Operating instructions

HERZ BioFire 500 – 1500

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

Introduction

Dear Customer

Your heating system is powered by a HERZ firematic 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 17225-2; Wood chips after EN 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.

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Subject to technical modifications.
Version 05/2013

[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

Table of content

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 BioFire 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!

Warnings

	Risk of injury and damage to property due to improper handling of the system.
	Caution: hot surface
	Warning against hand injuries.
	No admittance without authorisation.

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, because of their physical, sensory or mental capabilities or because of their lack of experience or knowledge, are unable to use the equipment safely must not use this equipment unless they are supervised or instructed by a responsible person.

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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 systems, certain parts of those systems will always carry a hazardous electrical voltage or be exposed to a mechanical load. Only appropriately qualified personnel may carry out work on the system. They must be thoroughly familiar with the content of this and all other manuals. In order for this system to function safely and without any problems, transportation, storage, operation and maintenance must be carried out properly and carefully. Instructions and information on the systems must also be heeded.

Installation

General notes

In order to ensure that the system will function properly, the relevant standards and the manufacturer's installation instructions are to be heeded during the installation of the system!

Documents from the manufacturer relating to the heating devices and components used are available from Herz on request.

Operation and maintenance

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”.

Operation

General safety instructions

	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: ACTUAL O2 [‰] 50)
- The noise generated by the machine during operation does not present any danger to health.

Maintenance

General safety measures

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.

Fuels

Wood chips

Wood chips for non-industrial use with low fines content after EN 17225-1/4 according to the following specification:

- Property class A1, A2, B1
  - G30 resp. G50[4] according to ÖNORM M7133
- Particle size P16B, P31,5 and P45A
- Water content min. 15% up to max. 40%
- Ash content: <1.0 (A1), <1.5 (A2), <3,0 (B1) m-%
- Calorific value in as-delivered condition > 3,1 kWh/kg
- Bulk density BD in as-delivered condition > 150 kg/m³

The property classes A1 and A2 represent fresh wood and chemically untreated wood residues. A1 contains fuels with low ash content, which indicates little or no bark, and fuels with lower water content, while class A2 has a slightly higher ash content and/or water content. B1 extends origin and source of class A and includes additional materials, such as short rotation plantation wood, wood from gardens and plantations etc., as well as chemically untreated industrial wood waste. Class B2 also includes chemically treated industrial wood waste and used wood.

[4] Only if using an agitator with 3x400 Volts

Wood pellets

Wood pellets for non-industrial use after ENplus, Swisspellet, DINplus or ÖNORM M 7135 resp. pellets after EN 17225-2 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 the time of loading: <1,0 m-%
- Calorific value in as-delivered condition > 4,6 kWh/kg
- Bulk density BD in 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.
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.

Unsuitable fuels

The burning of **unsuitable fuels** could lead to uncontrolled combustion. Operational faults and consequential damage are likely to occur.
Possible consequential damage:

- Damage to the thermodynamic combustion chamber, the lambda probe, or the fuel gas probe of the combustion chamber temperature sensor, due to 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).

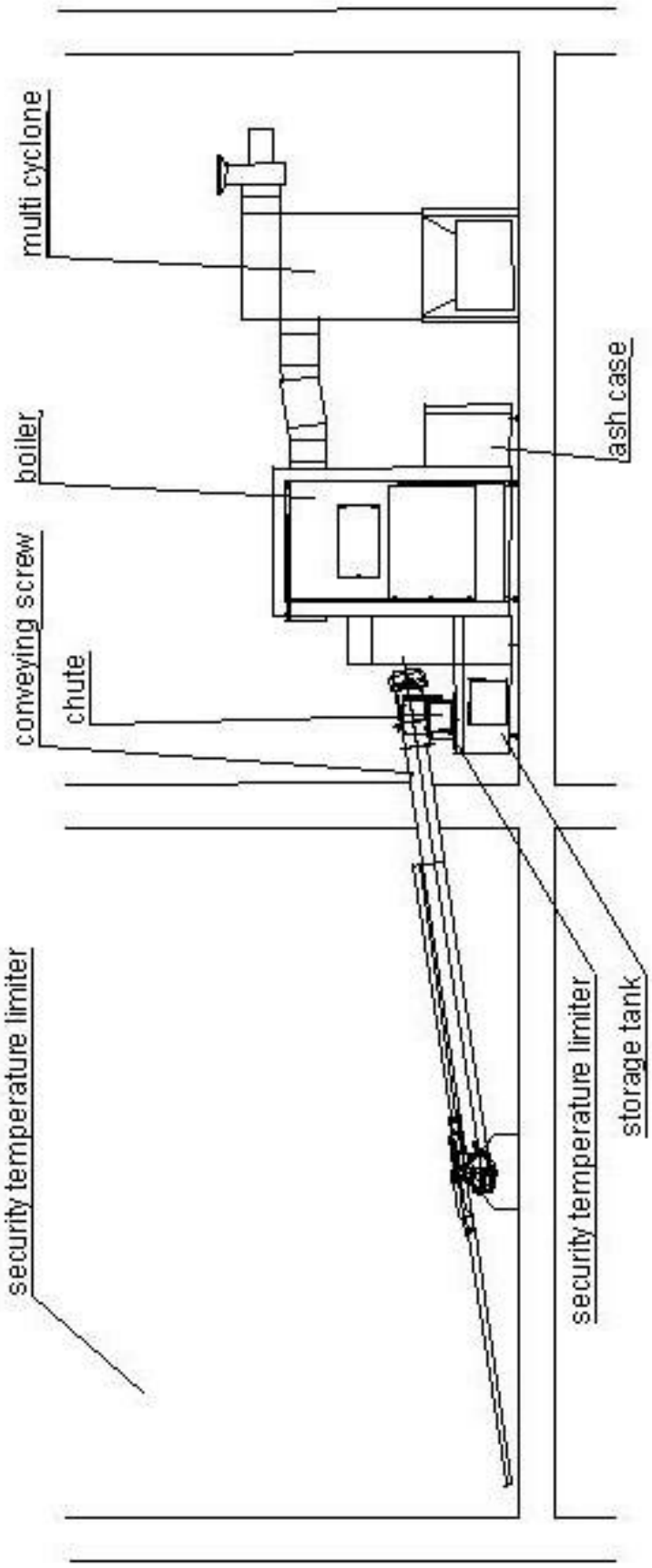
Is at the order an other fuel labled ant these in the sales confirmation formally noted, so the equipment is to operate with this fuel.
Advice: The equipment will be discontinued of which agreed fuel by initiation.
These adjustments(blower engine speed adjustments, fuel level adjustments pre- and hunting blower clock cycle, etc.) should not be changed by equal lasting fuel quality.

Fuel changing

By using up of an other fuel is to attend that (these):
1. is admissibled as fuel (look air clear keeping act)
2. the water concentration and the piece size have to be in the admissible range.
3. it is eventually necessary the adjustment of the blower engine speed and fuel niveau adjustments to tune new.

On request can these adjustments also carried out through our office service and adequate charge.

Device construction



Function of equipment

The feed system

Out of a storage room gets the fuel via a conveying screw to the backfire protection device (BFP) transported. Here were passed first the chute and then the backfire flap. The backfire flap was operated with a spring loaded servomotor. When the servomotor is drop-out, closes the flap by itself. After that feeds the conveying screw the wood chips on the stepped grate. After rotation of the input screw will be pushed the wood chips onto the stepped grate. The reached fuel niveau is the determining factor for the boiler capacity and for the operation state of the equipment.
The feeding discharge screw from the storage room over the intermediate If the target level is to low, the discharge screw started. When exceeding this will stop them accordingly..

Type of feed

The BioFire works via one measure / break – relation as insertion regulation. The complete values are in the fuel selection already deposited as standard values.

Combustion air control

By the supplied burning air was distinguished between **primary** and **secondary air.** The primary air will be supplied directly to the live coal stick. With help of the secondary air was tried out of the primary air existed flame to developing completely in following succession.
The flue gas ventilator is an ID-fan and is positioned on the backside of the boiler. It produces in the boiler under pressure. Through this under pressure will be sucked on secondary air and partly also primary air. The primary air fan works as pressure fan. It is positioned on the boiler entrance of the insertion screw. Through this fan will be stream through the burning bowl with primary air.
The secondary air (option) works as pressure fan. Through this will be streamed through the secondary air ring with secondary air. This air will be supplied warmed up to the burning.

All fans will be ruled by time with the electric ruler with variably rotation number. The fan rotation number like the run times are adjusting and dependent on from the boiler temperature, the operation condition and the available fireplace pull.

Boiler operation

Through the installed ignition goes the equipment by warmth request automatically in operation.
The warmth request can be leaded by weather (Option), also in connection with a far feeler (Option), caused by of every heating circle. It is also possible to produce a demand with a room thermometer. As well can the boiler switch on the equipment through his warmth demand.
The boiler capacity can over adjustments in the regulation be changed as well adapted on the local circumstances.

Too deep boiler temperatures were avoided from the ruler, because these operation affects the live duration.
Too high boiler temperatures are not allowed in cause of operation security

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.

Switch bay MAINCONTROL SWITCH

This turning switch switches the whole equipment drop out. The currency supply would be completely separated after the net supply clamp of all equipment pieces, steering components and security build pieces. The main switch should be always secured with a padlock.

Safety temperature limiter STL

Should the boiler temperature 95°C be crossed, so must the equipment disconnected in cause of safety reasons. In this cause the STL locks.

Possible causes are:

- Performance decrease in the boiler was interrupted abruptly. This can occur due to the switching off of a pump or sudden shutting of the heating circuit mixer.
- The load pumps are being controlled by the HERZ Control. The so-called excess temperature flue gas would be automatically activated by the HERZ Control. This avoids higher boiler temperatures.
- The boiler is too large.
- The fuel level is set too high.
- Loss of power supply
- Etc.

Firstly the cause of the failure must be found and corrected and only then can the safety temperature limiter be unlocked.

For the unlocking the boiler temperature must be under ca. 75°C.

After this may be quit the annoyance. Therefore would be screwed of the cover sheet of the STL. Through a light pressure and a acute item can be unlocked the STL again. After unscrewing the cover sheet, must the annoyance quit will be in progress on the switchboard. The STL was located below the main switch on the actuator of control.

Starting up

The first initiation must be carried out of a movement servicing or a authorised expert.
Also was measured here the under pressure in the fire tube neck in the boiler after the firing was one hour in operation with the provided solid fuel at least and a flow temperature was reached of 70 - 85 °C. With this was established, whether the boiler appears the necessary conveying pressure (first called “draft demand”) for the regular operation. Amounting deviate values, is the available fireplace not measured right or the fireplace calculation of based premises are not fulfilled (faulty access, false air entrance , too large connection piece, etc.) in any case can’t the boiler not operated regulary.

In outline of initiation and disposal for the operator is farther to proof the function of all rule- and security facilities also the using and maintenance of equipment must be explained thorough to the operator.

Beside that the plumber is obliged to build a manual for the whole equipment which is keeping in the heating cavity. The hydraulic balancing of the equipment (pipe installation) must be carried out by an authorised specialist company (installer).
It is also the duty of the installer (according to ÖNORM 12170) to create documentation for the complete installation and this must be deposited in the heating room.

Handling temperatures and incorrect temperatures

The boiler temperatures

The HERZ- BioFire boiler operation was operated between 65 und 90°C boiler temperature. Under 55°C run back temperature condenses some of smoke gas on the inner side of boiler. By a start up have to be the operating temperature (from 65 till 90°C) possibly reached fast, to avoid a condensation. The run back temperature can also lie down under a allowed temperature. This condition will be avoided of a right functionary back run attachment.(at least 55°C, better 60°C).

Attention!:

For corrosion damages, due to abnormal operation temperatures originated, decayed all guarantee claims

The return temperature

The return temperature is always lower then the boiler temperature. The return temperature have to climb possibly fast on or over 55 °C (60°C). The high attitude respectively the boiler temperature was realised with a so-called runback rise up or runback high attitude . Therefore was the pre-run water respectively over a pump and a adequate valve admixed to the return.

The warmth energy of the boiler can only be used on this point on what the return temperature has transgressed 60° C.

Too high boiler temperatures

The HERZ- BioFire boiler may be operated till max. 90° boiler temperature. Higher temperatures are not allowed! When the acceptance of service rendered of the boiler is suddenly abate (Mixer closes, Boiler load pump switches off) can it happen under circumstances, that the saved warmth energy in the boiler the heating water heated over this value.
In the BioFire – equipment are 3 security sanctions provided for cutting off more temperature rising.

Excess temperature outlet (Boiler temperature over 92°C):

From this temperature the consumer pump is switched on in order to divert the excess heat energy. To do this, the loads are set to their maximum value. The precondition for this is that these are controlled using HERZ controls. Should this not be the case then there is a greater probability that the boiler will overheat and result in a breakdown.

Thermal flow protection

Attention: The thermal flow protection has to be adjusted by the installer to the corresponding operation temperature.

The safety heat exchanger or other equipments that remove excess heat (e.g. Thermal flow protection) have to ensure, that the maximal water temperature of 110°C in the boiler is not exceeded.

Security temperature limiter – STL

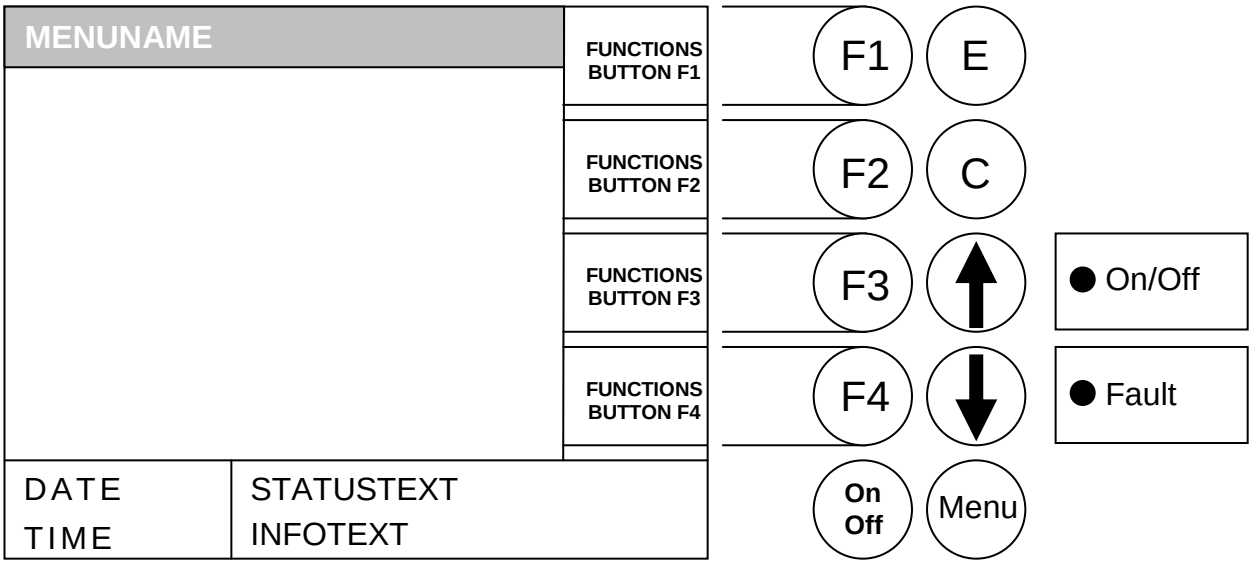
About this temperature will be the equipment switched off! The STL locks itself and with it the operation of equipment. An annoyance was announced and the equipment stands still.

The flue gas temperature

The flue gas temperature is addicted from operation condition from fuel and the ventilator adjustment and the boiler type. Therefore true for:
The fireplace must be lubrication proof and after DIN 4705 calculated respectively dimensioned.

MENU STRUCTURE – DISPLAY BODY

DISPLAY BODY



Operation states (burning regulation):

Switched off :

In this state is the equipment off-switched. That means the burner is blocked.

Ready :

The boiler- respectively the buffer temperature is not high enough to provide the costumer.

Ignition prepare :

In this state the lambda sond was heated.

Pre-Ventilation:

This state is used to rinsed the burning cavity and the fireplace with air.

Cold start :

If the boiler room temperature is under 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

Warm start :

When the burning cavity temperature is over 150°C was carried out a warm start.
Therefore was tried to start without ignition blower. When inner the maximal ignition
time not will be recognized an ignition, then the equipment begins again with a cold
start.

Scorch phase :

These phases are used to reach a constant firebed. The period of phase was prepared for the fuel values. Therefore should be looked for that will be burned with a higher oxygen overage. This is serving to get faster the wished constant firebed. This phase should not be preseted longer as ***5 minutes***.

Run up phase :

In the run-up phase drives the equipment with mention cavity. Reaching the boiler temperature was changed in the ruler phase.

Control phase :

In this phase was the boiler between mention load and piece load moduled. When the piece load level produces too much energy that means the boiler temperature and rule lhysteresis was passed, then was changed in the state „ready“.

Burn out phase:

When the boiler switches off, then was the fuel was reminded in the burn bowl burned out.

Burner cleaning:

During the burner cleaning was the burner cleaned from ash. Therefore the insertion was stopped and simultaneously the ash draged out over the ash screw.
After caused by cleaning changes the equipment in normal operation. The interval
was calculated over the run time by conveying screw. This preseting over parameter AS INTERVAL.

Heat exchange cleaning (option):

The heat exchanger cleaning is used to the progression of effect level. There was the heat exchanger cleaned automatically and the flue ash was draged out via the flue ash holding
(option). The interval and duration of cleaning can be set using the parameters HEC INTERVAL or HEC DURATION.

Cavitiy regulation :

The boiler cavity will be ruled inside the boiler ideal value and the ruler end.
The ruler end is the boiler ideal value + rule hysteresis. When the ruler end is
reached. goes the equipment to burn out phase.

Exhaustgas temperatur regulation :

When the maximal Exhaustgas temperature is passed, then was the equipment cavity reduced on the piece load. By infiltrating the temperature goes the equipment again of normal cavity regulation.

Flamecontrol :

If the burning values during operation deviate to much was this recognized, and the equipment switched off.

Antifreeze

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.

Lambda regulation :

Over the lambda regulation was the amout of material and the secondary air ruled. She is serving to the burning optimation and can recognize minor fuel deviates. So is it not necessary after filling up the hopper to adjust again the This is only necessary if you use another fuel.

Under pressure regulation :

The under pressure regulation rules the ID-fan blower number of revolutions. Therefore is it always possible to create the same burning attitude. Are the adjusted values falling below the minimal under pressure for longer as 30 seconds was the equipment turned in the state HEATING OFF.

Insertion screw - Runback :

The motor current of insertion screw motor was supervised. When the insertion screw takes to much current was the turning direction of the insertion screw for ca. 2 seconds turned to loose the material in the insertion screw. After 5 faulty tries was the equipment turned in the state HEATING OFF.

Cavity holding :

A room discharge screw can be connected to the control. Furthermore there is the option of controlling a cellular wheel.

Backfire protection devise (BFP) :

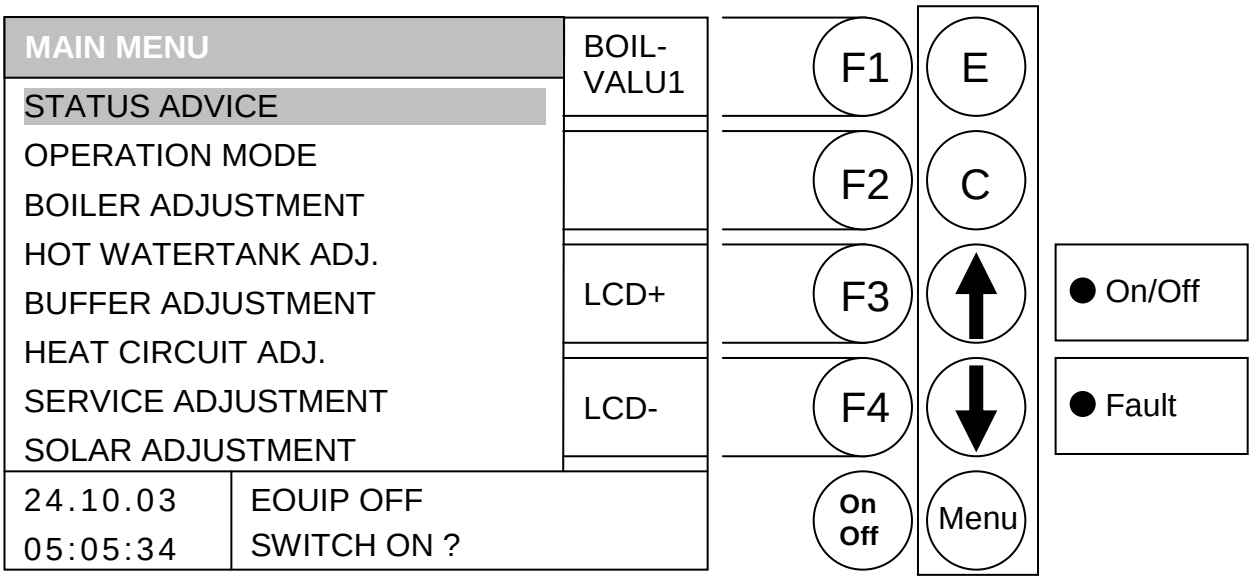
The backfire protection devise unables to come a backfire in the hopper. She must regulary be proofed of impermeability, or it is possible to get a back glossing.

Description of menu control and adjustment values

MAINMENU

AIM: Advice of capacity, Adjustment of contrast also ramification in the undermenus .

This side was automatically loaded, after you have switched on the equipment with the main switch.
From here you can navigate easy through the adjustments.



Through pressing the button

F1 : (BOIL-VAL1) was the window *Boilervalues 1* called on.
F2 : without function
F3 : (LCD+) was the contrast *higher*.
F4 : (LCD-) was the contrast *minored*.

↕ : was the beam moved *up*.
↕ : was the beam moved *down*.

E : was changed in that window, which is deposit with the beam.
C : without function
Menu : was the actual menu leaved. Through pressing several times returning one again in the main menu
OnOff : was the equipment switched on / off.

In the status text was the state of moment of equipment advised.
In the info text was the addicted addition menu from each menu advised.

The switch on and switch off of equipment

a) The switch on

Through pressing of the On/Off – button for duration of 1 second appears the text „switch on?“. Through short pressing of button On/Off was the equipment switched on.
If the equipment not letting switches on, appears the fault on display, which this prevented. (look fault elevation side in the appendix)

b) The switch off

Through pressing of the On/Off – button for duration of 1 second appears the text „switch off?“.“.
Through short pressing of button On/Off was the equipment switched off.
In all states of operation (exeption: cold –start or Ready) was then changed in the burn-out phase.
By switching off during the cold-start was the cold start finished and then changed in the burn-out phase. These prevented an abnormal high fuel amount in the burning chamber.

For complete decommissioning power should also be cut off from the unit.

The safety rules according to ÖNORM are:

- Switch off all poles on all sides
- Ensure that it is not switched on again
- Check that there is no voltage
- Earth and short-circuit
- Cover neighbouring voltage-carrying parts and limit danger spots

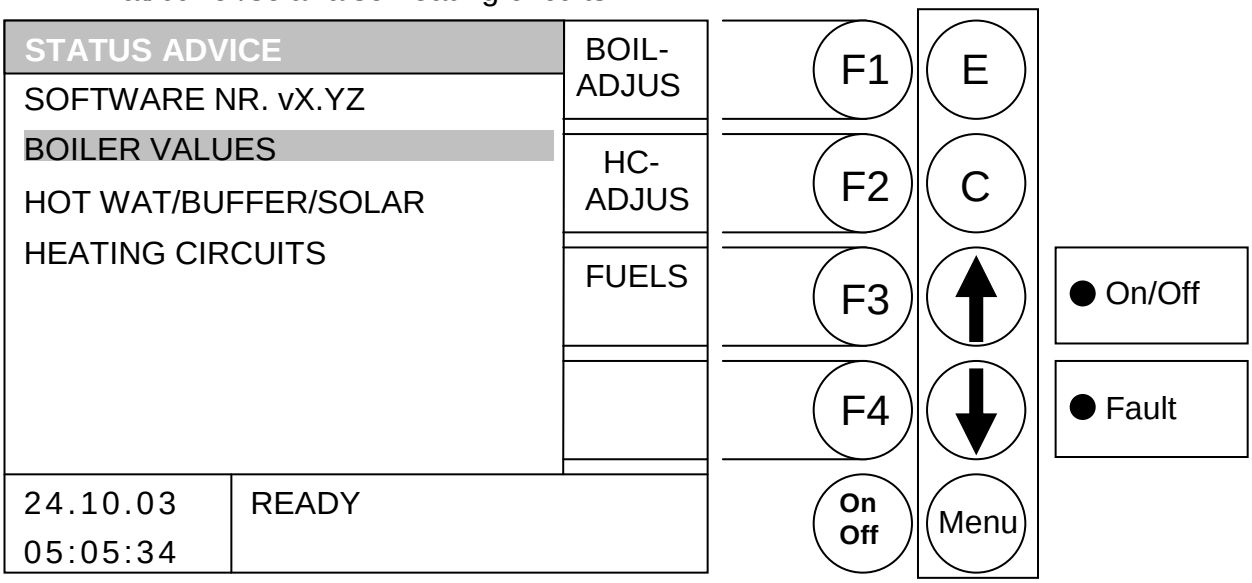
Leaded from the main menu there is the possibility to get in on every under menu.
This is caused by arrow up or arrow down. Confirming over ENTER. With the function buttons (F3) LCD+ respectively (F4) LCD- you have in the main menu the possibility to change the contrast of display.
Also exists the possibility to change directly with the function button F1 on status side to actually boiler values. A detailed description to this menu you will find under status advice side – boiler values.

Some windows, which was descripted in the follow, are for security causes code protected, and can only through inputting this code be opened. There is also for security causes a 2 code level which was created only for the service engineer and therefore can it be opened only via a service code.

STATUS ADVICE

MAIN MENU ➔ STATUS ADVICE

Aim: Advice of software-versions number like the ramification in pictures of boiler values, hot wat/buffer/solar also heating circuits.



Through pressing the button

F1 : was changed in menu *„BOILER ADJUSTMENT“*
F2 : was changed in menu *„HEAT CIRCLE ADJUSTMENT“*
F3 : was changed in menu *„FUEL SELECTION“* :
F4 : without function

↕ : was the beam moved *up*.
↕ : was the beam moved *down*.

E : was changed in those window, which is deposited with the beam.
C : without function.
Menu : change in the main menu.
OnOff : was the equipment switched on / off..

Boilervalues: clear advice of all relevant boiler values
Hot Wat/Buffer/Solar: clear advice of all relevant boiler hot wat-,buffer-,solar values
Heating circuits: clear advice of all relevant boiler heating circuits

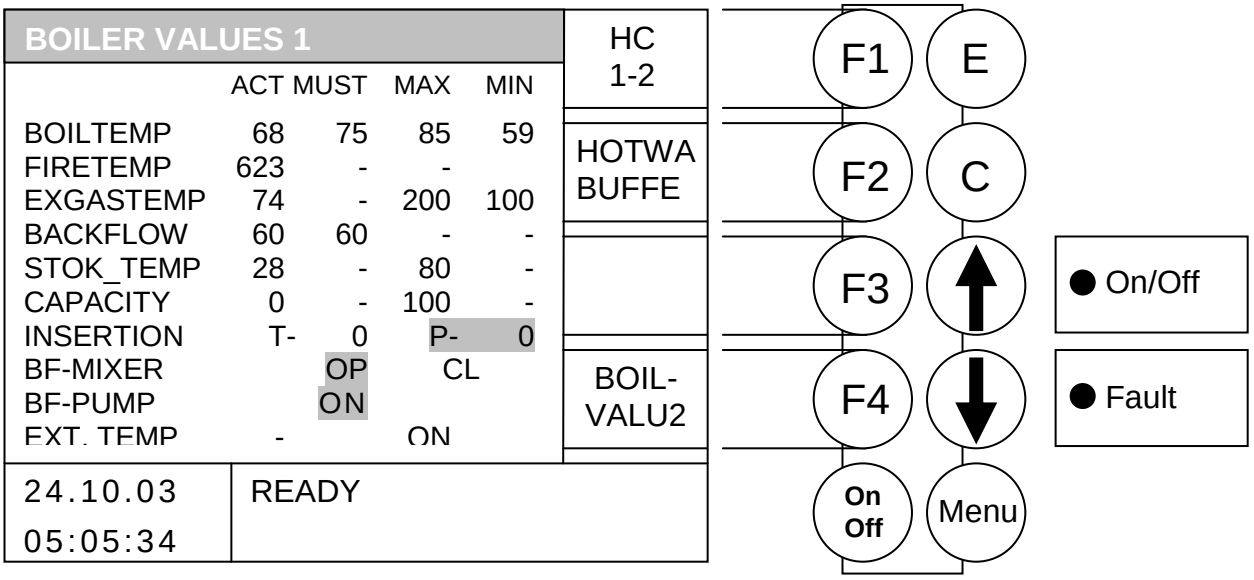
When you for example. have a look for the boiler values, you have to apply - only after right positioning of the beam - the ENTER – button (E).
On this side were all registered values clear advised. Also were advised the (when available by each value) ideal max und min - values.

