the filling room door the combustion is disturbed. These can lead to a poorer combustion behaviour and excessive escape of flue gas. ➔ Filling should burn down completely

To refill fuel or to check the level:

	■ Open the casing door – with the ventilator going at full speed, so that the flue gas is sucked out via the smoke flue channel by opening the filling shaft door (2) ■ Slowly open the filling shaft (2) ■ Put in the fuel ■ Close the filling shaft door and casing door
	■ A quick covering of the glow with wood logs reduces the leakage of hot gases from the filling room. Refill only as much fuel as for the energy absorption capacity of the system is permitted.
	■ Pay attention to the lower buffer temperature. If the buffer is already loaded (lower buffer temperature over 40°C), please avoid a reloading of fuel. By too slight heat consumption the risk of tar formation and overheating of the boiler is existing.

The HERZ firestar special boiler is characterised by its long combustion duration. It does not have to be re-filled with fuel at frequent intervals. It is recommended that the filling shaft only be filled according to the heating requirement, so that frequent opening of the filling shaft door does not have a negative effect on combustion.

8 FAULT-FREE OPERATION

To avoid fault-free operation, some basic points should be adhered to for installation, service and maintenance.

Please note that faults arising due to non-adherence to installation and/or service instructions, do not come under the guarantee or warranty provisions.

9 OPERATING CONDITIONS

9.1 Operation mode with log wood

9.1.1 Heating off

In this condition the equipment is switched off, i.e. the burner is blocked.

9.1.2 Burning phase

In the BURNING PHASE(2) condition wait to see if the logs catch fire in the combustion chamber. During 30 minutes an adequate flue temperature (HEATING UP FROM MIN(P06)) is adjusted so that it can be switched on into the HIGH RUNNING PHASE(3) condition. If this flue temperature is not set, it switches into the UNIT OFF(1) condition and a fault is declared accordingly.

In this condition it is possible to switch manually into the UNIT OFF condition.

9.1.3 High running phase

In the HIGH RUNNING PHASE(3) condition, after lightings the logs, it tries to stabilise the combustion and achieve the minimum boiler temperature. The optional combustion control (lambda control) is already activated at this time. When reaching 65°C the boiler temperature (set out in the program) is switched on into the control phase. Should the flue temperature decrease in this phase (under HEAT UP MIN(P06)), it switches into the NEW START-UP(6).

9.1.4 Control phase

The CONTROL PHASE(4) condition carries out actual boiler control, which splits into an output and combustion control (OPTIONAL). If the boiler temperature in this phase increases above the maximum boiler temperature (BOILER MAX(P02)), it switches into the READY(5) condition. Should the flue temperature decrease in this phase (HEAT UP MIN(P06)), it switches into the NEW START-UP **(6)**.

9.1.5 Ready

The maximal boiler temperature (BOILER MAX(P02)) has been reached due to too low heat capturing. Therefore the boiler has been switched off. The boiler starts up again if the boiler temperature falls 3°C below BOILER MAX(P02).

9.1.6 New start-up

The NEW START-UP(6) condition tries to re-stabilise the combustion within a time limit (adjustable via MAXIMUM RE-START(P07)). It will always be activated if the flue temperature is too low. If stable combustion adjusts again, it switches immediately into the CONTROL PHASE(4). Should a sufficient flue temperature not be achieved after a specified time (under HEAT-UP MIN(P06)), the boiler is switched off as it is switched to the UNIT OFF(1) condition.

9.1.7 Re-heating

The RE-HEATING(7) condition is used for safe operation for re-heating. If the customer re-heats a larger amount of logs in operation, then this operation is activated. The boiler then remains in this condition for the time set. Should the boiler temperature in the meantime increase above the maximum boiler temperature, the boiler will be switched off. After the set time, it switches to the CONTROL PHASE(4) condition once an adequate flue temperature is reached, and if the flue temperature is too low (under HEAT UP MIN(P06)), it is switched off and reported as a fault. This function may only be activated by long pressing the On/Off-switch in the STATUS MENU, if the unit is in HIGH RUNNING(3) or CONTROL PHASE(4).

9.1.8 Chimney sweeper

The CHIMNEY SWEEPING(8) condition is available as a test mode for the chimney sweeper. The boiler is precisely operated using rated output and the chimney sweeper can carry out its test measurements. The boiler usually runs high and the chimney sweeper function is only activated instead of the CONTROL PHASE(4). This condition is left when deactivation occurs or when the boiler maximum temperature is exceeded or when the maximum chimney sweeping time is exceeded (45min).

9.1.9 Lambda calibration (password protected)

By activating the parameter LAMBDA CALIBRATION (P20) in the parameter menu the calibration starts (only in condition UNIT OFF(1) activatable). The lambda sensor is calibrated at the factory.

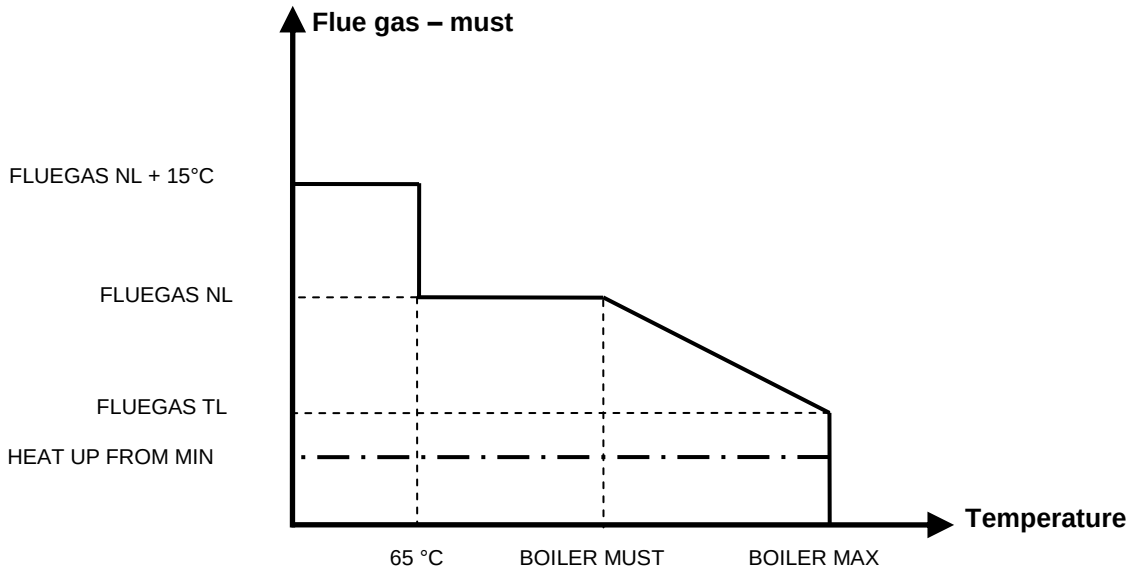
9.1.10 Flue temperature control

The flue temperature control begins if the HEAT UP FROM MIN(P06) is exceeded. The target temperature modulates between the set values FLUE NL(P04) and FLUE PL(P05). In the high running phase as well as when re-heating, it will be controlled at an increased flue temperature (FLUE NL + 15). The 15°C are a setpoint specification. The actual temperature deviance may be higher.

9.1.11 Lambda control

The primary and secondary air is controlled via the lambda sensor. This serves to optimise the combustion and can detect slight fuel fluctuations.

9.1.12 Control curve



9.2 Operating conditions with pellet

9.2.1 Heating off

In this condition the equipment is switched off, i.e. the burner is blocked.

9.2.2 Ready

The boiler or buffer temperature is sufficient to sustain the loads or the boiler temperature has reached the switch-off temperature.

9.2.3 Prepare ignition

In this condition the grate has been cleaned and the lambda probe pre-heated.

9.2.4 Pre-ventilate

This condition serves to flush the combustion chamber and the chimney with air.

9.2.5 Cold start

If the boiler room temperature is below the boiler room ignition identifying temperature (standard 150 °C), a cold start is carried out. Materials are pushed in at intervals. At the same time the material is ignited by the ignition fans. During the ignition phase there is a check as to whether the ignition was successful.

After successful ignition, the equipment changes over to the burning phase. At the same time the final ignition fan phase is carried out. During the final ignition fan phase the ventilator of the ignition fans runs for a minute longer in order to cool down the heating element.

Should there be no ignition in the maximum ignition period (3 x the set time) then the equipment is switched off using the remote status signal => F: IGNITION (see Error 66)

9.2.6 Scorch phase

This phase serves to achieve an even fire bed. The length of the phase is set in the fuel values (only in the service area available). Care should be taken here that combustion takes place with a higher surplus of oxygen. This serves to achieve the desired even fire bed more quickly. This phase should not be set for longer than 5 minutes.

9.2.7 Run up phase

In the run up phase the equipment runs at rated output. When the boiler temperature is reached it then goes over to the control phase.

9.2.8 Control phase

In this phase the boiler is modulated between nominal load and partial load. When the partial load stage generates too much energy, i.e. the target boiler temperature + regulation hysteresis are exceeded and are then changed to the ready condition.

9.2.9 Burn out phase

When the boiler switches off, then the fuel remaining in the combustion chamber is burnt out. Care should be taken here that this time is set exactly, as otherwise it is possible that material present in the combustion chamber will not be burnt correctly.

9.2.10 Burner cleaning

During burner cleaning the burner is cleaned of ash. Firstly the fuel is burnt out. When the burnout time is completed, then the burner plate is cleaned. After successful cleaning the equipment goes back into normal mode. The interval is calculated via the runtime of the plug-in screw. This can be set via the “Cleaning interval” parameter in the service area, i.e. in order to achieve more frequent cleaning of the combustion chamber the parameter simply has to be shortened.

9.2.11 Heatexchanger cleaning

Heat exchanger cleaning serves to increase the degree of efficiency. Here the heat exchanger is automatically cleaned and the fly ash falls into the so-called fly ash chamber. The interval and duration of the cleaning can be set in the service area via the “HEC INTERVAL” or “HEC DURATION.

9.2.12 Output control

The output control is controlled within the boiler target temperature and the control end phase. The control end phase is the boiler target temperature + control hysteresis. When the control end phase is reached the equipment goes to burnout.

9.2.13 Flue gas temperature control

When the maximum flue gas temperature is exceeded, then the output of the equipment is reduced. If the temperature is not reached the equipment goes back to normal output control.

9.2.14 Flame monitoring

Where the combustion values fluctuate too greatly during operation, this is detected and the equipment is switched off.

9.2.15 Frost protection

When the equipment goes into frost protection then the return flow bypass pump is switched on provided that the equipment is in “HEATING OFF” or “BURNER STOP” condition. Otherwise the equipment is started up and started up to a minimum temperature of 65°C

9.2.16 Lambda control

The amount of material and the suction ventilator are controlled via the lambda control. This serves to optimise the combustion and can detect slight fuel fluctuations. Therefore, it is not necessary to re-set the combustion after the silo is filled.

10 TEMPERATURE MANAGER

The control of the heat demands of the individual modules (boiler, hot water tank, heating circuit, solar, etc.) happens with a so-called temperature manager. To understand the operation of the temperature manager the scheme which is illustrated in Figure 11.1 is used. It can be seen that a module has inputs and outputs. The module gives a so-called temperature demand to his “heat supplier”. This temperature demand is the sum of an internal calculated temperature demand and an adjustable temperature increase. The heat supplier must provide this temperature demand to the modules. The heat supplier (heat generator resp. boiler/buffer), which receives the information (temperature demands) of the modules from the temperature manager, must provide heat to the individual modules. Thereby the maximum of the temperature demands (individual modules) is generated by the temperature manager.

Example:

Heat supplier = Boiler
Module 1 & 2 = Heat circuit 1 & 2
Module 3 = Hot water tank
Module 4 = Buffer

	Heating circuit 1	*Heating circuit 2*	*Hot water tank*	*Buffer*
calculated required temperature [°C]	60	30	55	75
Temperature increase [°C]	5	3	2	2
Required temperature of the modules [°C]	**65**	**33**	**57**	**77**
Maximum temperature requirement				**77**

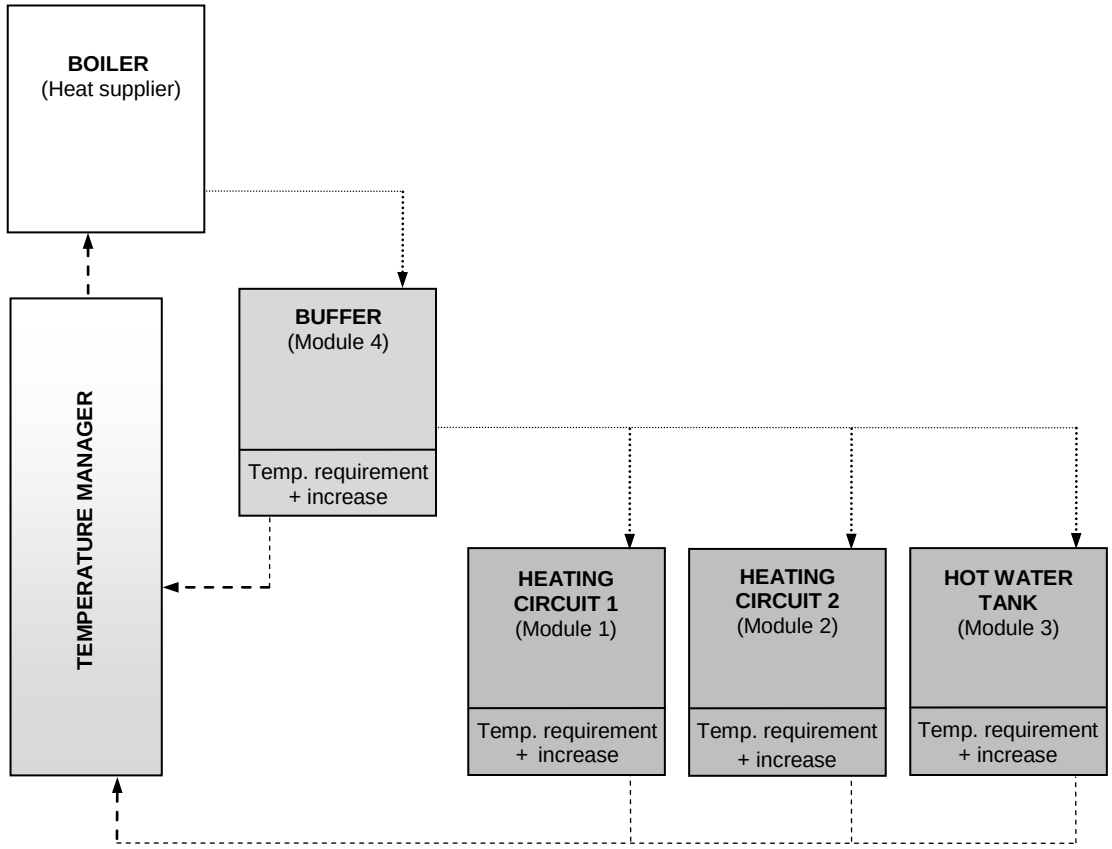


Figure 10.1: Temperature manager (simplified schema – example)

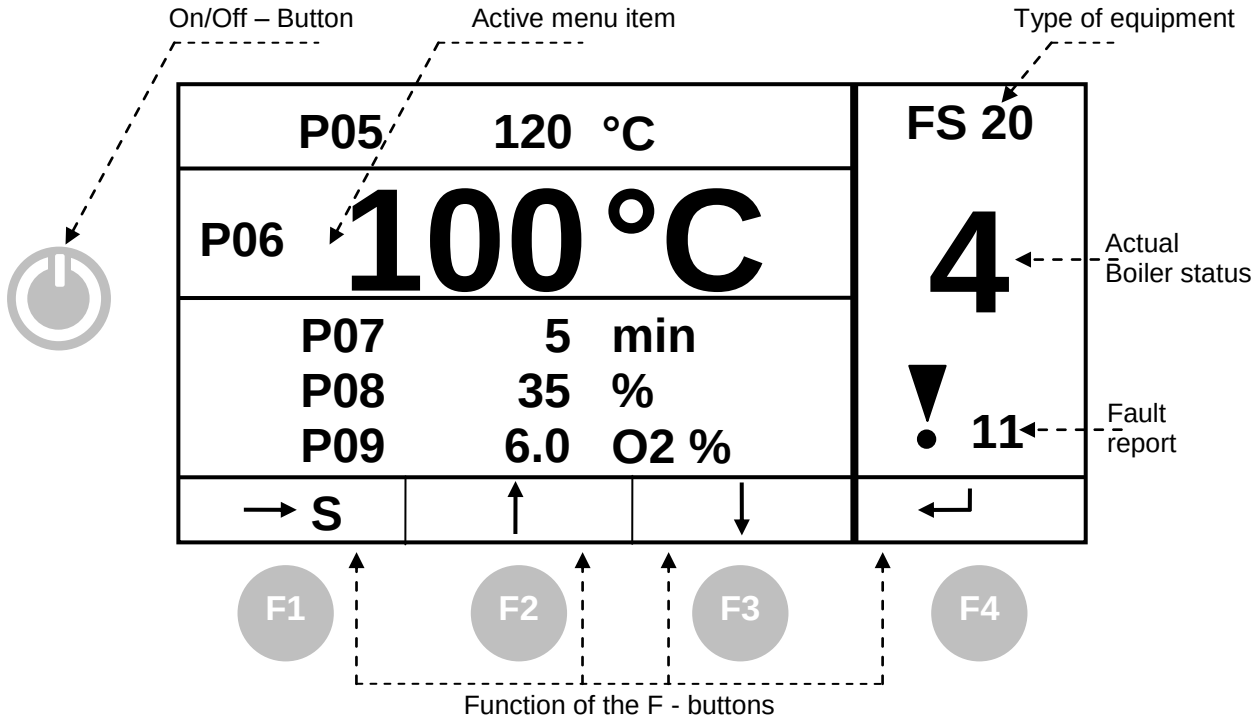
11 DESCRIPTION OF THE MENU NAVIGATION AND ADJUSTMENT VALUES

11.1.1 Structure Lambda control (Inner side of Log wood boiler)

The Structure of the displays consists of the menu (Parameter, Status, Aggregate-Test-Input, Aggregate-Test-Output), the boiler status and the fault reporting.

This page loads automatically once you have switched on the equipment using the main switch (at the back side of the boiler). From here you can navigate quite simply through the settings.

11.1.2 Display



Boiler status:

1 … Unit off
2 … Burning phase
3 … High running phase
4 … Control phase
5 … Ready
6 … New start up
7 … Re-heating
8 … Chimney – sweeper
9 … Lambda calibration

By pressing the button:

„On/Off“: long: the equipment is switched on/off
brief: starts up the FAILURE CHECK
„F1“: Changes to the displayed menu / Confirmation of modification
„F2“: The bar is pushed up / increase value
„F3“: The bar is pushed down / decrease value
„F4“: „ENTER“ – button / aborts the modification

11.1.3 Structure T-Control Unit (Outside Log wood boiler)

The handling and menu navigation are described in this chapter. Every single T-CONTROL parameter is explained in chapter 11 – (Side 31).

Figure 11.0: T-CONTROL unit

11.2 Starting the system

To switch on the display, two conditions must be met:

- The boiler must be connected to the power supply *(see figure 11.0.1)*

1 … Cable bushing

2 … Main switch

3 … Electric supply

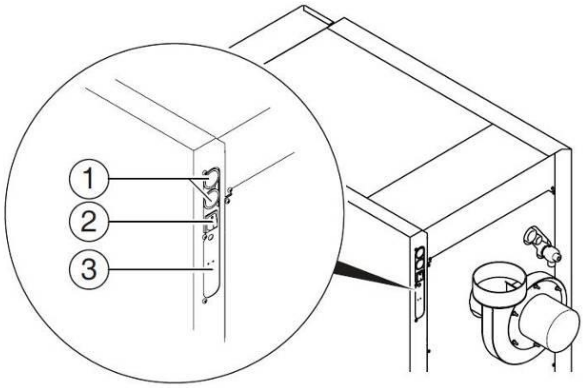


Figure 11.0.1: Plug on the boiler for preparation of the power supply

If these two conditions are fulfilled, the starting process of the display, which takes 1-2 minutes, begins.

Main menu

After the starting process of the display, Figure 11.1 appears. In the middle of the screen important values for boiler, buffer, hot water tank, heating circuit, and so on, are shown, which can be adapted individual (see chapter 11.8).

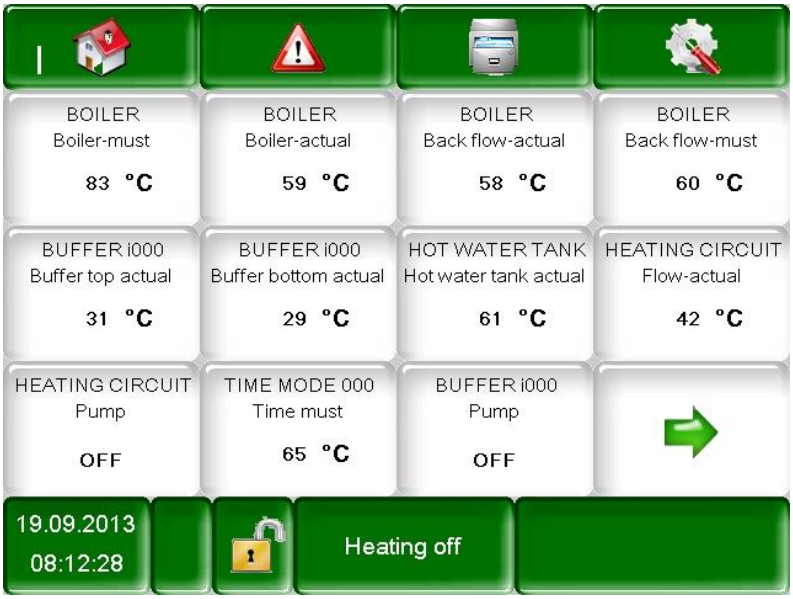


Figure 11.1: Main menu

By touching the following button

	the main menu will be displayed. *(see chapter 11.1)*
	fault messages (warnings & alarms) will be displayed *(see chapter 11.9)*
	the individual modules (boiler, hot water tank, buffer, heating circuit, solar, hydr. compensator, net pump, zone valve, ext. demand) will be displayed. *(see chapter 11.10)*
	the menu settings (network configuration, E-Mail, screen saver) will be displayed. *(see chapter 11.13)*
	you can set and modify date & time *(see chapter 11.7), visible only with code!)*
	you will be taken to the code entry screen *(see chapter 11.5)*
	the heating system can be switched on/off. (see chapter 11.6) In general the field is used to display the operating conditions, which are shown in chapter 9.
	you will be taken to the second page of the value overview on the main menu.

11.3 Operation and handling

The touch panel is a touch-sensitive screen and a display and control unit. By touching the screen you can change released values or move to other pages. The touching can be done with finger, pen, pencil, etc.

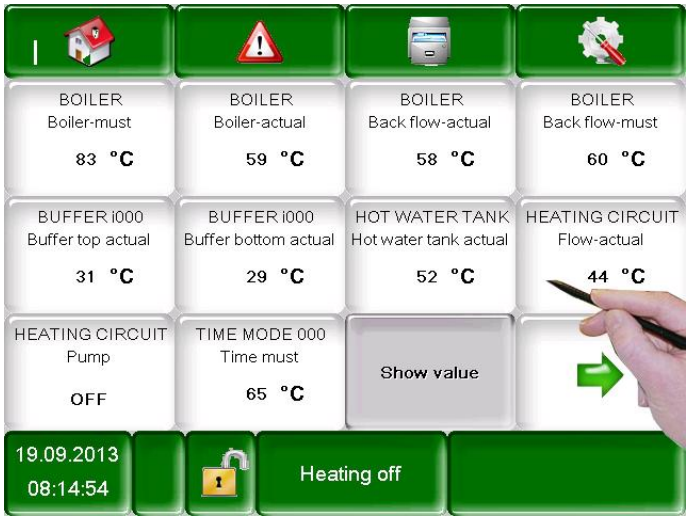


Figure 11.2: Operation of the screen with fingers or pen

NOTE: The values shown in the individual screenshots are not default values!

11.4 Explanation of the symbols

In this section important symbols are explained, which are displayed on the following menu pictures.

	The **CHIMNEY SWEEPING FUNCTION** is available as a test mode for the chimney sweeper. The boiler is precisely operated using rated output and the chimney sweeper can carry out its test measurements. This condition is exited with deactivation or exceeding of the boiler maximum temperature or where the maximum chimney sweeping time is exceeded. All loads are set to the permissible maximum value. Any measurements should only be carried out if the **"chimney sweeping mode"** appears on the display and an appropriate flame has been formed. Otherwise there is no guarantee that the boiler will demonstrate optimum combustion. It is possible that the boiler will only work in ignition or burning phase. The chimney sweeping time is setting on 25 minutes, the remaining time starts to run only at the beginning of the boiler status of the chimney sweep function (->ignition phase does not count).
	At the **Aggregate-Test** the connected components can be tested individually. The symbol is only visible, when, • the code has been entered (see chapter 11.5 - page 24) and • the boiler is in the operating condition "Heating off" (only applies to the Agg-test for the boiler!) When the Aggregate-Test is active, the symbol turns green and the message "AGG-Test ACTIVE" is shown on the display area of the operating conditions.
	**Information's** such as firmware-module, hardware-module, software version etc., of each module (boiler, hot water tank, buffer, solar, heating circuit) are shown here.
	These symbols (**navigation**) can be used to navigate between the pages in each module (boiler, hot water tank, buffer, solar, heating circuit, hydr. compensator, net pump, zone valve, ext. demand). An alternative to the illustrated method of navigation is the wiping to the right or left on the screen.
	Pressing this button returns you to the overview of the modules (boiler, hot water tank, buffer, solar, heating circuit, hydr. compensator, net pump, zone valve, ext. demand.

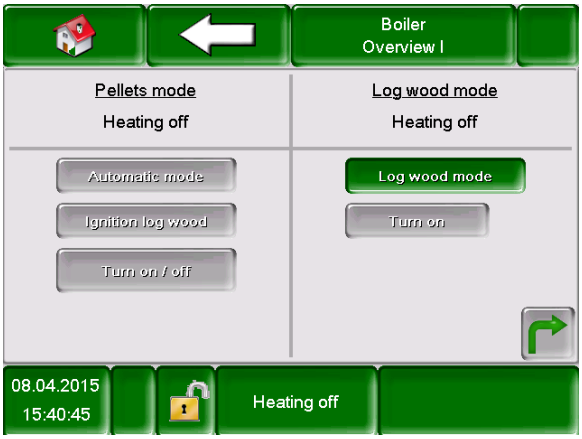
11.5 Code – entry

By entering the code, the following can be performed:

- Changing values
- Activate the Aggregate-Test (explanation see chapter *11.4)*
- Setting or changing date & time (see chapter *11.7)*
- Navigation is in the menu settings possible (see chapter *11.13)*

Navigation1:		**Navigation 2:**	
Screen:  Figure 11.3: Code - entry		**Screen:**  Figure 11.4: Editor für Code - entry	
By pressing the following button:		**Note:** Enter the corresponding code (see below) and press „OK“ to confirm.	
	Figure 11.4 is displayed		
	the main menu will be displayed (if you have already entered a code, this will lock the field that has been changed).	Code: **111**	
	the previous page will be displayed.	the open padlock-icon appears: 	

11.6 Switching the boiler on and off

SWITCH-ON	SWITCH-OFF
Navigation: Heating off	**Navigation:** Prepare ignition
Screen:  Figure 11.5: Switching on the boiler	**Screen:**  Figure 11.6: Switching off the boiler
By pressing the following button:	**By pressing the following button:**
the boiler will be switched on.	the boiler will be switched off.
the boiler will remain switched off and the previous page will be displayed.	the boiler will remain switched on and the previous page will be displayed.
Note:	**Note:**
The system can only be switched on if the code (see chapter 11.5) has already been entered. Before switching on the following menu appears.	In all operating states (except cold start or Ready) the system will proceed to the burnout phase. If the system is switched off during a cold start, the cold start will finish and then the system will proceed to the burnout phase. This will prevent an unacceptably high amount of fuel building up in the combustion chamber. The system can only be switched on if the code (see chapter 11.5) has already been entered.
Screen: 	**Screen:** 
It can be selected the operation mode (automatic mode, log wood mode or ignition log wood). After selecting the operation mode can be selected between pellets operation and log wood operation.	When activating the chimney sweep function, the remaining time can increase with the + – button at 5 minute intervals.

11.7 Date and time

Navigation 1:	→ 25.04.2013 09:17:10	Navigation 2:	→ 25.04.2013 09:17:10 → NTP active

Screen:

Figure 11.7: Selecting date and time

Screen:

Figure 11.8: General settings for NTP

By pressing the following button:		By pressing the following button:	
ENGLISH	you can select the language to be used.	ENGLISH	you can select the language to be used.
	you can set the time.	NTP-Server	you can enter the name of the server. (The server gets from the network an IP-address and can so communicate with the network.)
	you can set the date.	Time zone	you can set the time zone.
	you can activate NTP, which means that the time and date will be updated automatically. (Is NTP active, time and date will be updated automatically over the network (=connection of the boiler with the internet via LAN cable.)	Act. Intervall	you can enter the update interval in hours (Date and time can be updated in the entered time interval over the network, i. e. in the case entered the time and date will be updated every 12 hours).
	you can choose between summer and winter time	NTP Update	you can carry out an NTP update (If you activate that update, time and date will be updated immediately and you don't have to wait for the act. interval.
	you can lock the screen		
	the main menu will be displayed		

Note:

NTP (Network Time Protocol) is used to synchronize date and time automatically over the network.

A valid network connection via a LAN cable and connection with the internet is required.

In case of power blackout:

Is NTP active, the date and time will be automatically updated after switch-on.

Is NTP not active, the date and time will be updated over an internal memory up to 10 days (manufacturer's data). If boiler is more than 10 days out of service, date and time must be set manually.

11.8 Determining main menu values

11.8.1 Adding main menu display values

Navigation 1:	→ [ ] → 111 → OK	**Navigation 2:**	→ [ ] → 111 → OK → Show value

Screen:

Figure 11.9: Adding display values

Screen:

Figure 11.10: Determining display values

By pressing the following button:	
Show value	an overview will be displayed in which you can load values or add individual values (see Figure 11.10)
→	the second page of the main menu will be displayed.

By pressing the following button:	
Delete actual	you can delete the selected value (see Figure 11.14)
Load scheme	you can load a default diagram (see Figure 11.11)
Delete all	all the display values will be deleted (see Figure 11.13)
BOILER 000	the boiler values which can be selected manually will be displayed (see Figure 11.12) .
BUFFER i000	the buffer values which can be selected manually will be displayed
HOT WATER TANK i001	the hot water tank values which can be selected manually will be displayed
HEATING CIRCUIT i002	the heating circuit values which can be selected manually will be displayed
TIME MODE 000	the time mode values which can be selected manually will be displayed
SOLAR i004	the solar values which can be selected manually will be displayed

Navigation 3:	→ [ ] → 111 → OK → Show value → Load scheme	Navigation 4:	→ [ ] → 111 → OK → Show value → Boiler 000

Screen:

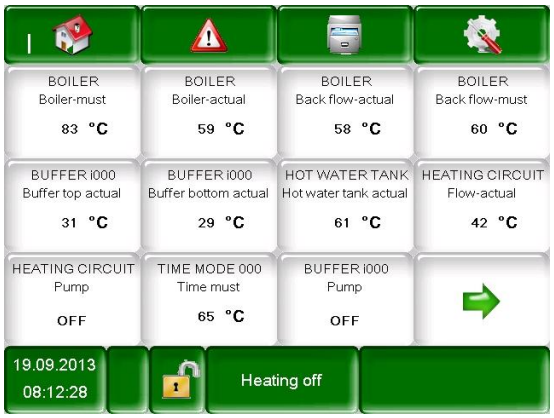


Figure 11.9: Load scheme

Screen:

Figure 11.10: Determining display values

Note:

The values of the default scheme can also be adapted individually. Thereby press 3-5 seconds on the value and then follow the procedure described in Figure 11.12.

By pressing the following button:

Boiler-must, Power, Back flow-must, etc.	the value will be confirmed so that it will be displayed on the main menu.
	the page for selecting the individual modules will be displayed again (see Fig. 11.10)
	the second page of display values for the boiler or the individual module will be displayed

Note:

The same applies to all other modules.

11.8.2 Deleting main menu display values

Navigation:	→ [ ] → 111 → OK → [ ] → show value → delete all	Navigation:	→ [ ] → 111 → OK → press display value for 3-5 seconds → delete actual

Screen:

Figure 11.11: Delete all display values

Screen:

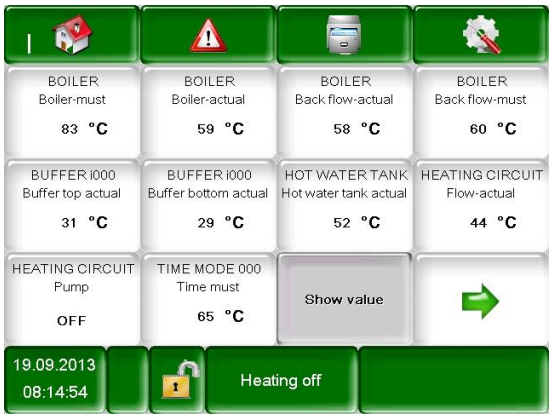
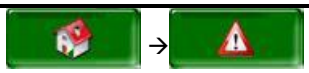


Figure 11.12: Delete actual display value

11.9 Fault messages and warnings

Navigation:	

Screen:

Figure 11.13: Fault messages

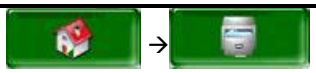
By pressing the following button:	
Actual	current fault messages will be displayed.
Archive	all fault messages will be displayed.

Note:

- A red highlighted field represents an active fault (appears in the lower right box of the screen).
- An orange highlighted field represents a warning.
- A yellow highlighted field represents information (No fault has occurred).
- A green highlighted field, where the fault text is crossed out, represents a fault or a warning which is receipted and not active anymore (only in the area archive obvious)

An overview of all errors and their correction is shown in chapter 12 (starting on page 68).

11.10 Modules overview

Navigation:	

Screen:

Figure 11.14: Modules overview

By pressing the following button:	
BOILER 000	the „boiler values“ menu will be displayed *(see chapter 11.12.)*
BUFFER i000	the „buffer values“ menu will be displayed *(see chapter 11.12.2)*
HOT WATER TANK i001	the „hot water tank values“ menu will be displayed *(see chapter 11.12.3)*
HEATING CIRCIUT i002	the „heating circuit values“ menu will be displayed *(see chapter 11.12.4)*
TIME MODE 000	the „time mode“ menu will be displayed *(see chapter 11.12.5)*
SOLAR i004	the „solar values“ menu will be displayed *(see chapter 11.12.6)*
HYDR. COMPENSATOR i000	the „hydr. compensator “ menu will be displayed *(see chapter 11.12.7)*
NET PUMP i001	the „net pump“ menu will be displayed *(see chapter 11.12.8)*
ZONE VALVE e003	the „zone valve“ menu will be displayed *(see chapter 11.12.9)*
EXT. REQUIREMENT e004	the „external requirement“ menu will be displayed *(see chapter 11.12.10)*
	you can navigate through the menu of the modules (up resp. down).

11.11 Module configuration

Boiler	Overview
	Status
	Settings
	Suction times
	Outputs
	Inputs
	Operating hours

Buffer	Overview
	Status
	Settings
	Agg-Test

Hot water tank	Overview
	Status
	Settings
	Time program
	Circulation times
	Agg-Test

Heating circuit	Overview
	Status
	Operation modes
	Parameter
	Heat curve.
	Time program
	Agg-Test

Time mode	Time program
	Settings

Solar	Overview
	Status
	Settings
	Agg-Test

Hydraulic compensator	Overview
	Settings
	Agg-Test

Net pump	Overview
	Settings
	Agg-Test

Zone valve	Overview
	Status
	Settings
	Agg-Test

Ext. requirement	Overview
	Settings

Additional boiler	Settings

11.12 Terms and definitions

In this chapter all parameters and terms of the different modules are explained.

Some terms can be a display value and a setting value. To recognize these, they are marked with a *.

- The term is a display value if aggregate test is inactive □ the symbol of the aggregate test is: ✋
- If the aggregate test is active (by pressing the symbol ✋ the hand will change to green and the aggregate test gets activated) the individual components can be tested by pressing the control lamp. Now the term is a so-called setting value.

11.13 Boiler

MODUL

Boiler	Buffer	Hot water tank	Heating circuit	Time mode	
Solar	Hydr.compensat	Net pump	Zone valve	Ext. requirement	addit. boiler

Menu structure

Overview I	
Overview II	
Status I	Boiler temperature Back flow temperature Flue gas temperature Boiler power Back flow mixer Back flow pump
Status II	Stoker temperature Burning chamber temperature ID fan Rotation speed Burner air flap
Status III	ID fan correction Material correction Insertion – tact Insertion – pause O2 [%] CO2 [%]
Status IV	Log wood – buffer top Log wood – buffer bottom Primary air flap Secondary air flap O2 [%] CO2 [%]
Settings I	Operation mode Residual heat temperature

Settings II **Pellets mode**	Control hysteresis Minimum requirement Power max Waiting period Fuel
Settings III **Log wood mode**	Boiler max. temperature Boiler must temperature Buffer difference
Suction times	Number of suction times Time 1 Time 2 Time 3 Time 4
Outputs I	Stoker screw release Stoker screw BFP open Discharge screw Container screw Pellets stirrer
Outputs II	Grate cleaning Ignition heating Ignition fan Output temperature control Operating alarm unit Burner air flap
Outputs III	Back flow pump Back flow mixer open Back flow mixer close Sum annoyance Heatexchanger cleaning
Outputs IV	Lambda heating ID-Fan Primary air flap Secondary air flap

MODUL

Boiler	Buffer	Hot water tank	Heating circuit	Time mode

Solar	Hydr.compensat	Net pump	Zone valve	Ext. requirement	addit. boiler

○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ● ○ ○ ○ ○

Inputs I	Grate closed Tank empty BFP closed BFP open Temp. control storage room Additional input

○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ● ○

Operating hours Log wood mode	Nominal load: Modulation: Ready: Heat up/Restart: Burner run time: Total:

○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ● ○ ○ ○

Inputs II	Motor prot. discharge screw Burner stop Ash door opened Vacutrans flap opened Barrier level available

○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ●

Operating hours Pellets mode	Nominal load: Modulation: Part load: Scorch- /burn out: Burner run time: Total:

○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ● ○ ○

Inputs III	Heatexchanger cleaning STC Door opened

11 Description of the menu navigation and adjustment values

MODUL

Boiler	Buffer	Hot water tank	Heating circuit	Time mode	
Solar	Hydr.compensat	Net pump	Zone valve	Ext. requirement	addit. boiler

Term	Description	Unit
Overview II	○ ● ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○	
Operation mode	Display the operation mode (Automatic mode, Log wood mode or ignition Log wood)	-
Log wood mode	Display the operation mode	-
Pellets mode	Display the operation mode	-
Buffer load status	In the "Overview II" the buffer load status depending on the charge state is shown in different colors: Buffer displayed in red means that the buffer is full. Buffer displayed in red-blue means that the buffer is half full. Buffer displayed in blue means that the buffer is empty.	-
Status I	○ ○ ● ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○	
Boiler temperature	Display of the boiler temperature (55-90)	°C
Back flow temperature	Display of the back flow temperature (>60)	°C
Flue gas temperature	Display of the flue gas temperature (= flue gas temperature)	°C
Boiler power	Display of the current boiler output	%
Back flow mixer	Indication of the actual state (OPEN/CLOSE) of the back flow mixer	-
Back flow pump	Indication of the actual state (ON/OFF) of the back flow pump	-
Status II	○ ○ ○ ● ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○	
Stoker temperature	Display of the stoker screw temperature (= feeding screw temperature)	°C
Burning chamber temperature	Display of the burning chamber temperature (= temperature in the combustion chamber)	°C
ID Fan	Display of the actual power of the ID-fan.	%
Rotation speed	Display of the actual rotation speed of the ID-fan.	%
Burner air flap	Display the value of the burner air flap.	%
Status III	○ ○ ○ ○ ● ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○	
ID fan correction	Display of the actual induced-draught fan correction of the lambda control	%
Material correction	Display of the actual material correction of the lambda control	%
Insertion - tact	Display of the stoker screw (= feeding screw) interval, when fuel is fed in burning chamber -Interval is adjusted by the customer service!	0,1 s
Insertion - pause	Display of the stoker screw (= feeding screw) interval, when no fuel is fed in burning chamber -Interval is adjusted by the customer service	0,1 s
O2 [%]	Display of the actual fuel gas O2-content (oxygen content).	%
CO2 [%]	Display of the actual fuel gas CO2-content (carbon dioxide content)	%
Status IV	○ ○ ○ ○ ○ ● ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○	
Log wood - buffer top	Display of the actual Log wood - buffer top (30-65)	°C

MODUL

Boiler	Buffer	Hot water tank	Heating circuit	Time mode
Solar	Hydr.compensat	Net pump	Zone valve	Ext. requirement	addit. boiler

Term	Description	Unit
Log wood - buffer bottom	Display of the actual Log wood - buffer bottom (3-20)	°C
Primary air flap	Display of the actual Primary air flap	%
Secondary air flap	Display of the actual Secondary air flap	%
O2 [%]	Display of the actual fuel gas O2-content (oxygen content).	%
CO2 [%]	Display of the actual fuel gas CO2-content (carbon dioxide content)	%
Settings I	○ ○ ○ ○ ○ ○ ● ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○	
Operation mode	Display of the operation mode	-
Residual heat temperature	Setting up the residual heat temperature (30-65) e.g.: temperature after fuel burnout, when (at the latest) return flow pump gets turned off(30-65)	°C
Settings II Pellets mode	○ ○ ○ ○ ○ ○ ○ ● ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○	
Control hysteresis	Setting up the control hysteresis (3-20). It is a temperature, which exceeds regulated the required boiler temperature. ▪ Value gets set by service staff!	°C
Minimum requirement	Setting up the minimal boiler set temperature (65-75) during operation	°C
Power max	Setting up the maximum power (30-100) of the boiler. Enable regulation of the boiler power (limitation)	%
Waiting period	After combustion of the log wood boiler the pellet burner starts only after this waiting period (only in automatic mode), currently this time was fix deposit (1-60)	min.
Fuel	Setting up predefined fuels (e.g.: pellets, wood chips, etc.)	-
Settings III Log wood mode	○ ○ ○ ○ ○ ○ ○ ○ ● ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○	
Boiler max. temperature	Display of the temperature for control end (system switches to status Ready or starts with pellet mode)	°C
Boiler must temperature	Display the temperature for the control start	°C
Buffer difference	Display the difference between the boiler temperature and buffer bottom temperature for the activation of the return flow pump	°C
Suction times	○ ○ ○ ○ ○ ○ ○ ○ ○ ● ○ ○ ○ ○ ○ ○ ○ ○ ○ ○	
Suction times boiler	Setting the number of the suction times. (1-5)	-
Time 1 – Time 5	Setting the time, when the boiler suck pellets.	-
Outputs I	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ● ○ ○ ○ ○ ○ ○ ○ ○ ○	
Stoker screw release	Display of the state of the stoker screw release. • When the indicator lamp lights up the fuel will be inserted.	-
Stoker screw *	Indication of the state of the stoker screw. ▪ When the indicator lamp lights up the fuel will be inserted.	-
BFP open*	Display, if the back burn flow protection (BFP-flap) is open : ▪ When the indicator lamp lights up the BFP is open. ▪ The burn back protection prevents burn back in the silo that means, that the area between the combustion chamber and the storage room is separated.	-