It exists following possibilities to change from the status advice to the heating circuits: From the under menu-side status advice you can move the beam via an arrow up respectively down to the menu point heating circuits, or should you be in the status advice boiler values, so with the function button F1.

BOILER VALUES 1

MAIN MENU ➔ STATUS ADVICE ➔ BOILERVALUES 1

Aim: Advice of relevant boiler values Part 1.



Through pressing the button

F1 : was changed in menu *„HEATCIRCUIT 1-2“*.
F2 : was changed in menu *„HOT WAT/BUFFER/SOLAR“*.
F3 : without function
F4 : was changed in menu *„BOILERVALUE 2“* .

↕ : without function
↕ : without function

E : without function
C : without function

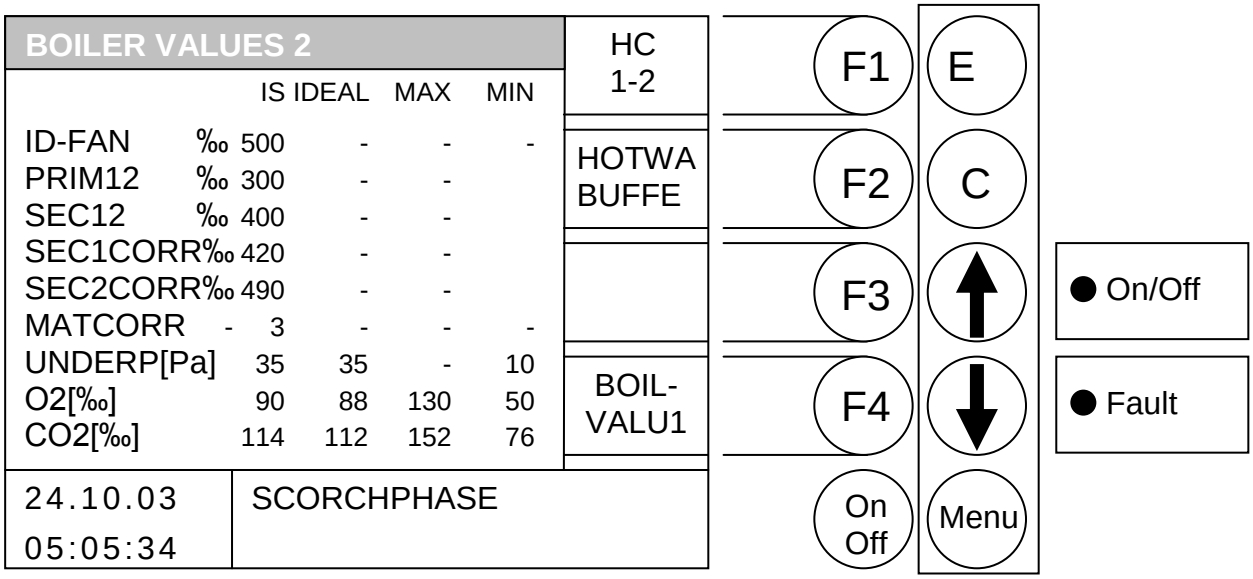
Menu : was changed in menu *„STATUSADVICE“*.
OnOff : was the equipment switched on / off.

BOILTEMP: Advice of Boiler temperatures in °C
FIRETEMP: Advice of Burn room temperature in °C
EXGASTEMP: Advice of Exhaust-gas temperature in °C
BACKFLOW: Advice of Backflow temperatures in °C
STOK_TEMP: Advice of Stoker temperatures in °C
CAPACITY: Advice of Capacity in % like BO(Burnout), IG (Ignition),SC (Scorching)
INSERTION: Advice from measure and break in seconds (actual state is deposited)
BF-MIXER: Advice of state of Backflow-Mixer (actual state is deposited)
BF-PUMP: Advice of state of Backflow-Pump (actual state is deposited)
EXT.TEMP: Displays the current external temperatures in °C

BOILER VALUES 2

MAIN MENU ➔ STATUS ADVICE ➔ BOILERVALUES 2 ➔ F4 (BOIL VALU2)

Aim: Advice of relevant boiler values Part 2



Through pressing the button

F1 : was changed in menu *„HEATCIRCUIT 1-2“*
F2 : was changed in menu *„HOT WAT/BUFFER/SOLAR“*.
F3 : without function
F4 : was changed in menu *„BOILERVALUE 1“*

↕ : without function
↕ : without function

E : without function
C : without function

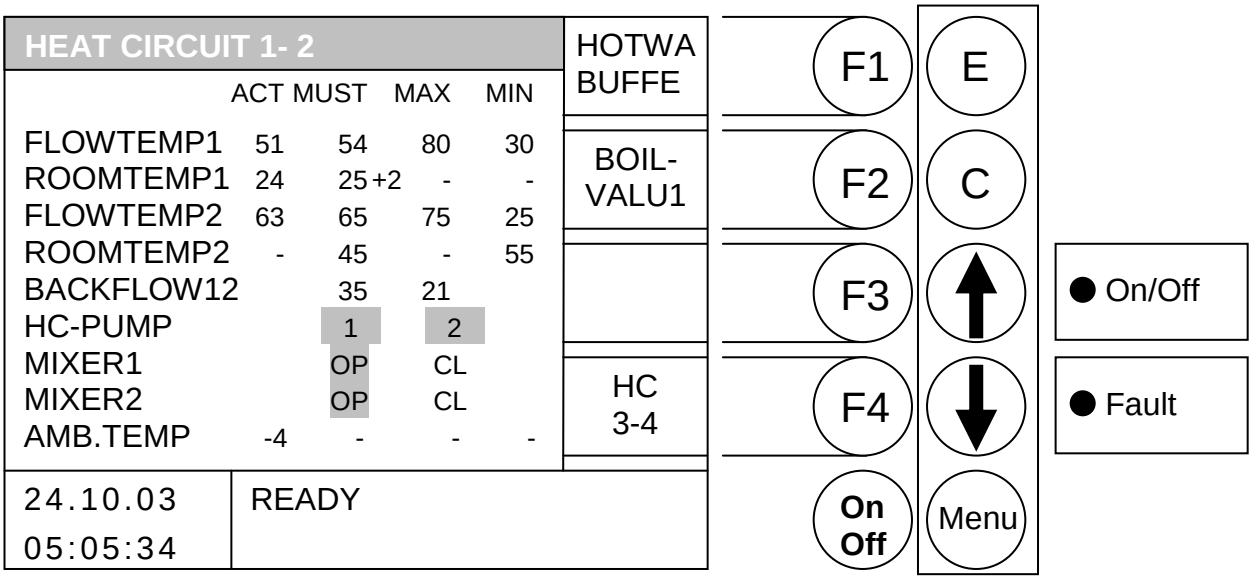
Menu : was changed in menu *„STATUS ADVICE“*.
OnOff : was the equipment switched on / off.

ID-FAN ‰: Advice of actual ID-Fan value in ‰
PRIM12 ‰: Advice of actual Primary air value in ‰
SEC12 ‰: Advice of actual Secondary air value in ‰
SEC1CORR: Advice of actual Secondary air 1-correctur in ‰
SEC2CORR: Advice of actual Secondary air 2-correctur in ‰
MATCORR: Advice of actual material correction in ‰
UNDERPR[Pa]: Advice of under pressure
O2[‰]: Advice of O2-Value (f.e. 90 = 9% O2)
CO2[‰]: Advice of CO2-Value (f.e. 114 = 11,4% CO2)

HEAT CIRCUIT 1-2

MAIN MENU ➔ STATUS ADVICE ➔ HEAT CIRCUIT 1-2

Aim: Advice of relevant Heat circuit values.
Same side for heat circuit 3-4 like for heat circuit 5-6.



Through pressing the button

F1 : was changed in menu *„HOT WAT/BUFFER/SOLAR“*
F2 : was changed in menu *„BOILERVALUE 1“*
F3 : without function
F4 : was changed in menu *„HEATCIRCUIT 3-4“*

↕ : without function
↕ : without function

E : without function
C : without function

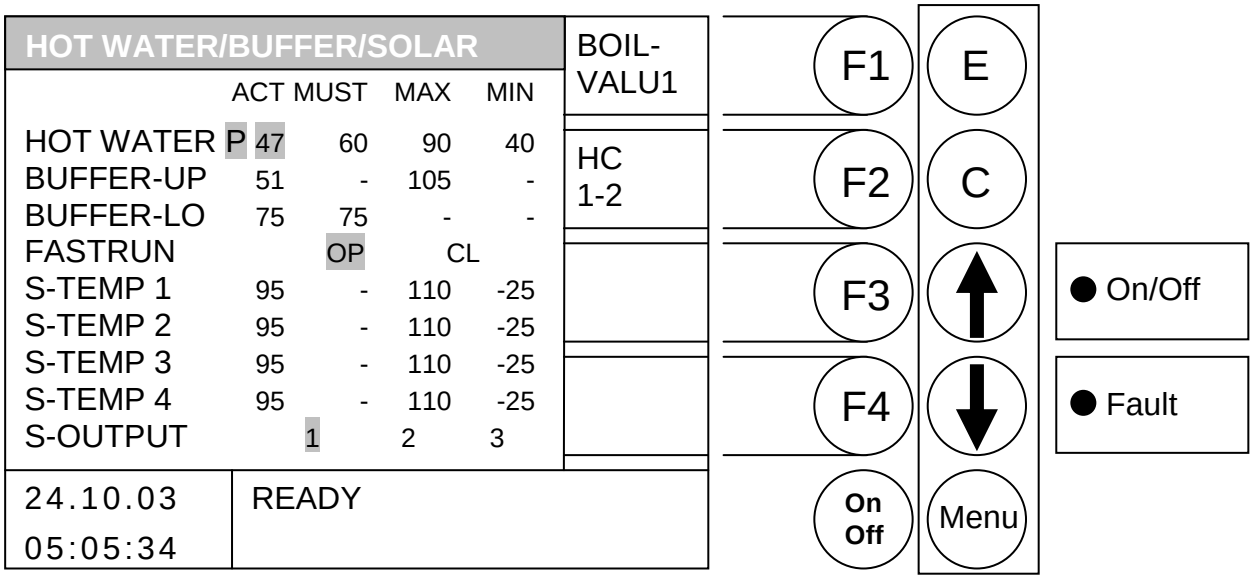
Menu : was changed in menu *„STATUSADVICE“*
OnOff: was the equipment switched on / off.

FLOWTEMP1: Advice of actual Pre run temperatures in °C
ROOMTEMP1: Advice of actual Room temperatures in °C
FLOWTEMP2: Advice of actual Pre run temperatures in °C
ROOMTEMP2: Advice of actual Room temperatures in °C
BACKFLOW12: Advice of actual Backflow temperatures in °C
HC-PUMP: Advice of states of HC-Pumps (actual state is deposited)
MIXER1: Advice of states of HC-Mixer (actual state is deposited)
MIXER2: Advice of states of HC-Mixer (actual state is deposited)
AMB.TEMP: Advice of actual ambience temp in °C

HOT WAT/BUFFER/SOLAR

MAIN MENU ➔ STATUS ADVICE ➔ HOT WATER/BUFFER/SOLAR

Aim: Advice of relevant values for Buffer, Hot Water Tank, Solar



Through pressing the button

F1 : was changed in menu *„BOILERVALUES"*
F2 : was changed in menu *„HEATCIRCUIT"*
F3 : without function
F4 : without function

↕ : without function
↕ : without function

E : without function
C : without function

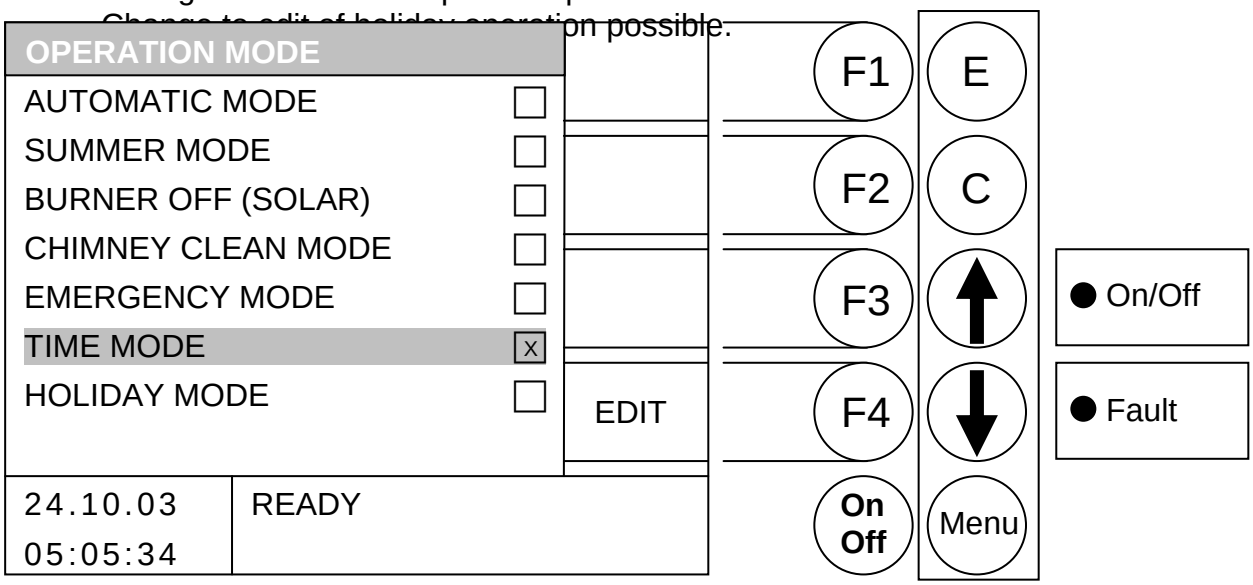
Menu : was changed in menu *„STATUSADVICE"*.
OnOff : was the equipment switched on / off.

HOT WATER: Advice of actual Hot Water Tank (HWT) temperature in °C and the state of the HWT pump (state pump ON is deposited at "P")
BUFFER-UP: Advice of actual upper Buffer temperatures in °C
BUFFER-LO: Advice of actual lower Buffer temperatures in °C
FASTRUN: Advice of actual of Fast run heating (actual state is deposited)
S-TEMP 1: Advice of actual Solar temperature1 in °C
S-TEMP 2: Advice of actual Solar temperature 2 in °C
S-TEMP 3: Advice of actual Solar temperature 3 in °C
S-TEMP 4: Advice of actual Solar temperature 4 in °C
S-OUTPUT: Advice of actual Solar output (actual state is deposited)

OPERATION MODE

MAIN MENU ➔ OPERATION MODE

Aim: Selection from your wished operation mode
Change to edit of time operation possible.
Change to edit of holiday operation possible.



Through pressing the button

F1 : without function
F2 : without function
F3 : without function
F4 : When the beam stands on time operation➔ Editing of time operation
When the beam stands on holiday operation ➔ Editing of holiday operation
otherwise without function

↕ : was the beam moved *up*.
↕ : was the beam moved *down*.

E : was the from the beam deposited operation way selected and saved.
C : without function
Menu : was changed in menu *„MAINMENU“*.
OnOff : was the equipment switched on / off.

Selected was the wished operation way via the ARROW DOWN respectively. ARROW UP button. Confirmed will be with ENTER button.

When you drive with the beam over holiday operation or time operation, rises in the right down angle the selection window EDIT. Through pressing of F4 button you get in the respective EDIT - window.

Automatic mode:
This operation way is used to make possible to an automatic switch between summer- respectively winter operation. This switch is caused by over a so-called day middle ideal-temperature (look heat circuit adjustments side 37)

Summer mode:
This operation way is used for manual switch between summer- and winter operation. In these was only activated the warm water tank respectively the buffer tank. The heat circuits are deactivated.
In spite of deactivating of heating circuits stays the antifreeze active and generated by under striding of frontier values a need (look heat circuit adjustments).
Please refer to the boiler load times. The buffer is loaded only when there is a demand for heat by the water heater and when the buffer temperature is not sufficient.

Burner off (Solar):
This operation way is used for single operation of integrated solar steering

Chimney-clean mode:
The CHIMNEY CLEAN MODE is offered as a test mode for the chimney sweeper. The boiler is operated at the exact power rating and the chimney sweeper can carry out its test measurements. The boiler usually runs high and only instead of the CONTROL PHASE is the chimney clean mode activated. This condition is left when deactivation occurs or when the boiler maximum temperature is exceeded or when the maximum chimney sweeping time is exceeded.
Any measurement may only be carried out when the chimney sweeper mode appears on the display and has formed an appropriate flame. Otherwise it cannot be guaranteed that the boiler is on optimal combustion. It is possible that the boiler is only working in the ignition or burning phase.

Emergency mode:
This operation way is, like the name tells, on ***pure emergency operation*** and so not a regulary operation way. She should only be used in ***case of exception.***.

Time mode:
By selected time operation was inside the tuned times the tuned ideal time generated as demand.
Also can the demand temperatures by one extern demand be tuned..

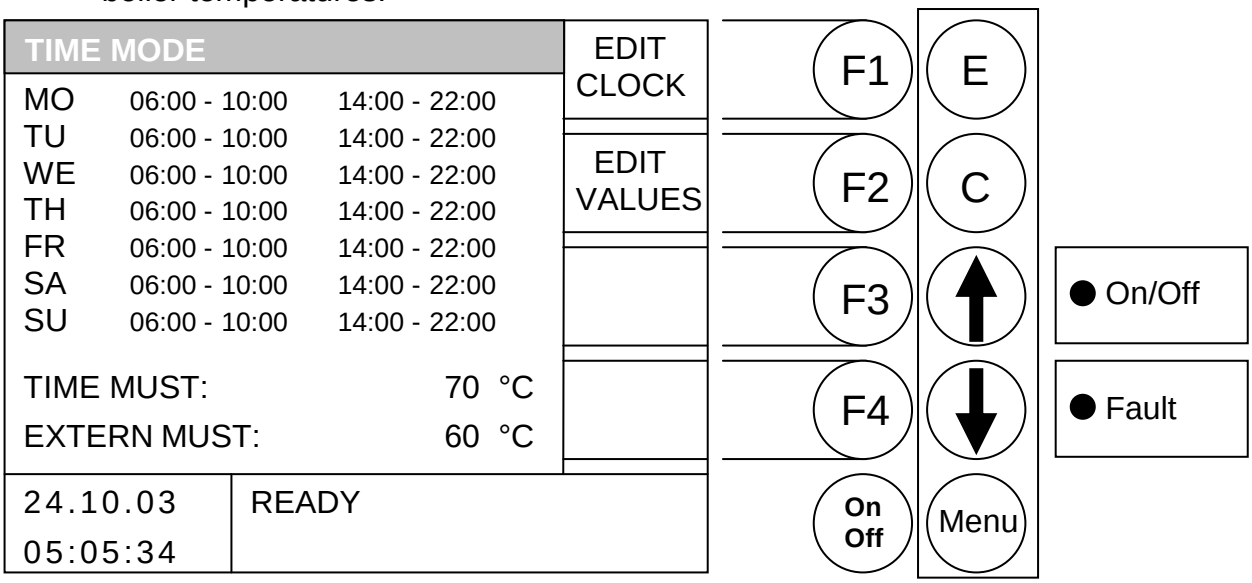
Holiday mode :
Here you can activate respectively tune the holiday operation.

During the set time all loads are set to reduction, i.e., for example, all heating circuits attached are set to reduced mode.
If a buffer storage is available this supply (temperature manager) is set to “SUMMER TARGET LOWER BUFFER “.
For hot water storage the loading is carried out if the existing boiler temperature does not reach the set minimum value for hysteresis. After this the boiler loading starts up and the boiler is loaded up to the minimum value.

Time MODE

MAIN MENU ➔ OPERATION MODE ➔ TIME MODE ➔ F4 (EDIT)

Aim: This operation mode can be used for certain times on certain days to produce determined boiler temperatures.



Through pressing the button

F1 : (EDIT CLOCK)
F2 : (EDIT VALUES)
F3 : without function
F4 : without function

↕ : without function
↕ : without function

E : without function
C : without function

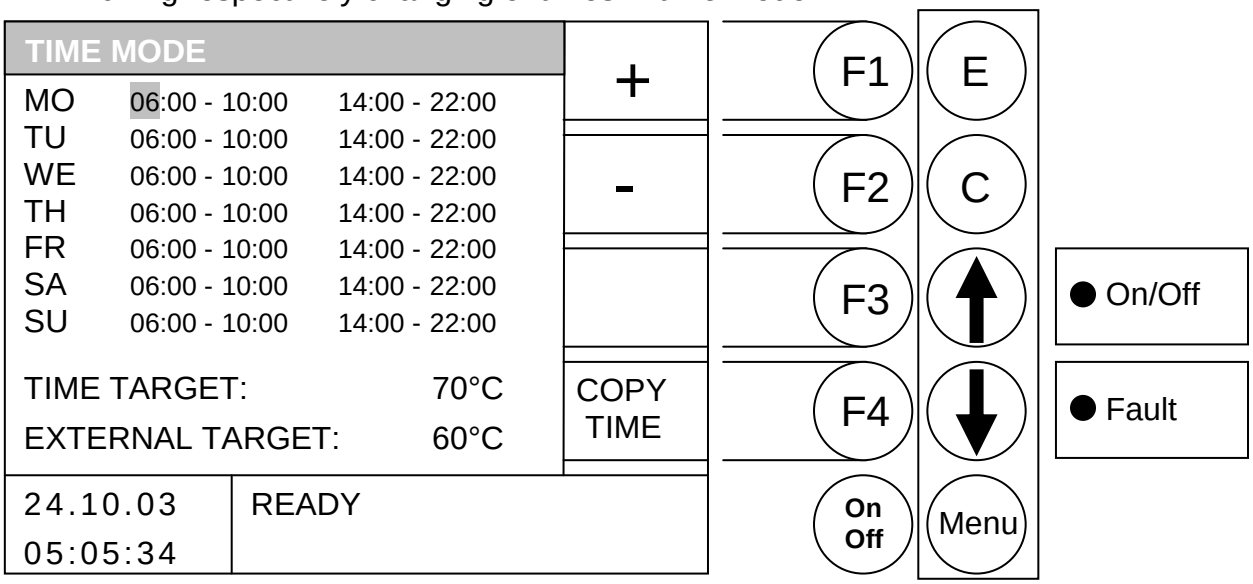
Menu : was changed in menu „*OPERATION MODE*“
OnOff : was the equipment switched on / off:

To move to the setting window for time mode, press F1 (EDIT TIME). To edit the values press F2 (EDIT VALUES).

EDITING OF TIMES IN TIME MODE (EDIT CLOCK)

MAIN MENU ➔ OPERATION MODE ➔ TIME MODE ➔ F4 (EDIT)
➔ F1 (EDIT CLOCK)

Aim: Tuning respectively changing of times in time mode



Through pressing the button

F1 : (+) was the deposited time *increased*
F2 : (-) was the deposited time *lowered*
F3 : without function
F4 : (COPY TIME) was the actual time copied of all other days

↕ : the cursor was moved on right side and jumps by the last line value in the next line
↕ : the cursor was moved on the first position of the next day

E : was the editing of times leaved with saving the times
C : was the editing value neglected on the pre-state
Menu : was the editing of times leaved with saving the times
OnOff : wird die Anlage ein-/ausgeschaltet.

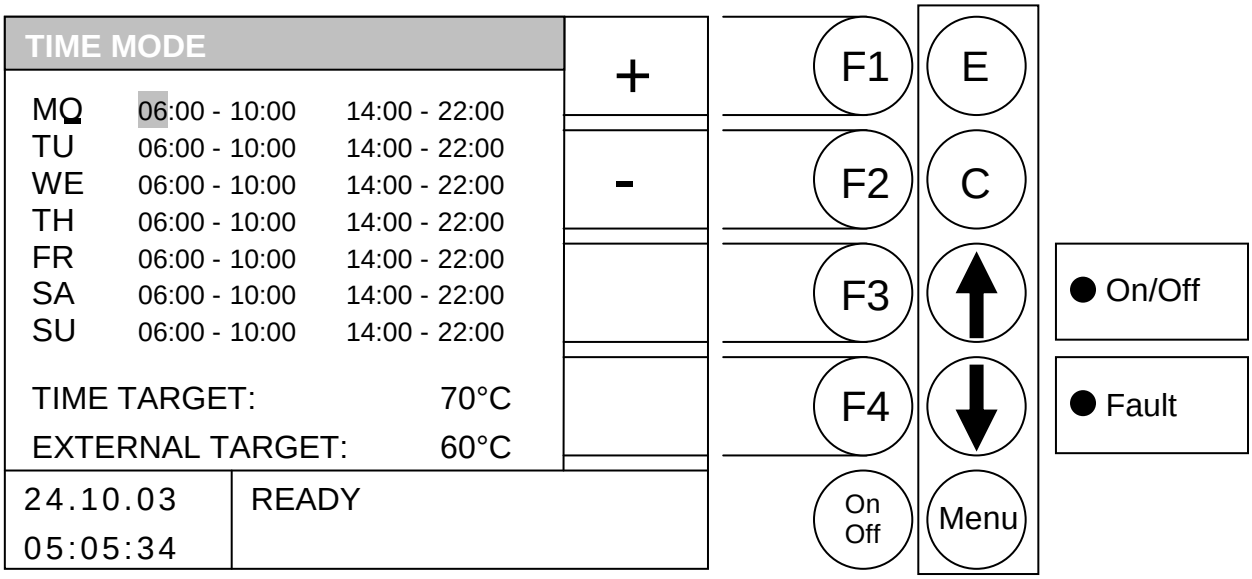
TIME MODE
Pressing the F1 button (EDIT TIME), takes you to the setting window for the desired times and days. The cursor jumps to the left upper corner (Monday, begin loading time 1). By pressing F1 (+) or F2 (-) you can change the pre-defined times. If you then wish to copy set times, press the F4 (COPY TIME) button. All days of the week are updated with the new times. However, the cursor must still be positioned in the same column.

Should you have made an incorrect setting, simply press the Clear (C) button and the original value will be displayed again. This only works, however, if the cursor is still in the position which you have changed.
This menu can be excited by pressing the menu button.

EDITING THE TIMES IN TIME MODE

MAIN MENU ➔ OPERATION MODE ➔ TIME MODE ➔ F4 (EDIT) ➔ F2 (EDIT VALUES)

Objective: Set or alter the values (target time and external target) in time mode



By pressing the button

F1 : (+) the value behind it is *increased*
F2 : (+) the value behind it is *decreased*
F3 : No function
F4 : No function

↕ : the cursor moves to the next position
↕ : the cursor moves to the next position

E : leaves the editing of the values and saves the values.
C : the values to be edited are returned to their previous settings
Menu : leaves the editing of the values and saves the values.
OnOff : the equipment is switched on/off

TARGET TIME: Is intended for the event that no heating circuit is connected and the equipment is only used as a producer of energy. I.e. within the above given values, this is the desired target boiler temperature.

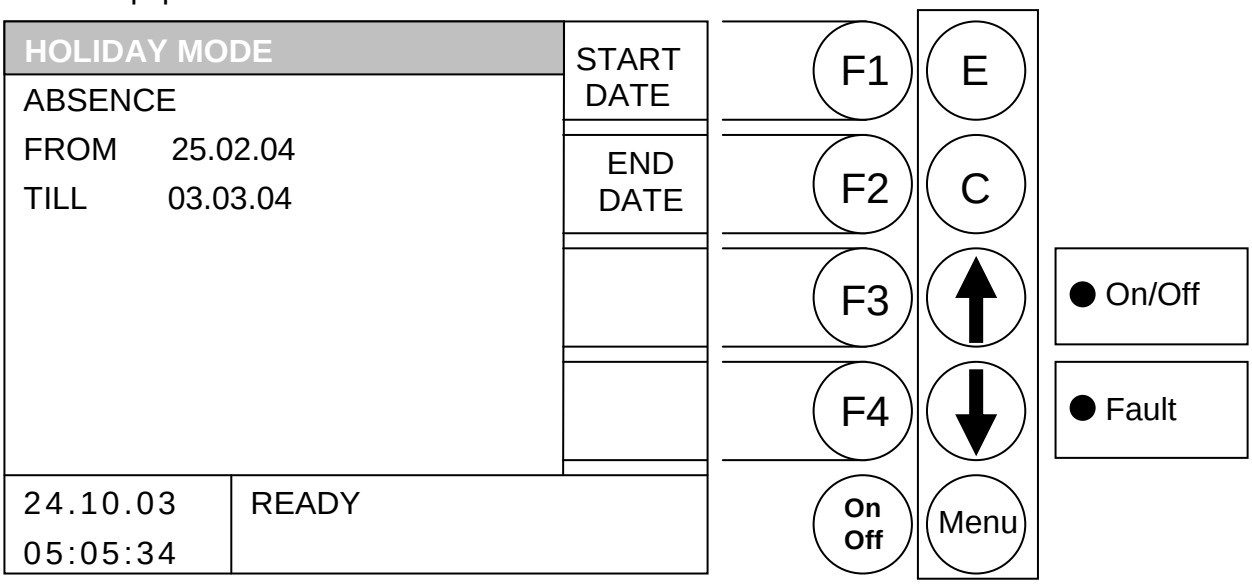
EXTERNAL TARGET: Is the temperature that is required when the “external release” input is closed.

Should equipment only be operated with the buffer and all loads are externally controlled, these settings are valid as follows:
The set times for the TIME OPERATION are used as the buffer loading time. The desired temperature in the lower buffer is set as for the LOWER BUFFER TARGET. The temperature of the TIME TARGET parameters serve as the minimum temperature: I.e., when these are not reached the buffer and LOWER BUFFER TARGET are loaded inside the loading time.

HOLIDAY MODE

MAIN MENU ➔ OPERATION MODE ➔ HOLIDAY MODE ➔ F4 (EDIT)

Aim: This operation way can be used , when you some time will be absent to keep up the warmth supply in the lower mode for consumer. This is only possible for automatic equipments.



Through pressing the button

F1 : was changed „START DATE“
F2 : was changed „END DATE“
F3 : without function
F4 : without function

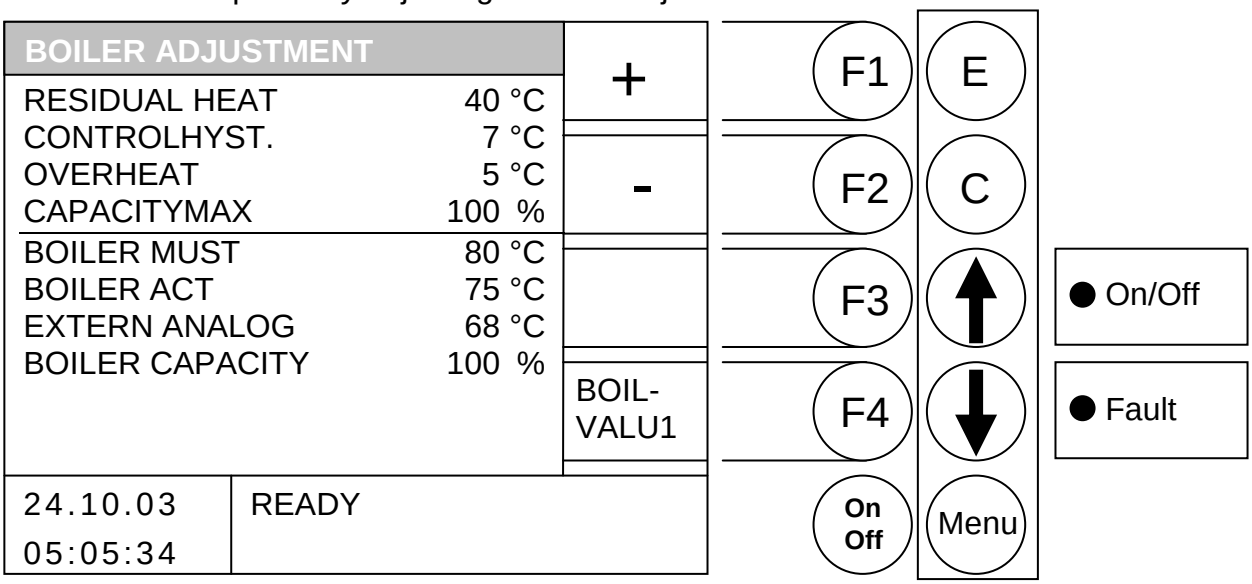
↕ : without function
↕ : without function

E : by last operation from F1 or F2: Operation of value with saving
Else: without function
C : by last operation from F1 or F2: Leaving of editing without saving
else: without function

Menu : was changed in the menu *„OPERATION MODE“*
OnOff : was the equipment switched on / off.

BOILER ADJUSTMENT

MAIN MENU ➔ BOILER ADJUSTMEN
Aim: Scale respectively adjusting of boiler adjustment



Through pressing the button

F1 : was the from the beam deposited time *increased*
F2 : was the from the beam deposited time *lowered.*
F3 : without function
F4 : was changed in the menu *„BOILER VALUES 1“*
↕ : was the beam moved *up*.
↕ : was the beam moved *down*.

E : without function
C : without function
Menu : was changed in the menu *MAIN MENU*
OnOff : was the equipment switched on / off.

RESIDUAL HEAT:	Adjustment value : Temperature, which tells how far the boiler may have to be "emptied" respectively on which time the back run rise up pump switches on.
CONTROLHYST:	Adjustment value : Temperature, which tells how far the boiler rules over the demand temperature.
OVERHEAT:	Adjustment value : Temperature, that indicates how much higher the boiler target temperature should be than the temperature required by the temperature manager.
CAPACITY MAX:	Adjustment value : Maximal boiler capacity
BOILER MUST:	Advice value: These temperature was from the intern temperature manager found out. Therefore is guaranteed, that the equipment only the temperature produces which is necessary at the moment.
BOILER ACT:	Display value: current boiler temperature
EXTERN ANALOG:	Advice value : Analogue extern boiler ideal value handicap
BOILER CAPACITY:	Advice value : Boiler capacity at the moment

Control behaviour

The boiler is started once the following parameters have been fulfilled:

- Existing heat requirement
  - Top buffer temperature is insufficient (if buffer in place) & boiler temperature < boiler target temperature – start-up hysteresis
  - Actual boiler temperature < target boiler temperature – start-up hysteresis

After a successful cold start and passage of the burning phase, the control goes into scorch phase. This takes place using the maximum set output.
Flue gas limitation (flue gas max.), maximum output setting (OUTPUT MAX) and material correction by the lambda probe have effects on this output.
These effects are not taken into account in the simplified presentation (image of boiler output control).

Up to reaching the boiler temperature required for the temperature manager, the boiler works with the maximum output set.
After this the so-called control phase is activated. This should be set so that as long a running time as possible is guaranteed for the boiler, in order to avoid ignition being started via the hot-air fan.
From the boiler temperature required up to half control hysteresis (CONTROLHYST/2) the output is reduced steadily from the maximum set output to ~ 30% (partial load). The last half of this control hysteresis works using partial load. If the boiler temperature decreases, the output increases accordingly.

After the switch-off temperature is reached (required boiler temperature + control hysteresis) the boiler switches into the burnout phase condition and as a further consequence, to the ready condition.

The procedure begins anew if the required boiler temperature does not reach the switch-on hysteresis (1°C).

The following operating conditions will run after the start-up.

- **Heating off**
- **Ignition build-up**
- **Pre-ventilation**
- **Cold start**
- **Burning phase**
- **Scorch phase**
- **Control phase**
- **Burnout phase**
- **Ready**

Example:

Temperature requirement:	Boiler	60°C
Temperature requirement:	Heating circuit 1	31°C
Temperature requirement:	Heating circuit 2	57°C
Temperature requirement:	Buffer	65°C
Overheat (Adjustment value):		5°C

This arises due to the set overheating of the required boiler temperature of 70°C.

Existing boiler settings (Menu: BOILER SETTING)

RESIDUAL HEAT TEMP:	40 °C
CONTROL HYSTERESIS	12 °C
OVERHEAT	1 °C
MAXIMUM CAPACITY	100 %
---	---
BOILER TARGET:	70 °C
BOILER ACTUAL	37 °C
EXTERNAL ANALOGUE:	55 °C
BOILER OUTPUT:	100 %

Up to 70°C this works with the maximum set output.
Switch-off temperature is (BOILER TARGET + CONTROL HYST) 82°C.
From > 70°C to 76°C (BOILER TARGET + CONTROL HYST/2) there is a reduction from the maximum output to ~ 30%.
From > 76°C up to the switch-off temperature of 82°C it works with ~ 30%.

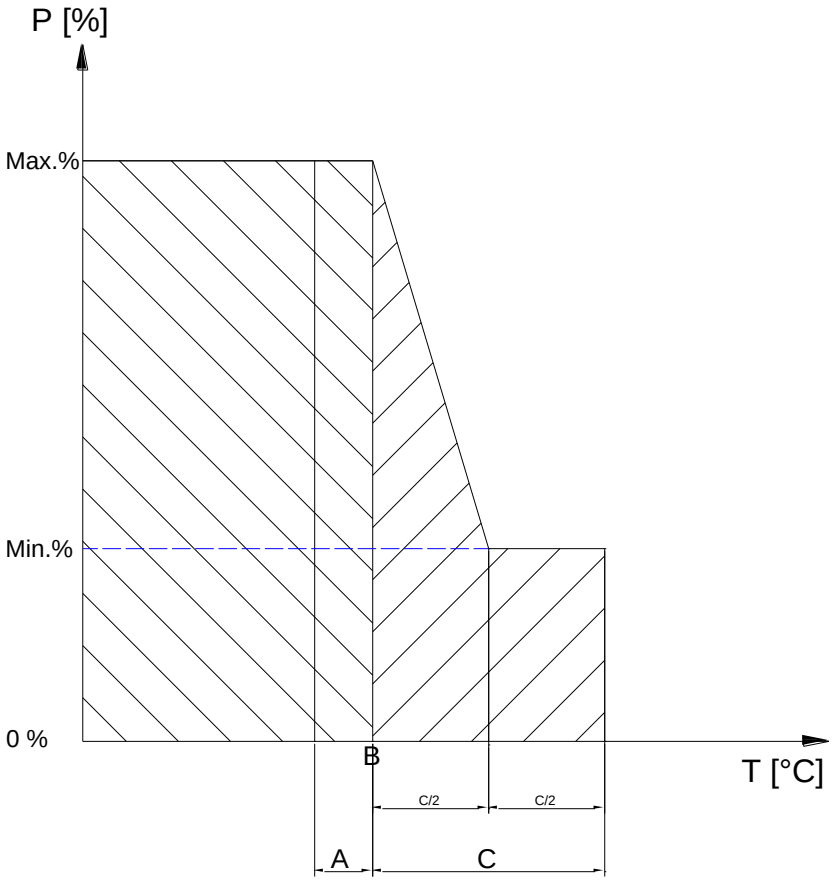


Image – example for boiler output control (simplified presentation)

A...Switch on hysteresis °C
B...required boiler temperature °C
C...Control hysteresis °C

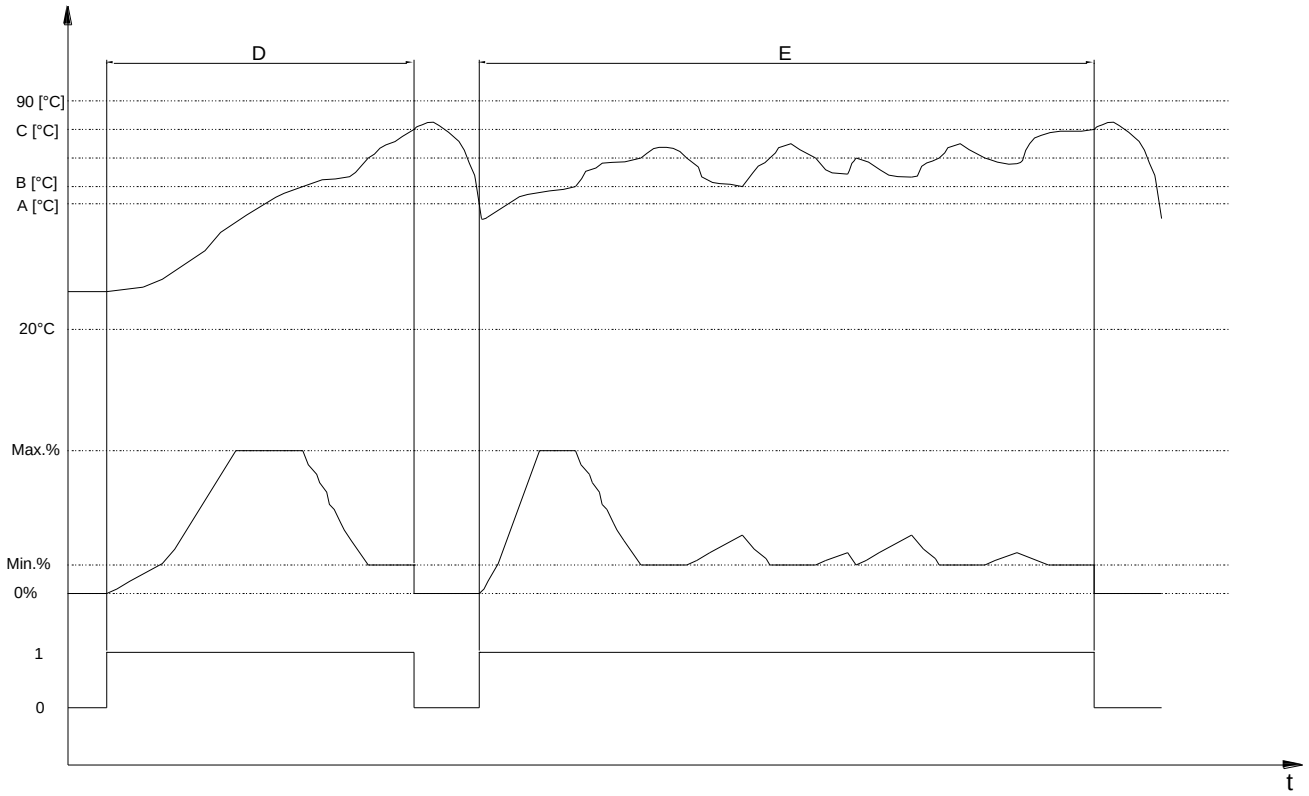


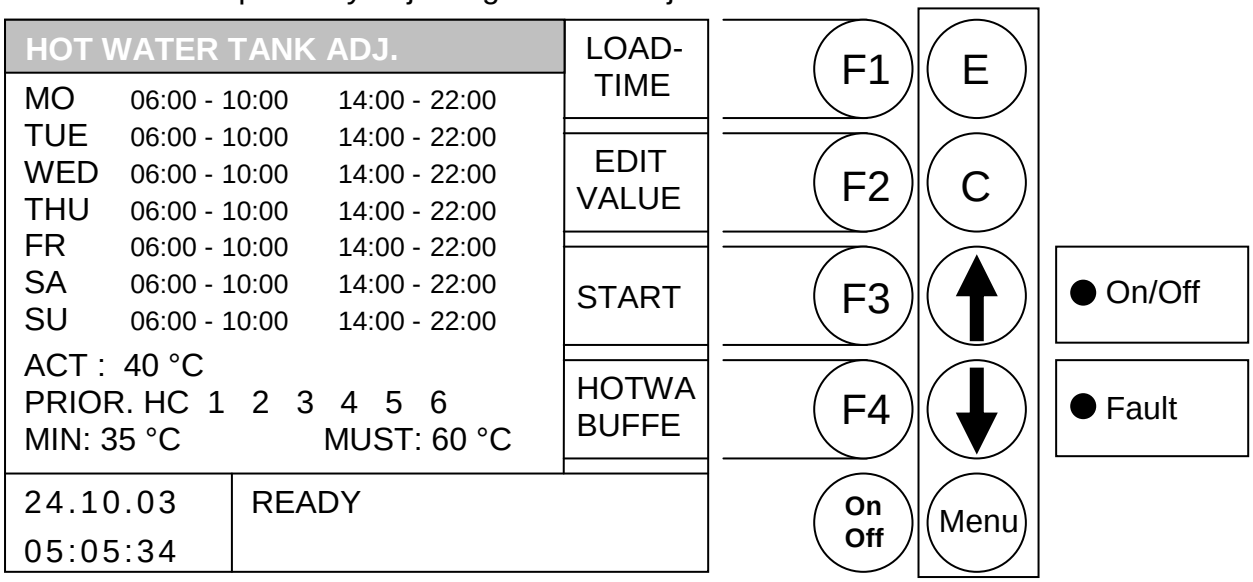
Image – possible control behaviour (simplified presentation)

A...Switch on hysteresis °C
B...required boiler temperature °C
C...Control hysteresis °C
D…Possible control behaviour without buffer storage
E…Possible control behaviour with buffer storage

HOT WATER TANK ADJUSTMENT

MAIN MENU ➔ HOT WATER TANK ADJUSTMENT

Aim: Scale respectively adjusting of boiler adjustment



Through pressing the button

F1 : (LOAD TIME) can be the boiler loading times edited
F2 : (EDIT VALUES) can be the boiler loading times edited
F3 : (START) be caused by a single time boiler load
F4 : was changed in the menu *„HOT WAT/BUFFER/SOLAR“*

↕ : without function
↕ : without function

E : without function
C : without function
Menu : was changed in the menu *MAIN MENU*.
OnOff : was the equipment switched on / off.

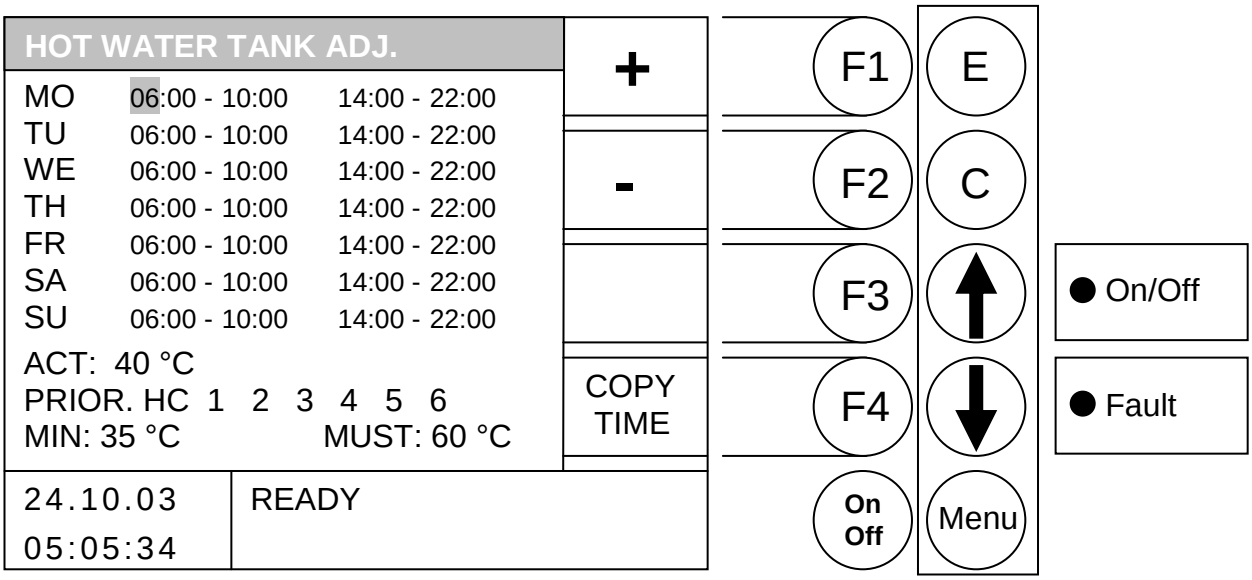
START
Through pressing this button was activated the so-called fast start. That means, you are for example outside of the boiler loading time, and you would heat the boiler one single time on to the ideal temperature, so is it caused by pressing of this button

By activating over this button you get the information, whether was loaded out of buffer (if there is one, and the actual temperature of boiler is lower than the ideal temperature), or whether there is necessary a boiler start, or whether the boiler has its wished ideal temperature.

EDITING OF HOT WATER TANK LOADING TIMES (EDIT CLOCK)

MAIN MENU ➔ BOILER SETTING ➔ F1 (EDIT TIME)

Aim: Scale respectively adjusting of boiler adjustment



Through pressing the button

F1 : (+) was the deposited loading time *increased*
F2 : (-) was the deposited loading time *lowered*
F3 : without function
F4 : (COPY TIME) was the actual heat time copied of all other days

↑ : was the cursor moved on the right side and jumps by the last line value in the next line
↓ : was the cursor moved on the first position of the next day

E : was the editing of loading times leaved and the loading times saved
C : was the edited value turned back in the prestate.
Menu : was the editing of loading times leaved and the loading times saved
OnOff : was the equipment switched on / off.

LOAD TIME

When you press the button E you come in the adjustment window of wished boiler loading times. The cursor jumps in the left upper angle (Monday, Begin load time 1). Through pressing of F1 (+) or F2 (-) you can changing the pre-definited times. Would you like to copy the adjusted times. Press button F4 (COPY TIME). It will be actualisized all week-day with the new times. But the cursor must be found in the equal column.

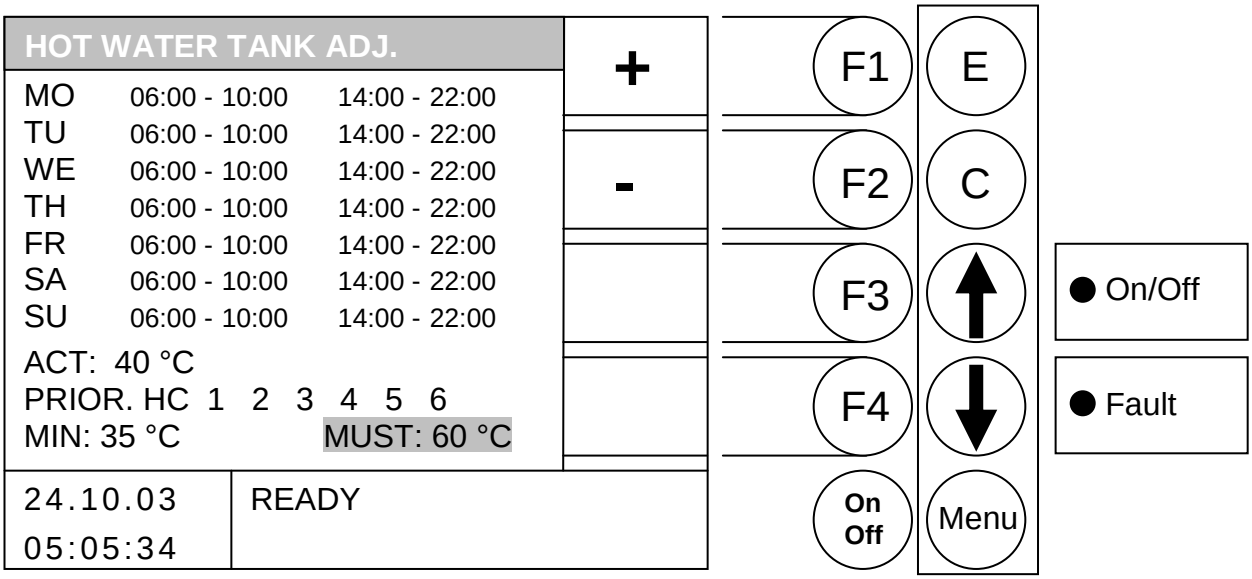
The same can be done with the 2. boiler loading time. Through pressing of button ARROW UP and ARROW DOWN you move the cursor to the wished position.

Should you have done a fault adjustment, press single the clear (C) button and the original value was showed again. This will be successful only then, when the cursor is still be found on the same position which one has be changed.
Leaved will be this menu again through pressing of menu - button.

EDITING OF HOT WATER TANK VALUES (EDIT VALUES)

MAIN MENU ➔ BOILER SETTING ➔ F2 (EDIT TIME)

Aim: Adjusting respectively changing of boiler adjustment



Through pressing the button

F1 : (+)was the deposited loading time *increased*
F2 : (-) was the deposited loading time *lowered*
F3 : without function
F4 : without function

↕ : was changed in the next *upper* value
↕ : was changed in the next *down* value

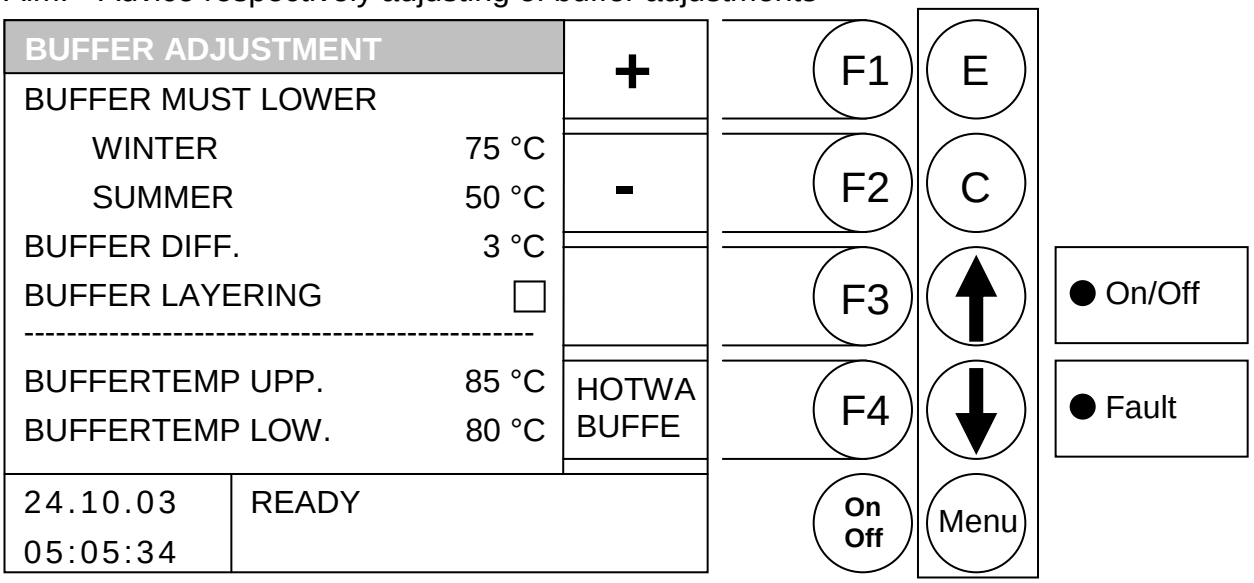
E : was the editing values leaved and the values saved
C : was the edited value turned back in the prestate
Menu : was the editing values leaved and the values saved
OnOff : was the equipment switched on / off

ACT : Advice value of actual boiler actual temperature
MIN : Adjustment value: Lower these value is caused by loading (when actvated)
PRIOR. : Adjustment value: Precedence about single heat circuits can be made Active
I.e. the boiler has priority over the heating circuits set, if this heating circuit is GREY behind. In the above example, the boiler has priority over heating circuit 1. The other heating circuits (if controlled by BioControl) continue to work in parallel. (Boiler is heating up by the heating circuits)
MUST: Adjustment value: Wished ideal value of hot water tank

BUFFER ADJUSTMENT

MAIN MENU ➔ BUFFER ADJUSTMENT

Aim: Advice respectively adjusting of buffer adjustments



Through pressing the button

F1 : (+) was the deposited value *increased*
F2 : (-) was the deposited value *lowered*
F3 : without function
F4 : (HOTWA BUFFE) was changed in the state advice „HOT WAT/BUFFER/SOLAR“

↕ : was changed to the next *upper* value
↕ : was changed to the next *lower* value

E : without function
C : was the editing value reseted of the pre-state
Menu : was the menu buffer adjustments leaved and saved the values
OnOff : was the equipment switched on / off.