11 Description of the menu navigation and adjustment values

MODUL

Boiler	Buffer	Hot water tank	Heating circuit	Time mode	
Solar	Hydr.compensat	Net pump	Zone valve	Ext. requirement	addit. boiler

Term	Description	Unit
Discharge screw *	Indication of the state of the discharge screw (=room discharge). ▪ When the indicator lamp lights up fuel is discharged from the storage.	-
Container screw *	Indication of the state of the container screw. ▪ When the indicator lamp lights up fuel is discharged.	-
Pellets stirrer*	Indication of the state of the pellets stirrer: ▪ When the indicator lamp lights up fuel is discharged with the pellets stirrer.	-
Outputs II	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ● ○ ○ ○ ○ ○ ○ ○	
Grate cleaning *	Indication of the state of the Grate cleaning: ▪ When the indicator lamp lights up the grate will be cleaned automatically.	-
Ignition heating	Indication of the state of the heating ignition • When the indicator lamp lights up the heating will be activated (only by the start-up) and the fuel will get ignited.	-
Ignition fan	Indication of the state of the fan ignition • When the indicator lamp lights up the fan will be activated (only by the start-up)	-
Output temperature control	Indication of the state of the temperature control in the storage room: • A lighted indicator lamp signaled a too high temperature in the storage room	-
Operating alarm unit	The indicator lamp is active if the system is in operation (only in the operating mode „Heating off“ is the indicator lamp not active).	-
Burner air flap	Indication of the state of the Burner air flap	%
Outputs III	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ● ○ ○ ○ ○ ○ ○	
Back flow pump*	Indication of the state of the back flow pump: ▪ When the indicator lamp lights up the back flow pump is in operation.	-
Back flow mixer open*	Indication of the state of the back flow mixer: ▪ When the indicator lamp lights up the back flow mixer is open	-
Back flow mixer close*	Indication of the state of the back flow mixer: ▪ When the indicator lamp lights up the back flow mixer is closed	-
Sum annoyance*	Displays a common alarm	-
Heatexchanger cleaning*	Indication of the state of the heat exchanger cleaning: ▪ When the indicator lamp lights up the heat exchanger is cleaned automatically ▪ The interval while the heat exchanger is cleaned is adjusted by the customer service	-
Outputs IV	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ● ○ ○ ○ ○ ○	
Lambda heating*	Indication of the state of the lambda heating: ▪ When the indicator lamp lights up the lambda heating is active. ▪ The lambda heating is in every operating mode (except “Heating off”) active.	-
ID fan*	Display of the ID – fan excitation and feedback of the speed.	%
Primary air flap*	Display of the value of the primary air flap	%
Secondary air flap*	Display of the value of the secondary air flap	%

MODUL

Boiler	Buffer	Hot water tank	Heating circuit	Time mode	
Solar	Hydr.compensat	Net pump	Zone valve	Ext. requirement	addit. boiler

Term	Description	Unit
Inputs I	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ● ○ ○ ○ ○	
Grate closed	Indication of the state of the Grate closed: ▪ When the indicator lamp lights up the tipping grate is closed	-
Tank empty	Indication of the state of the Tank empty: ▪ If the indicator lamp lights up, the intermediate hopper is empty	-
BFP closed	Indication of the state of the back burn flow protection (BFP): ▪ If the indicator lamp lights up, the back burn flow protection is closed	-
BFP open	Indication of the state of the back burn flow protection (BFP): ▪ If the indicator lamp lights up, the back burn flow protection is open	-
Temp. control storage room	Indication of the state of the Temperature Control in the storage room: ▪ If the indicator lamp lights up, the temperature in the storage room exceeded the permissible maximum temperature (the storage room temperature control sensor is active.	-
Additional input	Indication of the state of the Additional input: ▪ If the indicator lamp lights up the additional input is active ▪ An additional input can be e.g. a CO-indicator, a system pressure control and so on.	-
Inputs II	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ● ○ ○ ○	
Motor prot. discharge screw	Indicates the status of the stoker screw motor and the ash screw motor protection ▪ If the indicator lamp lights up, the motor protection (stoker- or ash screw) has released.	-
Burner stop	Indication of the state of the system: ▪ When the indicator lamp lights up the burner has stopped over the digital input.	-
Ash door opened	Indication of the state of the ash door: ▪ When the indicator lamp lights up the ash door is open	-
Vacutrans flap opened	Indication of the state of the Vacutrans flap opened: ▪ When the indicator lamp lights up fuel is blocked in the back burn flow protection (Cover limit switch active)	-
Barrier level available	Indication of the state of the barrier level: ▪ When the indicator lamp lights up a barrier level is available, i.e. it is enough material in the stoker screw channel available	-
Inputs III	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ● ○ ○	
Heatexchanger cleaning*	Indication of the state of the heat exchanger cleaning: ▪ When the indicator lamp lights up the heat exchanger is cleaned automatically. ▪ The interval while the heat exchanger is cleaned is adjusted by the customer service.	-
STL	Indication of the state of the safety temperature limiter (STL): ▪ When the indicator lamp lights up the safety temperature limiter was activated, i.e. the boiler turned off when a boiler temperature above 95°C was reached.	-

11 Description of the menu navigation and adjustment values

MODUL

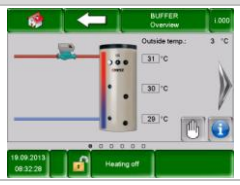
Boiler	Buffer	Hot water tank	Heating circuit	Time mode	
Solar	Hydr.compensat	Net pump	Zone valve	Ext. requirement	addit. boiler

Term	Description	Unit
Door opened	Indication of the state of the casing door: ▪ When the indicator lamp lights up the casing door (Log wood boiler) or the ash door (Pellets-burner) is open.	-
Operating hours Log wood mode	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ● ○	
Nominal load	Displays system operation hours during rated load phase	h
Modulation	Displays system operation hours during modulation phase	h
Ready	Displays system operation hours during Ready phase	h
Heat up/Restart	Displays system operation hours in Heat up and Restart phase	h
Boiler run time	Displays the sum of nominal load-, modulation-, part load- and burn down- /burn out phase	h
Total	Displays total burner (incl. “HEATING OFF”) hours	h
Operating hours pellets mode	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ●	
Nominal load	Displays system operation hours during rated load phase	h
Modulation	Displays system operation hours during modulation phase	h
Part load	Displays system operation hours during part load phase	h
Scorch- /burn out	Displays system operation hours during burning, born down and burnout phase	h
Boiler run time	Displays the sum of nominal load-, modulation-, part load- and burn down- /burn out phase	h
Total	Displays total burner (incl. “HEATING OFF”) hours	h

11.14 Buffer

MODUL				
Boiler	**Buffer**	Hot water tank	Heating circuit	Time mode
Solar	Hydr.compensat	Net pump	Zone valve	Ext. requirement	addit. boiler

Menu structure

● ○ ○ ○ ○ ○	
Overview	

○ ● ○ ○ ○ ○	
Status I	Buffer top temperature Buffer middle temperature Buffer bottom temperature Switching temperature Outside temperature

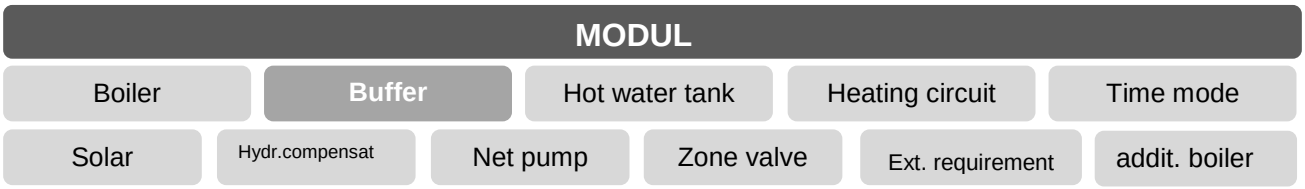
○ ○ ● ○ ○ ○	
Status II	Required temperature Buffer loading pump Fastrun heating

○ ○ ○ ● ○ ○	
Settings I	Winter must temperature Sommer must temperature Difference temperature Switching temperature Temperature increase

○ ○ ○ ○ ● ○	
Settings II	Balance tank Fastrun heating Buffer re-layering Outside temp. sensor Balancing outside sensor

○ ○ ○ ○ ○ ●	
Agg-Test	Buffer loading pump Fastrun open Fastrun close

11 Description of the menu navigation and adjustment values



Term	Description	Unit
Status I	○ ● ○ ○ ○ ○	
Buffer top temperature	Display of the buffer top temperature	°C
Buffer middle temperature	Display of the buffer middle temperature	°C
Buffer bottom temperature	Display of the buffer bottom temperature	°C
Switching temperature	Displays switching temperature (= average daytime temperature). In general the switching temperature conduces to switch between winter must temperature and summer must temperature and backwards.	°C
Outside temperature	Display of the actual outside temperature	°C
Status II	○ ○ ● ○ ○ ○	
Required temperature	Display of the required temperature of the module. • The required temperature is the sum of must temperature winter/summer, difference temperature and temperature increase. (-> is for the function of the temperature manager relevant, see chapter 9)	°C
Buffer loading pump	Indication the state of the buffer loading pump.	-
Fastrun heating	Indicates the state of the fastrun heating valve. • The term is only visible, if “fastrun heating” is activated“. • If fastrun heating is active, the hot water tank upper zone gets heated up with the consumer´s highest requested flow temperature. So the requested flow temperature gets achieved quickly.	-
Settings I	○ ○ ○ ● ○ ○	
Winter must temperature	Setting up the winter set temperature (20-95). That´s the hot water tank bottom temperature, which will be provided during winter operation.	°C
Summer must temperature	Setting up the summer set temperature (15-95). That´s the hot water tank temperature (hot water tank bottom- respectively if installed hot water tank centre temperature), which will be provided during summer operation.	°C
Difference temperature	Setting up the temperature difference between heat supplier (= boiler) and buffer temperature bottom for excitation of the buffer loading pump.	°C
Switching temperature	Displays switching temperature (= average daytime temperature). In general the switching temperature conduces the switching between winter set temperature and summer set temperature.	°C
Temperature increase	Adjusting the temperature increase (5-15) for the required temperature. • Due to power loss you can adjust an addition to the must temperature winter/summer of the tank circuit.	°C
Settings II	○ ○ ○ ○ ● ○	
Balance tank	Indication of the balance tank (ON/OFF) • After the boiler is switched off (e.g. for burner cleaning) there is firstly a comparison to check whether the required temperature (at the buffer) is available. Should this temperature not be reached then the boiler no longer starts up (even if, for example, buffer below target is not reached)	-

MODUL

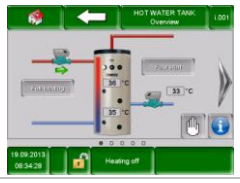
Boiler	**Buffer**	Hot water tank	Heating circuit	Time mode	
Solar	Hydr.compensat	Net pump	Zone valve	Ext. requirement	addit. boiler

Term	Description	Unit
Fastrun heating	Indication of the Fastrun heating (ON/OFF) • If fastrun heating is active, the hot water tank upper zone gets heated up with the consumer´s highest requested flow temperature. So the requested flow temperature gets achieved quickly. • If fastrun heating is active, the will be displayed in status 2.	-
Buffer re-layering	Indication of the Buffer re-layering (ON/OFF) • Re-layering of hot water from heat supplier to hot water tank respectively from hot water tank to hot water tank. • If the buffer is connected directly to the boiler, this parameter must be activated!	-
Outside temp. sensor	Selection of the outside temperature sensor • If multiple outside temperature sensors are installed, the desired one can be assigned to the chosen buffer.	-
Balancing outside sensor	Adjusting the balancing of the outside temperature (-5 to 5)	°C
Agg-Test	○ ○ ○ ○ ○ ●	
Buffer loading pump*	Indication of the state of the buffer loading pump: • If the indicator lamp lights up, the buffer loading pump is activated and the buffer is being charged.	
Fastrun **OPEN***	Indication of the state of the fastrun heating valve: • If the indicator lamp lights up the fastrun heating valve is open and the hot water tank gets heated up with the consumer´s highest requested flow temperature.	
Fastrun **CLOSE***	Indication of the state of the fastrun heating valve: • If the indicator lamp lights up, the fastrun heating valve is closed	

11.14.1 Hot water tank

MODUL				
Boiler	Buffer	**Hot water tank**	Heating circuit	Time mode
Solar	Hydr.compensat	Net pump	Zone valve	Ext. requirement	addit. boiler

Menu structure

● ○ ○ ○ ○ ○	
Overview	Fast start Full loading 

○ ● ○ ○ ○ ○	
Status	Hot water tank temperature Loading valve Hot water tank pump Hot water tank temperature bottom Load-through valve Circulation temperature Circulation pump

○ ○ ● ○ ○ ○	
Settings	Must-temperature Min.loading / temperature Temp.increase Max. loading time Legio temperature Circulation pump Loading valve

○ ○ ○ ● ○ ○	
Time program	Time

○ ○ ○ ○ ● ○	
Circulation Time	Time

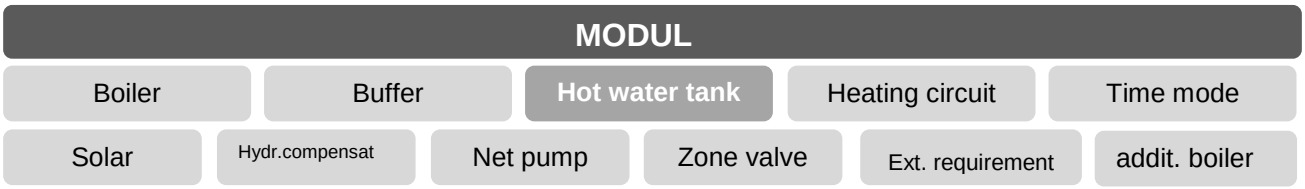
○ ○ ○ ○ ○ ●	
Agg-Test	Hot water tank pump Loading valve Load-through valve Circulation pump

MODUL

Boiler	Buffer	**Hot water tank**	Heating circuit	Time mode	
Solar	Hydr.compensat	Net pump	Zone valve	Ext. requirement	addit. boiler

Term	Description	Unit
Overview	● ○ ○ ○ ○ ○	
Fast start	Activates the fast start up (ON/OFF) If fast start up is activated, the hot water tank is heated independently (maximum loading time) to the requested set temperature.	-
Full loading	Activates a full loading of the hot water tank (ON/OFF) If full-loading is activated, the hot water tank is heated up to the requested set temperature. (→only available, if second temperature sensor is installed)	-
Status	○ ● ○ ○ ○ ○	
Hot water tank temperature	Displays the hot water tank upper zone temperature	°C
Loading valve	Indication of the state of the loading valve (→ only visible, if hot water tank pump is activated)	-
Hot water tank pump	Indication of the state of the Hot water tank pump (→ only visible, if loading valve is inactivated)	-
Hot water tank temperature bottom	Displays the hot water tank bottom zone temperature (→ only visible, if second temperature sensor is installted)	°C
Load-through valve	Indicates the state of the load-through valve (→ only visible, if load-through valve is activated and a heat pump is installed)	-
Circulation temperature	Indicates the circulation temperature (→ only visible, if circulation pump is activated)	°C
Circulation pump	Indicates the state of the circulation pump (→ only visible, if circulation pump is activated)	-
Settings	○ ○ ● ○ ○ ○	
Must-temperature	Setting up the hot water tank set temperature (50-85).	°C
Min.loading / temperature	Indicates/activates the min. loading / temperature (20-55) (ON/OFF) ▪ If the hot water tank min. loading / temperature is activated and the state out of max loading time, the hot water tank temperature will be set equal to min. loading / temperature. ▪ If hot water tank temperature is lower than the min. loading / temperature value, the hot water tank loading will start	°C
Temp.increase	Setting up an increase (0-15) of the required hot water tank temperature ▪ Compensates heat loss by exceeding the hot water tank set temperature	°C
Max. loading time	Setting up maximum hot water tank loading time (0-10), when hot water tank is loaded up to hot water tank set temperature	h
Legio temperature	Setting up the legionella temperature (0-95) ▪ Hot water tank will be heated up, within the given hot water tank loading time, to the legionella temperature weekly to kill bacteria ▪ A deactivation of this parameter is done by setting up the legionella temperature to 0 °C.	°C

11 Description of the menu navigation and adjustment values

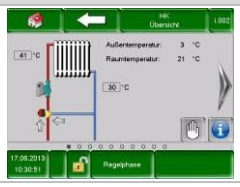


Term	Description	Unit
Circulation pump	Activates the circulation pump (ON/OFF) ▪ During the hot water tank loading time the circulation pump is switched on 2 minutes for every 10 minutes ▪ If circulation pump is activated, „circulation pump“ is available at the agg-test and the parameter seting (0-85, limited to hot water tank target temperature)	- °C
Loading valve	Activates the loading valve (ON/OFF) ▪ If loading valve is activated, „loading valve“ is available at the agg-test (→ only if loading valve is installed)	-
Time program	○ ○ ○ ● ○ ○	
Time 1	Three different time options are available: time 1: 08:00 – 10:00 time 2: 15:00 – 21:00 time 3: 00:00 – 00:00	-
08:00 – 11:00	Setting up individual hot water tank loading times of every weekday	-
	Monday preset gets assigned to remaining weekdays	-
Circulation time	○ ○ ○ ○ ● ○	
Time 1	Three different time options are available: time 1: 08:00 – 10:00 time 2: 15:00 – 21:00	
08:00 – 11:00	Setting up individual circulation pump in operation of every weekday.	
	Monday preset gets assigned to remaining weekdays	
Agg-Test	○ ○ ○ ○ ○ ●	
Hot water tank pump*	Indicates the state of the hot water tank pump: ▪ If the indicator lamp lights up, the hot water tank pump is running ▪ Only visible, if “loading valve” is not activated	-
Loading valve*	Indicates the state of the loading valve: ▪ If the indicator lamp lights up, the loading valve is open ▪ Only visible, if “loading valve” is activated	-
Load-through valve*	Indicates the state of the load-through valve: ▪ If the indicator lamp lights up, the load-through valve is open and the hot water tank is loaded faster (= fast start) ▪ Only visible, if “loading valve” is activated	-
Circulation pump*	Indicates the state of the circulation pump: ▪ If the indicator lamp lights up, the circulation pump is running ▪ Only visible, if “circulation pump” is activated	-

11.14.2 Heating circuit

MODUL				
Boiler	Buffer	Hot water tank	**Heating circuit**	Time mode
Solar	Hydr.compensat	Net pump	Zone valve	Ext. requirement	addit. boiler

Menu structure

● ○ ○ ○ ○ ○ ○ ○ ○ ○	
Overview	

○ ○ ○ ○ ○ ○ ● ○ ○ ○	
Heat curve	

○ ● ○ ○ ○ ○ ○ ○ ○ ○	
Status I	Flow temperature Back flow temperature Outside temperature Room temperature Room correction

○ ○ ○ ○ ○ ○ ○ ● ○ ○	
Heat curve settings	Flow temperature maximum Root point temperature Flow temperature at +10 °C Adjustable outside temperature Flow at adjustable outside temp. Actual outside temperature Switch off temperature

○ ○ ● ○ ○ ○ ○ ○ ○ ○	
Status II	Switching temperature Heating circuit mixer Heating circuit pump Screed days

○ ○ ○ ○ ○ ○ ○ ○ ● ○	
Time program	Time

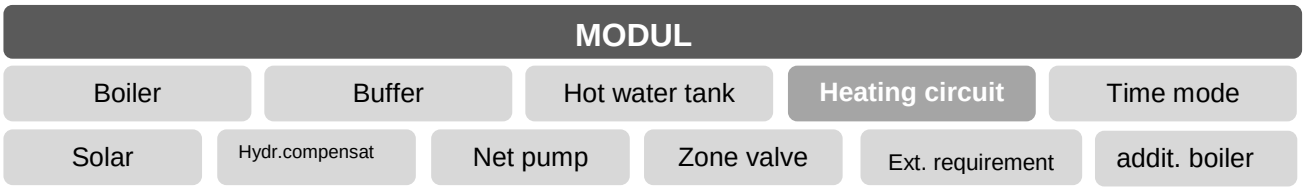
○ ○ ○ ● ○ ○ ○ ○ ○ ○	
Operation mode	Heating circuit · Heating time mode · Durable heat · Durable kneeling · Flow fixed · Remote control · Screed drying Actual heating circuit mode Remote control number Balancing room sensor Kneeling barrier over room temp.