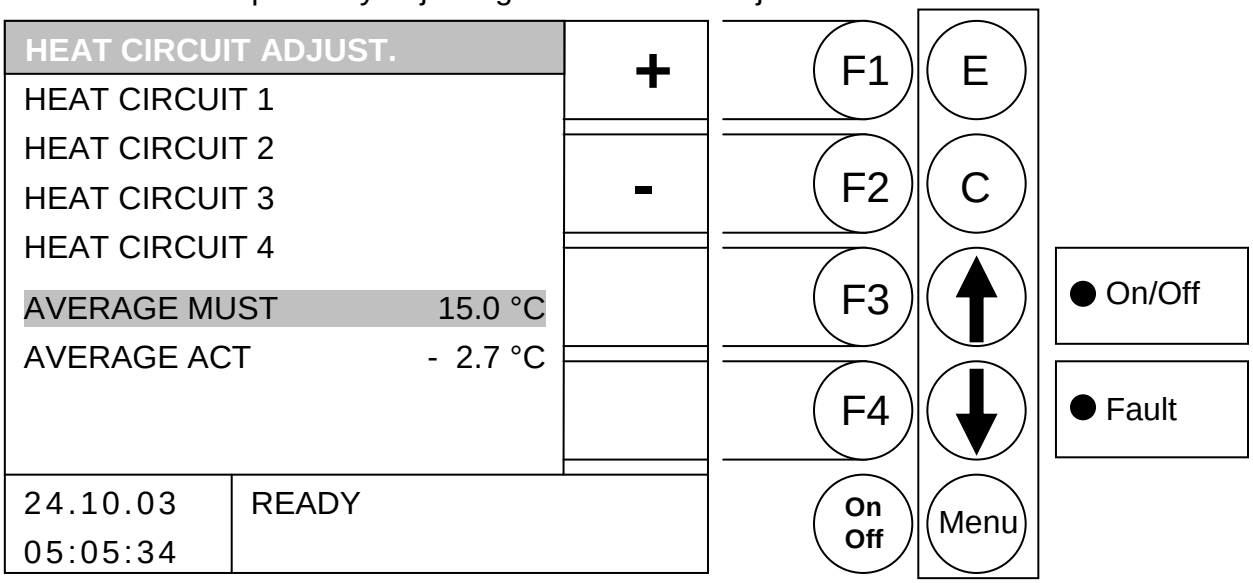
BUFFER MUST LOWER
WINTER: Adjust value: Ideal temperature for winter
SUMMER: Adjust value: Ideal temperature for summer
BUFFER DIFF: Adjust value: Temperature between Boiler and Buffer period low
BUFFER LAYERING: Adjustment value: This adjustment parameter enables the return flow temperature to be automatically increased as soon as the buffer lower temperature has reached the adjustment temperature of the return flow target temperature.

BUFFER PERIOD UPP: Advice value: Upper buffer temperature
BUFFER PERIOD LOW: Advice value: Lower buffer temperature

HEAT CIRCUIT ADJUSTMENT

MAIN MENU ➔ HEAT CIRCUIT ADJUSTMENT

Aim: Advice respectively adjusting of heat circuit adjustments



Through pressing the button

when beam on AVERAGE MUST

F1 : (+) was the average temperature *increased*
F2 : (-) was the average temperature *lowered*
F3 : without function
F4 : without function

↕ : was changed to the next *upper* value (heat circuit 4)
↕ : was changed to the next *lower* value (heat circuit 1)

E : without function
C : was the editing value reseted of the pre-state
Menu : was changed in the main menu
OnOff : was the equipment switched on / off.

otherwise (beam on HEATCIRCUIT 1 or HEATCIRCUIT 2 or ..... HEATCIRCUIT 4)

F1 : (HC 1-2) was changed in the window „HEATCIRCUIT 1-2“
F2 : without function
F3 : without function
F4 : without function

↕ : was changed to the next *upper* value
↕ : was changed to the next *lower* value

E : was changed in the deposited window
C : without function
Menu : was changed in the main menu
OnOff : was the equipment switched on / off.

DAY MIDDLE TEMPERATURE (AVERAGE TEMPERATURE)

The first mentioned day middle ideal temperature works as middle value builder. That means, that internal begins a middle value building of the outside temperature at the first switch This runs continuous in the background. Should the from you adjusted day middle ideal temperature be transgressed, is that for the regulation a sign to change into the automatically summer operation. Here were all heat circuit deactivated and otherwise can't be posed a warmth demand. That means, ever higher the day middle ideal temperature is posed , is raised the change-over on summer operation accordingly later. The value average act announce, where the actual middle value of the outside temperature is be found.

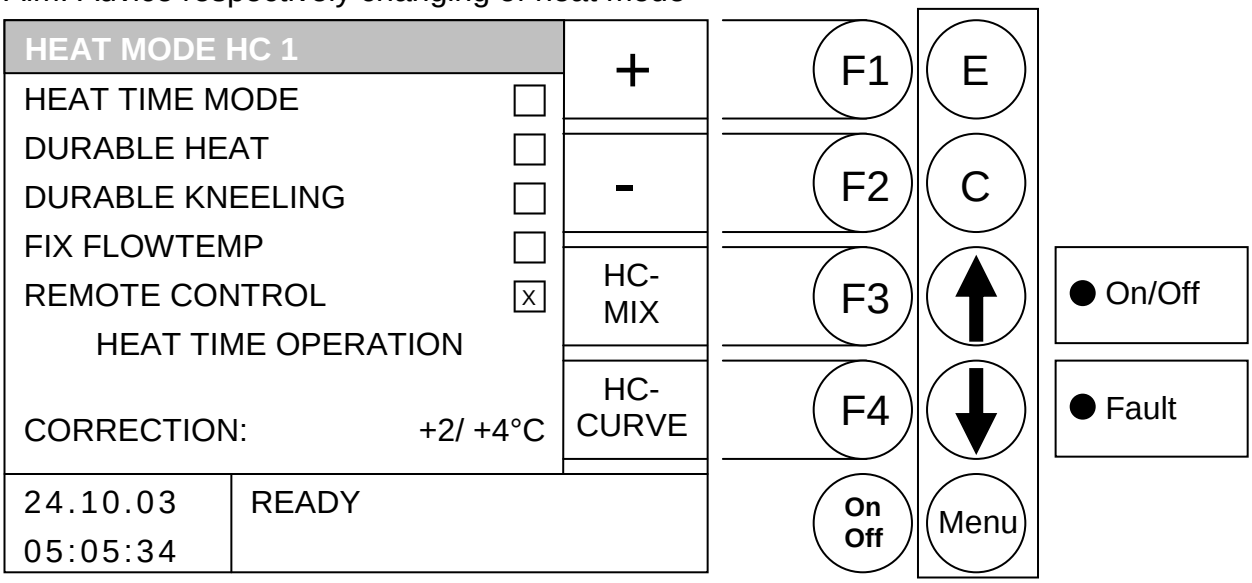
Antifreeze mode:

This mode avoids the freezing of the equipment in the absence of the customer.
This mode is automatically activated if the advance- or back flow temperature probe senses less than 10 °C or respectively the room temperature probe senses a temperature below 7 °C. If the ANTIFREEZE MODE is activated - and no higher Demand is active - the Heat circle is put on DURATION KNEELING mode and the boiler starts up if necessary.

HEAT MODE

MAIN MENU ➔ HEATING CIRCUIT SETTING ➔ HEATING CIRCUIT 1.2.3… ➔ ENTER(E)

Aim: Advice respectively changing of heat mode



Through pressing the button

F1 : (+) the correction temperature is *increased*
F2 : (-) the correction temperature is *decreased*
F3 : (HC-MIX) was changed in the window „MIXER HC x“ (CODE)
F4 : (HC-CURVE) was changed in the window „HEATCURVE HC x“

↕ : was changed to the next *upper* value
↕ : was changed to the next *lower* value

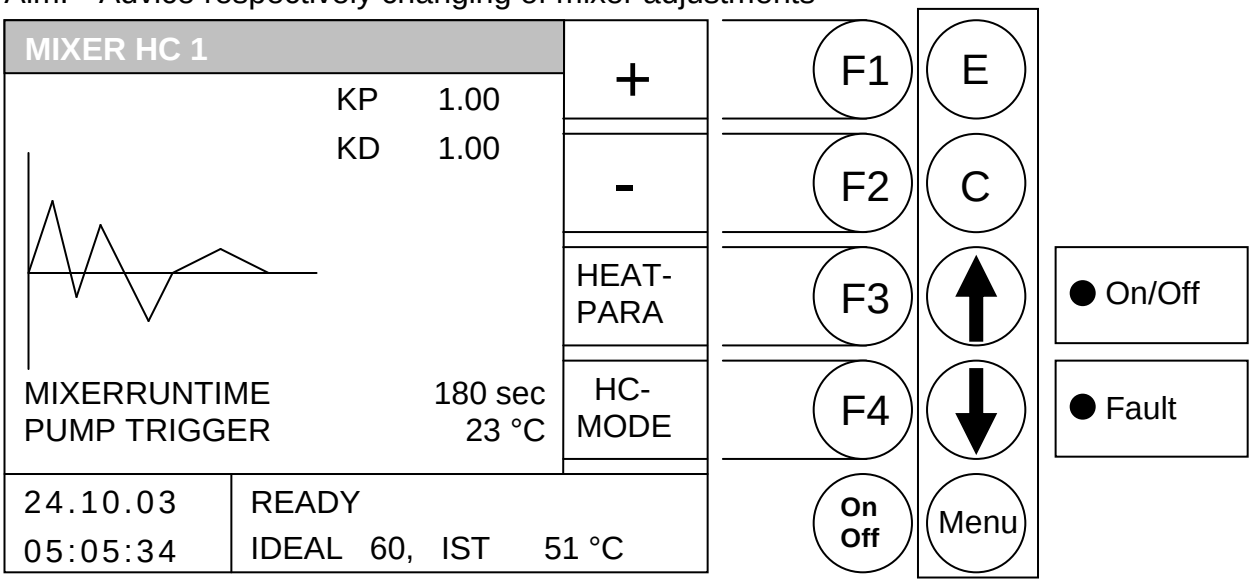
E : was the deposited Heat mode activated
C : without function
Menu: was changed in the menu „HEAT CIRCUIT ADJUSTMENT“
OnOff: was the equipment switched on / off.

HEAT TIME MODE:	Heating according to the adjusted heating time
DURABLE HEAT:	heats always on cavity idea temperature respectively on the calculated pre-run ideal temperature.
DURABLE KNEELING:	heats always on the kneeling cavity ideal temperature respectively on the calculated pre-run ideal temperature.
FIX FLOWTEMP:	During the adjusted heating time was hold a defined pre-run ideal temperature. These temperature was adjusted in the menu PARAMETER
DISTAL ACTUATOR:	Mode according to the adjustment of the distal actuator can only be activated, when distal actuator is connected.
CORRECTION:	The first value can be set between –10 and +10. This value multiplied with 2 (fixed value) gives the effect on the advance flow temperature (second value). Only possible in heating mode – constant heat and constant reduction.

MIXER HC

MAIN MENU ➔ HEATING CIRCUIT SETTING ➔ HEATING CIRCUIT 1.2.3…
➔ F3 (HC MIXER) ➔ CODE

Aim: Advice respectively changing of mixer adjustments



Through pressing the button

F1 : (+) was the deposited value *increased*
F2 : (-) was the deposited value *lowered*
F3 : (HEAT-PARA) was changed in the menu „PARAMETER HC x“
F4 : (HC-MODE) was changed in the window „HEATMODE HC x“

↕ : was changed to the next *upper* value
↕ : was changed to the next *lower* value

E : without function
C : was the editing value reset of the pre-state
Menu: was changed in the menu „HEAT CIRCUIT ADJUSTMENT“
OnOff: was the equipment switched on / off.

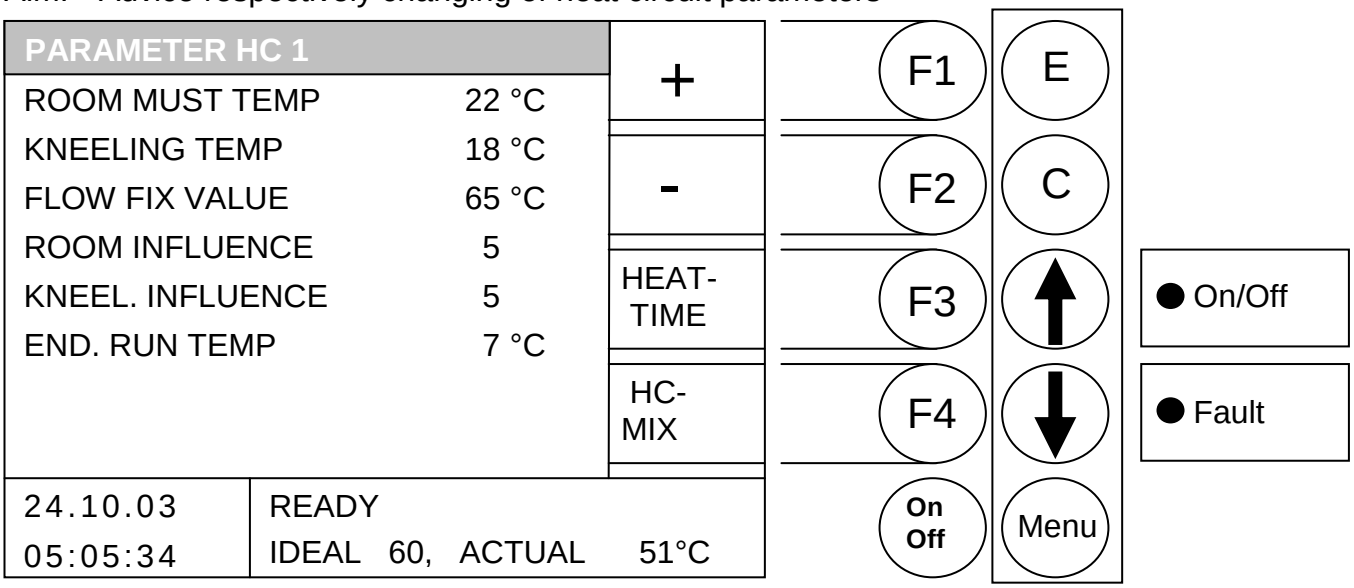
KP: P-rate of controller
KD: D- rate of controller
Mixerruntime: Quoted mixer runtime on motor mixer adjusting
PUMP TRIGGER: Trigger for HC-pump

Here exists the possibility, the mixer runtime to assimilate the operating mixer motor on location. The mixer runtime of every mixer should be determine on the indicated type sign. Over the value KP could be additional assimilate ruler attitude of the mixer. A higher KP means, that a bigger deviation from the pre-run ideal value according to a bigger correction of mixer emplacement brings about. Was this value adjusted too high, can it happen under circumstances that the regulation will be come „oscillate“. That means, that the mixer always will be driven OPEN respectively CLOSED, because aground the correction will be over- respectively to fall short of the default value.

PARAMETER HC

MAIN MENU ➔ HEAT CIRCUIT ADJUSTMENT ➔ HEATING CIRCUIT 1.2.3..
➔ F4(HC CURVE) ➔ F4 (HEAT TIME) ➔ F4 (HEAT PARA)

Aim: Advice respectively changing of heat circuit parameters



Through pressing the button

F1 : (+) was the deposited value *increased*
F2 : (-) was the deposited value *lowered*
F3 : (HEAT-TIME) was changed in the menu „HEATTIMES HK x“
F4 : (HK-MIX) was changed in the window „MIXER HK x“

↕ : was changed to the next *upper* value
↕ : was changed to the next *lower* value

E : without function
C : was the editing value reset of the pre-state
Menu: was changed in the menu „HEAT CIRCUIT ADJUSTMENT“
OnOff: was the equipment switched on / off.

ROOM MUST TEMPERATURE:

Desired room temperature during the heating period.
This set value is only used in conjunction with the room remote control (BRK 1).
The difference between target room and actual room temperature combined with the room effect is taken into account for the caluclation of the advance flow target temperature.

Example:
Target room temperature: 22°C
Actual room temperature: 20°C
Room effect: 5
Difference between target room temperature – actual room temperature = 2K
This difference is multiplied by the room effect.
2K x 5 = 10 K
I.e. 10K is added to the advance flow temperature calculated
If the actual room temperature is higher than the target room temperature, the calculated value is deducted.

KNEELING TEMPERATURE: Desired room temperature during the kneeling time. The difference between target room and kneeling temperature combined with the kneeling effect is taken into account for the caluclation of the advance flow target temperature.

Example:
Target room temperature: 22°C
Kneeling temperature: 18°C
Kneeling effect: 5
Difference between room target temperature – kneeling temperature = 4K
This difference is multiplied by the kneeling effect.
4K x 5 = 20K
I.e. 20K are deducted from the calculated advance flow target temperature during the kneeling time.
Additionally, if a room remote control (BRK 1) exists, the difference between kneeling temperature and actual room temperature is multiplied with the room influence is taken into account.

FLOW FIXED VALUE: Constantly at maintained pre-set temperature during the set heating time. Fixed when in advance flow mode.

ROOM INFLUENCE: Factor for influencing the room temperature. This value can be set between 0 and 10. The higher the value selected, the more influence a difference in the room temperature has on the calculation of the advance flow target temperature.

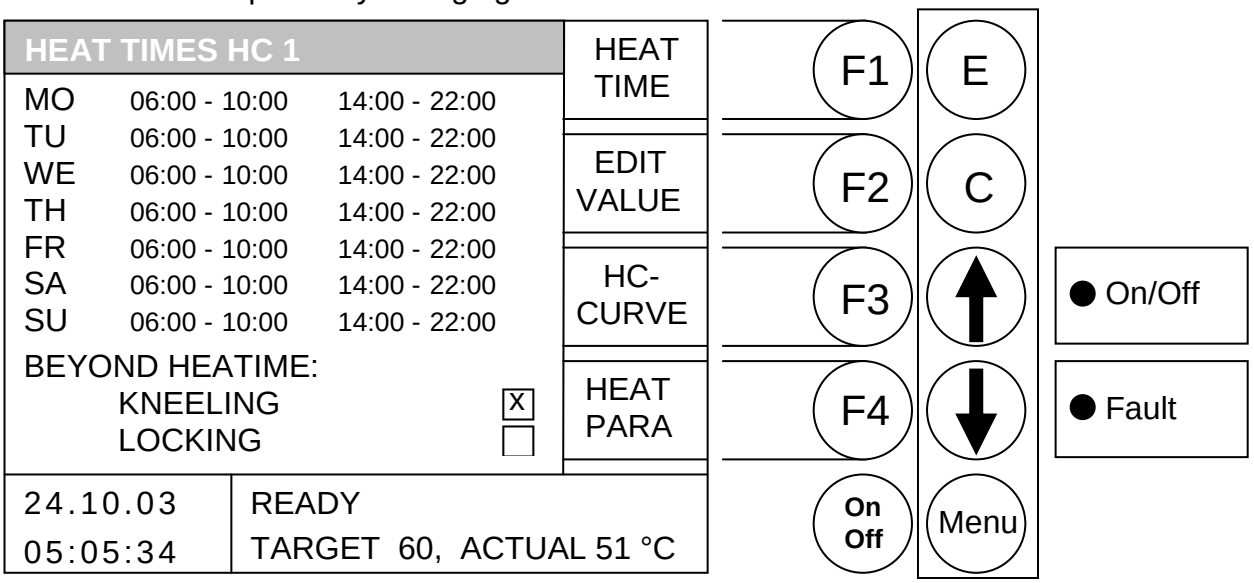
KNEELING INFLUENCE: Factor for influencing the room temperature. This value can be set between 0 and 10. The higher the value selected, the more influence the room temperature has on the calculation of the advance flow target temperature.

END.RUN TEMPERATURE: Limit value of the external temperature. Where this external temperature is not attained the pump runs constantly, in order to prevent freezing of the unit (adjustment value from –10 to +10)

HEAT TIMES HC

MAIN MENU ➔ HEATING CIRCUIT ADJUSTMENT ➔ HEATING CIRCUIT 1.2.3…
➔ F4 (HEAT CURVE) ➔ F4 (HEAT TIME)

Aim: Advice respectively changing of heat times



Through pressing the button

F1 : (HEAT-TIME) could be edited the heat times
F2 : (EDIT VALUE) can KNEELING / LOCKING be edited
F3 : (HEAT-CURVE) was changed in the menu „HEATCURVE HC x“
F4 : (HEAT-PARA) was changed in the window „PARAMETER HC x“

↑ : without function
↓ : without function

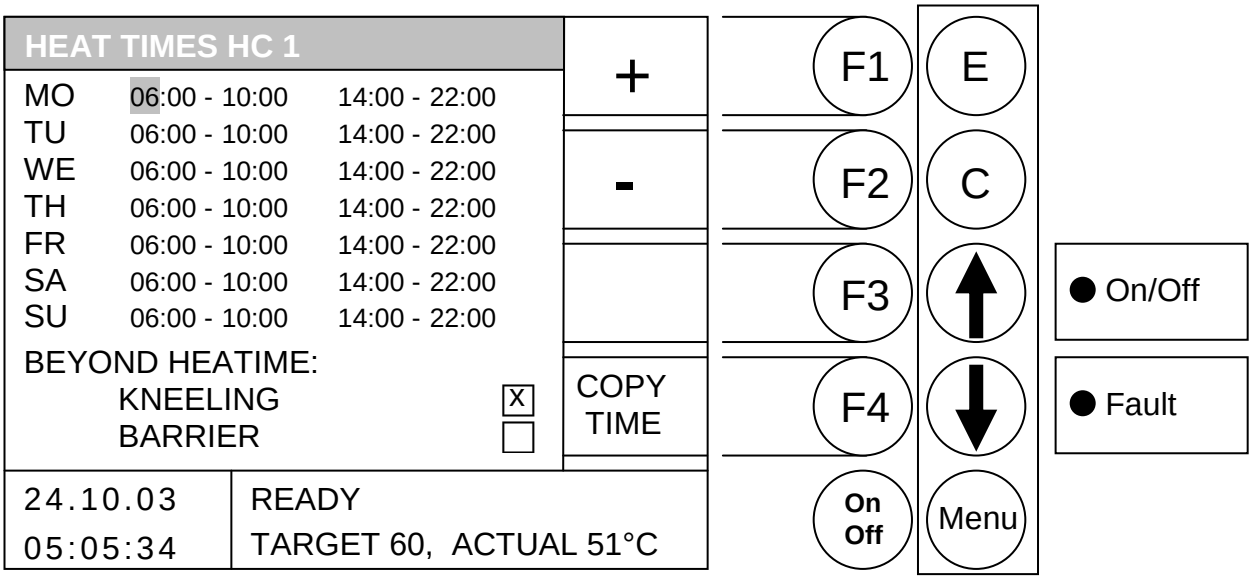
E : without function
C : without function
Menu: was changed in the menu „HEAT CIRCUIT ADJUSTMENT“
OnOff: was the equipment switched on / off.

Pressing the F1 key (HEAT TIME) takes you to the setting window for the desired times and days. The cursor jumps to the left upper corner (Monday, begin loading time 1). By pressing F1 (+) or F2 (-) you can change the pre-defined times. If you then wish to copy set times, press the F4 (COPY TIME) key. All days of the week are updated with the new times. However, the cursor must still be positioned in the same column.

EDITING OF HEAT TIMES (EDIT CLOCK)

MAIN MENU ➔ HEATING CIRCUIT ADJUSTMENT ➔ HEATING CIRCUIT 1.2.3…
➔ F4 (HEAT CURVE) ➔ F4 (HEAT TIME)
➔ F1 (HEAT TIME)

Aim: Advice respectively changing of heat times



Through pressing the button

F1 : (+) was the deposited value *increased*
F2 : (-) was the deposited value *lowered*
F3 : without function
F4 : (COPY TIME) was the actual heat time copied of all other days

↑ : was the cursor moved on the right side and jumps by the last line value in the next line
↓ : was the cursor moved on the first position of the next day

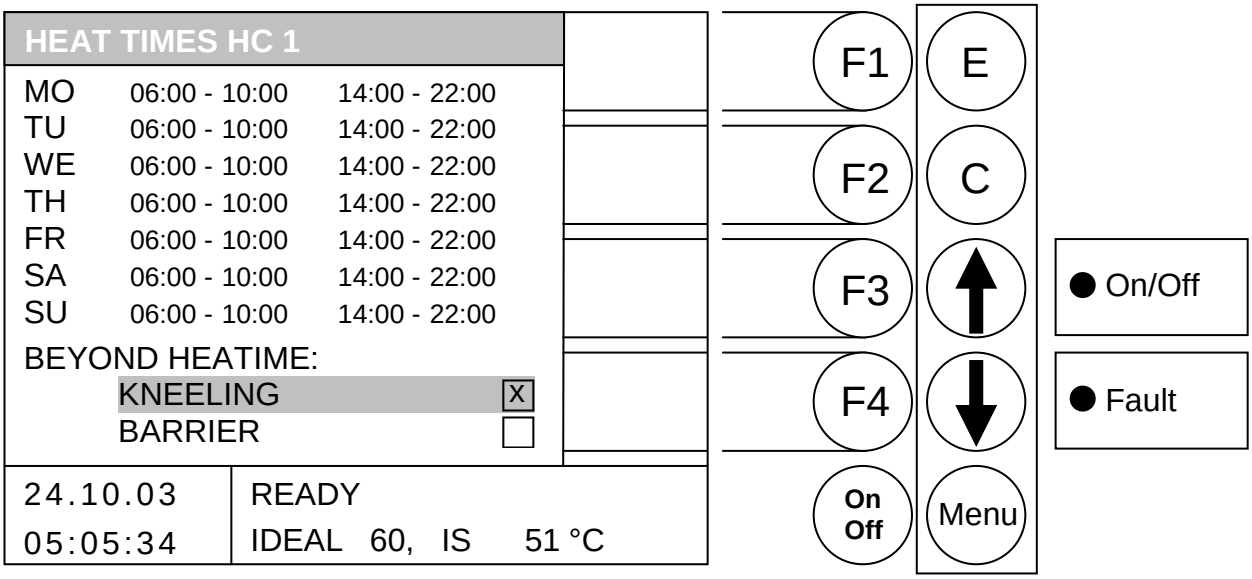
E : was the editing of heat times leaved with saving of heat times
C : was the editing value reset of the pre-state
Menu : was the editing of heat times leaved with saving of heat times
OnOff : was the equipment switched on / off.

In this menu exists the possibility of heat circuit 2 different heat times per week day to access to. This succeed through of pressing button F1 (HEAT TIME).
When you press this button, you will arrive to the adjust window of wished heat time. The cursor jumps in the left upper angle (Monday, begin heat time 1). Through pressing of F1 (+) or F2 (-) you can change the pre-defined times. Would you like copy the just adjusted times, press button F4 (COPY TIME). It will be all weekdays updated with the new times. But the cursor must be still found in the same column.

EDITING KNEELING/BARRIER (EDIT VALUES)

MAIN MENU ➔ HEATING CIRCUIT ADJUSTMENT ➔ HEATING CIRCUIT 1.2.3…
➔ F4 (HEAT CURVE) ➔ F4 (HEAT TIME)
➔ F2 (EDIT VALUES)

Aim: Advice respectively changing of KNEELING/BARRIER



Through pressing the button

F1 : without function
F2 : without function
F3 : without function
F4 : without function

↕ : was changed to the next *upper* value
↕ : was changed to the next *lower* value

E : activates the selected value
C : without function
Menu : was the editing of heat times leaved with saving of heat times
OnOff : was the equipment switched on / off.

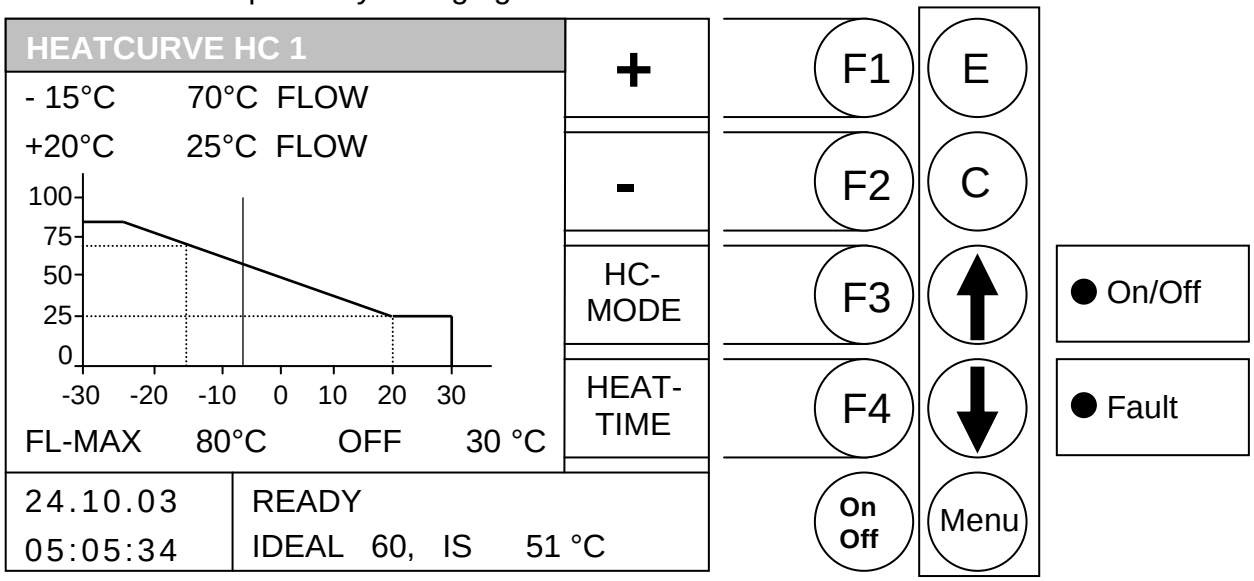
KNEELING : Beyond heat time was the adjusted kneeling temperature ruled

BARRIER : Beyond heat time can't supply this heat circuit a energy demand and so it will deactivated for this period

HC-CURVE

MAIN MENU ➔ HEAT CIRCUIT ADJUSTMENT ➔ HEATING CIRCUIT 1.2.3..
➔ F4 (HC CURVE)

Aim: Advice respectively changing of heat curve



Through pressing the button

F1 : (+)was the deposited value *increased*
F2 : (-) was the deposited value *lowered*
F3 : (HEAT-MODE) was changed in the menu „HEATMODE HC x“
F4 : (HEATTIME) was changed in the window „HEATIME HC x“

↕ : was changed to the next *upper* value
↕ : was changed to the next *lower* value

E : was saved the value
C : was the editing value reset of the pre-state
Menu : was the editing of heat times leaved with saving of heat times
OnOff : was the equipment switched on / off.

Example:
-10°C 70°C : by –10°C should be supplied by a pre-run temperature from 70°C
+20°C 30°C : by +20°C should be supplied by a pre-run temperature from 30°C

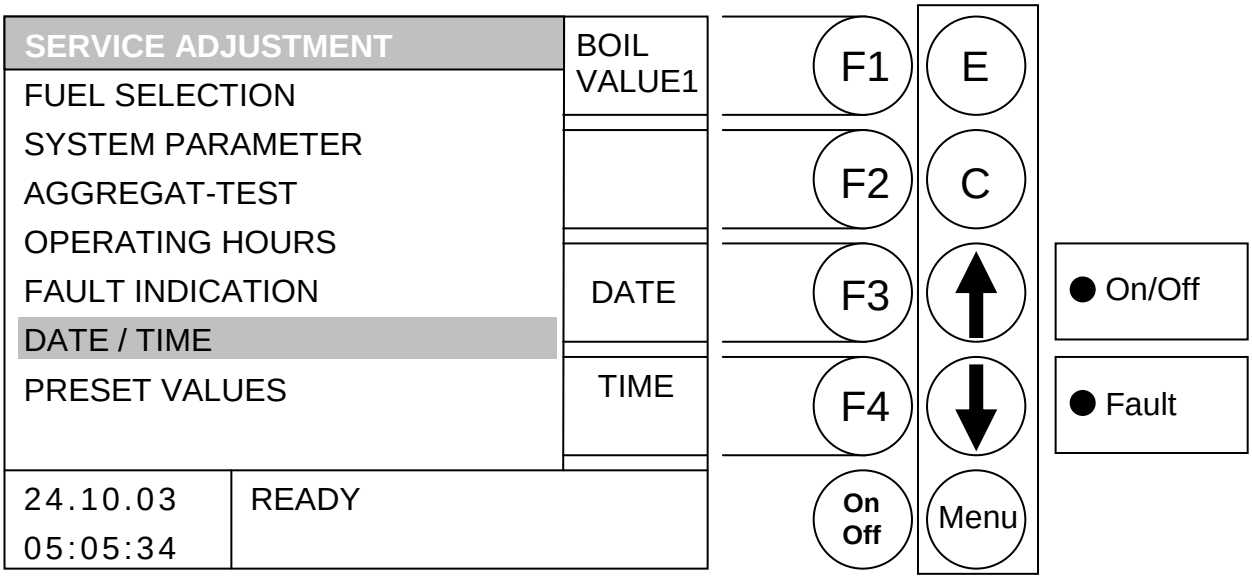
FL_MAX: Maximal allowed flow temperature
(This value can indeed transgressed over 5°C for the regulation !!!!)
OFF: This is this value of outside temperature, which will be deactivated by transgressing from the heat circuit. Don’t confuse it with the average temperature. Here was namely deactivated the particular heat circuit.

The vertical bar mirrors to the current value of outside temperature.
The vertical bar on the x-axis gives (horizontal) gives the current value of the external temperature. For example, this is around: -8°C. The y-axis (vertical) shows the advance flow temperature for the current external temperatures.

SERVICE ADJUSTMENT

MAIN MENU ➔ SERVICE ADJUSTMENT

Aim: Adjusting of fuel values



Through pressing the button

F1 : was changed in the menu *„BOILER VALUES 1“*
F2 : without function
F3 : without function / adjusting of date
F4 : without function / adjusting of time

↕ : was the beam moved *up* .
↕ : was the beam moved *down* .

E : was changed in the deposited menu
C : without function
Menu : was changed in the menu *„MAIN MENU“*
OnOff : was changed in the menu

FUEL SELECTION:	Here you have got the possibility to select from the pre-defined fuels
SYSTEM PARAMETER:	Here you adjust the specified values of system
AGGREGAT-TEST:	Here can all connected components be tested
OPERATING HOURS:	Polling of operating hours
FAULT INDICATION:	Here will be saved on 4 sides the occurred faults.
DATE / TIME :	Here can be changed date and time
PRESET VALUES:	Here can be reset the equipment to preset values. In this menu can also be calibrated the lambda probe.

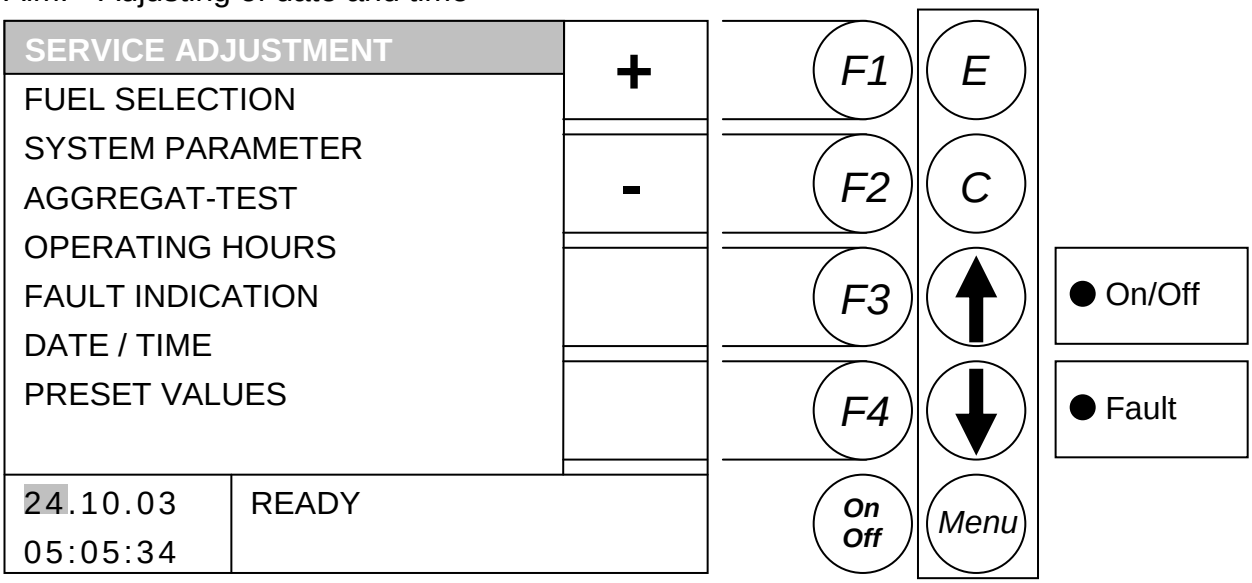
FAULT LAMP:

When this blinks it indicates one or more faults. These are shown the bottom right of the display. Should several faults arise at the same time, these are displayed in the order they arose.
In the appendix under fault reporting and repairs, you can look up what each individual fault means. If you know which faults have arisen, then you have to repair these mechanically first of all (in case they stem from the mechanics). After this press the F3 BUTTON (CHECK) in the service settings and the fault is rectified. When several have been repaired, rectify the faults one by one.

ADJUSTING FROM DATE AND TIME

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ DATE / TIME

Aim: Adjusting of date and time



Pre selection

Through pressing the button

F3 : you can edit the *date*
F4 : you can edit the *time*

Through pressing the button

F1 : (+) was the date /the time *increased*.
F2 : (-) was the date /the time *lowerd*
F3 : without function
F4 : without function

↕ : without function.
↕ : without function.

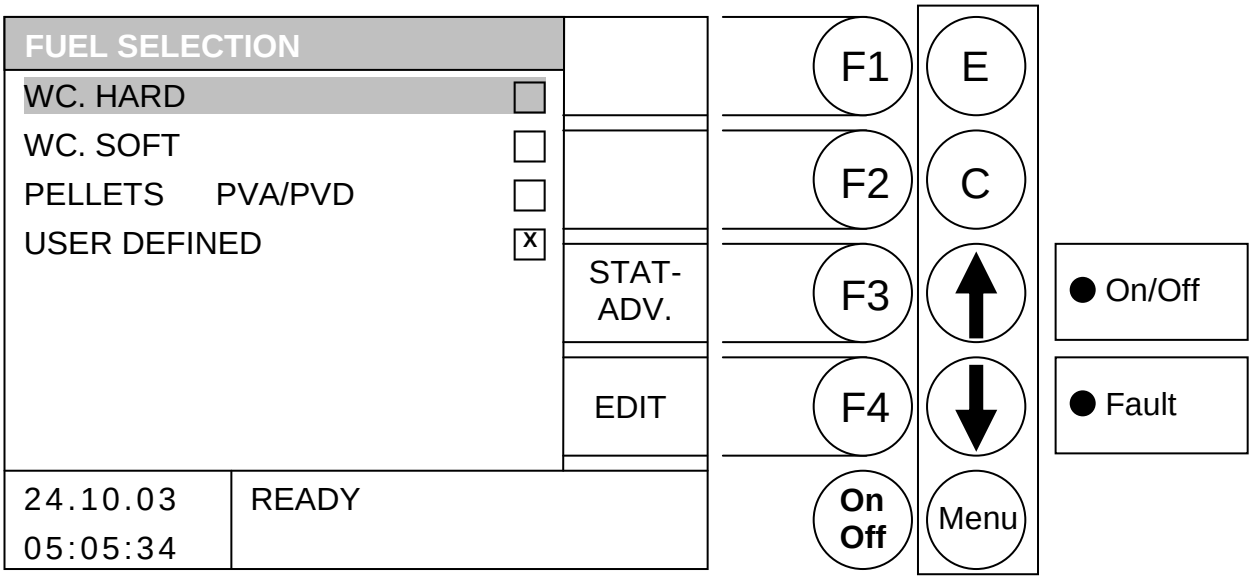
E : was the next value (f. E. month, year) edited respectively ended with saving.
C : was the date /the time – editing ended without saving.
Menu : was changed in the menu *„MAIN MENU“*.
OnOff : was the date /the time – editing ended without saving.

FUEL VALUES:
The following fuel values given are calculated at the test station using standard fuel. These may vary considerably depending on the quality of the fuel available locally and are set by the factory customer service during the first commissioning. If the fuel is changed later these should be adapted by the customer.
You may also request the factory customer service at your own expense

FUEL SELECTION

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ FUEL SELECTION

Aim: Selection of fuel



Through pressing the button

F1 : without function
F2 : without function
F3 : was changed in the menu *„STATUS ADVICE“*
F4 : was in the menu „*AIR VALUES*“ of deposited fuel changed so that will be changed (All modifications may be changed only from the HERZ costumer service or under instructions from them)

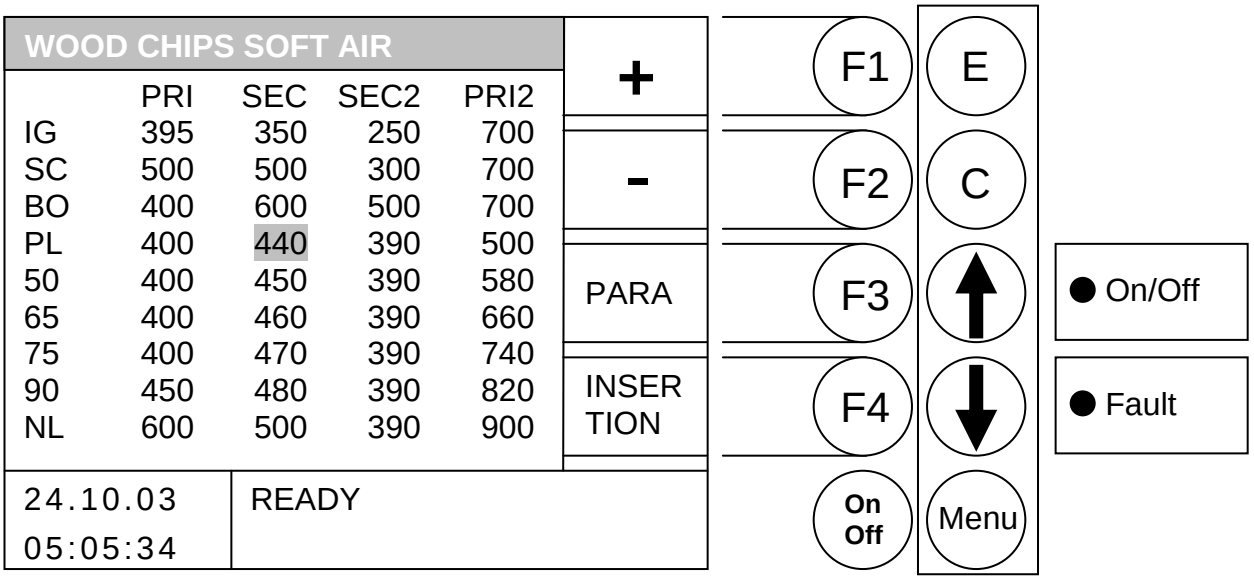
↕ : was the beam moved *up*
↕ : was the beam moved *down*

E : was the deposited fuel selected
C : without function
Menu : was changed in the menu *„SERVICE ADJUSTMENT“*
OnOff : was the equipment switched on / off

FUEL – AIR VALUES:

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ FUEL SELECTION
➔ BUTTON F4 (EDIT)

Aim: Changing of air values



Through pressing the button

F1 : was the from the beam deposited value *increased*
F2 : was the from the beam deposited value *lowered.*
F3 : was changed in the menu *„PARA“*
F4 : was changed in the menu *„INSERTION“*

↕ : was the beam moved *right side*
↕ : was the beam moved *down*

E : without function
C : without function
Menu : was changed in the menu *„FUEL SELECTION“*
OnOff : was the equipment switched on / off

In this window can the air values for the different states respectively capacity ranges be changed. All values are per thousand (1000-pieces) denoted

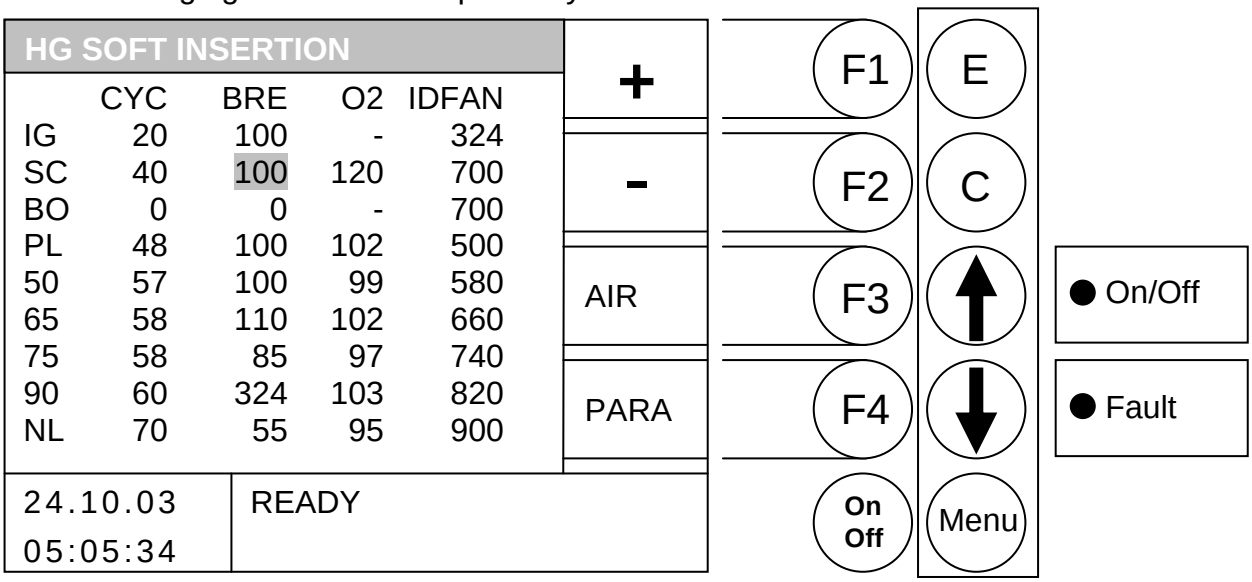
PRI	Primary air blower
SEC	Secondary air blower down
SEC 2	Secondary air blower above
PRI2	Primary air blower 2

IG	Ignition phase
SC	Scorch phase
BO	Burnout phase
PL	Part load grade
50-90	Capacity grade
NL	Nominal load grade

FUEL – INSERTION VALUES:

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ FUEL SELECTION
➔ BUTTON F4 (Edit) ➔ BUTTON F4 (INSERTION)

Aim: Changing of insertion respectively O2 - Values



Through pressing the button

F1 : was the from the beam deposited value *increased*
F2 : was the from the beam deposited value *lowered.*
F3 : was changed in the menu *„AIR“*
F4 : was changed in the menu *„ PARA “*

↕ : was the beam moved *right side*
↕ : was the beam moved *down*

E : without function
C : without function
Menu : was changed in the menu *„FUEL SELECTION“*
OnOff : was the equipment switched on / off

In this window can the insertion values for the different states respectively capacity ranges be changed. All values are per 1/10 seconds denoted.

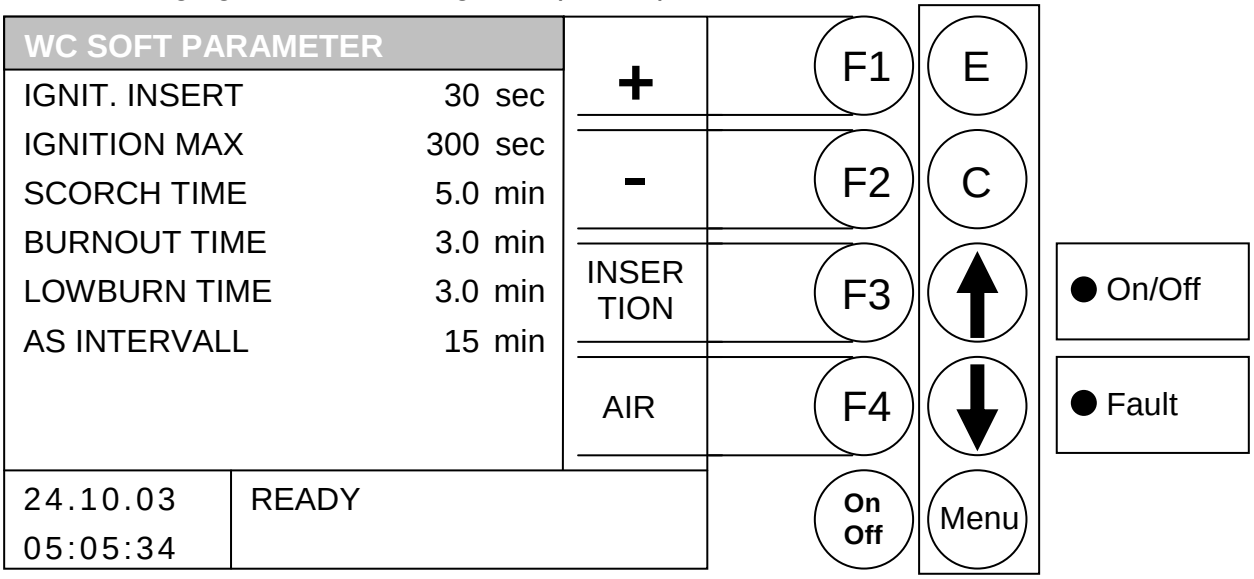
CYC	Stoker cycle length in 1/10 sec.
BRE	Break length in 1/10 sec.
O2	Wished O2 – value in per thousand
IDFAN	ID-fan revolution (when the under pressure regulation is not active)

IG	Ignition phase
SC	Scorch phase
BO	Burnout phase
PL	Part load grade
50-90	Capacity grade
NL	Nominal load grade

FUEL – PARAMETER

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ FUEL SELECTION
➔ BUTTON F4 (EDIT) ➔ BUTTON F4 (PARA)

Aim: Changing of the remaining fuel specific parameters



Through pressing the button

F1 : was the from the beam deposited value *increased*
F2 : was the from the beam deposited value *lowered.*
F3 : was changed in the menu *„INSERTION“*
F4 : was changed in the menu *„AIR “*

↕ : was the beam moved *right side*
↕ : was the beam moved *down*

E : without function
C : without function
Menu : was changed in the menu *„FUEL SELECTION“*
OnOff : was the equipment switched on / off

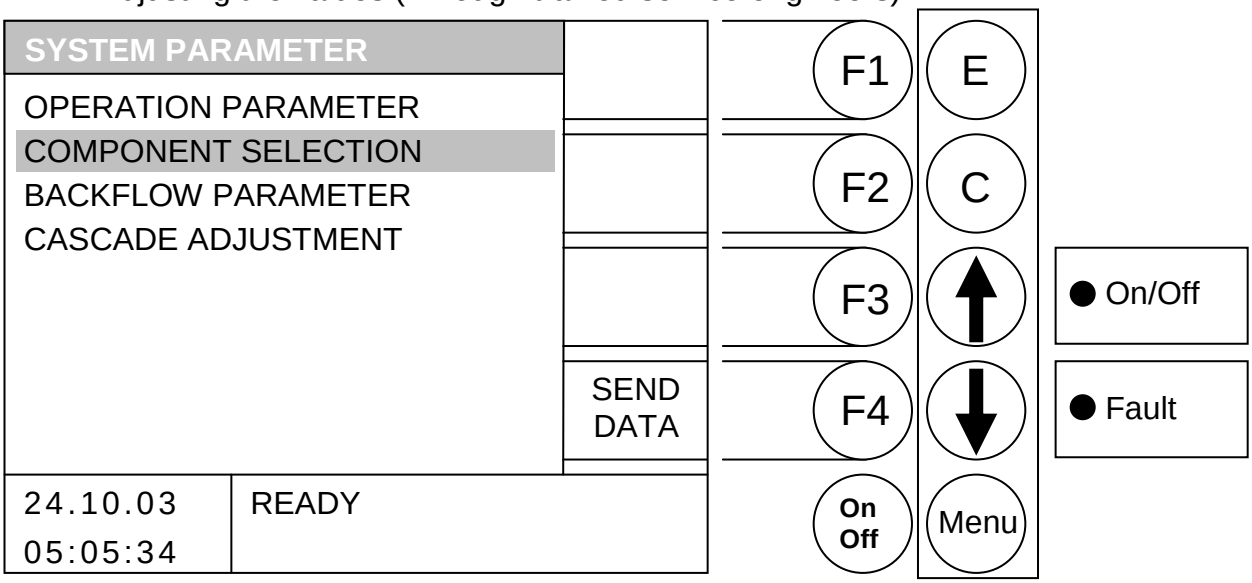
IGNIT. INSERT	Maximal continuance of ignition insertion.
IGNITION MAX	Maximal allowed time for a ignition try.
SCORCH TIME	Time how long the equipment remains in the scorch phase.
BURNOUT TIME	Continuance of burn out time.
LOW BURN TIME	Continuance of low burn phase. (Before burner cleaning)
AS INTERVAL	This value tells how long this insertion screw must be ran to arrange an ash discharge/burner cleaning.

SYSTEM PARAMETER

(Code protected)

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ SYSTEM PARAMETER

Aim: Adjusting the values (Through trained service engineers)



Through pressing the button

F1 : without function
F2 : without function
F3 : without function
F4 : (Send Data) Operating data were send via serial interface

↕ : was the beam moved *up*.
↕ : was the beam moved *down*.

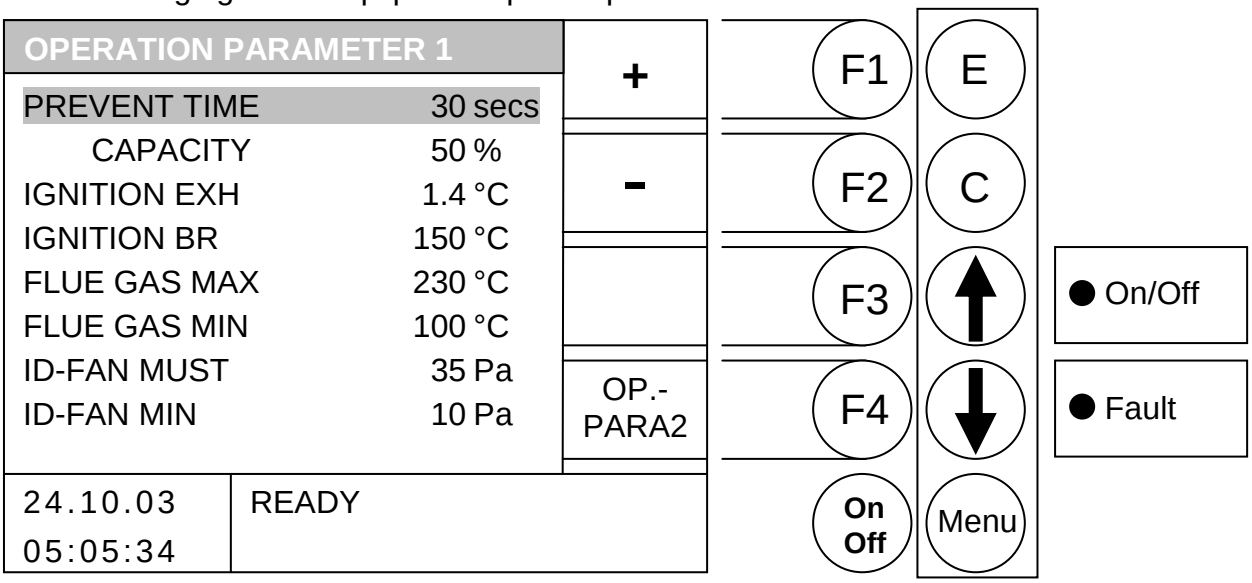
E : was changed in the deposited menu
C : without function
Menu : was changed in the menu *"MAIN MENU"* .
OnOff : was the equipment switched on / off.