○ ○ ○ ○ ○ ○ ○ ○ ○ ●	
Agg-Test	Heating circuit pump Heating circuit mixer OPEN Heating circuit mixer CLOSE

○ ○ ○ ○ ● ○ ○ ○ ○ ○	
Parameter I	Room must temperature Kneeling temperature Flow fixed temperature Room influence Correction Kneeling influence End run

○ ○ ○ ○ ○ ● ○ ○ ○ ○	
Parameter II	Switching temperature Temp. increase Outside temp. sensor Balancing outside sensor Hot water tank priority Kneeling barrier

11 Description of the menu navigation and adjustment values

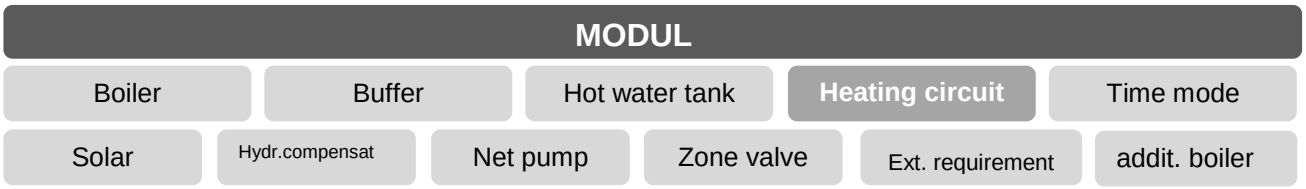


Term	Description	Unit
Status I	○ ● ○ ○ ○ ○ ○ ○ ○ ○	
Flow temperature	Displays the flow temperature of chosen heating circuit	°C
Back flow temperature	Displays the back flow temperature of chosen heating circuit	°C
Outside temperature	Displays the actual outside temperature	°C
Room temperature	Displays the room temperature	°C
Room correction	Displays the room correction	°C
Status II	○ ○ ● ○ ○ ○ ○ ○ ○ ○	
Switching temperature	Displays switching temperature (= average daytime temperature). In general the switching temperature conduces to switch between winter must temperature and summer must temperature and backwards.	°C
Heating circuit mixer	Indicates the state of the Heating circuit mixer (OPEN/CLOSE)	-
Heating circuit pump	Indicates the state of the heating circuit pump (ON/OFF)	-
Screed days	Setting up screed drying heat day • Only visible, if operation mode “screed drying” is activated	-
Operation mode	○ ○ ○ ● ○ ○ ○ ○ ○ ○	
Heating circuit	Activation of the heating circuit (ON/OFF)	-
Operation mode	Selection operation modes: • Heating time mode: Heating corresponds to the set heating time. • Durable heat: Constant heat up to required set room temperature or to the calculated feed flow target temperature. • Durable kneeling: Constant heat up to setback temperature respectively calculated flow temperature during setback time. • Flow fixed: A defined feed flow set temperature will be held constantly during the set heating time. • Remote control: Modus corresponds to the remote control setting. Only activatable, if remote control is connected. • Screed drying: Modus of screed drying. The operation of the screed drying is described on page 50.	-
Actual heating circuit mode	Indicates the actual heating circuit operating mode	-
Remote control number	Selection of heating circuit´s remote control	-
Balancing room sensor	Setting room sensor balancing (-5 to +5)	°C
Kneeling barrier over room temp	Activates the Kneeling barrier (ON/OFF) → only possible with remote control: • If actual room temperature is higher then set room temperature, the option of the Kneeling barrier provides a lock of the heating circuit.	-

MODUL					
Boiler	Buffer	Hot water tank	**Heating circuit**	Time mode	
Solar	Hydr.compensat	Net pump	Zone valve	Ext. requirement	addit. boiler

Term	Description	Unit
Parameter I	○ ○ ○ ○ ● ○ ○ ○ ○ ○	
Room must temperature	Setting up the required room temperature during heating time. This setting is only used in connection with a remote control.	°C
Kneeling temperature	Setting up required room temperature during lowering time (10-22).	°C
Flow fixed temperature	Setting up the flow temperature (20 to maximum flow set temperature) during the set heating time (operation mode “flow fixed”.	°C
Room influence	Room influence (0-10) influences the flow temperature as a function of the room temperature: • Depending on the level of this value (0-10), the difference of required room- and room set temperature exerts more influence on the calculation of the flow set temperature	-
Correction	The correction influences respectively adjust the flow set temperature: • This value (-5 to +5) gets multiplied by 2 and added to the flow set temperature	°C
Kneeling influence	Setting up the factor (0-10) of the lowering temperature influence.	-
End run	Setting up outside temperature (-25 to 10) which conducts a permanent running of the pump to avoid freezing.	°C
Parameter II	○ ○ ○ ○ ○ ● ○ ○ ○ ○	
Switching temperature	Setting up the switching temperature (10-35). That´s the average daytime temperature that conducts the switching between winter set temperature and summer set temperature. A higher level of the switching temperature will delay the switching to summer operation.	°C
Temp. increase	Setting up an increase (0-15) of the required heat circuit temperature Compensates heat loss between buffer and heat circuit by exceeding the hot water tank set temperature. High heat loss assumes a higher value.	°C
Outside temp. sensor	Selection of the outside temperature sensor • If multiple outside temperature sensors are installed, the desired one can be assigned to the chosen heat circuit.	-
Balancing outside sensor	Adjusting the balancing of the outside temperature sensor • Adjustment with a reference thermometer (actual outside temperature)	°C
Hot water tank priority	Activation hot water tank priority (ON/OFF) • The hot water tank is loaded prior compared to the heating circuit.	-
Kneeling barrier	Activation kneeling barrier (ON/OFF) • Heating circuit gets locked during permanent reduction respectively beyond heating time.	-
Heat curve settings	○ ○ ○ ○ ○ ○ ○ ● ○ ○	
Flow temperature maximum	Setting up maximum flow temperature (30-95) of chosen heating circuit.	°C

11 Description of the menu navigation and adjustment values



Term	Description	Unit
Root point temperature	Setting up the minimum flow temperature (20-70) of chosen heating circuit	°C
Flow temperature at +10 °C	Setting up flow temperature (20-90) of chosen heating circuit at +10°C outside temperature	°C
Adjustable outside temperature	Setting up flow temperature (25-95) of chosen heating circuit at a adjustable outside temperature	°C
Actual outside temperature	Setting up outside temperature (-20 to -10) of chosen heating circuit regarding flow set temperature	°C
Switch off temperature	Indicates the actual outside temperature	°C
Flow temperature maximum	Setting up outside temperature (10-40) regarding deactivation of chosen heating circuit	°C
Time program	○ ○ ○ ○ ○ ○ ○ ○ ● ○	
Time 1	Three different time options are available: Time 1: 08:00 – 10:00 Time 2: 15:00 – 21:00 Time 3: 00:00 – 00:00	-
08:00 – 11:00	Setting up individual heating circuit loading times of every weekday	-
	Monday preset gets assigned to remaining weekdays	-
Agg-Test	○ ○ ○ ○ ○ ○ ○ ○ ○ ●	
Heating circuit pump*	Indication of the state of the heating circuit pump: • When the indicator lamp lights up the heating circuit pump is running	-
Heating circuit mixer OPEN*	Indication of the state of the heating circuit mixer: • When the indicator lamp lights up the heating circuit mixer is open	-
Heating circuit mixer CLOSE*	Indication of the state of the heating circuit mixer: • When the indicator lamp lights up the heating circuit mixer is closed	-

Operation mode „Screed drying“

Bake out day	Flow set temperature in °C
1	25
2	30
3	35
4	40
5 – 12	45
13	40
14	35
15	30
16	25
17 – 23	10
24	30
25	35
26	40
27	45
28	35
29	25

If screed drying gets interrupted, resume drying as follow:	
Interrupting day	Continuation day
0 – 15	1
16	16
17 – 23	17
24 – 28	24
29	29

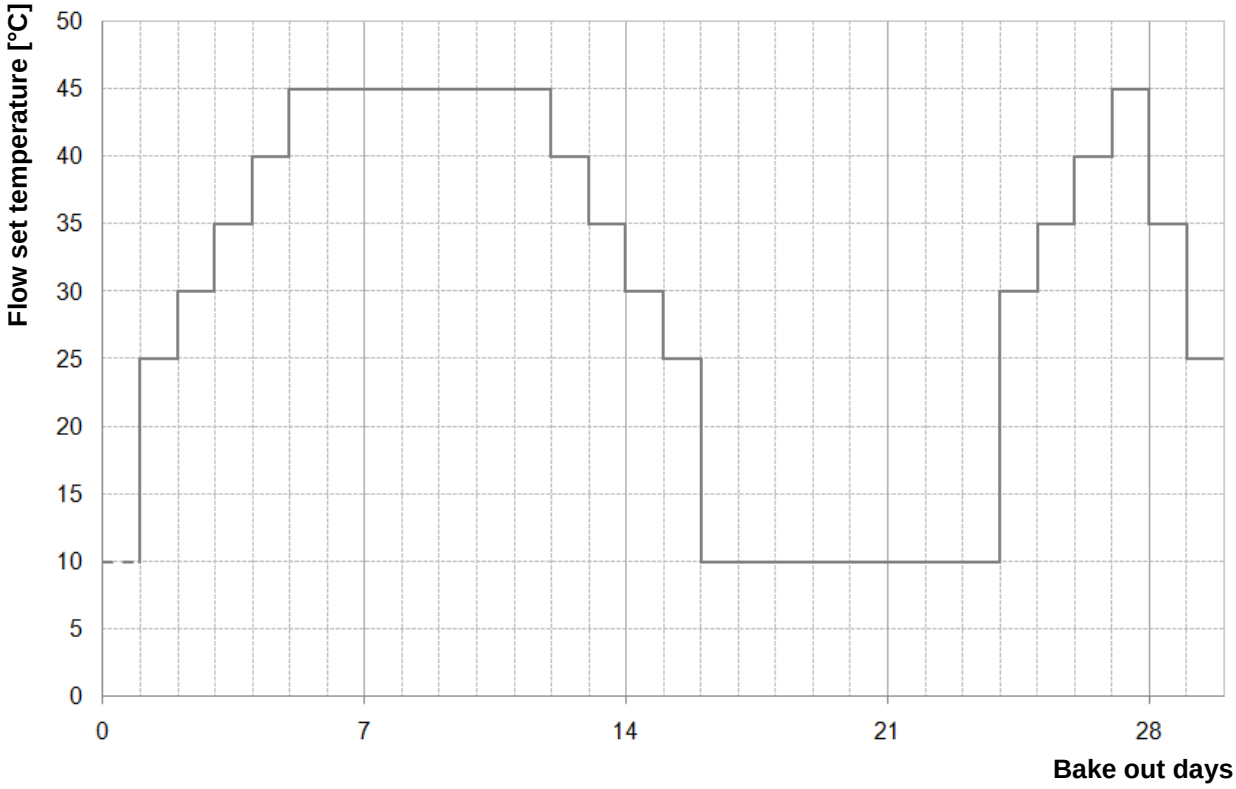
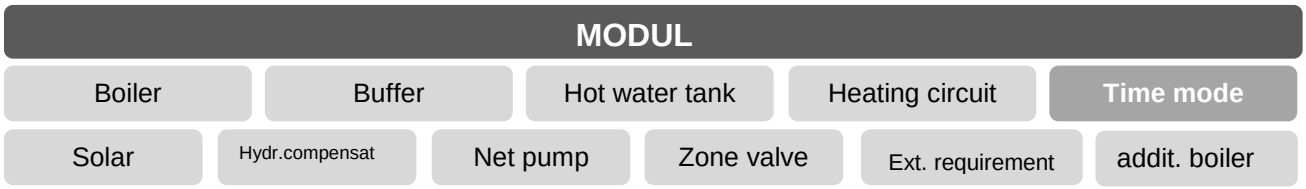


Figure 11.17: Flow set temperature as a function of the bake out day at the operation mode „Screed drying"

11.14.3 Time mode



Menu structure

● ○	
Time program	Time

○ ●	
Settings	Time requirement

Term	Description	Unit
Time program	● ○	
Time 1	Three different time options are available: time 1: 08:00 – 10:00 Uhr time 2: 15:00 – 21:00 Uhr time 3: 00:00 – 00:00 Uhr	-
08:00 – 11:00	Setting up individual hot water tank loading times of every weekday	-
	Monday preset gets assigned to remaining weekdays	-
Settings	○ ●	
Time requirement	If the boiler works only as a heat supplier (no heating circuit installed), the set up boiler set temperature (20-100) gets supplied during the set heating times.	°C

11.14.4 **Solar**

MODUL					
Boiler	Buffer	Hot water tank	Heating circuit	Time mode	
Solar	Hydr.compensat	Net pump	Zone valve	Ext. requirement	addit. boiler

NOTE: At the solar module 5 resp. 6 (only at external solar module) program numbers are available, which are set up by the service technician. The only differences of the programs are the integration and the number of tanks (e.g. hot water tank, buffer). The hydraulic schemes of the different modules are described in appendix.

Menu structure

● ○ ○ ○ ○ ○	
Overview	

○ ● ○ ○ ○ ○	
Status I	Collector flow temperature Collector backflow temperature Tank 1 temperature Tank 2 temperature

○ ○ ● ○ ○ ○	
Status II	Actual yield Daily yield Total yield Collector pump Loading pump Switching valve

○ ○ ○ ● ○ ○	
Settings I	Program number Antifreeze Flow rate Rotation speed control Min. rotation speed Must value Control difference

○ ○ ○ ○ ● ○	
Settings II	Pump trigger Tank 1 must temperature Difference 1 Tank 1 max. temperature Tank 2 must temperature Difference 2 Tank 2 max. temperature

○ ○ ○ ○ ○ ●	
Agg-Test	Collector pump Loading pump Switching valve OPEN Switching valve CLOSE

11 Description of the menu navigation and adjustment values

MODUL

Boiler	Buffer	Hot water tank	Heating circuit	Time mode	
Solar	Hydr.compensat	Net pump	Zone valve	Ext. requirement	addit. boiler

Term	Description	Unit
Status I	○ ● ○ ○ ○ ○	
Collector flow temperature	Displays the collector flow temperature	°C
Collector backflow temperature	Displays the collector backflow temperature	°C
Tank 1 temperature	Displays the temperature of tank 1 (e.g.: hot water tank, buffer)	°C
Tank 2 temperature	Displays the temperature of tank 2 (e.g.: hot water tank, buffer) (only visible, if program 3, 4, 5 or 6 is chosen)	°C
Status II	○ ○ ● ○ ○ ○	
Actual yield	Indication of the current energy yield	W
Daily yield	Indication of the energy yield on one day (from 0 – 24h)	Wh
Total yield	Indication of the total energy yield measured	kWh
Collector pump	Indication of the state of the collector pump	-
Loading pump	Indication of the state of the loading pump ▪ only visible, if program number 2 or 6 is chosen	-
Switching valve	Indication of the state of the switching valve ▪ only visible, if program number 3,4,5 or 6 is chosen	-
Settings I	○ ○ ○ ● ○ ○	
Program number	Indicates the program number (1 to 6)	-
Antifreeze	Outside temperature setting (-45 to 5) which conducts a permanent running of the solar pump to avoid freezing.	°C
Flow rate	Flow rate setting (0-99,9) for calculating solar output resp. for calculating the yield	l/min
Rotation speed control	Activation of speed regulation (ON/OFF)	-
Min. rotation speed	Setting up minimum rotation speed (20-100) of the solar pump	%
Must value	Setting up rotation speed set point of solar pump	°C
Control difference	Setting up the control difference of the rotation speed control (if active)	°C
Settings II	○ ○ ○ ○ ● ○	
Pump trigger	Setting up minimum collector temperature (15-70) to start up the solar pump	°C
Tank 1 must temperature	Setting up must temperature (25-90) of tank 1	°C
Difference 1	Difference between collector and tank 1	°C
Tank 1 max. temperature	Setting up maximum temperature (25-95) of tank 1	°C
Tank 2 must temperature	Setting up must temperature (25-90) of tank 1 (→ only visible, if program number 3, 4, 5 or 6 is chosen)	°C
Difference 2	Setting up the difference (5-30) between collector and tank 1 (→ only visible, if program number 3, 4, 5 or 6 is chosen)	°C

MODUL

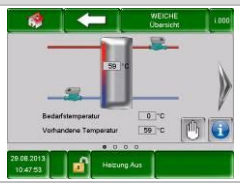
Boiler	Buffer	Hot water tank	Heating circuit	Time mode	
Solar	Hydr.compensat	Net pump	Zone valve	Ext. requirement	addit. boiler

Term	Description	Unit
Tank 2 max. temperature	Setting up maximum tank temperature (25-95) of tank 1 (→ only visible, if program number 3, 4, 5 or 6 is chosen)	°C
Agg-Test	○ ○ ○ ○ ○ ●	
Collector pump*	Indication of the state of the collector pump: • If the indicator lamp lights up, the collector pump is running.	-
Loading pump*	Indicates the state of the loading pump (→ only visible, if program number 2 or 6 is chosen) ▪ If the indicator lamp lights up, the loading pump is running	-
Switching valve OPEN*	Indicates the state of the switching valve (→ only visible, if program number 3, 4, 5 or 6 is chosen) ▪ If the indicator lamp lights up, the switching valve is open	-
Switching valve CLOSE*	Indication of the state of the switching valve (→ only visible, if program number 3, 4, 5 or 6 is chosen) ▪ If the indicator lamp lights up, the switching valve is closed	-

11.14.5 Hydraulic compensator

MODUL					
Boiler	Buffer	Hot water tank	Heating circuit	Time mode	
Solar	**Hydr.compensat**	Net pump	Zone valve	Ext. requirement	addit. boiler

Menu structure

● ○ ○ ○	
Overview	

○ ● ○ ○	
Status	Hydr. compensator temperature Existing temperature Required temperature Pump 1 Pump 2

○ ○ ● ○	
Settings	Switch on barrier Temp.increase

○ ○ ○ ●	
Agg-Test	Pump 1 Pump 2

MODUL

Boiler | Buffer | Hot water tank | Heating circuit | Time mode

Solar | Hydr.compensat | Net pump | Zone valve | Ext. requirement | addit. boiler

Term	Description	Unit
Status	○ ● ○ ○	
Hydr. compensator temperature	Display of the temperature in the hydr. compensator ▪ In the hydr. compensator is a temperature sensor which measures the temperature in the hydr. compensator	°C
Existing temperature	Display of the flow temperature of the preceding module (e.g. boiler, buffer)	°C
Required temperature	Display of the required temperature of the downstream module (e.g. heating circuit)	°C
Pump 1	Indication of the state of pump 1 (ON/OFF) ▪ Pump 1 is the pump in the back flow on the primary side	-
Pump 2	Indication of the state of pump 2 (ON/OFF) ▪ Pump 2 is the pump in the flow on the secondary side	-
Settings	○ ○ ● ○	
Switch on barrier	Setting the switch on barrier for pump 2: ▪ Is the flow temperature of the preceding module (e.g. boiler, buffer) higher than the adjusted switch on barrier, pump 2 is switched on. Is this not the case, pump 2 stays switched off.	°C
Temp.increase	Adjusting the temperature increase for the required temperature ▪ Due to heat losses you can adjust an addition to the required temperature of the downstream module	°C
Agg-Test	○ ○ ○ ●	
Pump 1*	Indication of the state of pump 1: ▪ Pump 1 is the pump in the back flow on the primary side ▪ When the indicator lamp lights up pump 1 is switched on	-
Pump 2*	Indication of the state of pump 2: ▪ Pump 2 is the pump in the flow on the secondary side ▪ When the indicator lamp lights up pump 2 is switched on	-

11.14.6 Net pump

MODUL				
Boiler	Buffer	Hot water tank	Heating circuit	Time mode
Solar	Hydr.compensat	**Net pump**	Zone valve	Ext. requirement	addit. boiler

Menu structure

● ○ ○ ○	
Overview	

○ ○ ● ○	
Settings	Switch on barrier Temp.increase

○ ● ○ ○	
Status	Existing temperature Required temperature Pump

○ ○ ○ ●	
Agg-Test	Pump

Term	Description	Unit
Status	○ ● ○ ○	
Existing temperature	Display of the temperature of the preceding module e.g. buffer top temperature by the buffer	°C
Required temperature	Display of the required temperature of the downstream module (e.g. buffer) ▪ The required temperature is those temperature which the preceding module must make the downstream module available	°C
Pump	Indication of the state of the net pump	-
Settings	○ ○ ● ○	
Switch on barrier	Setting the switch on barrier for the net pump: ▪ Is the temperature of the preceding module (e.g. buffer top temperature by the buffer) higher than the adjusted switch on barrier, the net pump is switched on. Is this not the case, the net pump stays switched off.	°C
Temp.increase	Adjusting the temperature increase for the required temperature ▪ Due to heat losses you can adjust an addition to the required temperature of the downstream module	°C
Agg-Test	○ ○ ○ ●	
Pump*	Indication of the state of the net pump: • When the indicator lamp lights up the net pump is switched on	-

11.14.7 Zone valve

MODUL				
Boiler	Buffer	Hot water tank	Heating circuit	Time mode
Solar	Hydr.compensat	Net pump	**Zone valve**	Ext. requirement	addit. boiler

Menu structure

● ○ ○ ○	
Overview	

○ ○ ● ○	
Settings	Switch on barrier Temp.increase

○ ● ○ ○	
Status	Existing temperature Required temperature Zone valve

○ ○ ○ ●	
Agg-Test	Zone valve open

Term	Description	Unit
Status	○ ● ○ ○	
Existing temperature	Display of the temperature of the preceding module (e.g. buffer top temperature by the buffer)	°C
Required temperature	Display of the required temperature of the downstream module (e.g. buffer) ▪ The required temperature is those temperature which the preceding module must make the downstream module available	°C
Zone valve	Indication of the state of the zone valve	-
Settings	○ ○ ● ○	
Switch on barrier	Setting the switch on barrier for the zone valve: ▪ Is the temperature of the preceding module (e.g. buffer top temperature by the buffer) higher than the adjusted switch on barrier, the zone valve is open. Is this not the case, the zone valve stays closed.	°C
Temp.increase	Adjusting the temperature increase for the required temperature ▪ Due to heat losses you can adjust an addition to the required temperature of the downstream module	°C
Agg-Test	○ ○ ○ ●	
Zone valve open*	Indication of the state of the zone valve: • When the indicator lamp lights up the zone valve is open	-

11.14.8 External requirement

MODUL				
Boiler	Buffer	Hot water tank	Heating circuit	Time mode
Solar	Hydr.compensat	Net pump	Zone valve	Ext. requirement	addit. boiler

The external requirement module provides an interface to an external foreign control loop (e.g. central building control system). The requirement, which can be digital or analogue, is registered as a required temperature (e.g. boiler must temperature by the boiler or buffer top temperature by the buffer) in the heat supplier (e.g. boiler or buffer).