OPERATION PARAMETER	Adjustment of burning parameters
COMPONENT SELECTION	Selection of installed Components
BACKFLOW PARAMETER	Selection respectively adjustment of backflow uprating
CASCADE ADJUSTMENT	Adjustment of cascade parameters

OPERATION PARAMETER 1

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ SYSTEM PARAMETER
➔ OPERATION PARAMETER

Aim: Changing of the equipment specific parameters



Through pressing the button

F1 : was the from the beam deposited value *increased*
F2 : was the from the beam deposited value *lowered.*
F3 : without function
F4 : was changed in the menu *„OP. PARA2“*

↕ : was the beam moved *up*.
↕ : was the beam moved *down*.

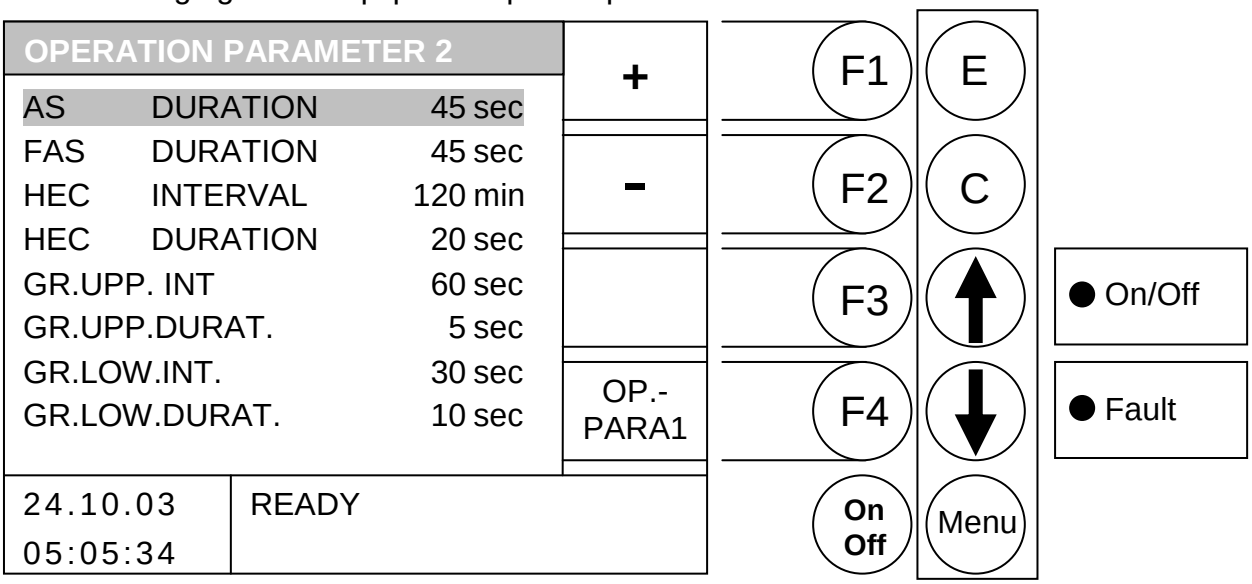
E : without function
C : without function
Menu : was changed in the menu *„SYSTEM PARAMETER“*
OnOff : was the equipment switched on / off.

PREVENT TIME	Time in which the fireplace was pre ventilated
CAPACITY	revolution of fireplace pre ventilation
IGNITION EXH	Ignition known value via flue gas temperature rising
IGNITION BR	Ignition known value via burning cavity temperature
FLUE GAS MAX	flue gas temperature limiter (by passing will be reduced the capacity)
FLUE GAS MIN	flue gas temperature limiter (by fall short of will be higher than the capacity)
ID-FAN MUST	Must value for under pressure regulation
ID-FAN MIN	Minimal value for under pressure regulation (will it be longer fall short of 30 sec, the equipment will have an annoyance)

OPERATION PARAMETER 2

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ SYSTEM PARAMETER
➔ OPERATION PARAMETER ➔ BUTTON F4 (OP.-PARA2)

Aim: Changing of the equipment specific parameters



Through pressing the button

F1 : was the from the beam deposited value *increased*
F2 : was the from the beam deposited value *lowered.*
F3 : without function
F4 : was changed in the menu *„OPERATION PARA 1"*

↕ : was the beam moved *up*.
↕ : was the beam moved *down*.

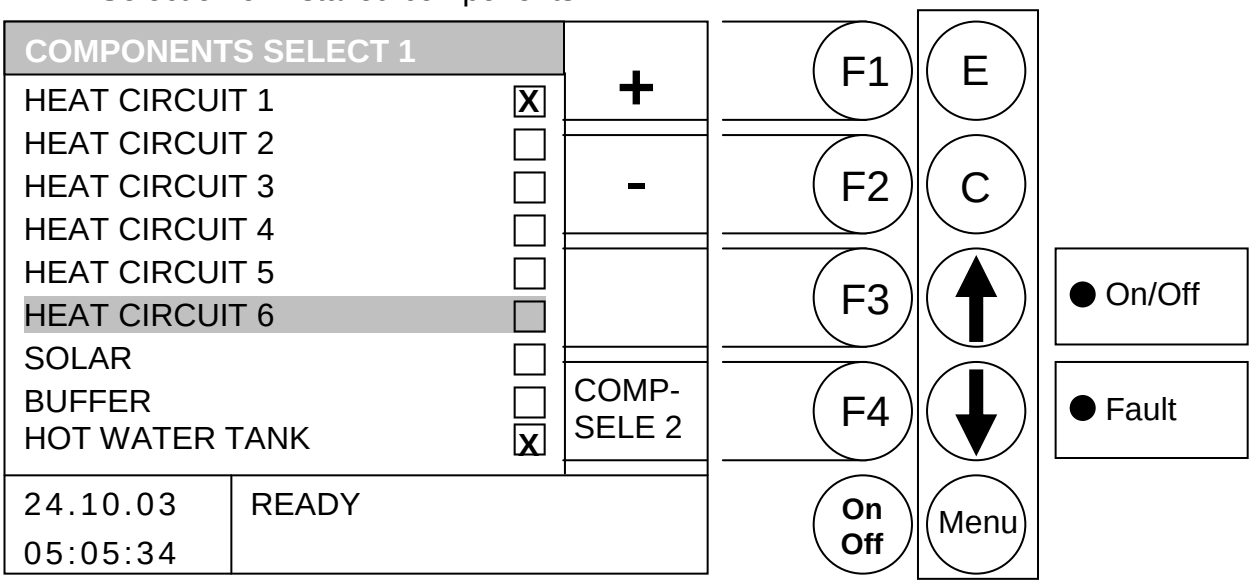
E : without function
C : without function
Menu : was changed in the menu *„SYSTEM PARAMETER"*
OnOff : was the equipment switched on / off.

AS	DURATION	Duration of ash holding
FAS	DURATION	Duration of flue ash holding
HEC	INTERVAL	Interval in which the heat exchange cleaner should be cleaned
HEC	DURATION	Duration of heat exchange cleaning
GR.UPP. INT		Intervall of the upper pusher activity
GR.UPP.DURAT.		Duration of the upper pushing
GR.LOW.INT.		Intervall of the lower pusher activity
GR.LOW.DURAT.		Duration of the lower pushing

COMPONENTS SELECT 1

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ SYSTEM PARAMETER
➔ COMPONENTS SELECTION

Aim: Selection of installed components



Through pressing the button

F1 : was the from the beam deposited value *dialed*
F2 : was the from the beam deposited value *deselected.*
F3 : without function
F4 : was changed in the menu *„COMPSELE2“*

↕ : was the beam moved *up*.
↕ : was the beam moved *down*.

E : without function
C : without function
Menu : was changed in the menu *„SYSTEM PARAMETER“*
OnOff : was the equipment switched on / off

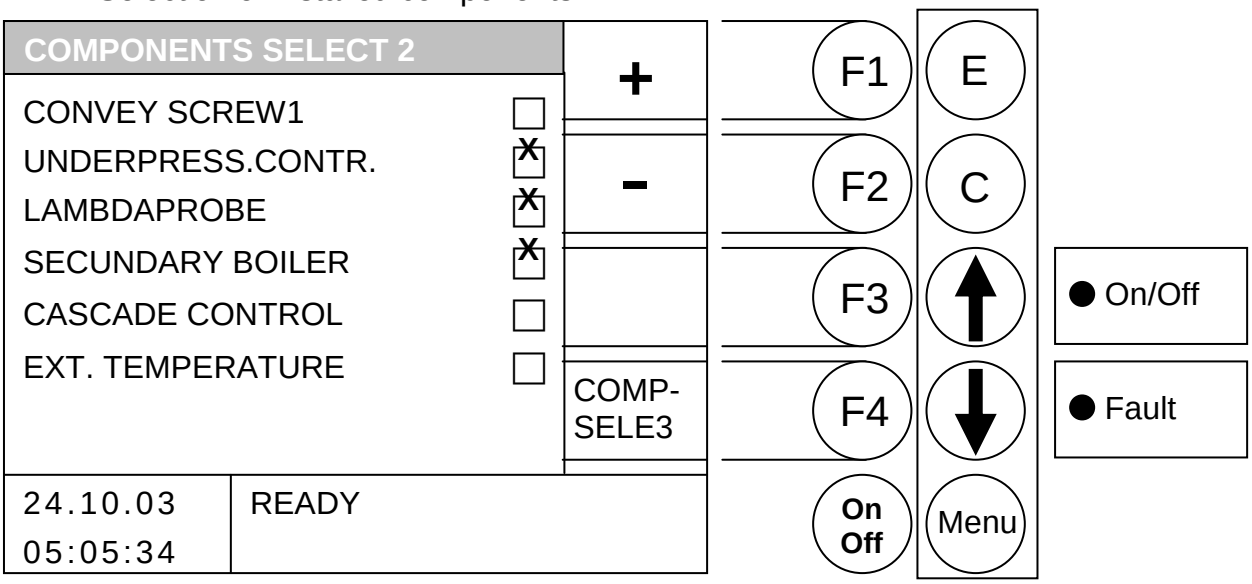
HEAT CIRCUIT 1:	Activating of 1. Heatcircuit
HEAT CIRCUIT 2:	Activating of 2. Heatcircuit
HEAT CIRCUIT 3:	Activating of 3. Heatcircuit
HEAT CIRCUIT 4:	Activating of 4. Heatcircuit
HEAT CIRCUIT 5:	Activating of 5. Heatcircuit
HEAT CIRCUIT 6:	Activating of 6. Heatcircuit
SOLAR:	Activating of the solar module
BUFFER:	Activating of the buffer
HOT WATER TANK:	Activates the hot water tank

The heat circuit 1 and 2 have to be added on the terminal strip
All other heat circuit respectively solar have to be added on the particular amplifications cards.

COMPONENTS SELECT 2

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ SYSTEM PARAMETER
➔ COMPONENTS SELECTION ➔ F4 (COMP SEL2)

Aim: Selection of installed components



Through pressing the button

F1 : was the from the beam deposited value *dialed*
F2 : was the from the beam deposited value *deselected.*
F3 : without function
F4 : was changed in the menu *„COMPSELE3“*

↕ : was the beam moved *up*.
↕ : was the beam moved *down*.

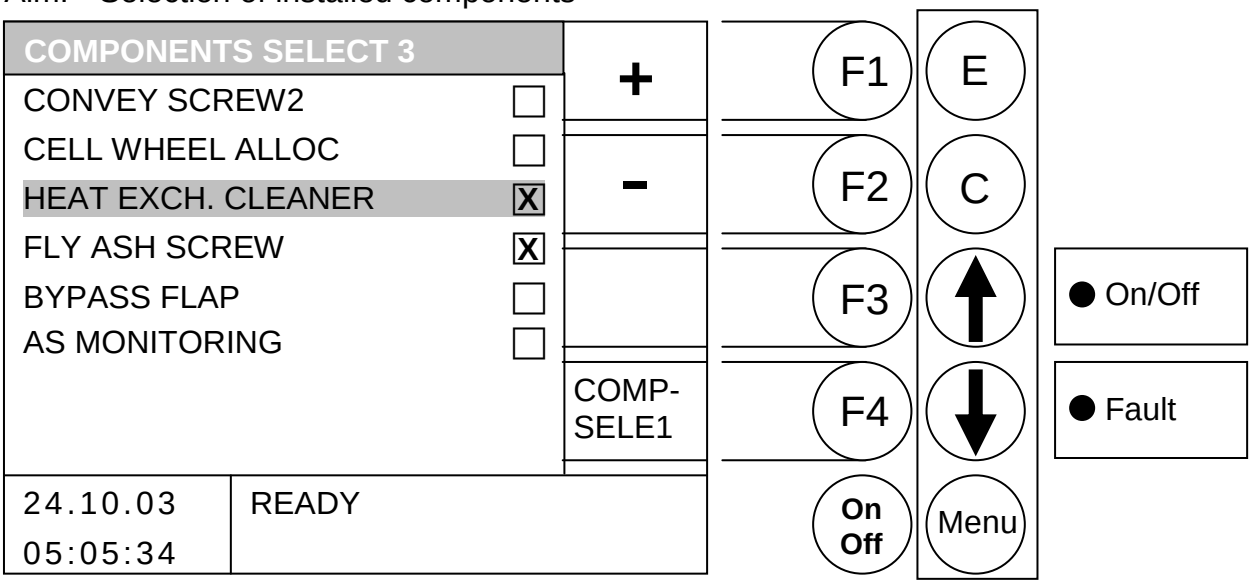
E : without function
C : without function
Menu : was changed in the menu *„SYSTEM PARAMETER“*
OnOff : was the equipment switched on / off

CONVEY SCREW1:	Activating of conveying screw1
UNDERPRESS.CONTR.:	Activating of under pressure regulation
LAMBDAPROBE:	Activating of lambda regulation
SECUNDARY BOILER:	Enables to control an external burner
CASCADE CONTROL:	Enables to control an other BioControl control
EXT. TEMPERATURE:	Enables external must value

COMPONENTS SELECT 3

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ SYSTEM PARAMETER
➔ COMPONENTS SELECTION ➔ F4 (COMP SEL3)

Aim: Selection of installed components



Through pressing the button

F1 : was the from the beam deposited value *increased*
F2 : was the from the beam deposited value *lowered.*
F3 : without function
F4 : was changed in the menu *„COMPSELE1“*

↕ : was the beam moved *up*.
↕ : was the beam moved *down*.

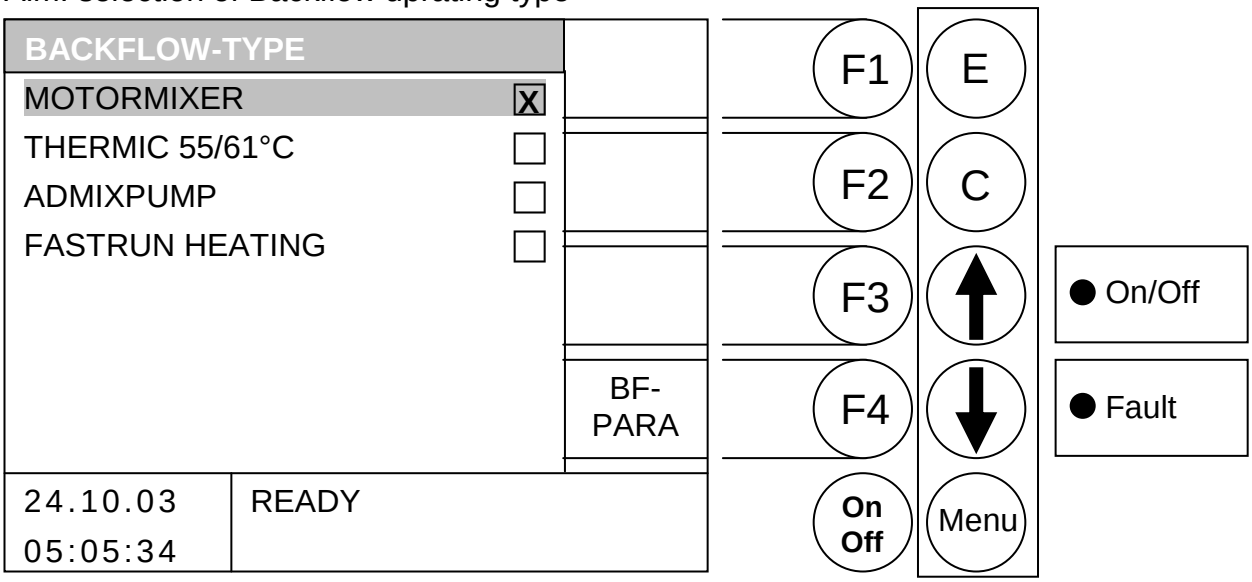
E : without function
C : without function
Menu : was changed in the menu *„SYSTEM PARAMETER“*
OnOff : was the equipment switched on / off.

CONVEY SCREW2:	Activating of conveying screw e2
CELL WHEEL ALLOC:	Activating of cell wheel alloc.
HEAT EXCH. CLEANER:	Activating of heat exchange cleaner
FLY ASH SCREW:	Activating of automatic flue ash holding
BYPASS FLAP:	Activating of Bypass flap
AS MONITORING	Activating of the monitoring of the ash discharge

BACKFLOW-TYPE

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ SYSTEM PARAMETER
➔ BACKFLOW PARAMETER

Aim: selection of Backflow uprating type



Through pressing the button

F1 : without function
F2 : without function
F3 : without function
F4 : was changed in the menu *„BF-PARA“*

↕ : was the beam moved *up*.
↕ : was the beam moved *down*.

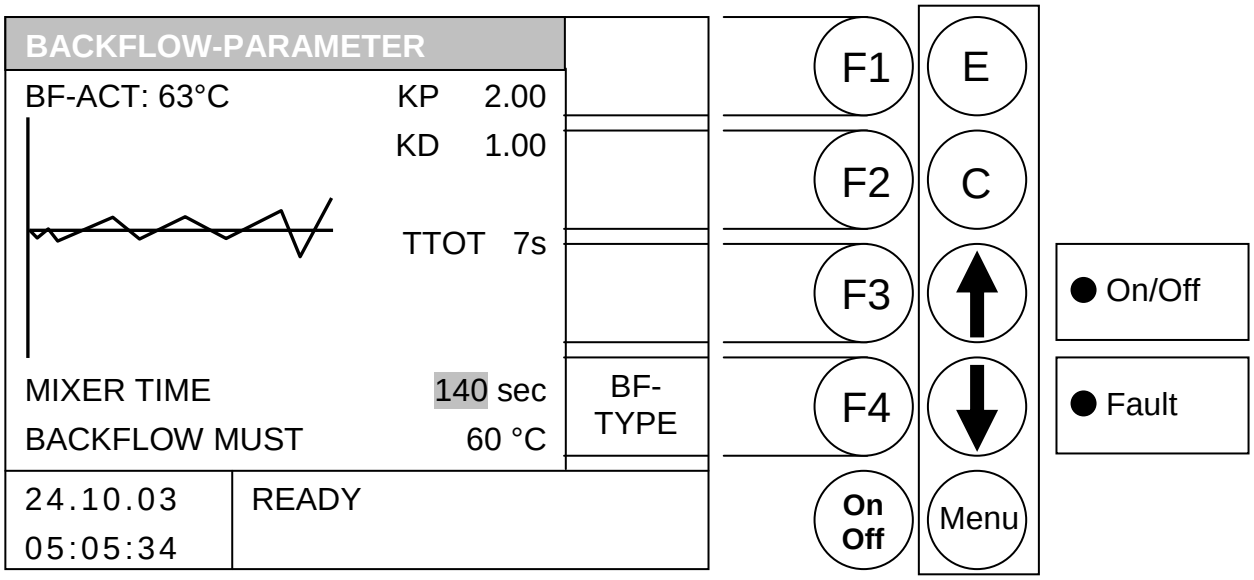
E : *dialing* of type
C : without function
Menu : was changed in the menu *„SYSTEM PARAMETER“*
OnOff : was the equipment switched on / off

MOTORMIXER**:**	selection of backflow uprating with motormixer
THERMIC 55/61°C:	selection of backflow uprating with thermic vavel
ADIMIXPUMP**:**	selection of backflow uprating with admixpump
FAST RUN HEATING**:**	Activating of fast run heating (faster heat up of buffers with additional valve)

BACKFLOW-PARAMETER

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ SYSTEM PARAMETER
➔ BACKFLOW PARAMETER

Aim: selection of Backflow uprating type



Through pressing the button

F1 : was the from the beam deposited value *increased*
F2 : was the from the beam deposited value *lowered*
F3 : without function
F4 : was changed in the menu *„BF-TYPE“*

↕ : was the beam moved *up*.
↕ : was the beam moved *down*

E : without function
C : without function
Menu : was changed in the menu *„SYSTEM PARAMETER“*
OnOff : was the equipment switched on / off

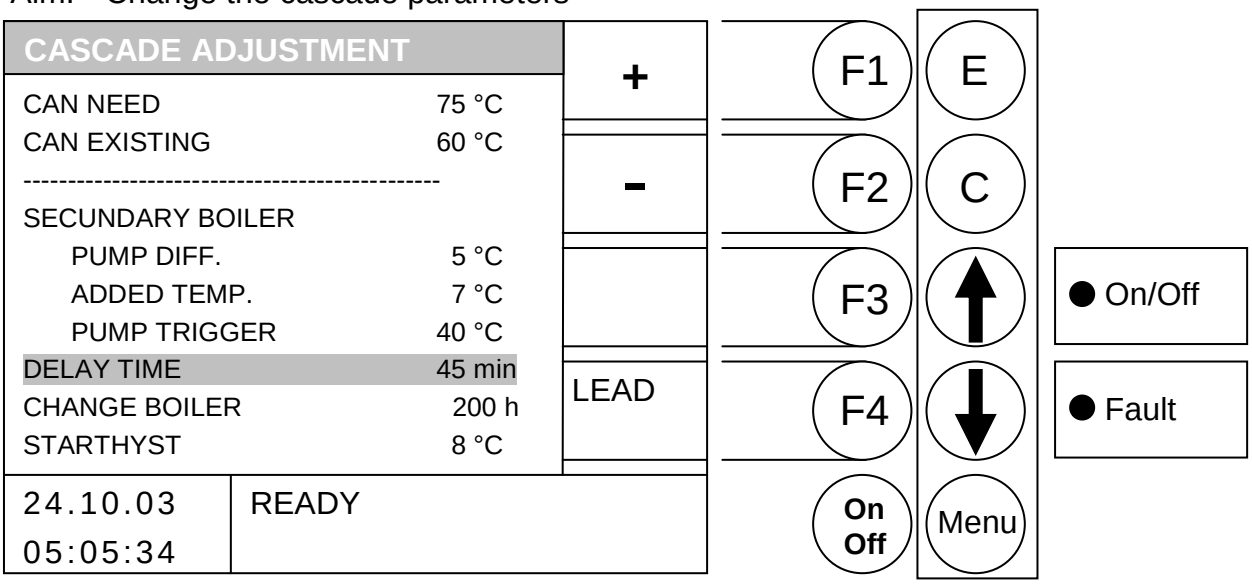
BF-ACT:	Advice of the currant backflow temperature
KP:	Adjustment of ruler (may only disguised from authorised personal)
KD:	Adjustment of ruler (may only disguised from authorised personal)
TTOT:	Setting value of the system break (can only be altered by authorised staff)
MIXER TIME:	Here will be adjusted the mixer runtime from the return mixer
BACKFLOW IDEAL:	Adjustment of backflow temperature

CASCADE ADJUSTMENT

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ SYSTEM PARAMETER
➔ CASCADE ADJUSTMENT

A detailed description can be found in the documentation for the cascade control.

Aim: Change the cascade parameters



Through pressing the button

F1 : was the from the beam deposited value *increased*
F2 : was the from the beam deposited value *lowered.*
F3 : without function
F4 : change boiler (only visible, if cascade control is active)

↕ : was the beam moved *up*.
↕ : was the beam moved *down*.

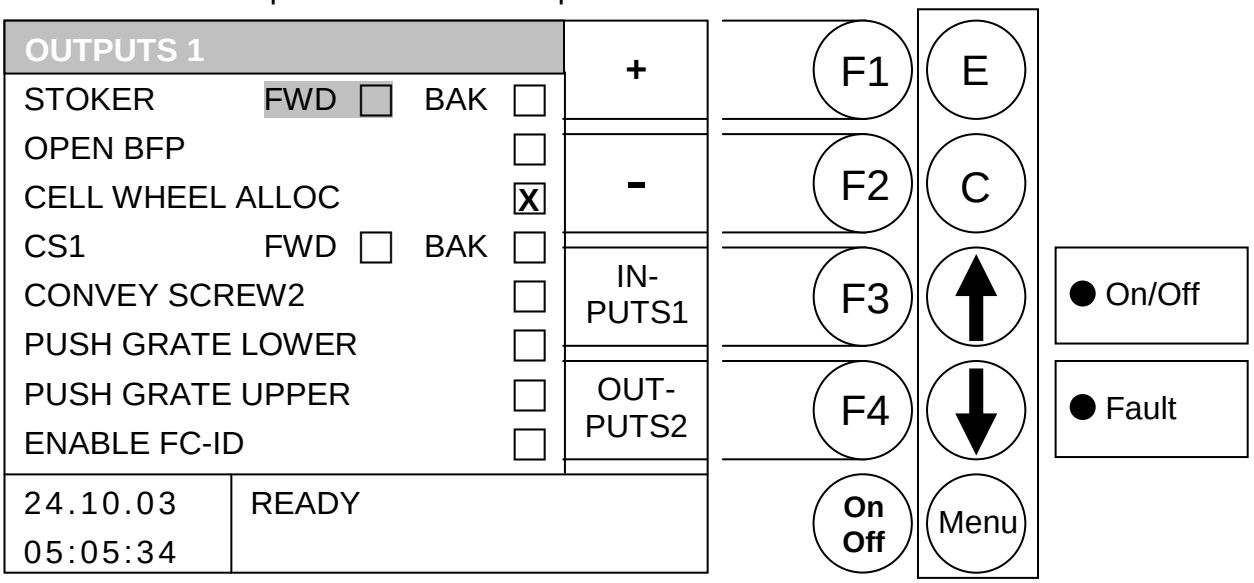
E : without function
C : without function
Menu : was changed in the menu *„SYSTEM PARAMETER“*
OnOff : was the equipment switched on / off.

CAN NEED	Advice: Needed temperature via Can
CAN EXISTING	Advice: Existing temperature via Can
PUMP DIFF.	Adjust value: Pump-difference between second boiler and buffer low
ADDED TEMP.	Adjust value: added temperature
PUMP TRIGGER	Adjust value: trigger for pump of second boiler
DELAY TIME	Adjust value: time after that second boiler start
START HYST	Adjust value: Difference between the upper buffer and required temperature from which the additional boiler is immediately supplied (without awaiting the waiting time)
LEAD	Manual takeover of the lead boiler performance.

OUTPUTS 1

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ AGGREGAT TEST

Aim: Control of outputs and test of components



Through pressing the button

F1 : was the from the beam deposited value *increased*
F2 : was the from the beam deposited value *lowered.*
F3 : was changed in the menu *„OUTPUTS1“*
F4 : was changed in the menu *„ OUTPUTS 2“*

↕ : was the beam moved *up*.
↕ : was the beam moved *down*.

E : without function
C : without function
Menu : was changed in the menu *„SERVICE ADJUSTMENT“*
OnOff : was the equipment switched on / off.

IMPORTANT:

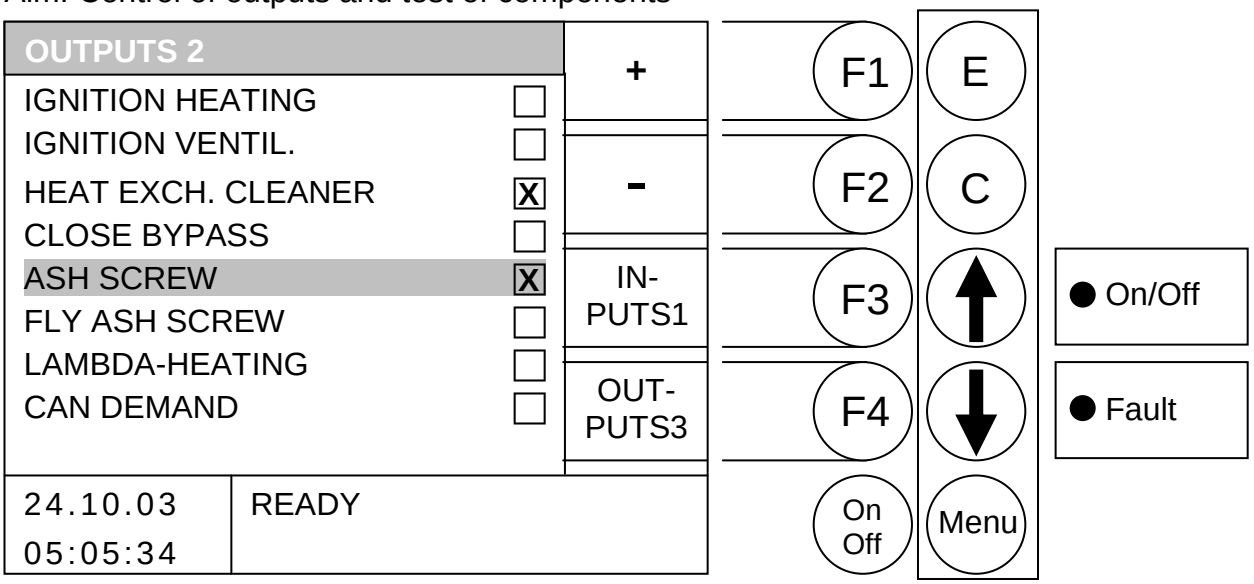
A modification is only possible in operation state heating out or ready. By running burner are the buttons F1 und F2 respectively ↑ and ↓ without function.

STOKER FORW.	Stoker screw forward
STOKER BACK	Stoker screw back
OPEN BFP	Backburn security fitter open
CELL WHEEL ALLOC	Cell wheel alloc.
CONVEY SCR.1 FWD/BAK	Conveying screw 1 forward/back
CONVEY SCREW2	Conveying screw 2
PUSH GRATE LOWER	Lower pusher grate
PUSH GRATE UPPER	Upper pusher grate
ENABLE FC-ID	Clearance of frequency converter ID-Fan

OUTPUTS 2

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ AGGREGAT TEST
➔ BUTTON F4(EXIT2)

Aim: Control of outputs and test of components



Through pressing the button

F1 : was the from the beam deposited value *increased*
F2 : was the from the beam deposited value *lowered.*
F3 : was changed in the menu *„INPUTS1“*
F4 : was changed in the menu *„OUTPUTS3“*

↕ : was the beam moved *up*.
↕ : was the beam moved *down*.

E : without function
C : without function
Menu : was changed in the menu *„SERVICE ADJUSTMENT“*
OnOff : was the equipment switched on / off.

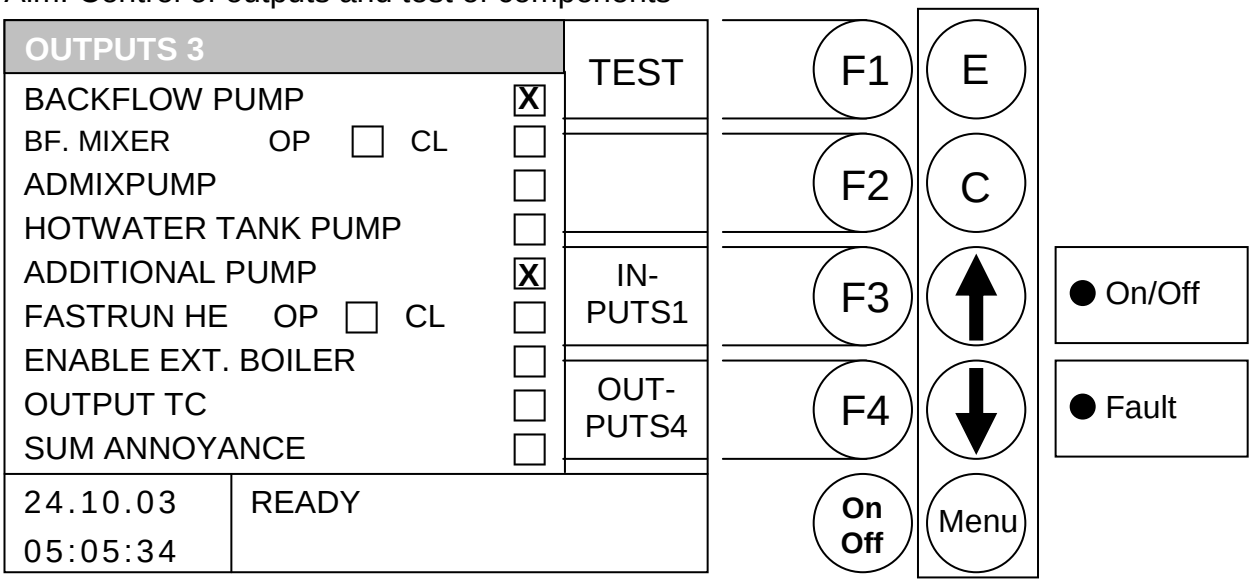
IMPORTANT: A modification is only possible in operation state heating out or ready. By running burner are the buttons F1 und F2 respectively ↑ and ↓ without function.

IGNITION HEATING	Switch on of heating of ignition blower (the ventilator was at once switched on to anticipate a over heating. By switching off was started a ventilator backflow)
IGNITION VENTIL.	Ignition blower ventilator
SHAKER	Shaker for the burner cleaning
HEAT EXCH. CLEANER	Heat exchange cleaner
CLOSE BYPASS	Bypass flap from the heat exch. cleaner
ASH SCREW	Ash holding
FLY ASH SCREW	Flue ash holding
LAMBDA-HEATING	Lambdaprobe heating
CAN DEMAND	Shows the output CAN DEMAND

OUTPUTS 3

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ AGGREGAT TEST
➔ F4(EXIT2) ➔ F4(EXIT3)

Aim: Control of outputs and test of components



Through pressing the button

Through pressing of button F1 you go to the editing mode. Now is it possible to change the exits. By leaving of aggregat tests will be reset the exits again in the automatic mode

F1 : was the from the beam deposited value *increased*
F2 : was the from the beam deposited value *lowered.*
F3 : was changed in the menu *„INPUTS1“*
F4 : was changed in the menu *„OUTPUTS4“*

↕ : was the beam moved *up*.
↓ : was the beam moved *down*.

E : without function
C : without function
Menu : was changed in the menu *„SERVICE ADJUSTMENT“*
OnOff : was the equipment switched on / off.

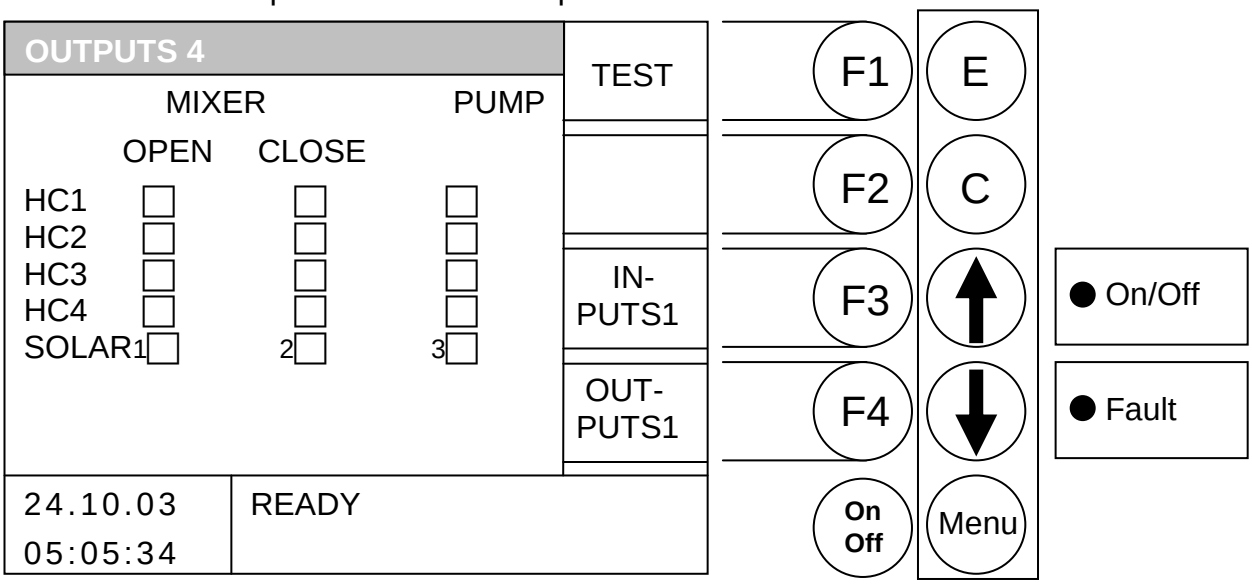
IMPORTANT: A modification is only possible in operation state heating out or ready. By running burner are the buttons F1 und F2 respectively ↑ and ↓ without function.

BACKFLOW-PUMP	Backflow pump
BACKF. -MIXER OPEN	Backflow mixer open
BACKF. -MIXER CLOSE	Backflow mixer close
ADMIXPUMP E	Admix pump
HOTWATER TANK PUMP	Hot Water Tank pump
FASTRUN HEATING	Fast run heating
OPERATION UNIT	Extern clearing (for Example oil burner)
ENABLE EXT.BOILER	Enable ext. boiler
OUTPUT TC	Exit temperature control fuel storage
SUM ANNOYANCE	Exit sum annoyance

OUTPUTS 4

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ AGGREGAT TEST
➔ PRESS 3 X F4

Aim: Control of outputs and test of components



Through pressing the button

Through pressing of button F1 you go to the editing mode. Now is it possible to change the exits. By leaving of aggregat tests will be reset the exits again in the automatic mode

F1 : was the from the beam deposited value *increased*
F2 : was the from the beam deposited value *lowered.*
F3 : was changed in the menu *„INPUTS1“*
F4 : was changed in the menu *„OUTPUTS1“*

↑ : was the beam moved *up*.
↓ : was the beam moved *down*.

E : without function
C : without function
Menu : was changed in the menu *„SERVICE ADJUSTMENT“*
OnOff : was the equipment switched on / off.

IMPORTANT: A modification is only possible in operation state heating out or ready. By running burner are the buttons F1 und F2 respectively ↑ and ↓ without function.

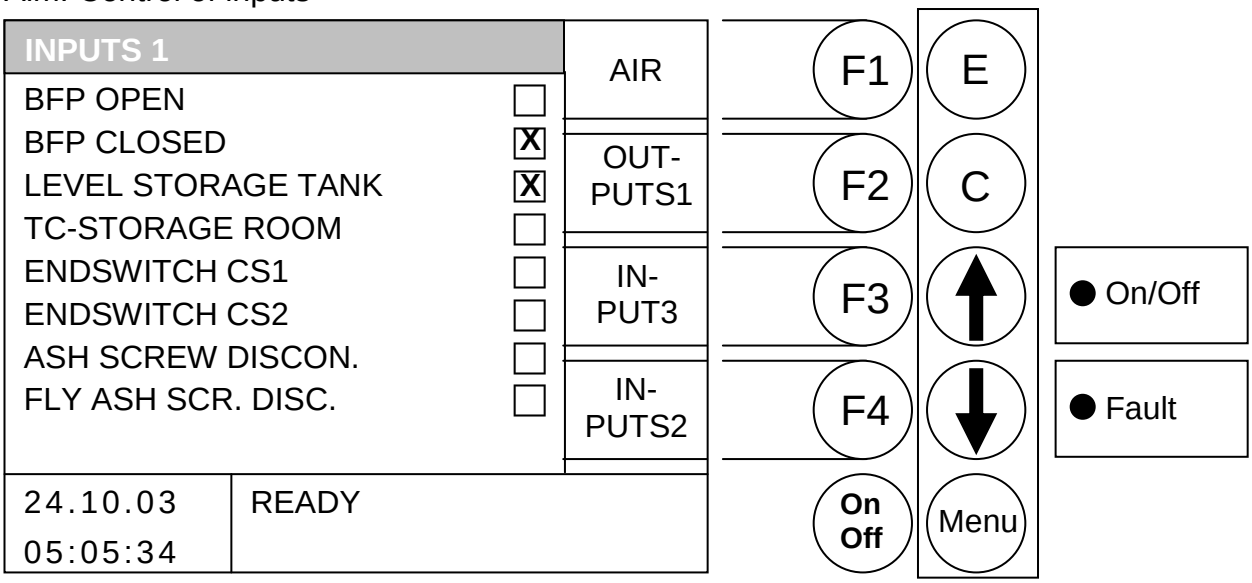
MIXER OPEN	Heat circuit mixer open
MIXER CLOSE	Heat circuit mixer close
PUMP	Heat circuit pump
SOLAR	Solar

The mixer are mutual locked, that means mixer open like mixer closed can not be operated at the same time. Inexistent heat circuits can not be inserted.

INPUTS 1

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ AGGREGAT TEST
➔ F3 (INTPUTS1)

Aim: Control of inputs



Through pressing the button

F1 : was changed in the menu *„AIR“*
F2 : was changed in the menu *„OUTPUTS1“*
F3 : was changed in the menu *„INPUTS3“*
F4 : was changed in the menu *„INPUTS2“*

↕ : without function
↕ : without function

E : without function
C : without function
Menu : was changed in the menu *„SERVICE ADJUSTMENT“*
OnOff : was the equipment switched on / off.

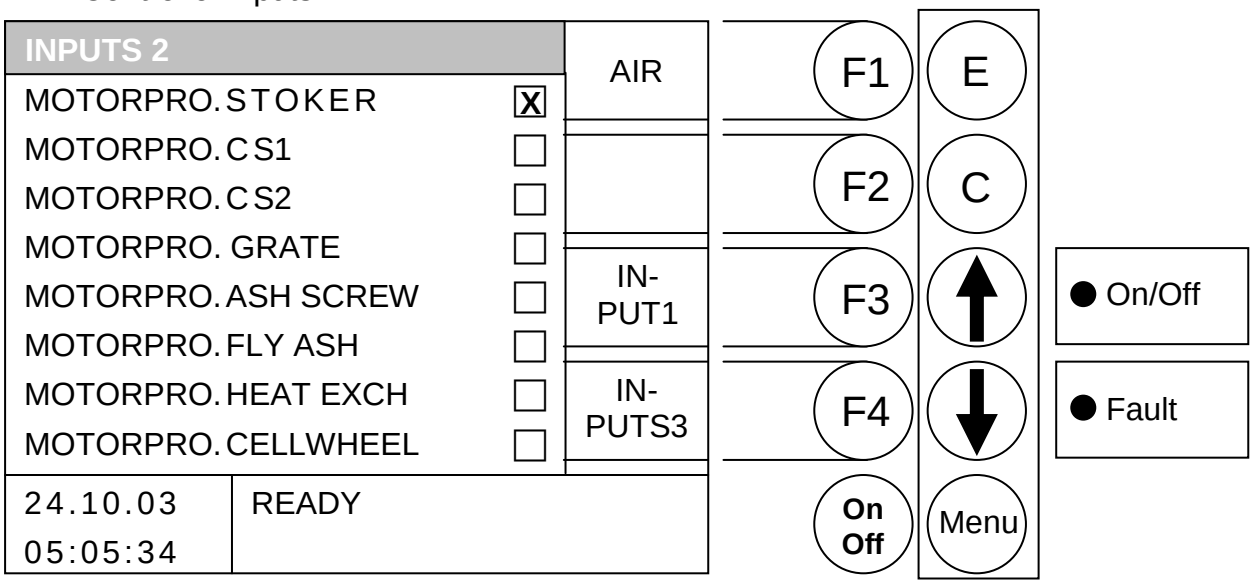
If it is a cross in the small box, then is the particular access active
(in the upper example is the access for extern demand accessed)

BFP OPEN	Back advice backburn protection in position „open“
BFP CLOSED	Back advice backburn protection in position „closed“
LEVEL STORAGE TANK	Niveau in the storage tank
TC-STORAGE ROOM	Temperature control storage room
ENDSWITCH CS1	End switch conveying screw 1
ENDSWITCH CS2	End switch conveying screw 2
ASH SCREW DISCONN.	Ash case disconnected (prepared)
FLY ASH SCR. DISC.	Ash case disconnected (prepared

INPUTS 2

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ AGGREGAT TEST
➔ F3(INPUTS1) ➔ F4(INPUTS2)

Aim: Control of inputs



Through pressing the button

F1 : was changed in the menu *„AIR“*
F2 : without function
F3 : was changed in the menu *„INPUTS1“*
F4 : was changed in the menu *„ INPUTS 3“*

↕ : without function
↕ : without function

E : without function
C : without function
Menu : was changed in the menu *„SERVICE ADJUSTMENT“*
OnOff : was the equipment switched on / off.

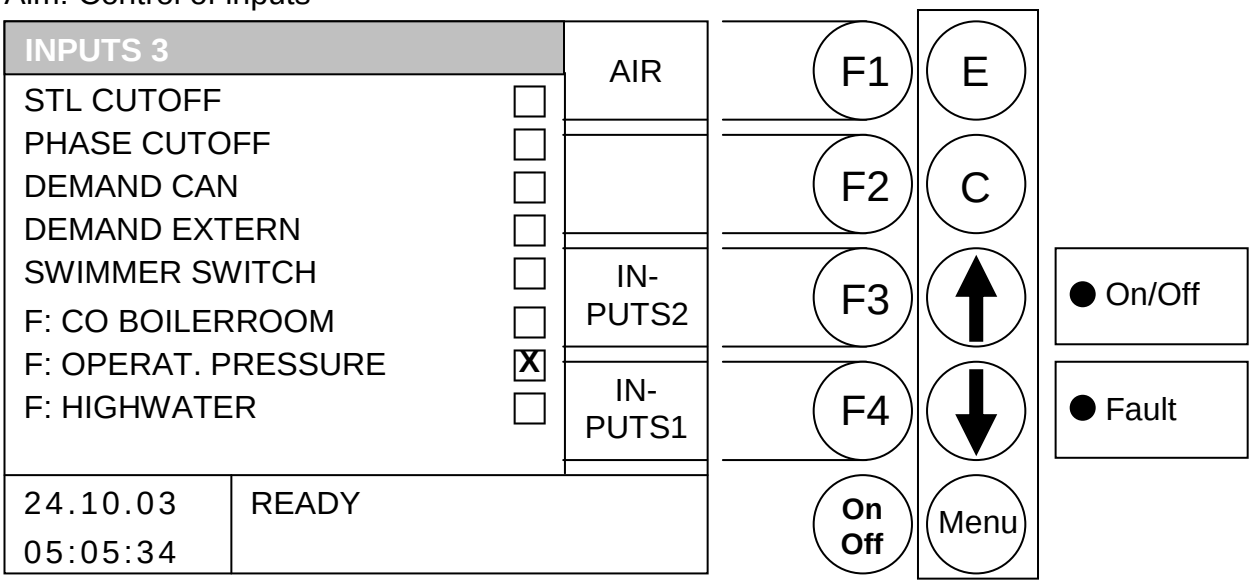
If it is a cross in the small box, then is the particular motor protect fallen
(in the upper example is the motor protect of stoker screw fallen)

MOTORPRO. STOKER motor protect stoker screw
MOTORPRO. CS1: motor protect conveying screw 1
MOTORPRO. CS2: motor protect conveying screw 2
MOTORPRO.GRATE: motor protect grate
MOTORPRO. ASH SCREW: motor protect ash holding
MOTORPRO. HEAT EXCH.: motor protect heat exchange cleaner
MOTORPRO. FLY ASH: motor protect flue ash holding
MOTORPRO. CELLWHEEL: motor protect cell wheel

INPUTS 3

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ AGGREGAT TEST
➔ F3(INPUTS1) ➔ F3(INPUTS3)

Aim: Control of inputs



Through pressing the button

F1 : was changed in the menu *„AIR“*
F2 : without function
F3 : was changed in the menu *„INPUTS2“*
F4 : was changed in the menu *„INPUTS1“*

↕ : without function
↕ : without function

E : without function
C : without function
Menu : was changed in the menu *„SERVICE ADJUSTMENT“*
OnOff : was the equipment switched on / off.

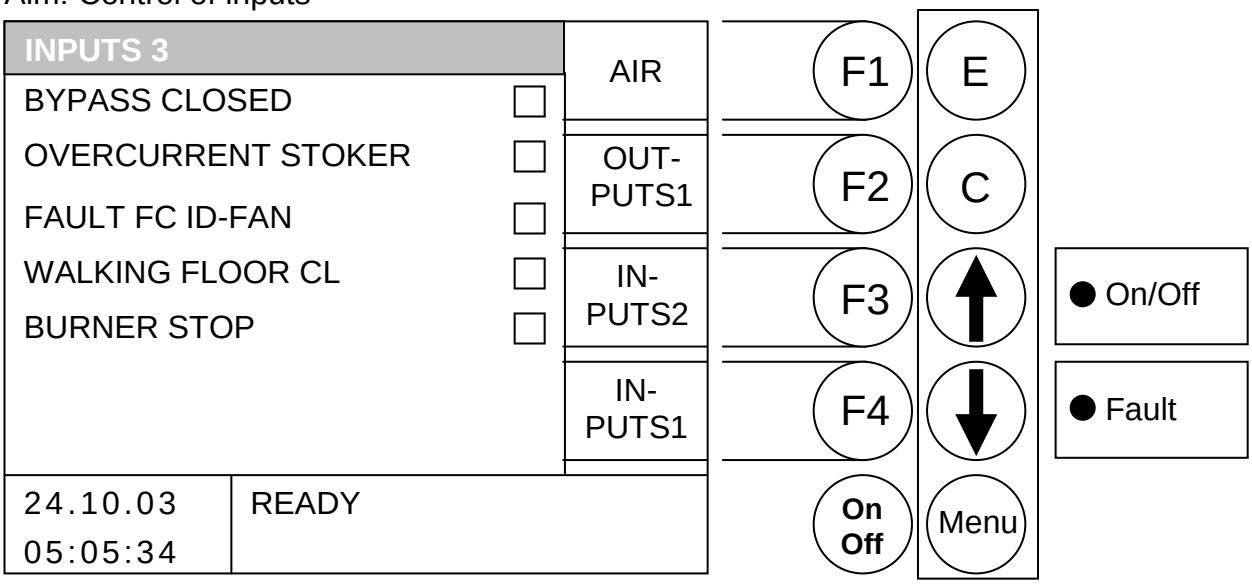
If it is a cross in the small box, then is the particular access active
(in the upper example is the access for extern demand accessed)

STC CUTOFF	Security temperature limiter has cut off the supply unit of capacity piece
PHASE CUTOFF	Phase breakdown relay limiter has cut off the supply unit of capacity piece
DEMAND CAN	Demand for the CAN-Bus
DEMAND EXTERN	Extern regulation demands for energy
SWIMMER SWITCH	Too less water in water tank
F: CO BOILERROOM	Fault at CO-Probe
F: OPERAT. PRESSURE	Too less pressure in heat system
BARRIER LEVEL	Barrier level
BYPASS CLOSE	Bypass is closed

INPUTS 4

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ AGGREGAT TEST
➔ F3(INPUTS1) ➔ F3(INPUTS4)

Aim: Control of inputs



Through pressing the button

F1 : was changed in the menu *„AIR“*
F2 : was changed in the menu *„OUTPUTS1“*
F3 : was changed in the menu *„INPUTS2“*
F4 : was changed in the menu *„INPUTS1“*

↕ : without function
↕ : without function

E : without function
C : without function
Menu : was changed in the menu *„SERVICE ADJUSTMENT“*
OnOff : was the equipment switched on / off.

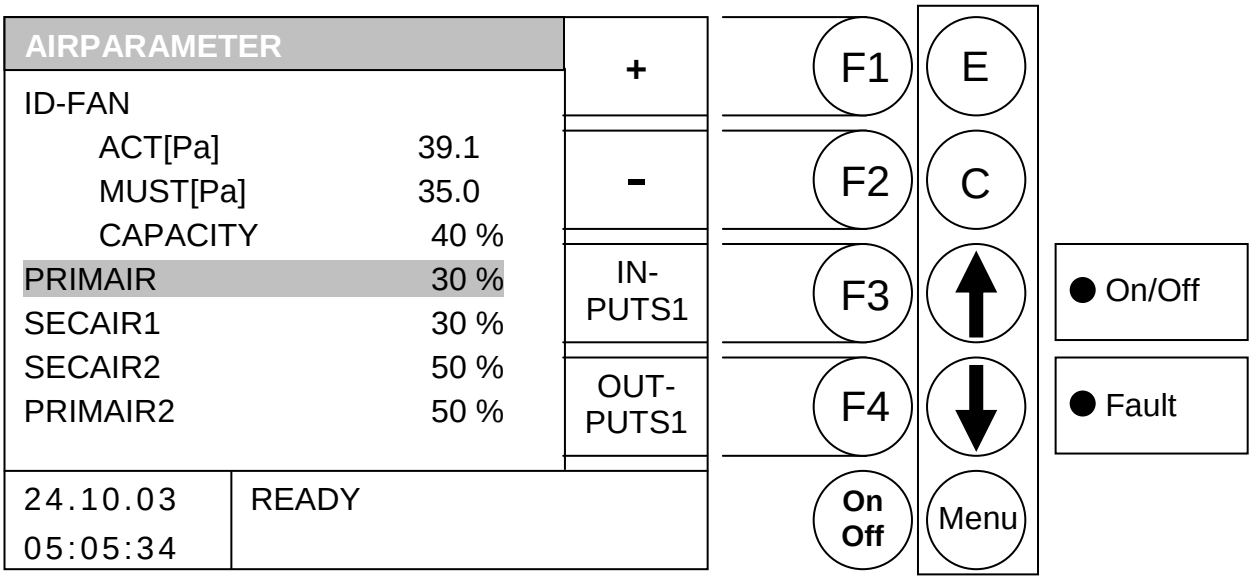
If it is a cross in the small box, then is the particular access active
(in the upper example is the access for extern demand accessed)

BYPASS CLOSE	Bypass is closed
OVERCURR. STOKER	Overcurrent stoker screw (for automatic screw backflow)
FAULT FC ID-FAN	Fault in FC
WALKING FLOOR CL	Walking floor is closed
BURNER STOP	Burner was stopped and set on standby

AIRPARAMETERS

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ AGGREGAT TEST
➔ F3(ACCESS 1) ➔ F1(AIR)

Aim: Test of blower in initiation respectively service case and control of under pressure plug socket



Through pressing the button

F1 : was the from the beam deposited value *increased*
F2 : was the from the beam deposited value *lowered.*
F3 : was changed in the menu *„INPUTS1“*
F4 : was changed in the menu *„OUTPUTS1“*

↕ : was the beam moved *up*.
↕ : was the beam moved *down*.

E : without function
C : without function
Menu : was changed in the menu *„SERVICE ADJUSTMENT“*
OnOff : was the equipment switched on / off.