Menu structure

● ○ ○	
Overview	External demand Analog must temperature

○ ● ○	
Status	Demand active Analog Must [°C] Analog Must [mV]

○ ○ ●	
Settings	External must temperature Analog must active Analog must temperature 4 mA Analog must temperature 20 mA Analog must temperature max. Analog must-temperatur min. Line monitoring

MODUL

Boiler | Buffer | Hot water tank | Heating circuit | Time mode

Solar | Hydr.compensat | Net pump | Zone valve | **Ext. requirement** | addit. boiler

Term	Description	Unit
Overview	● ○ ○	
External demand	Display, if the external foreign control loop makes a requirement over the digital input or not: ▪ When the indicator lamp lights up the external foreign control loop makes a requirement over the digital input	-
Analog must temperature	Display of the actual analogue must temperature	°C
Status	○ ● ○	
Demand active	Indication of the state of the external demand	-
Analog Must	Display of the actual analogue set temperature	°C
Analog Must	Display of the actual analogue set temperature ▪ The analog must temperature was calculated into a voltage with the diagram in Figure 12 and the relation over Ohm's law	mV
Settings	○ ○ ●	
External must temperature	Here you can set the (digital) external must temperature: ▪ The boiler operates at a demand with a fixed temperature, as far as the analogue must temperature is not higher	°C
Analog must active	Activates the analogues setpoint setting	-
Analog must temperature 4 mA	Setting up lower limit of analogue set temperature at 4 mA (see Figure 12) ▪ If input is a analogue signal of 4 mA, the boiler runs with the set up temperature	°C
Analog must temperature 20 mA	Setting up upper limit of analogue set temperature at 20 mA (see Figure 12). ▪ If input is a analogue signal of 20 mA, the boiler runs with the set up temperature	°C
Analog must temperature max.	Setting up maximum of analogue set temperature	°C
Analog must-temperature min.	Setting up minimum of analogue set temperature	°C
Line monitoring	Activates the line monitoring (ON/OFF)	

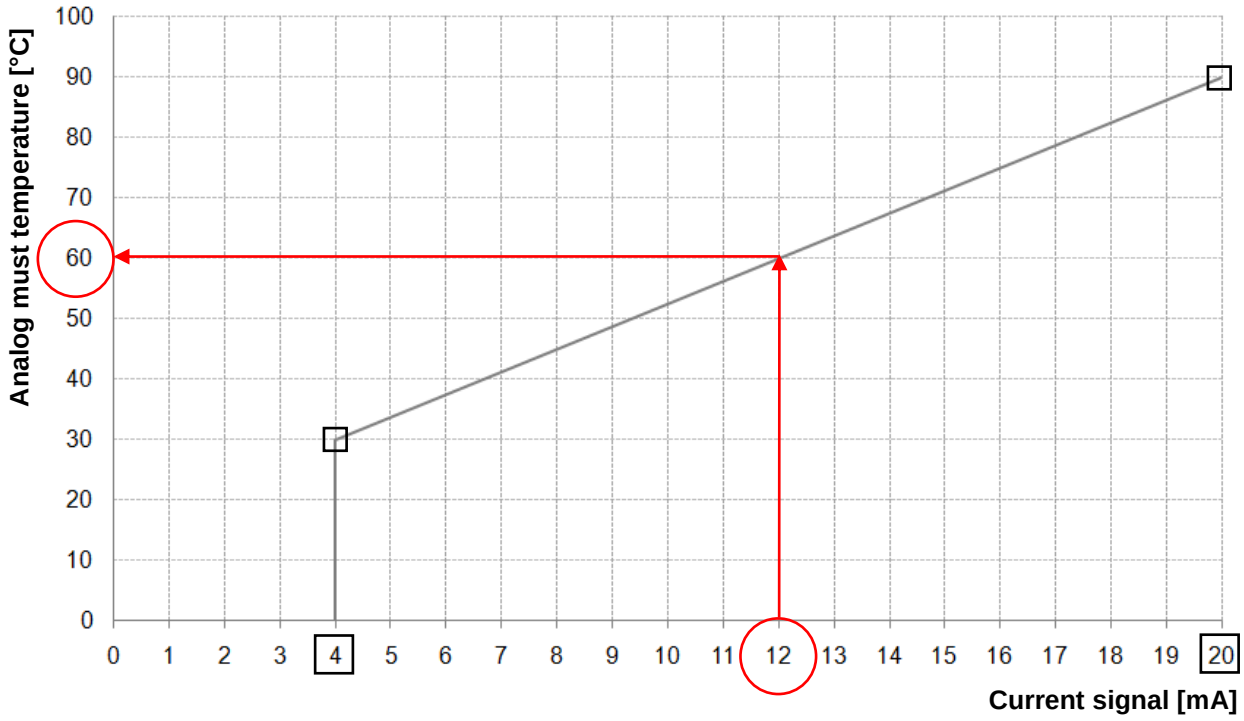
External requirement at digital input:

At a digital request the external set temperature gets transmitted as value to the heat supplier.

External requirement at analogue input:

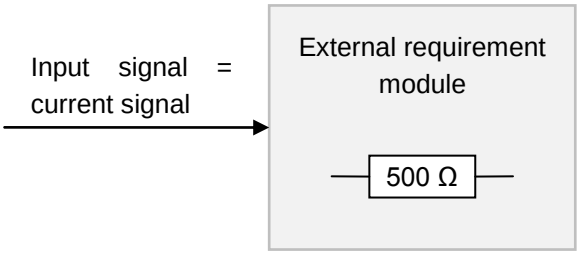
At an analogue request a calculated (= linearly interpolated) temperature gets transmitted to the heat supplier (see Figure 12). The graph in Figure 12 gets regulated by the parameters „analogue must temperature 4 mA“ and „analogue must temperature 20 mA“.

For example at an analogue request with an current signal of 12 mA, a temperature of 60 °C is registered at the heat supplier, provided that the digital requirement (= external must temperature) is not higher.



a.) Figure 12.19 : Analogue must temperature as a function of the applied current signal of the external requirement

At the input of the external requirement module a current signal between 4 and 20 mA should be given, because a current signal is compared to a voltage signal insensitive to electromagnetic disturbances and voltage losses at the cables. With an internal resistor (500 Ohm) the current signal is converted into a voltage signal.



b.) Figure 11.20: Input signal of the external requirement module

11.14.9 **Additional boiler**

MODUL					
Boiler	Buffer	Hot water tank	Heating circuit	Time mode	
Solar	Hydr.compensat	Net pump	Zone valve	Ext. requirement	addit. boiler

The recommended hydraulic schemes are shown in appendix 14.1.

Menu structure

●	
Overview	Boiler type Waiting period Pump trigger Pump difference Pump after run Flue gas min. temperature Boiler min. temperature Minimum requirement Control hysteresis

Term	Description	Unit
Overview	●	
Boiler type	Selection boiler type: • Automatic: If using automatic additional boilers (e.g.: oil-boiler) • Manual: If using lock wood boilers • burner: burner control	-
Waiting period	• Automatic / burner: additional boiler waiting time (if required) • Manuell: additional boiler minimum operation time till additional boiler is available again	-
Pump trigger	Setting up pump trigger	-
Pump difference	Setting up pump turn off difference	
Pump after run	Setting up additional boiler stopping time	-
Flue gas min. temperature	Setting up flue gas min. temperature (→ only visible, if manual was chosen)	-
Boiler min. temperature	Setting up minimum boiler temperature (→ only visible, if manual was chosen) ▪ If this boiler temperature is exceeded, additional boiler will get active (0 °C = no monitoring)	-
Minimum requirement	Setting up minimum requirement (→ only visible, if burner was chosen) ▪ If this minimum additional boiler temperature is exceeded, the additional boiler will supply heat	-
Control hysteresis	Setting up control hysteresis (→ only visible, if burner was chosen) ▪ If additional boiler temperature exceeds required additional boiler temperature + control hysteresis, the additional boiler will be turned off.	-

11.15 Menu settings

Navigation:	 →  →  →111 → OK

Screen:

Figure 12.18: Overview menu settings

By touching the following button:	
	the network configuration will be displayed. *(see chapter 11.13.1 – page 61)*
	the Modbus – settings will be displayed. *(see chapter 11.13.2 – page 62)*
	the settings for the screensaver will be displayed. *(see chapter 11.13.3 – page 63)*
	information such as software version operating system number, … will be displayed. *(see chapter 11.13.4 – page 63)*
	you can send messages by e-mail. *(see chapter 11.13.5 – page 64)*
	you can set mail times (when an e-mail is to be sent. *(see chapter 11.13.6 – page 66)*
	the mail server settings will be displayed. *(see chapter 11.13.7 – page 67)*

11.15.1 Network configuration

Navigation 1:		**Navigation 2:**	

Screen:

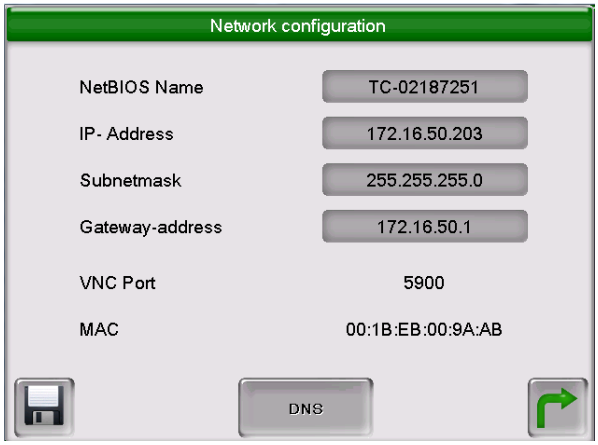


Figure 11.15: Network configuration

Screen:

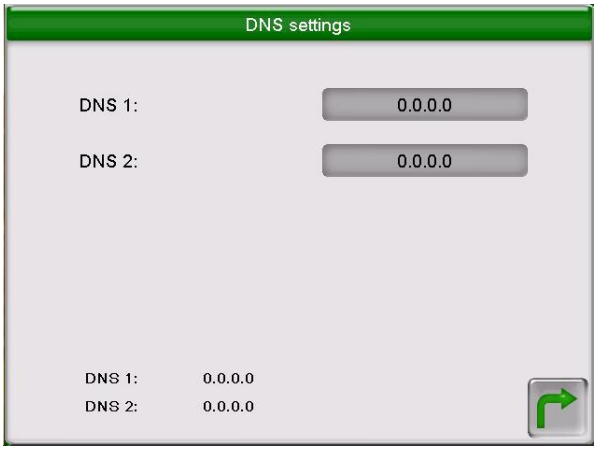


Figure 11.16: DNS settings

By touching the following button:	
NetBIOS Name	you can set the NetBIOS name
IP-Adresse	you can set the IP address for the boiler.
Subnetmaske	you can set the subnet screen form.
Gateway-Adresse	you can set the address for the gateway
	you can save the settings.
	the submenu for the DNS settings will be displayed (see Figure 11.23)
	the list of menu settings will be displayed again.

By touching the following button:	
DNS 1 / DNS 2	you can enter the IP address for the DNS server.
	the network configuration page will be displayed again (Figure 11.22)

Note:

DNS stands for Domain Name System, which unpack a domain into the corresponding IP address. That means, by setting the DNS server the touchpanel can send mails via Internet.

We recommend the following configuration:

DNS 1: 8.8.8.8 (=DNS Server from Google, which is public and free. It's an alternative to the server of the internet – provider.)

DNS 2: DNS – Server of the Internet – provider

11.15.2 Modbus – settings

Navigation:	Modbus TCP

Screen:

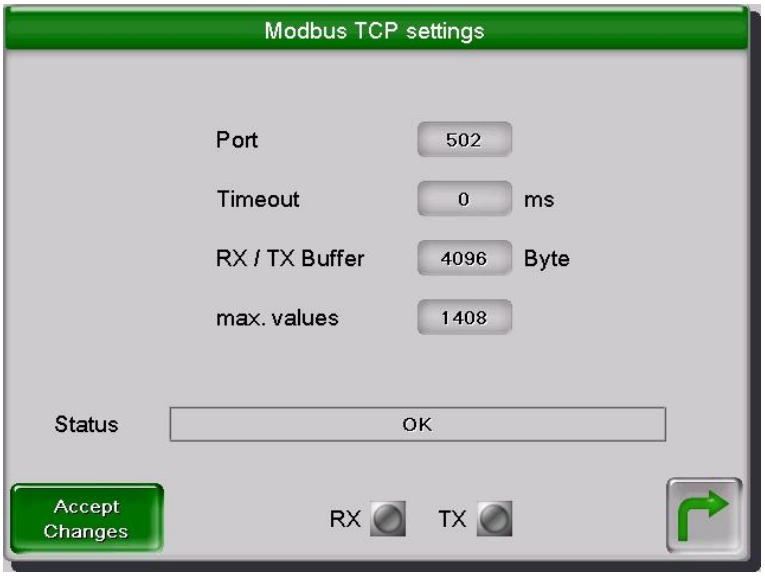


Figure 11.17: Settings – Modbus

By touching the following button:	
Port	you can set the TCP port number. 502 is reserved for Modbus-TCP.
Timeout	you can set the time delay for the data transfer.
RX / TX Buffer	you can set the buffer size in byte.
max. Value	you can set the maximum values of the servers.
Accept changes	the changes are accepted.
	the network configuration page will be displayed again.

Note:

Modbus is an application protocol for the exchange of messages between intelligent Modbus controllers in the building management system. The Modbus protocol “TCP” is used in the HERZ control. This protocol transmits the encoded data via LAN cable. Modbus ensures that connected controllers in the building management system become the transmitted data from the boiler, so that they can continue processing.

11.15.3 Screensaver

Navigation:	

Screen:

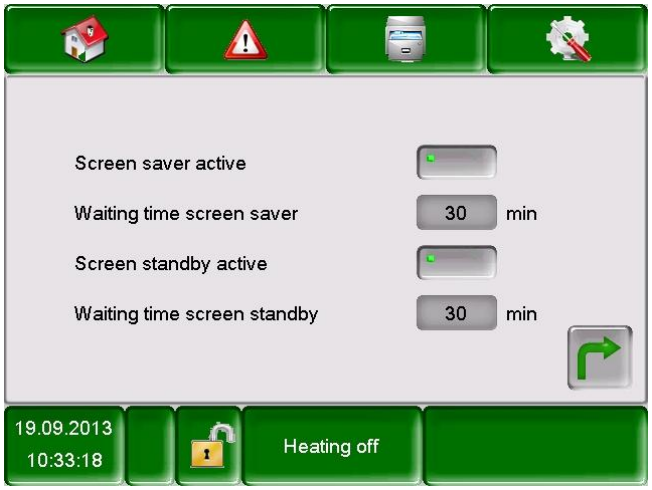


Figure 11.18: Screensaver

By touching the following button:	
1	you can activate the screensaver.
2	you can set the period of time after which the screensaver is to be activated.
3	you can activate the standby mode for the screensaver.
4	you can set the period of time after which the standby mode is to be activated.
	the list of menu settings will be displayed again

11.15.4 Information overview

Navigation:	

Screen:

Figure 11.26: Information overview

Note:

In the information overview the current versions of the software, operating system, firmware and also the hydraulic scheme is shown. If a USB-Stick is plugged in, the hydraulic scheme can be saved. Here you cannot change any values.

11.15.5 Sende via Mail

ACTIVATE EMAIL ORDER	CREATE MAILING LIST

Navigation 1: 

Screen:

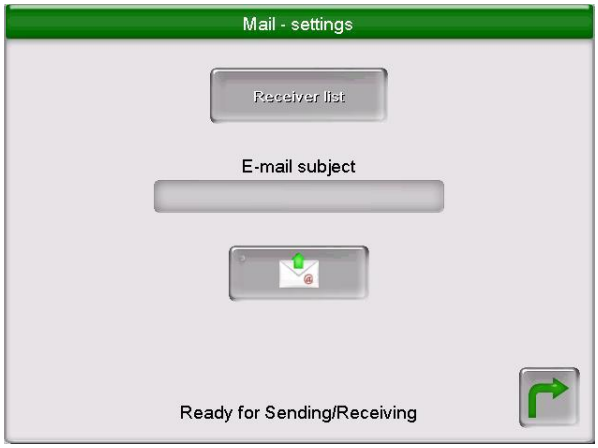


Figure 11.19: Settings – Mail

By touching the following button:	
Receiver list	you can add an e-mail recipient (see Figure 11.28)
E-Mail subject	you can enter the subject.
	sending will be activated
	the list of menu settings will be displayed.

Navigation 2:  → Receiver list

Screen:

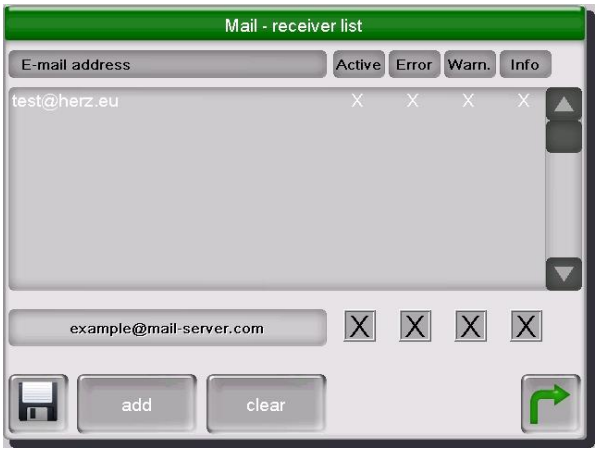


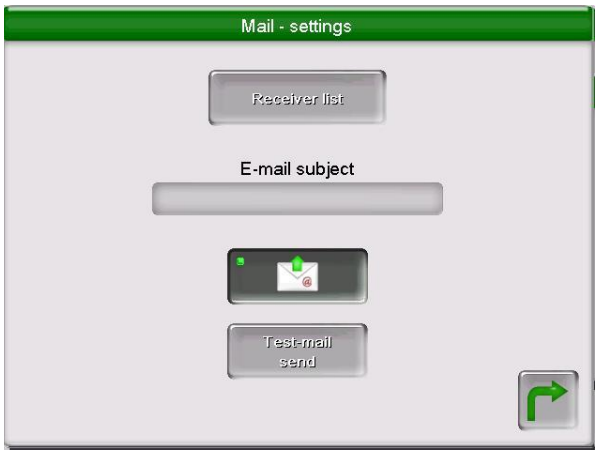
Figure 11.20: Receiver list – Mail

By touching the following button:	
example@mail-server.com	you can enter the e-mail address of a recipient.
add	you can add the e-mail address of the recipient to the list of recipients
clear	you can delete the e-mail address of the recipient from the list of recipients
X X X X	several values (errors, warnings, info) can be chosen.
	the e-mail address of the recipient and the selected values (error, warnings, info) will be saved.
	the list of e-mail settings will be displayed again (see Figure 11.27).

Note:

Selection of the box:	X X X X 1 2 3 4
1	If the status is not activated, no mail is sent to the recipient.
2	The errors are transmitted when the box is activated.
3	The warnings are transmitted when the box is activated.
4	The information's are transmitted when the box is activated.

ENTER MAIL SUBJECT	SEND TEST-MAIL

Navigation:	→ subject	**Navigation:**	
Screen:  Figure 11.29: Mail subject		**Screen:**  Figure 11.30: Sending mail	
By touching the following button:		**By touching the following button:**	
	the entry will be confirmed.	Test Mail send	you can set the e-mail to the recipient
	the last character will be deleted.		
	characters will be written in uppercase		

11.15.6 Mail Statusreport

Navigation:	

Screen:

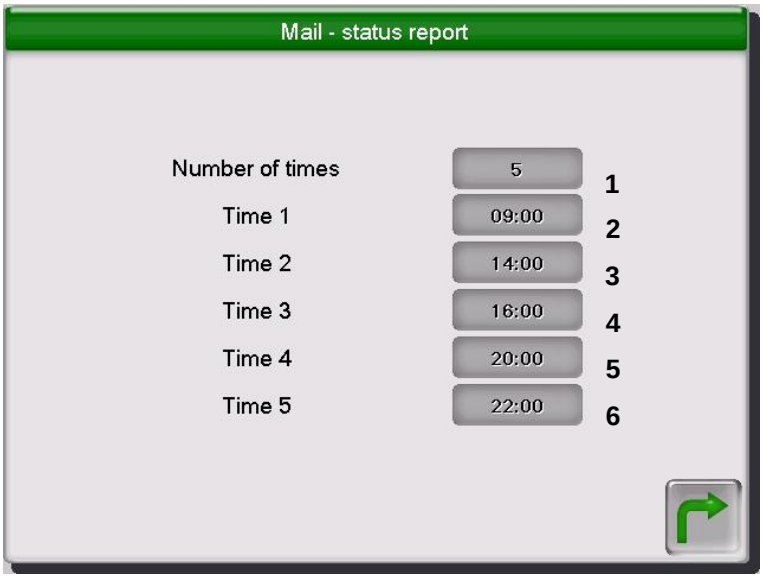


Figure 11.21: Mail – Statusreport

By touching the following button:	
1	you can enter the number of times (max. 5 times)
2-6	you can enter the individual times when a mail with the adjusted values (error, warning, information (error, warning, information → see Figure 11.28) is sent to the recipients.
	the list of menu settings will be displayed again.

11.15.7 **Server – settings**

Navigation:	

Screen:

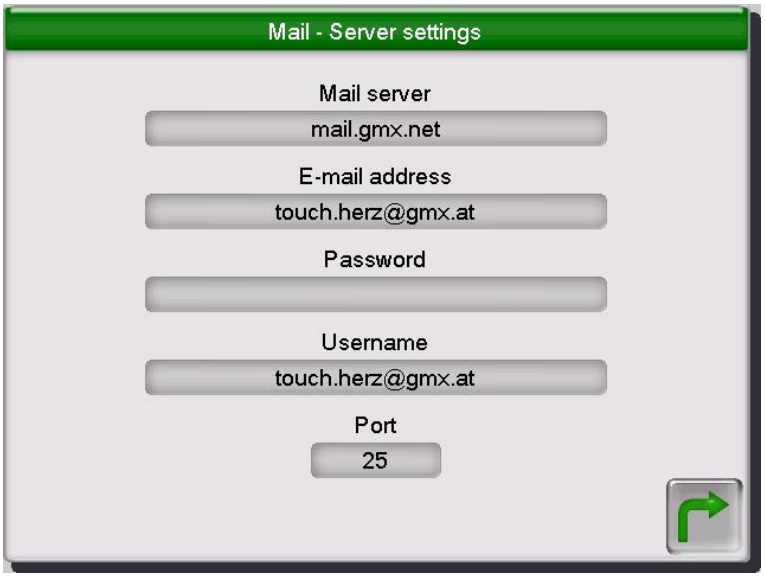


Figure 11.22: Mail – Server settings

By touching the following button:	
smtp.1und1.de	you can enter the mail server (=Outgoing mail server).
touch@herz-energie.at	you can enter the e-mail address of the touch display.
Password	you can enter the related password.
touch@herz-energie.at	you can enter the username.
SSL	Choose encoding (no, SSL, TLS)

Note:

To send mail at the adjusted values (error, warning, information according to Figure 11.28) the boiler has to have a valid e-mail address. After the successful creation of an e-mail address you can set the exemplified values shown in Figure 11.32.

Look up the data of the mail server and the port number at your provider (for example GMX).
After successful configuration of the mail server settings the boiler can send e-mail with the set up values.

12 FAULT REPORTS AND THEIR CORRECTION

	You should always take particular note of the safety instructions! (see chapter 1)
	If a fault arises, the fault must always be rectified first of all and then cleared by switching the system on again. If several faults arise at the same time, these will be displayed in the order in which they occurred.

	010	020	030	040	050	060		080	090		180	190
001	011	021	031	041	051	061	071	081	091	111	181	191
002	012	022	032	042		062	072	082	092		182	192
003	013	023	033	043	053	063	073	083	093			193
004	014	024	034	044	054	064		084	094			194
005	015	025	035	045	055	065		085	095			195
006	016	026	036	046	056	066	076	086	096			196
007	017	027	037	047	057	067	077	087				
008	018	028	038	048	058	068	078					
009	019	029	039	049	059	069	079				189	

I	**Info / Notice**	
W	**Warning**	
F	**Error; Fault/failure of a component; Controller error; function error**	

Nr.	Fault text	Reason	Suggestions for rectifying
001	BOILER SENSOR	Failure boiler sensor	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party
002	COMBUSTION ROOM SENSOR	Failure burning chamber temperature sensor	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party
003	FLUE GAS SENSOR	Failure flue gas temperature sensor	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party
004	BACK FLOW SENSOR	Failure back flow temperature sensor	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party
005	STOKER SENSOR	Failure feeding screw temperature sensor	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party
006	BOILER OUTSIDE TEMP:	Failure boiler outside temperature sensor	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party
007	BUFFER SENSOR TOP	Failure buffer top temperature sensor	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party
008	BUFFER SENSOR BOTTOM	Failure buffer bottom temperature sensor	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party
009	BUFFER SENSOR OUTSIDE TEMP.	Failure buffer outside temperature sensor	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party

12 Fault reports and their correction

Nr.	Fault text	Reason	Suggestions for rectifying
010	BUFFER SENSOR MIDDLE	Failure centre temperature sensor	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party
011	HOT WATER TANK SENSOR	Failure hot water tank temperature sensor	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party
012	CIRCULATION SENSOR	Failure circulation temperature sensor	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party
013	HC-FLOW SENSOR	Failure heating circuit flow temperature sensor	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party
014	HC-BACK FLOW SENSOR	Failure heating circuit back flow temperature sensor	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party
015	HC-ROOM SENSOR	Failure room temperature remote control (FBR1)	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party
016	HC-ROOM CORR.	Failure room temperature remote control (FBR1)	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party
017	HC-OUTSIDE SENSOR	Failure heating circuit outside temperature sensor	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party
018	SENSOR COLLECTOR	Failure solar collector temperature sensor	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party

Nr.	Fault text	Reason	Suggestions for rectifying
019	SENSOR COLLECTOR BACK FLOW	Failure solar collector back flow temperature sensor	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party
020	SENSOR SOLAR TANK 1	Failure solar tank 1 temperature sensor (hot water tank/buffer)	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party
021	SENSOR SOLAR TANK 2	Failure solar tank 2 temperature sensor (hot water tank/buffer)	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party
022	SENSOR SOLAR RESERVE	Failure solar tank temperature sensor reserve (hot water tank/buffer)	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ▪ ✆ - contracting party
023	ADDITIONAL BOILER SENSOR	Failure Additional boiler sensor; cable break; short-circuit; failure connection	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party
024	HYDR. COMP. SENSOR	Failure hydraulic compensator temperature sensor; cable break; short-circuit; failure connection	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary ✆ - contracting party
025	OVERHEAT BOILER MAY	Heat generator temperature is above 98°C	▪ Check settings ▪ Check back flow mixer ▪ Check back flow pump
026	OVERHEAT	Heat generator temperature is above 92°C	▪ Check settings ▪ Check back flow mixer ▪ Check back flow pump
027	SOLAR OVERHEATING	Fault is shown, if collector temperature exceeds 140 °C	▪ Check solar pump ▪ Check solar tank level
028	SOLAR MAX. LOADING	Collector temperature exceeds 120 °C	-
029	ANTIFREEZE BOILER	Boiler temperature respectively operation room temp. under 7°C	-
030	ANTIFREEZE BUFFER	Buffer bottom sensor temperature under 7 °C	-
031	ANTIFREEZE HOT WATER TANK	Hot water tank under 7°C	-

12 Fault reports and their correction

Nr.	Fault text	Reason	Suggestions for rectifying
032	ANTIFREEZE HEATING CIRCUIT	ANTIFREEZE HEATING CIRCUIT 7°C	-
033	ANTIFREEZE SOLAR	Collector temperature under set up antifreeze temperature	-
034	ANTIFREEZE HYDR. COMPENSATOR	Hydraulic compensator temperature under 7°C	-
035	ANTIBLOCKING BACK FLOW	Blocking protection activated for return flow pump. Return flow pump triggered for 10 s approx.	-
036	ANTIFR. ADD. BOILER	Additional boiler temperature under 7°C	-
037	HOT WATER TANK LOADING	Hot water tank didn´t reach set temperature during loading time; hot water tank loading gets blocked till fault correction.	▪ Adapt loading time ▪ Activate hot water tank priority ▪ Hot water tank settings (min. / set)
038	MAINTENANCE	This fault text occurs after 1000 operating hours	Conduct maintenance according to maintenance schedule (see chapter: Settings → Code If code is already set→ Settings
039	SERVICE	This fault text occurs after 3000 operating hours	Carry out boiler system maintenance by authorised personnel
040	OVERHEAT ADD.BOILER ZSK	This fault text occurs if additional boiler temperature exceeds 92°C	-
041	HEATING OFF	System is on „Heating Off“	-
042	BLOCKING PROTECTION	Blocking protection is conducted	-
043	TIMEOUT ADD. BOILER	Additional boiler minimum flue gas temperature wasn´t reached within 1 hour (operation mode: automatic/burner)	▪ Check additional boiler
044	LEGIONELLA PROT.	Thermal disinfection in storage tank activated-Storage tank will be heated to 75°C	-
045	CHIMNEY SWEEPER MODE	Chimney sweep function activated	(see chapter 11.4)
046	MOD.ERR EXT.	Error in communication via CAN 2 with an external module	▪ Check module CAN connection ▪ Check module ✆ - contracting party
047	MOD.ERR INT.	Error in communication via CAN 1 with an internal module	▪ Check module CAN connection ▪ Check module ✆ - contracting party
048	MOD.ERR BOILER	Error in communication with the boiler module	▪ Check module CAN connection ▪ Check module ✆ - contracting party
049	DATAERROR MINNE EXTERNT	Error in communication with the boiler module	✆ - contracting party
050	DATAERROR MINNE INTERNT	Error in communication with the boiler module	✆ - contracting party
051	DATAERROR MEMORY BOILER	Error in the adjustment data in the boiler module	✆ - contracting party

Nr.	Fault text	Reason	Suggestions for rectifying
053	ADDITIONAL FLUE GAS SENSOR	Additional boiler flue gas temperature out of range	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary
054	EXTERNAL SET POINT	No Signal of external requirement or control (if line monitoring is active)	▪ Check sensor, replace as necessary ▪ Check plug, replace as necessary ▪ Check wiring incl. Connections, replace as necessary
055	BACK FLOW SET	Back flow set temperature could not be reached in operation	▪ Function check mixer with mixer motor ▪ Function check pump ▪ Check sensor position
056	SCREED BAKE OUT	Error in the screed bake out process; Flow-must temperature could not be achieved.	▪ Function check mixer with mixer motor ▪ Function check pump ▪ Check sensor position ▪ Required heat output to high
057	CHECK DATA MODUL	A module parameter is not in the specified range.	▪ Restart T-Control ▪ Check boiler parameter
058	CHECK DATA KESSEL	A boiler parameter is not in the specified range	▪ Restart T-Control ▪ Check boiler parameter
059	CAN-ID	Set up module CAN-ID not useable	-
060	INSERTION IN ACTION	Feeding screw temperature exceeded 70°C during operation	▪ Check fuel quality ▪ Check fuel storage room (fuel level) ▪ Clean intermediate hopper level sensor
061	INSERTION NOT IN ACTION	Feeding screw temperature exceeded 70°C outside of operation	▪ Chimney draught to high ▪ Feeding channel leakage ▪ Check fuel quality ▪ Shortening burn out time ▪ Underrun minimum running time
062	INSERTION BACKFIRE	Feeding screw temperature didn´t fall below 70°C after 30 minutes	▪ Chimney draught to high ▪ Boiler system leakage ▪ Check fuel quality ▪ Shortening burn out time ▪ Underrun minimum running time ✆ - contracting party
063	OPEN BFP	Fault when opening the BFP damper	▪ Check BFP-motor ▪ Check fuel temperature ▪ Clean intermediate hopper level sensor ▪ Check drive arm ✆ - contracting party
064	CLOSE BFP	Fault when closing the BFP damper	▪ Check BFP-motor ▪ Check fuel temperature ▪ Clean intermediate hopper level sensor ▪ Check drive arm ✆ - contracting party

12 Fault reports and their correction

Nr.	Fault text	Reason	Suggestions for rectifying
065	CONTACTS BFP	Fault of the BFP contacts (both End-switches are closed at the same time)	✆ - contracting party ▪ Carry out check BFP by specialist personnel
066	IGNITION	Heat supplier didn´t ignite fuel within 15 minutes	▪ Check fuel level ▪ Check burning parameters, adjust as necessary ▪ Check fuel level at firing
067	FIRE OUT	Flame monitoring device indicates no burning	▪ Check fuel level ▪ Check burning parameters, adjust as necessary ▪ Clean intermediate hopper level sensor
068	TEMP. CONTROL	Temperature monitoring in the storage room has risen above the maximum permissible temperature. Sensor in the storage room has risen above the permissible range	▪ Check boiler system ▪ If fire, alarm fire brigade
069	STL	Boiler temperature has exceeded the permissible maximum temperature	▪ Cool down boiler (< 75 °C) ▪ Quit STL
071	LAMBDA FUEL	Lambda probe calibration error	✆ - contracting party
072	CAN FAULT	Fault in CAN Bus	✆ - contracting party
073	LAMBDA CALIBRATION	Failure when calibrate the lambda probe	✆ - contracting party
076	FUEL	Error „fire out“(067) has occured within 2h again	▪ Check fuel level ▪ Check burning parameters, adjust as necessary ▪ Clean intermediate hopper level sensor
077	ADDITIONAL INPUT	Additional input (for example CO detector) has been activated.	▪ Check failure at additional input aggregate
078	NIVEAU LEVEL	Active intermediate hopper level sensor; low fuel level at intermediate hopper	▪ Check fuel level ▪ Check discharge system (motor, screw, springs)
079	BARRIER LEVEL	Active feeding screw channel sensor; low fuel level in feeding system	▪ Check fuel level ▪ Check discharge system (motor, screw, springs)
080	MP ROOM DISCHARGE	Active discharge screw motor protection	▪ Check discharge system (motor, screw, springs) to debris
081	SPEED ID-FAN	Fault in the device for monitoring the speed of the induced-draught fan	▪ Check connection rotation speed sensor ▪ Check ID-fan ✆ - contracting party
082	GRATE CLEANING 1	Fault affecting grate cleaning • Limit switch is always in the same position • Drive motor for grate cleaning defective • Drive linkage defective or loose Combustion grate sensor out of position	▪ Check grate cleaning motor ▪ Check grate linkage ▪ Check grate cleaning end switch ✆ - contracting party

Nr.	Fault text	Reason	Suggestions for rectifying
083	GRATE CLEANING 2	Failure grate cleaning; impossible to close grate; grate got stuck; grate linkage damaged or loosened	▪ Remove debris ▪ Check grate cleaning motor ▪ Check grate linkage ▪ Check grate cleaning end switch ✆ - contracting party
084	GRATE CLEANING 3	Grate was opened during the combustion	▪ Check grate cleaning motor ▪ Check grate linkage ▪ Check grate cleaning end switch
085	SUCTION MODE	Fault in pellet feed system ▪ Pellet store empty ▪ Vacutrans valve out of position ▪ Vacutrans valve gasket defective ▪ Leak in pellet feed hose ▪ Suction air hose leaking or loose ▪ Suction turbine defective	▪ Adjust suction cycles ▪ Check discharge system (motor, screw) ▪ Check fuel quality
086	SUCTION VALVE	Empty level container at compact container	▪ Check vacutrans damper ▪ Check end switch vacutrans damper ✆ - contracting party
087	ASH CONTAINER	Ash container door open	▪ Connect ash container ▪ Close ash container door
090	COMB. ROOM SENSOR	End switch of the combustion room door has been activated – Combustion chamber door is open	▪ Close combustion chamber door
091	WARNING ASH DISCHARGE	Ash discharge has not been cleaned or does not rotate ▪ Ash container is full ▪ Foreign bodies are blocking the screw ▪ Motor is defect	▪ Empty the ash container ▪ Remove foreign bodies
092	ERROR ASH DISCHARGE	Ash discharge has not cleaned for several times -> system turns off ▪ Ash container is full ▪ Foreign bodies are blocking the screw ▪ Motor is defect	▪ Empty the ash container ▪ Remove foreign bodies ✆ - contracting party
093	ENDSW. ROOM DISCHARGE	Endswitch room discharge has been activated	▪ Blackage; remove trapped fuel ▪ Check fuel quality ▪ Clean intermediate hopper level sensor
094	AUTO. IGNITION	▪ Fault automatic ignition	▪ Check fuel quality ▪ Use dry log wood ▪ Clean burner plate holes
095	CHECK ASH BOX	Interval for checking the ash box is exceeded	Check ash box and empty as needed
096	BURNER STOP	System is situated on “Burner Stop”	-
111	HEAT EXCHANGER	Heat exchanger cleaning does not work, heatexchanger motor does not work	Check heat exchanger cleaning Manual cleaning of the heat exchanger; check plug of the heat exchanger; change heat exchanger motor

Nr.	Fault text	Reason	Suggestions for rectifying
180	KAS CHKDATA	Cascade parameters are not within specification	▪ Restart-T-Control ▪ Check cascade parameters
181	KAS CONNECTION	No connection to cascade	▪ Check connection to the cascade
182	KAS OFFLINE	Boiler not available for cascade	▪ Restore data connection
189	KAS ALARM	Lead boiler could not be started or stopped	▪ Start lead boiler ✆ - contracting party
190	DATAERR.MEM.BOIL-MOD	Error when synchronizing boiler extension module	✆ - contracting party
191	READY	Boiler temperature above boiler max (90°C) boiler loaded with tom much wood (incorrect operation); return flow pump or return flow mixer defective; too small buffer storage	▪ Put in less wood ▪ Renew return flow pump or return flow mixer ▪ increase buffer volume
192	LIGHTING-UP	At lighting up the boiler has not reached the flue temperature threshold in the prescribed time ▪ Too coarse material used ▪ Too moist wood used; ▪ Burner plate holes blocked	▪ Use small wood ▪ Use dry log wood or better quality ▪ Clean burner plate holes
193	RE-HEATING	At re-heating the boiler has not reached the flue temperature threshold in the prescribed timeToo coarse material used ▪ Too moist wood used ▪ Burner plate holes blocked	▪ Use small wood ▪ Use dry wood or better quality ▪ Clean burner plate holes
194	EEPROM	Error at writing / reading at EEProm	Replace control ✆ - contracting party
195	STACK HZS621/622	Overflow from the stack pointer	Replace control ✆ - contracting party
196	STACK HZS631	Overflow from the stack pointer	Replace control ✆ - contracting party

12.1 Faults without text

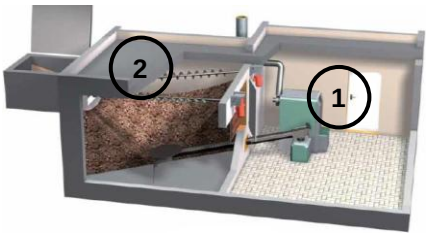
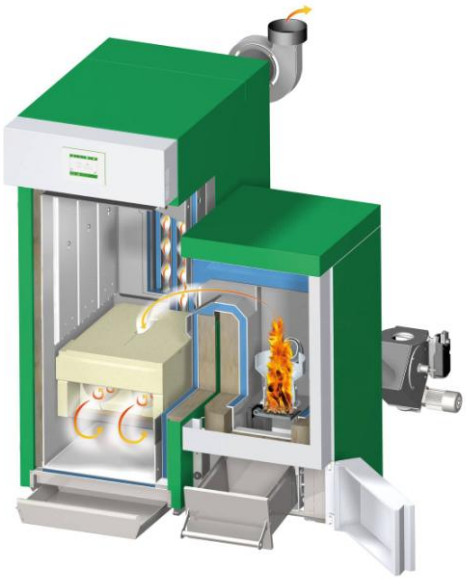
Fault	Reason	Suggestions for rectifying
Boiler output gradually decreases	▪ Ash / slag on the grate ▪ Fly ash container full ▪ Heat exchangers heavily clogged/ sooted up	▪ Reduce cleaning intervals or clean manually. ▪ Empty the fly ash container. ▪ Clean the heat exchangers.
Desired operating temperature is not reached.	▪ Fuel of inferior quality. ▪ Previous boiler output higher than current boiler output ▪ Fuel level too low	▪ Replace fuel if necessary ▪ Install a larger boiler ▪ Increase fuel level
Ash is emitted from the chimney	▪ Fly ash container full ▪ Fuel contains excessive fines or super fines ▪ Fan speeds too high ▪ Chimney draught too high	▪ Remove fly ash ▪ Replace fuel if necessary or retrofit flue gas deduster. ▪ Reduce speeds ▪ Retrofit chimney draught regulator
deflagrations	▪ Fuel to dry ▪ Fuel to fine	▪ Use fuel according to specifications

13 MAINTENANCE SCHEDULE (CUSTOMER INSPECTION)

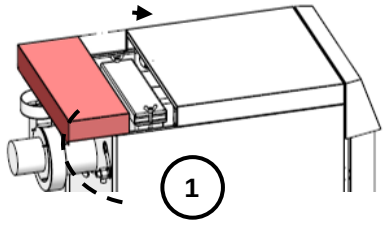
(Some points have also been prescribed in accordance with lt. TGPF H 118!)

For safety reasons, maintenance must only be carried out with the main switch turned off. However first of all, the system must be switched off by means of the On/Off button and you must wait for the burnout phase. If you have to climb into the storage tank or bunker, always make sure that there is a second person available to supervise you. Potential carbon monoxide enrichment may put your life in danger.

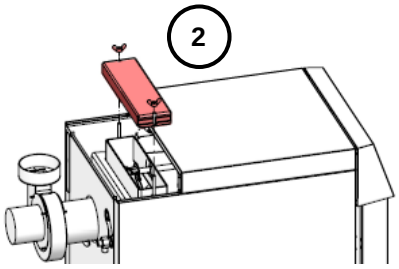
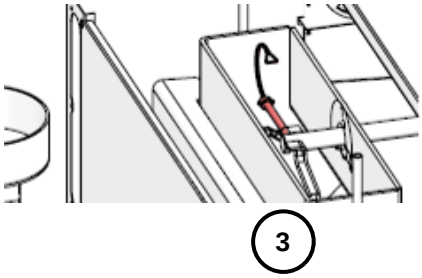
13.1 Weekly

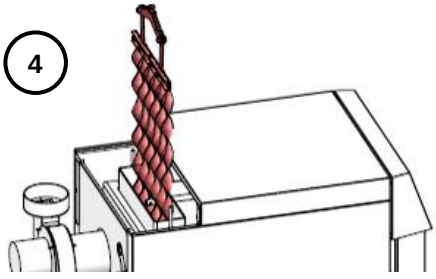
Equipment area		Action
Equipment area		Check the whole boiler system (1) including the fuel storage room (2) visually for damages and wear. Repair discovered faults immediately.
Burning chamber		Cleaning of the combustion chamber: This only has to be cleaned every two to six days, depending on the type of fuel used. When burning fuels with a high proportion of fly ash (e.g. paper, cardboard, bark, etc.) on combustion, the combustion chamber should be cleaned more frequently: - Open the casing door and ash door (7) - Clean the combustion chamber - Keep the primary air feeds (3) clean with bellows for primary air feeds (19) - Keep the combustion plate inputs (5) clean with bellows for primary air feeds (19) - Clean out the combustion tray and combustion plate using the bellows for the combustion plate - Close the ash door (7) and casing door - Wood charcoal remains or incompletely burnt wood pieces are not a defect. These residues are to remain on the grate (combustion chamber) and facilitate a renewed heating up. The central aperture (slit) must always remain free. Only after several inches of ashes lie on the grate, these is to remove as follows.

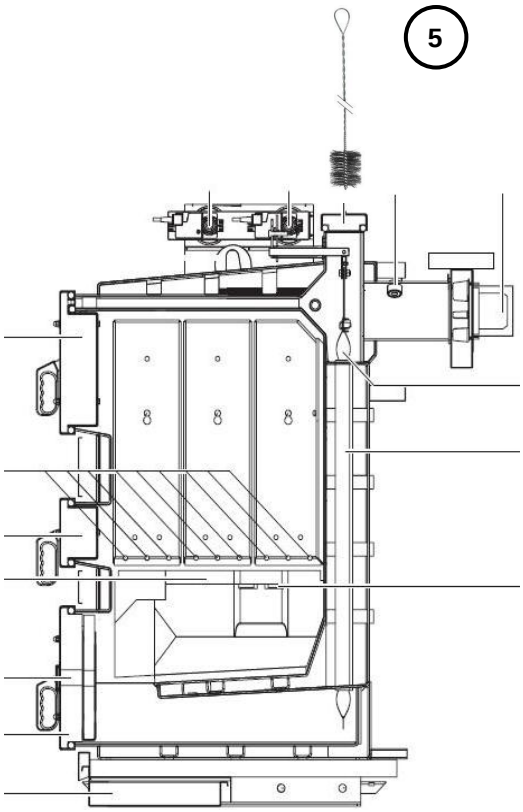
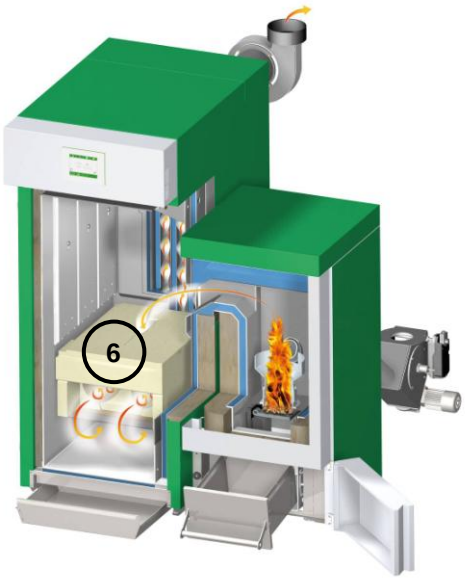
13.2 Monthly (after 1000 hours)

<table>
<tr><th>Equipment area</th><th></th><th>Action</th></tr>
<tr><td rowspan="2">Heat recovery areas</td><td> 
</td><td rowspan="2">Cleaning of the heat recovery areas:
The heat exchanger pipes are to be checked regularly for soiling and should be cleaned manually if required (Cleaning interval after 1000h, show on display). Rust and fly ash deposits on the heat recovery areas (16) have a considerable effect on the economy and performance of the boiler.

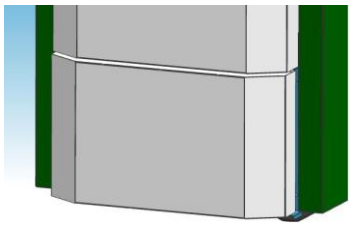
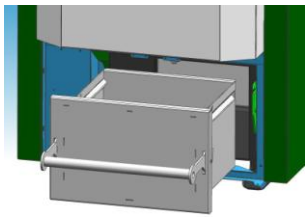
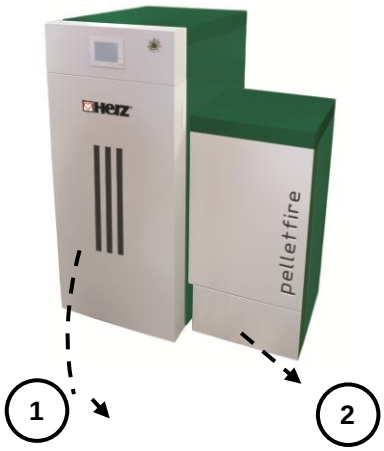
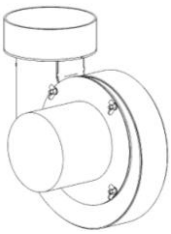
(1) Removing the upper boiler casing

(2) Loosening screw caps and removing cleaning cover (12)</td></tr>
<tr><td> 
</td></tr>
<tr><td rowspan="2">Heat recovery areas</td><td> 
</td><td rowspan="2">(3) Loosening the fixture of the turbulators

(4) Removing and cleaning of turbulators (13)</td></tr>
<tr><td> 
</td></tr>
</table>

Equipment area		Action
Heat recovery areas		(5) Clean the heat exchange pipes with the boiler brushes (17). Here the ventilator can also be switched on in order to suck away any dust forming in the air. This can simply be carried out in the Unit Off (1) condition in the so-called aggregate test. (Parameter A04 – ID Fan) After cleaning - Set the turbulators (13) correctly again, - Put on the cleaning cover (12), tighten the closing screws and - Install the boiler casing. The accumulated ash should be removed via the ash door (7). Heat exchanger function check with the aggregate test. Deposits remove and check the heat exchanger of damage and wearing
Burning chamber		 Any elongation fissures on the insulation plates or combustion chamber bricks do not affect their functioning and therefore do not represent a claim against the guarantee. During cleaning ensure that the slot between the burner plates is not clogged (see picture below). On the burner plates themselves, an ash layer of about 3cm can be left which is provided for glow sustainment. **Note:** The combustion chamber must always be cleaned last, as the ash may fall in the burn-off areas when cleaning the heat exchanger pipes.

13 Maintenance schedule (Customer inspection)

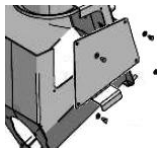
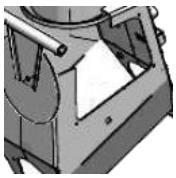
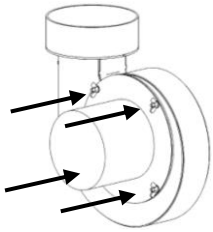
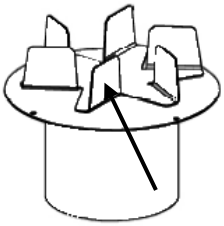
Equipment area		Action
Ash container Pellet burner	 	Open ash door and check ash level and empty ash container if necessary.
Control - functioning		Check display, operation and faults list. Restart T-Control.
Control - faults		Open burning chamber door (1) or remove ash container door (2).
		Check fault recognition and fault report Check if fault report e.g BURNING CHAMBER DOOR or ASH CONTAINER
ID-fan		Function test of ID-fan using the aggregate test
		Check ID-Fan for abnormal or conspicuous running noises

Equipment area		Action
Thermal safety valve		Check thermal safety valve tightness
Safety valve		Check safety valve tightness
System pressure		Check system pressure Minimum pressure: 1,5 bar (cold) Maximum pressure: see boiler plate
fire extinguisher		Check fire extinguisher securing and seal as well as hose and nozzle (according to national standard)
Sensors		Clean sensors on the inside of the intermediate hopper with soft tissue on the left and right
Ash storaging		Ash has to be stored in a non flammable, air tight container till disposal
Operating room		Remove flammable materials, except wood chips or pellets stored in a appropriate container, from the operating room
fire protection		Check structural fire protection and fire doors (e.g.: self-locking fire door)

13.3 Annual

	Annual Inspection, at least every 3000 operating hours

Equipment area		Action
Maintenance		Conduct system maintenance by authorised personnel.
Drives and motors		Check gear motor for abnormal or conspicuous running noises by using the aggregate test
		Check gear motor visually for damages and wear

Equipment area		Action
Flange bearing (Pellet burner)		Unscrew revision cover
		Check BFP flap visually for damages, wear and tightness
		Open BFP flap by using the aggregate test. Position paper strip between hopper flange and BFP flap and close BFP flap afterwards.
		Try to pull out paper strip. If possible, adjust BFP flap.
		Conduct paper strip test at different positions.
ID-fan		Unscrew 4x wing nut
		Remove and clean ID-fan witch a brush.

13.4 If required

Equipment area		Action
Chimney		Maintenance respectively Cleaning and inspection according to national standards
Fuel storage room		Fuel storage room emptying (at least after 3 fillings) and check visually for damages and wear (e.g.: stones, damaged walls,...)

14 CE- DECLARATION OF CONFORMITY

Manufacturer address: **HERZ Energietechnik GmbH**
Herzstraße 1, 7423 Pinkafeld
Österreich/Austria

Declaration of machine: **HERZ pelletfire**

Type: **HERZ pelletfire 20/20**
HERZ pelletfire 30/30
HERZ pelletfire 40/30

Maschine type: **Pelletfire inclusive discharge system**

We declare herewith, that the above described machine / the above described product complies with the corresponding regulations of the following EC-Directives. The conformity is verified by the complete compliance with the following standards:

EU – directiv	**Standard**
2006/95/EG Low tension units decree	EN 60335-1:2012 EN 60335-2-102:2007 EN 62233:2008
2004/108/EG Electromagnetic compatibility	EN 55014-1:2007 EN 61000-6-2:2006 EN 61000-3-2:2006 EN 61000-6-3:2007 EN 61000-3-3:2009
2006/42/EG Maschine Guideline	ISO/TR 14121-2:2012 EN ISO 13849-1:2009
305/2011 Construction Products Guideline	EN – 303 – 5:2012 TRVB H 118:2003
97/23/EG Pressure equipment	EN 287-1:2012

Authorised person for the compilation of the technical documents:

HERZ ENERGIETECHNIK GMBH
A-7423 Pinkafeld, Herzstraße 1
Tel.: +43 (0)3357 / 42 84 0
Fax: +43 (0)3357 / 42 84 0-190

Pinkafeld, October 2014

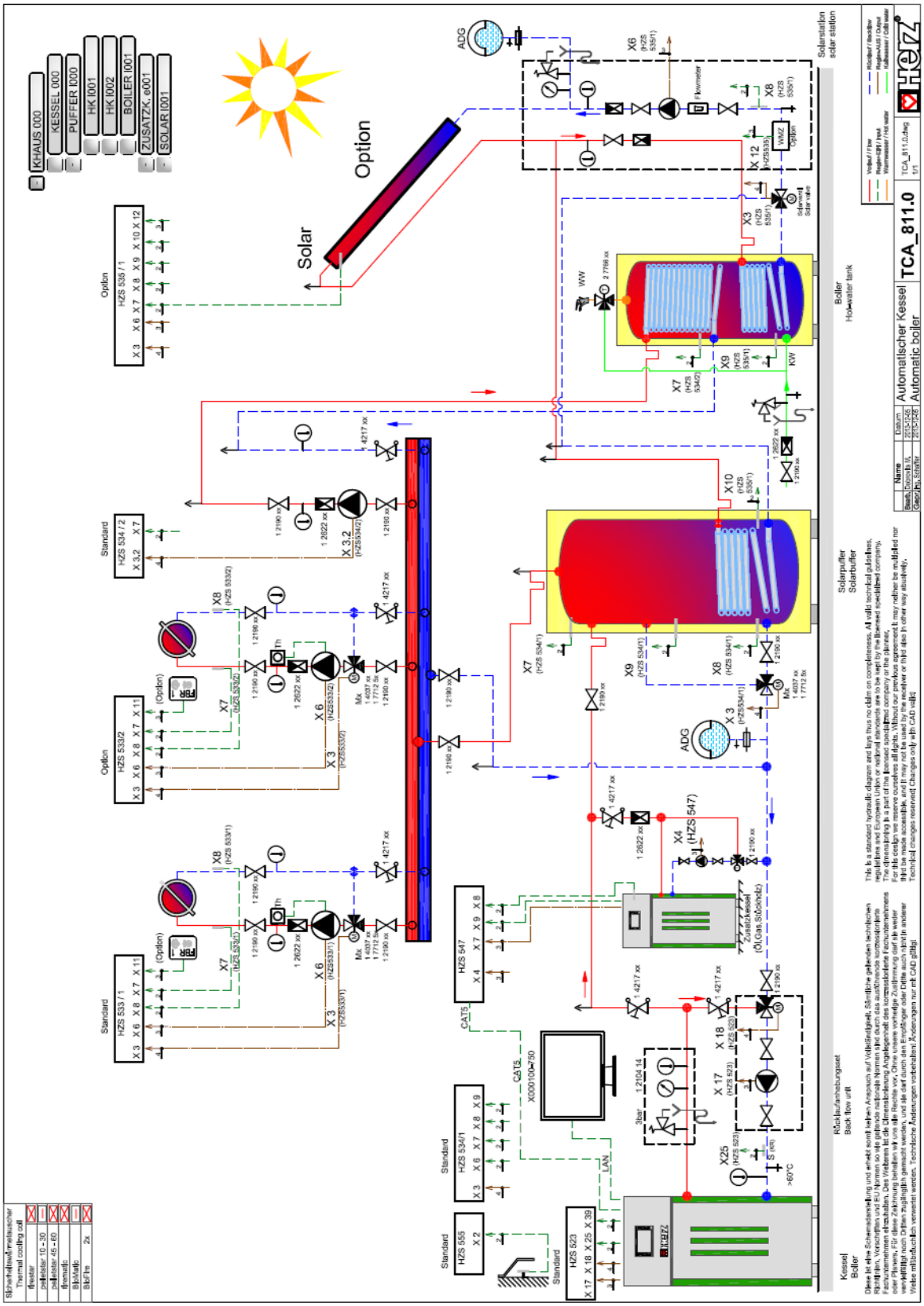
DI Dr. Morteza Fesharaki - managing director

15 INDEX

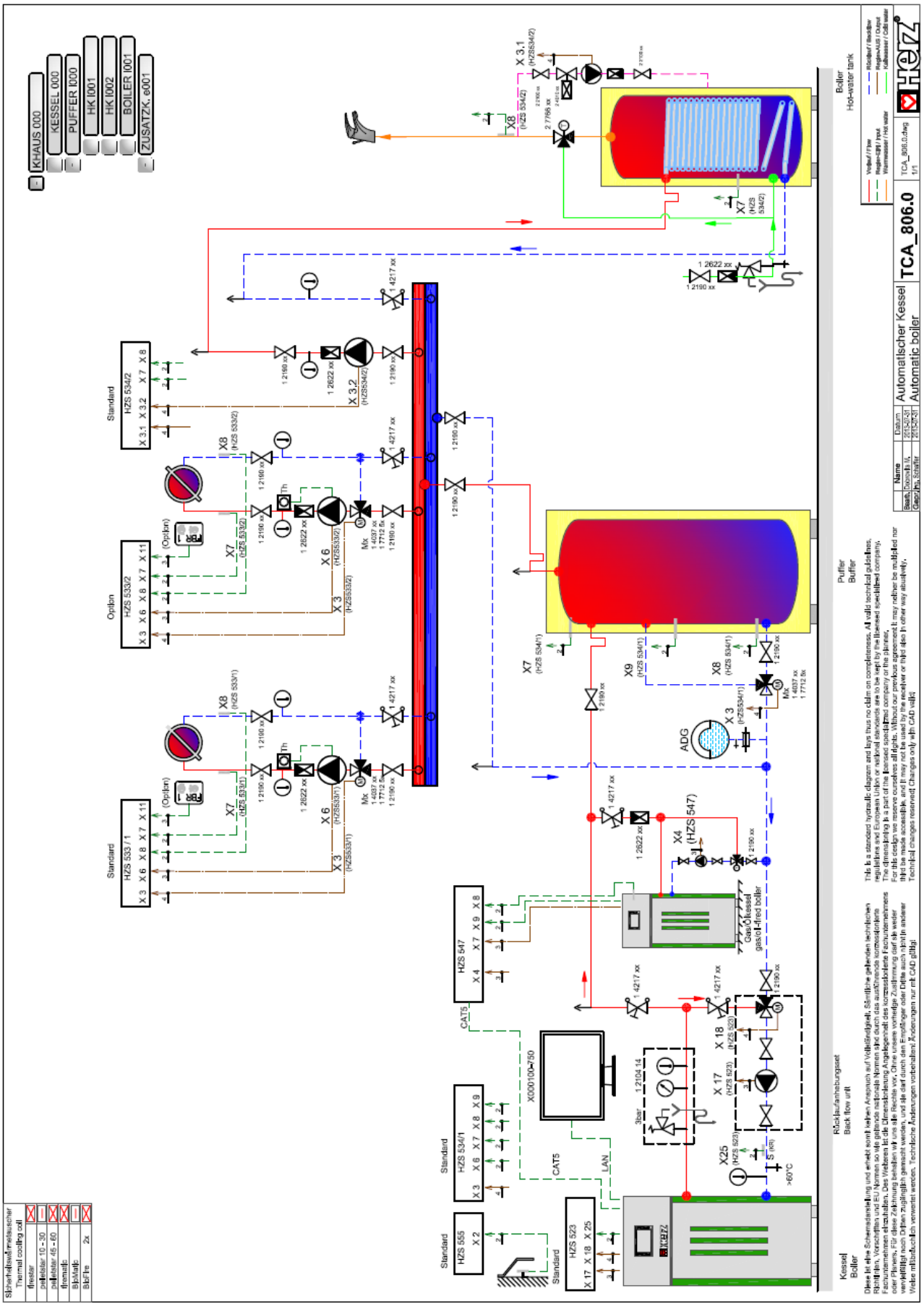
16 ANNEX

16.1 Additional boiler-module

Hydraulic recommendation 1

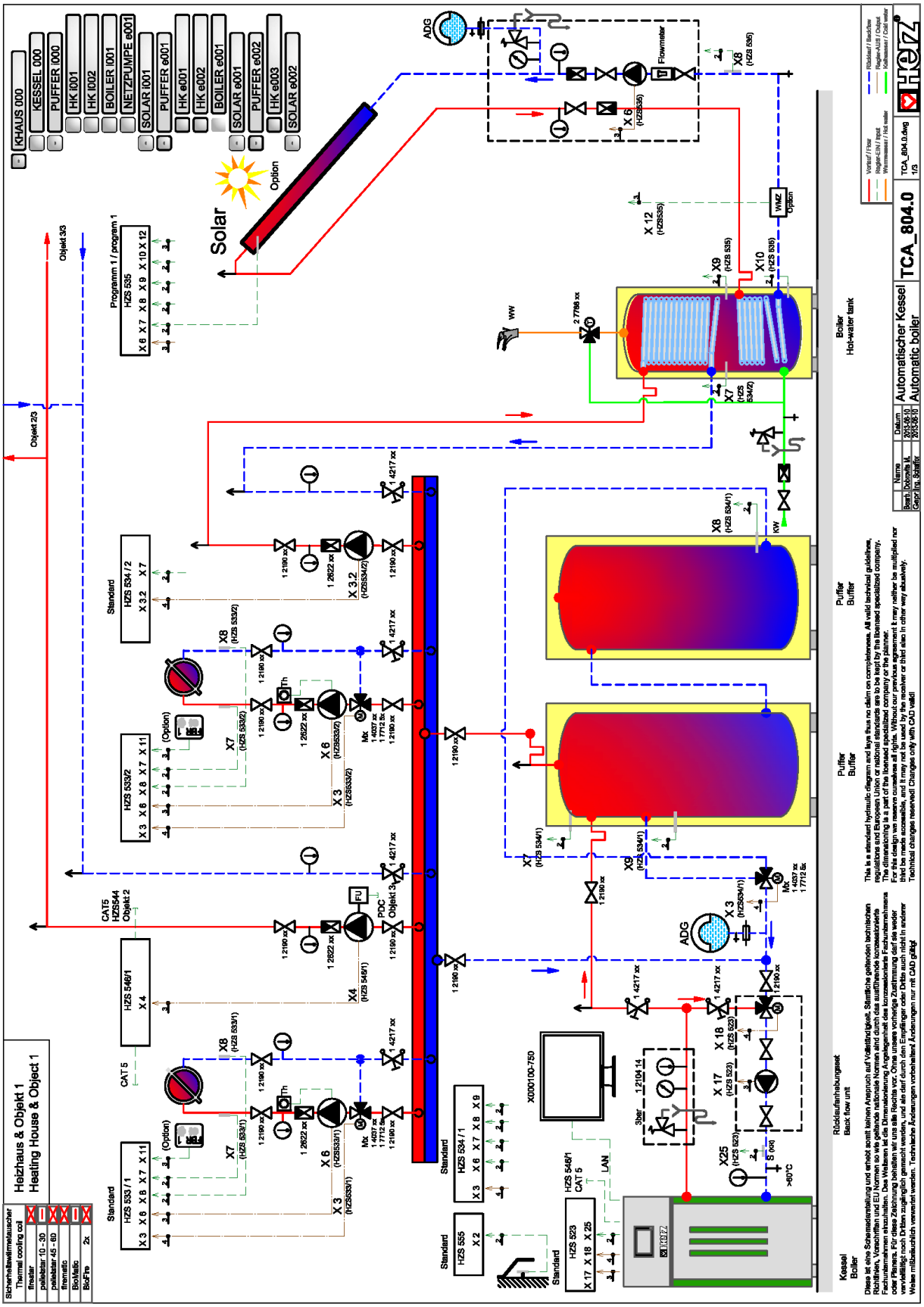


Hydraulic recommendation 2

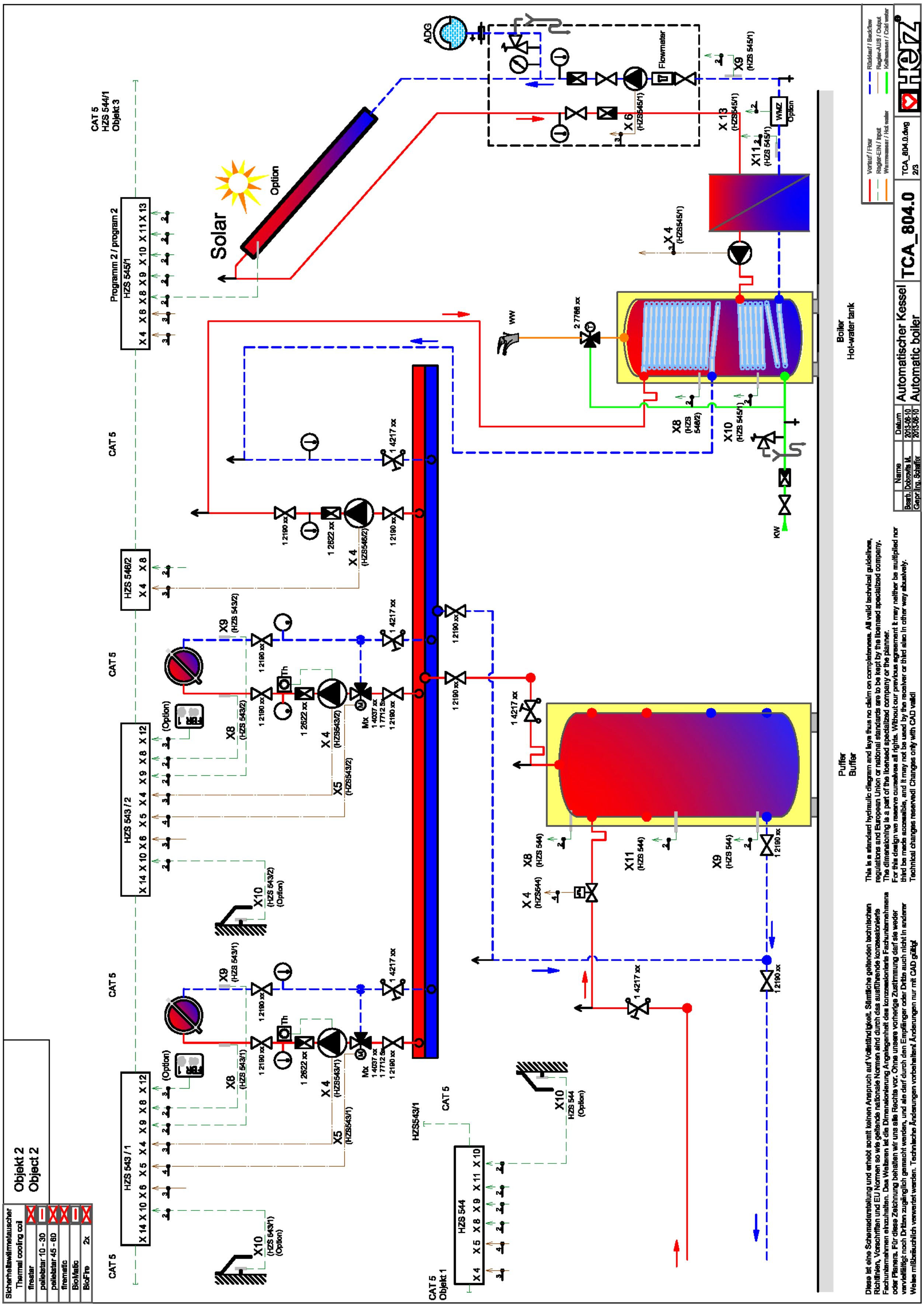


16.2 Solar module

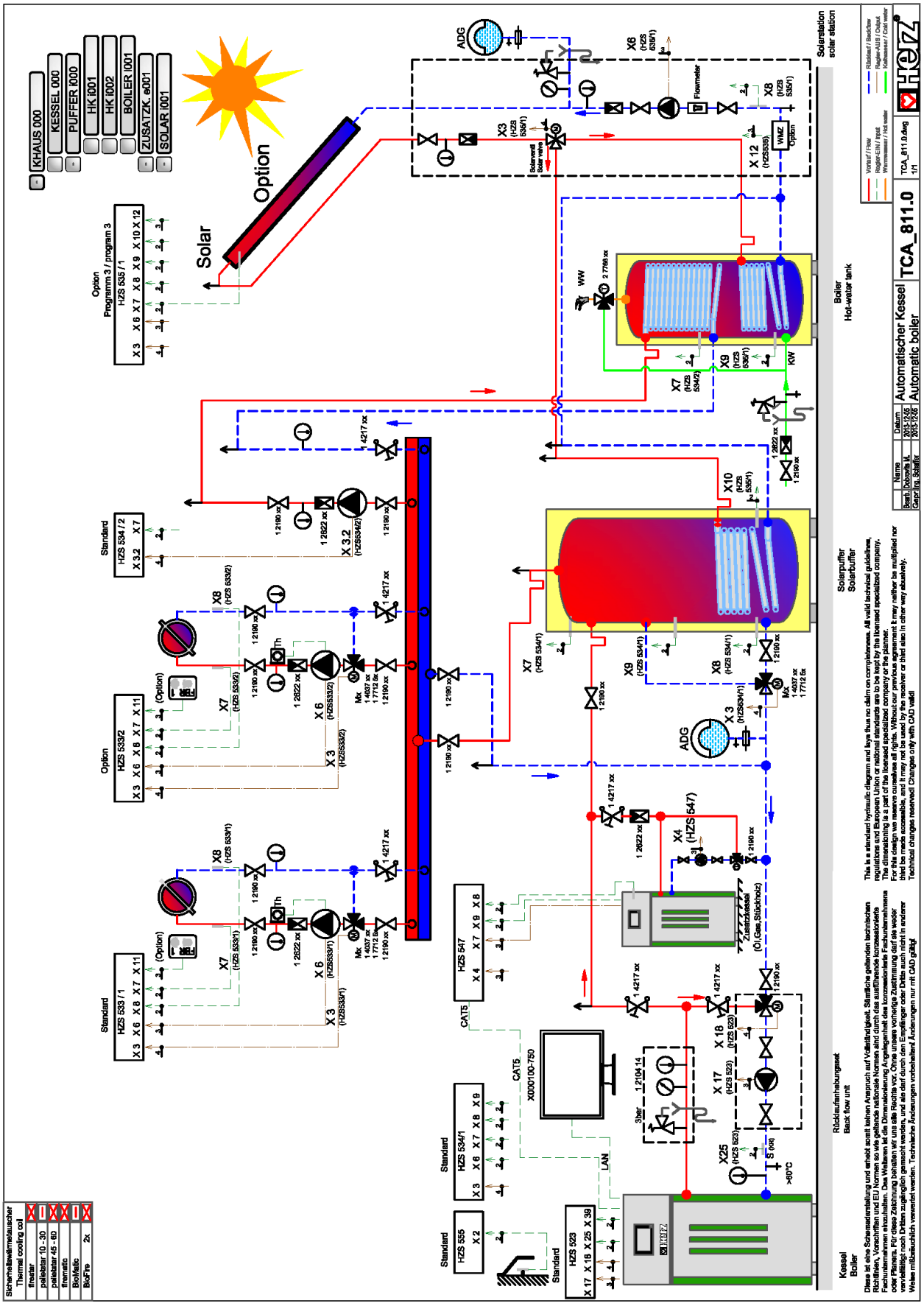
Program 1



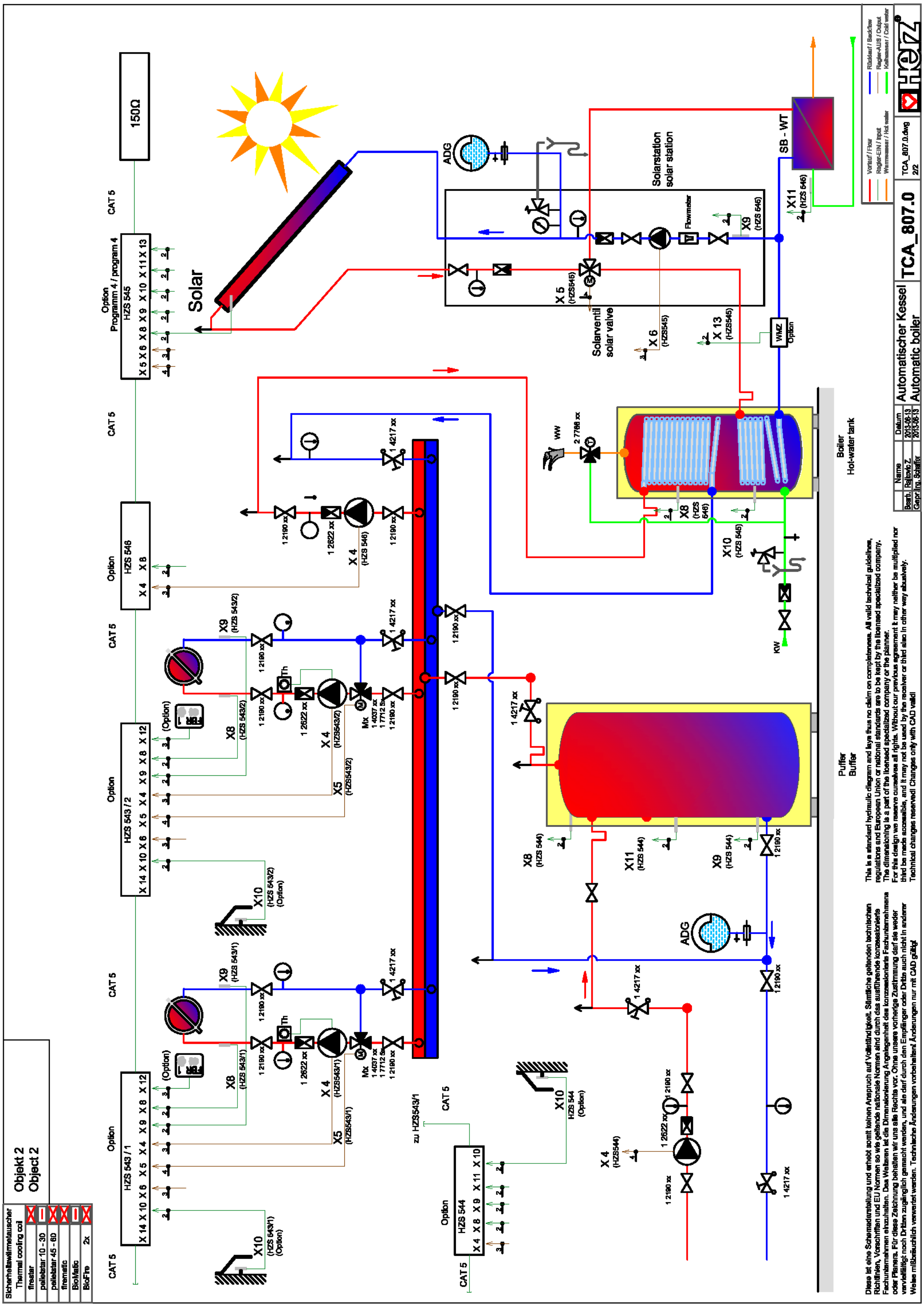
Program 2


Solar
Option
Flowmeter
ADG
Puffer
Buffer
Boiler
Hot-water tank
Objekt 2
Object 2
Automatischer Kessel
Automatic boiler
TCA_804.0

Program 3

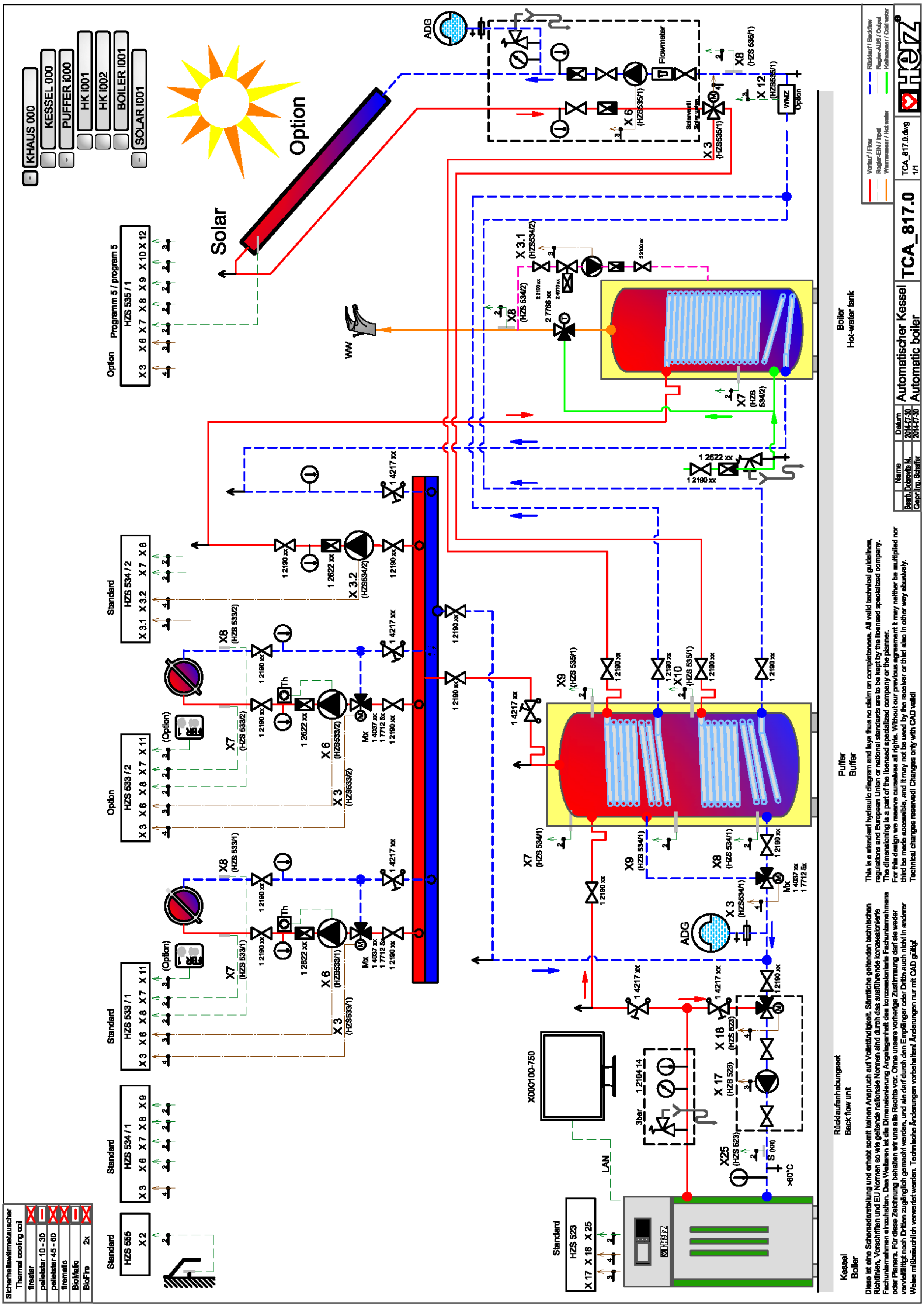

KHAUS 000
KESSEL 000
PUFFER 000
HK I001
HK I002
BOILER I001
ZUSATZK. e001
SOLAR I001
Option
Solar
Option Programm 3 / program 3 HZS 535 / 1
Solarstation
solar station
ADG
Flowmeter
WMZ Option
Boiler
Hot-water tank
Solarpuffer
Solarbuffer
Automatischer Kessel
Automatic boiler
TCA_811.0
Standard HZS 534 / 2
Option HZS 533/2
Standard HZS 533 / 1
Zusatzkessel
(Öl,Gas,Stückholz)
Rücklaufanhebungsset
Back flow unit
Kessel
Boiler
Standard HZS 534/1
Standard HZS 555
Standard HZS 523
LAN
CAT5
X000100-750
Sicherheitswärmetauscher
Thermal cooling coil
finester
pelletster 10 - 30
pelletster 45 - 60
thermatic
BioMatic
BioFire

Program 4

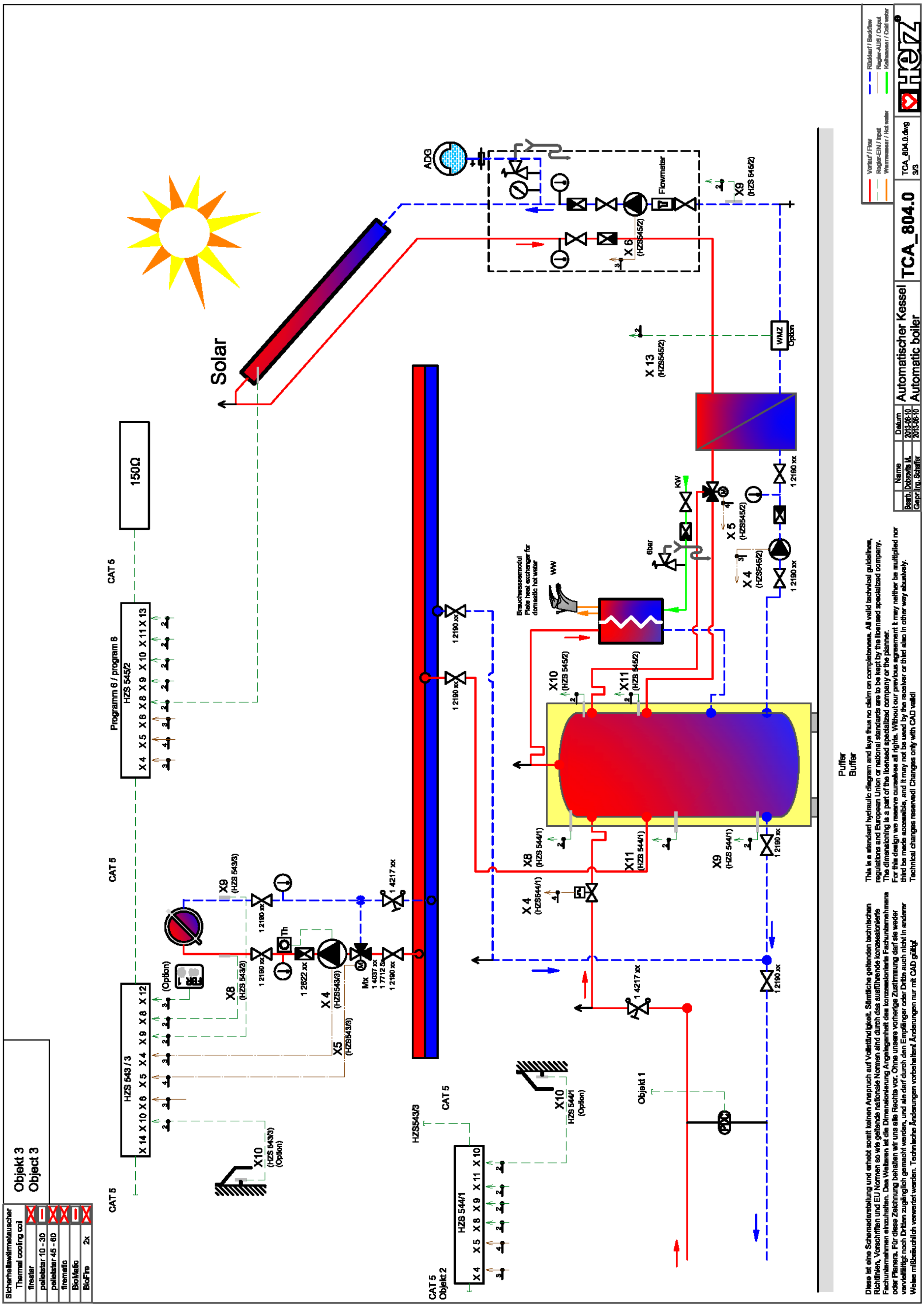


Solar
150Ω
Solarstation
solar station
Solarventil
solar valve
SB - WT
Boiler
Hot-water tank
Puffer
Buffer
Objekt 2
Object 2
TCA_807.0
Automatischer Kessel
Automatic boiler

Program 5


Solar
Option
KHAUS 000
KESSEL 000
PUFFER I000
HK I001
HK I002
BOILER I001
SOLAR I001
WW
ADG
LAN
X000100-750
Kessel
Boiler
Rücklaufanhebungsset
Back flow unit
Puffer
Buffer
Boiler
Hot-water tank
TCA_817.0
Automatischer Kessel
Automatic boiler

Program 6


Solar
150Ω
Programm 6 / program 6
HZS 545/2
HZS 543 / 3
HZS 544/1
CAT 5
Objekt 3
Object 3
Objekt 2
Objekt 1
ADG
Flowmeter
WMZ
Puffer
Buffer
Automatischer Kessel
Automatic boiler
TCA_804.0

17 NOTES

17 Notes

Version number: V 1.2
Article number:
SW: V 1.50

Österreich/Austria
Herz Energietechnik GmbH
Herzstraße 1
7423 Pinkafeld
✆ +43 (3357) / 42 84 0 – 0
🖷 +43 (3357) / 42 84 0 – 190
✉ office-energie@herz.eu

Deutschland/Germany
Herz Armaturen GmbH
Fabrikstraße 76
D-71522 Backnang
✆ +49 (7191) 9021 – 0
🖷 +49 (7191) 9021 – 79
✉ verkauf@herz-armaturen.de