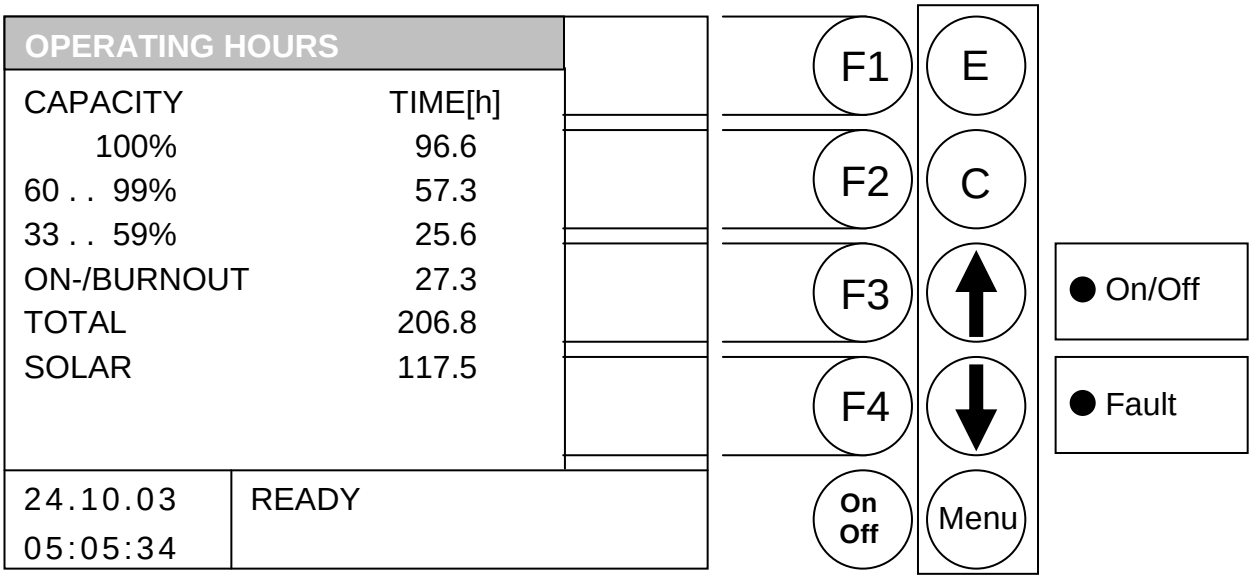
IMPORTANT: A modification is only possible in operation state heating out or ready. By running burner are the buttons F1 und F2 respectively ↑ and ↓ without function.

ID-FAN	
ACT [PA]	Under pressure in the burning room
MUST[PA]	Ideal value for under pressure in the burning room
CAPACITY	current ID-Fan rotation numbers
PRIMAIR	current primary air rotation numbers
SECAIR1	current secondary air 1 rotation numbers
SECAIR2	current secondary air 2 rotation numbers
PRIMAIR	current primary air 2 rotation numbers

OPERATING HOURS

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ OPERATING HOURS

Aim: Advice of operating hours and power level



Through pressing the button

F1 : without function
F2 : without function
F3 : without function
F4 : without function

↕ : without function
↕ : without function

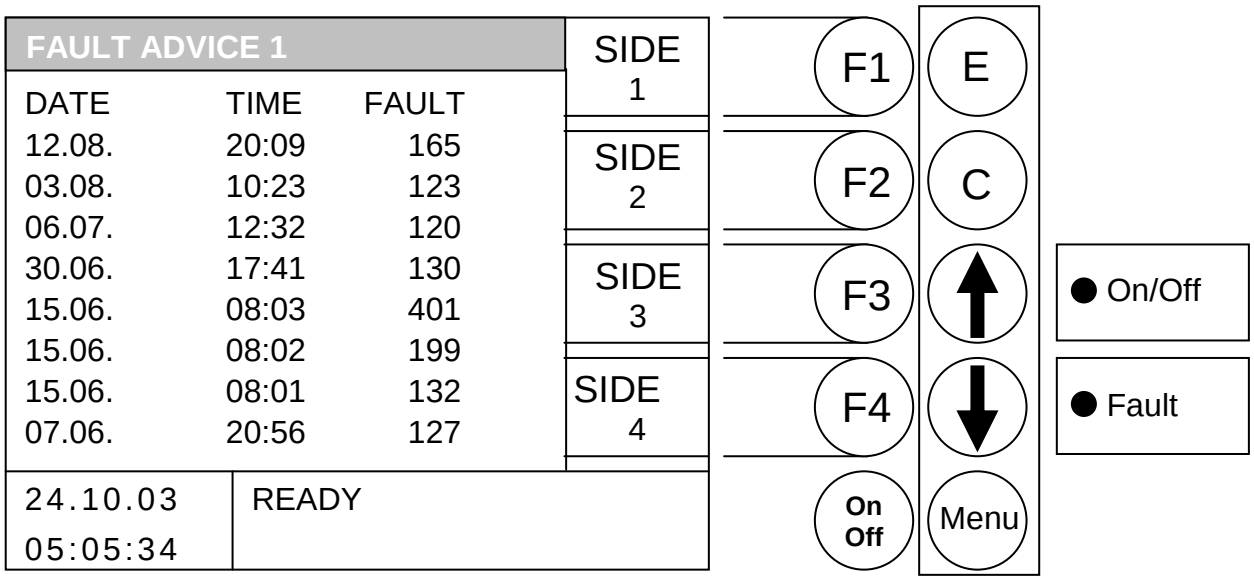
E : without function
C : without function
Menu : was changed in the menu *„SERVICE ADJUSTMENT“*
OnOff : was the equipment switched on / off.

CAPACITY	
100%	Operating hours in which the equipment ran with nominal load
60 . . 99%	Operating hours in which the equipment ran with 60 till 99% of nominal load
33 . . 59%	Operating hours in which the equipment ran with 60 till 99% of nominal load
ON-/BURNOUT	Operating hours in which the equipment ran in the burn on- lowburn respectively burnout phase
TOTAL	total operating hours of burner
SOLAR	Operating hours in solar

FAULT ADVICE

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ FAULT INDICATION

Aim: Advice of the last 32 fault advice



Through pressing the button

F1 : Exchange to side 1 of fault advice (Fault 1-8)
F2 : Exchange to side 2 of fault advice (Fault 9-16)
F3 : Exchange to side 3 of fault advice (Fault 17-24)
F4 : Exchange to side 4 of fault advice (Fault 25-32)

↕ : without function
↕ : without function

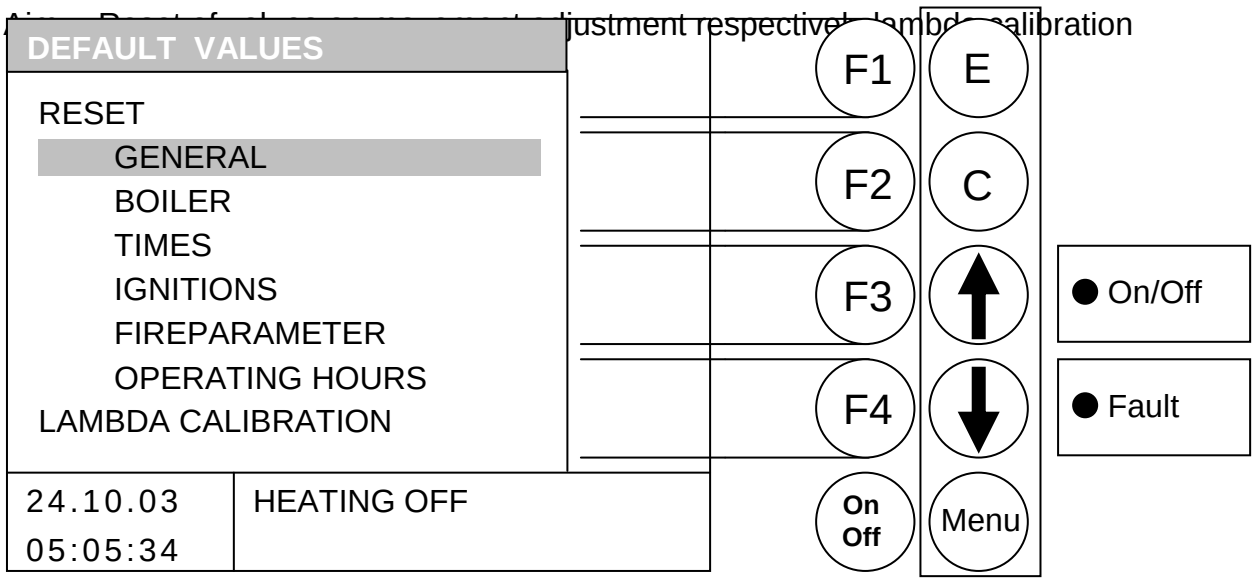
E : without function
C : without function
Menu : was changed in the menu *„SERVICE ADJUSTMENT“*
OnOff : was the equipment switched on / off.

The last 32 occurred faults have been personated through fault codes and saved. A list of faults and its meanings you will find in the appendix (side 71)

PRESET VALUES

MAIN MENU ➔ SERVICE ADJUSTMENT ➔ PRESET VALUES

Aim: Reset of values or reset adjustment respectively lambda calibration



Through pressing the button

F1 : without function
F2 : without function
F3 : without function
F4 : without function

↕ : without function
↕ : without function

E : reset start of lambda calibration
C : without function
Menu : was changed in the menu *„SERVICE ADJUSTMENT“*
OnOff : was the equipment switched on / off.

RESET

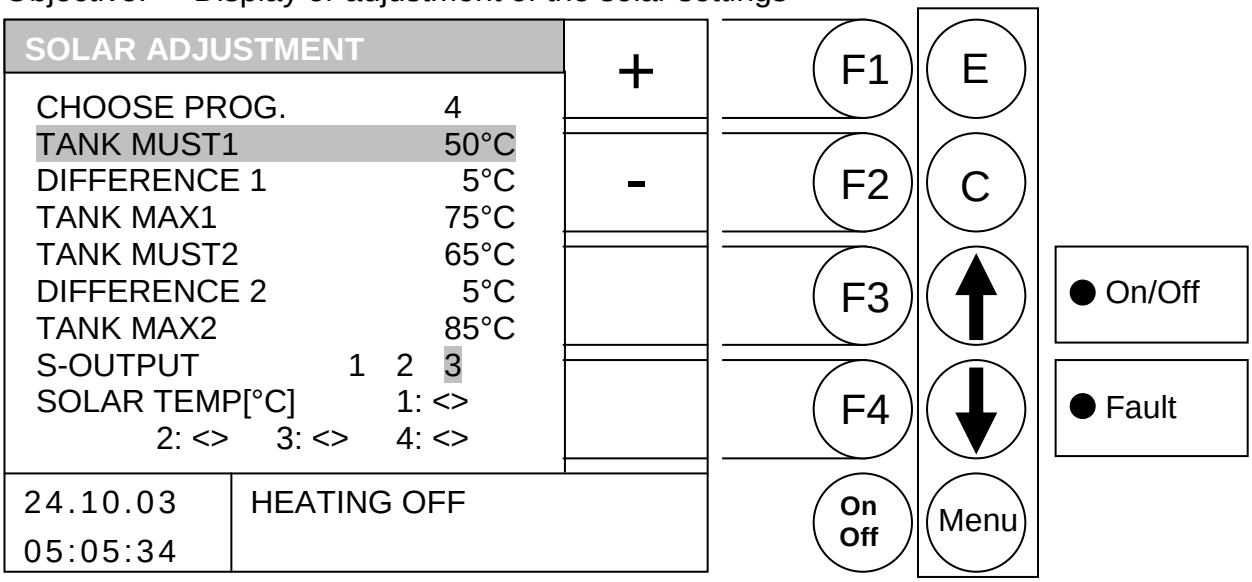
GENERAL	Reset of all Parameter
BOILER	Reset from boiler parameter
TIMES	Reset of all (Heating times, Boiler load times, ...)
IGNITIONS	Reset of ignition counter and the runtime counter
FIREPARAMETER	Reset of fire parameter
OPERATING HOURS	Reset of operating hours
LAMBDA CALIBRATION	Start of lambda calibration

SOLAR ADJUSTMENT

A detailed description can be found in the
User documentation for the solar control.

MAIN MENU ➔ SOLAR SETTINGS

Objective: Display or adjustment of the solar settings



By pressing the button

F1 : (+) the value behind it is *increased*
F2 : (+) the value behind it is *decreased*
F3 : No function
F4 : No function
↕ : the bar is pushed *up*.
↕ : the bar is pushed *down*.
E : The program selection editing is exited and the selections are saved
C : the values to be edited are returned to their previous settings
Menu : changes to the “MAIN MENU“
On/Off: the equipment is switched on/off

CHOOSE PROG:	Program selection
TANK MUST1:	Storage target value of storage 1
DIFFERENCE 1:	Differential between collector and storage 1
TANK MAX1:	Maximum storage value of storage 1
TANK MUST2:	Storage target value of storage 2
DIFFERENCE2:	Differential between collector and storage 2
TANK MAX2	Maximum storage value of storage 2
S OUTPUT:	S-output (display value)
SOLAR TEMP:	Solar temperature (display value)

ANNOYANCE AND WHOSE ELEMINATION

Attend always the security advice!

By all occurred annoyance must be first repaired the fault and then be quitted through switch on again. Should be appeared more fault at the same time, will these indicated in the appeared order.

Annoyance on Display	**What is the possible reason?**	**Proposals for elimination**
F: ENDSWITSCH CS1 *Fault 100*	Endswitch cavity holding 1 acts on • Eventual blockage in area of dropping neck by RA 1	• Eliminate blockage in area of dropping neck . Close again the cap accordingly
F: ENDSWITSCH CS2 *Fault 101*	Endswitch cavity holding 2 acts on • Eventual blockage in area of dropping neck by RA 2	• Eliminate blockage in area of dropping neck . Close again the cap accordingly
F:MOTPROTECT CS1 *Fault 102*	Motor protect switch cavity holding 1 • A foreign body blocks the screw • Too raw, bully fuel • Motor defect • Screw breakage	Quit Motor protect • Eliminate foreign body • Use other fuel • Exchange Motor • Renew screw
F: MOTPROTECT CS2 *Fault 103*	Motor protect switch cavity holding 2 • A foreign body blocks the screw • Too raw, bully fuel • Motor defect • Screw breakage	Quit Motor protect • Eliminate foreign body • Use other fuel • Exchange Motor • Renew screw
F: MOTPROT.CELLWH *Fault 104*	Motor protect switch Cell wheel • A foreign body blocks the cell wheel • Too raw, bully fuel • Motor defect	Quit Motor protect • Eliminate foreign body • Use other fuel • Exchange Motor
F: MOTPROT.STOKER *Fault 105*	Motor protect switch Stoker screw • A foreign body blocks the screw • Too raw, bully fuel • Motor defect • Screw breakage	Quit Motor protect • Eliminate foreign body • Use other fuel • Exchange Motor • Renew screw

F: MOTPROT.ASH SC *Fault 106*	Motor protect switch ash holding ● A foreign body blocks the screw ● Too raw, bully fuel ● Motor defect ● Screw breakage	Quit Motor protect ● Eliminate foreign body ● Use other fuel ● Exchange Motor ● Renew screw
F: MOTPROT.HEATEX *Fault 107*	Motor protect switch heat exchange cleaner ● Not smeared guidance leverage ● Cleaning time is adjusted too long ● Run time is adjusted too short ● Guidance panel justified wrong	Quit Motor protect. Make current heat exchange cleaner ● Smear Leverage with accordingly lubricant ● Abbreviate cleaning time ● Extend runtime ● Justify Guidance panel new
F: MOTPROT.FLYASH *Fault 108*	Motor protect switch flue ash holding ● A foreign body blocks the screw ● Too raw, bully fuel ● Motor defect ● Screw breakage	Quit Motor protect ● Eliminate foreign body ● Use other fuel ● Exchange Motor ● Renew screw
F: OVERCUR.STOKER *Fault 110*	Fault in Stoker ● Like fault 102	● Like fault 102
F:PHASE CUTOFF *Fault 111*	Fault in direction of rotation supply unit ● Phase cut off in the feed line ● Phase in the feed line was permuted	● Let control the feed line only through authorised personal ● Let control the feed line only through authorised personal
F: HEAT EXCHANGE *Fault 112*	Fault by heat exchanger cleaning interval ● Due to fault 107 could not be enforced the cleaning interval	● Like fault 107
F: FLY ASH CLEAN *Fault 113*	Fault by flue ash holding interval ● Due to fault 108 could not be enforced the cleaning interval ●	● Like fault 108
F: SWIMMER SWITCH *Fault 114*	RHE empty or cable breakage	● Refill fire water tank with tap water ● Control plug and cable

F: STOKER TEMP 1 *Fault 115*	Stoker-temperature has transgressed the allowed temperature in operation Storage room was driven empty	Switch of equipment • Load storage room • Prefill tundish
F: STOKER TEMP 2 *Fault 116*	Stoker-temperature has transgressed the allowed temperature out of operation. Boiler start triggered • BSU can't be closed completely • Equipment shows leaky digits • Boiler start at the cascade control	Switch of equipment • Control bearing • Control BFP • Contact HERZ movement Service . • No blockade over cascade
F: STOKER TEMP 3 *Fault 117*	Stoker-temperature has transgressed the allowed temperature and magnet valve can't delete. • Pocket of embers could not be scratched in given time .	Switch of equipment • Contact HERZ movement Service
F: BFP OPEN *Fault 120*	Fault by opening of BFP flap. • BFP flap could not be completely opened in given time • Material, objects will be find under the flap • Servomotor defect	• Remove maintenance cap and remove unwanted object under the flap • Exchange servomotor
F: BFP CLOSE *Fault 121*	Fault by closing of BFP flap The BFP flap could not be opened completely inner the given time • Material, object anticipate the automatic closing of flap • Return spring of servomotors defect • Flap has relaxed respectively don't close tight	• Remove maintenance cap and remove unwanted object under the flap • Exchange servomotor • Tempering flap respectively by maintenance of year will be carried out through fitter.
F: BFP CONTACTS *Fault 122*	Fault by contacts, both delivers "1" • Connecting cable from servermotor defect.	• Renew connecting cable from servermotor.
F:IGNITION *Fault 130*	Fault 3x not ignited Equipment could not be ignite in given time	• Used fuel is to wet respectively is not responded of required fuel quality. • Correct parameter for ignition.
F:NO FIRE *Fault 140*	Flame survey announce no fire • Burning room temperature, flue gas temperature respectively . rest oxygen content sank under defined limits	• Used fuel is to wet respectively is not responded of required fuel quality. • Fuel values are wrong adjusted.

F:FLUEGASTIMEOUT *Fault 141*	Flue-gas-temperature limiter announce flue gas time expired. Flue-gas-temperature sank under fluegasmin	• Used fuel is to wet respectively is not responded of required fuel quality. • Fuel values are wrong adjusted.
F:UNDERPRESSURE *Fault 150*	Under pressure control announce timeout Under pressure min was longer as 30 Sec fall short of. • Burning room door was permitted open • Burning room door strip defect • ID-Fan ventilator defect • Under pressure load cell defect.	• Close Burning room door • Renew Burning room door strip • Renew ID-Fan ventilator • Renew under pressure load cell
F:FC ID-FAN *Fault 151*	ID-Fan FC announce fault • FC was operated out of defined area • FC defect	• Restart equipment • Renew FC
F:WALKING FLOOR 1 *Fault 155*	Limit switch is always in same position	• Check grate drive and the limit switch
F: WALKING FLOOR 2 *Fault 156*	Walking floor cannot close	• Adjust limit switch
F: WALKING FLOOR 3 *Fault 157*	Walking floor was open during the buring process .	• Check the grate drive and the limit switch
F: MP GRAT WARN. *Fault 158*	Motor protection switch push grate • A foreign body blocks push grate • Too raw, bully fuel • Motor defect	Warning! System remains in operation! Quit Motor protect • Eliminate foreign body • Use other fuel • Exchange Motor
F: MP GRAT ERROR *Fault 159*	Motor protection switch Walking floor • A foreign body blocks push grate • Too raw, bully fuel • Motor defect	Error! Turn off installation! Quit Motor protect • Eliminate foreign body • Use other fuel • Exchange Motor
F:TC *Fault 160*	Temperature control has responded storage room. • Sensor in storage room is risen over allowed area.	• Cut off equipment • Control storage room • If necessary call fire dept.
F: GRIDTEMP.CONTR *Fault 161*	Temperature control grid has responded • Sensor at grid is risen over allowed area.	• Cut off equipment • Control grid • If necessary call fire dept.
F:STL UNCOUPL *Fault 165*	Supply voltage incorrect • Security temperature limiter (STL) activated	• Cool down equipment and quit STL
F: AS UNCOUPL	Limit switch notifies, that Ash tank is	• Couple tank

Fault 170	uncoupled	• Check limit switch
F: FAS UNCOUPL *Fault 172*	Limit switch notifies, that Ash tank is uncoupled	• Couple tank • Check limit switch
F:BYPASS FLAP *Fault 180*	Bypass flap timeout fault Servermotor could not close in given time	• Control servermotor and renew if necessary
F: BARRIER LEVEL *Fault 181*	Probe in the insertion screw canal signals, that no material is available. • Too less material in the insertion • Error not on the display ➔ saved only in the error list	• Check fuel insertion and the adjustments.
F: ADDIT.INPUT *Fault 182*	Failure additional input: for example too high CO-value in boiler room, system pressure • too high CO-value in boiler room • low pressure in heat system • high-water in boiler room	• Air the boiler room and leave immediately • Check the heat system for leakages and if necessary refill water
F:CO-BOILERROOM *Fault 190*	too high CO-value in boiler room	• Air the boiler room and leave immediately
F:OPERAT.PRESS *Fault 191*	low pressure in heat system	• Check the heat system for leakages and if necessary refill water
F:HIGH WATER *Fault 192*	high-water in boiler room	• Check the heat system for leakages • Find the causion for the water intrusion • Inform the installer of the heating system
F:BOILERROOMTEM *Fault 193*	too high boiler room temperature	• Call service Co. HERZ
F:BELOW O2MIN *Fault 194*	Too much material in the combustion chamber (too less air) • Reduce insertion (increase air) • Motor defect	• Adjust fuel values • Exchange insertion screw drive
F:LAMBDA FUEL *Fault 195*	Material fault by lambda regulation • O2 Ideal could not be reached inner 45 minutes.	• Adjust higher O2 Ideal • Used fuel is to wet respectively is not responded of required fuel quality. • Fuel values are wrong adjusted.
F: LAMBDAPROBE *Fault 196*	Lambdaprobe is defect or delimited	• Renew lambdaprobe resp. control clamping.
F:CAN FAULT *Fault 198*	Error during transmission by CAN Bus	
F:LAMBDACALIB *Fault 200*	Fault by lambda calibration • Lambda value out of defined area.	• Carry out again calibration resp. renew lambdaprobe
CALIBRATION OK	Lambda calibration successful	• Only advice
F:BOILERTEMP	Probe breakage boiler temperature	• Renew boiler probe

Fault 300		
F: HOT WATER TEMP *Fault 301*	Probe breakage hot water temperature	• Renew hot water temperature probe
F:BUFFER_UPPER *Fault 302*	Probe breakage buffer temperature up	• Renew buffer temperature up probe
F:BUFFER_UNDER *Fault 303*	Probe breakage buffer temperature down	• Renew buffer temperature down probe
F:RETURN TEMP *Fault 304*	Probe breakage backflow temperature	• Renew backflow temperature probe
F:STOKERTEMP *Fault 305*	Probe breakage Stoker screw	• Renew Stoker screw probe.
F: EXTERNAL TEMP *Fault 306*	Probe breakage extern temperature	• Renew extern temperature probe.
F:HC1 BACKFLOW *Fault 307*	Probe breakage backflow temperature heatcircuit 1	• Renew backflow temperature heatcircuit 1 probe
F:HC2 BACKFLOW *Fault 308*	Probe breakage backflow temperature heatcircuit 2	• Renew backflow temperature heatcircuit 2 probe
F:HC1 FLOW *Fault 309*	Probe breakage flow temperature heatcircuit 1	• Renew flow temperature heatcircuit 1 probe
F:HC2 FLOW *Fault 310*	Probe breakage flow temperature heatcircuit 2	• Renew flow temperature heatcircuit 2 probe
F: AMBIENCE TEMP *Fault 312*	Probe breakage outside temperature	• Renew outside temperature probe
F:FIRE TEMP *Fault 315*	Probe breakage fire temperature	• Renew fire temperature probe
F:HC1 FBR *Fault 316*	Probe breakage room actual temperature heatcircuit 1 • Far actuator defect • Cable from far actuator defect or pinched off	• Renew belonging far actuator • Renew Cable from far actuator or pinch on
F:HC2 FBR *Fault 317*	Probe breakage room actual temperature heatcircuit 2 • Like fault 316	• Like fault 316
F:FLUEGASTEMP *Fault 318*	Probe breakage flue gas temperature PT1000	• Renew flue gas temperature probe
F:UNDERPRESSCELL *Fault 320*	Probe breakage underpressure cell • Cable resp. underpressure cell defect.	• Renew cable resp. underpressure cell
F: ANALOG VALUE *Fault 321*	Cable break at analogue value default	• Renew cable
F: LAMBDA PROBE *Fault 322*	Breakage CO-sonde or cable	• Renew CO-sonde or cable
F: BACKFLOW PARA *Fault 324*	Return flow target temperature could not be reached during operation	• Check return flow bypass
F:HC3 FBR *Fault 330*	Probe breakage room actual temperature heatcircuit 3 • Like fault 316	• Like fault 316
F:HC3 RCORR *Fault 331*	Probe breakage Roomcorection temperature heatcircuit3	• Renew room correction temperature probe HC 3
F:HC3 FLOW	Probe breakage flow temperature heatcircuit3	• Renew flow temperature probe

Fault 332		HC 3
F:HC3 BACKFLOW *Fault 333*	Probe breakage backflow temperature heatcircuit 3	• Renew backflow temperature probe HC 3
F:HC4 FBR *Fault 334*	Probe breakage room actual temperature heatcircuit 4 • Like fault 316	• Like fault 316
F:HC4 RCORR *Fault 335*	Probe breakage Roomcorection temperature heatcircuit3	• Renew room correction temperature probe HC 4
F:HC4 FLOW *Fault 336*	Probe breakage flow temperature heatcircuit 4	• Renew flow temperature probe HC 4
F:HC4 BACKFLOW *Fault 337*	Probe breakage backflow temperature heatcircuit 4	• Renew backflow temperature probe HC 4
F:HC5 FBR *Fault 338*	Probe breakage room actual temperature heatcircuit 5 • Like fault 316	• Like fault 316
F:HC5 RCORR *Fault 339*	Probe breakage flow temperature heatcircuit 5	• Renew flow temperature probe HC 5
F:HC5 FLOW *Fault 340*	Probe breakage flow temperature heatcircuit 5	• Renew flow temperature probe HC 5
F:HC5 BACKFLOW *Fault 341*	Probe breakage backflow temperature heatcircuit 5	• Renew backflow temperature probe HC 5
F:HC6 FBR *Fault 342*	Probe breakage room actual temperature heatcircuit 6 • Like fault 316	• Like fault 316
F:HC6 RCORR *Fault 343*	Probe breakage flow temperature heatcircuit 6	• Renew flow temperature probe HC 6
F:HC6 FLOW *Fault 344*	Probe breakage flow temperature heatcircuit 6	• Renew flow temperature probe HC 6
F:HC6 BACKFLOW *Fault 345*	Probe breakage backflow temperature heatcircuit 6	• Renew backflow temperature probe HC 6
F:SOLARTEMP 1 *Fault 346*	Probe breakage analogue access 1 Solar	• Renew probe Solar 1
F:SOLARTEMP 2 *Fault 347*	Probe breakage analogue access 2 Solar	• Renew probe Solar 2
F:SOLARTEMP 3 *Fault 348*	Probe breakage analogue access 3 Solar	• Renew probe Solar 3
F:SOLARTEMP 4 *Fault 349*	Probe breakage analogue access 4 Solar	• Renew probe Solar 4
F:SOLARTEMP 5 *Fault 350*	Probe breakage analogue access 5 Solar	• Renew probe Solar 5
F:OVERTEMP *Fault 400*	Over temperature Boiler temperature over 92 °C • Fuel values with too high adjusted capacity • Ruler hysteresis too high • Boiler Max too high adjusted • backflow pump resp. backflow mixer defect	• correct fuel values • Abate ruler hysteresis • Boiler Max too high adjusted • Renew backflow pump resp. backflow mixer
F:ANTIFREEZE *Fault 402*	Anti freeze operation	• Only advice

RBBLOCKPROT *Fault 404*	Blocking protection operation runback	• Only advice
HCBLOCKPROT *Fault 406*	Blocking protection operation heatcircuit	• Only advice
BOBLOCKPROT *Fault 408*	Blocking protection operation boiler	• Only advice
ANTILEGIONNAIRES *Fault 410*	Legionnaires protection	• Only advice
F:OVERBOILERMAX *Fault 412*	Over temperature Boiler temperature over boiler max • Fuel values with too high adjusted capacity • Ruler hysteresis too high • Boiler Max too high adjusted • backflow pump resp. backflow mixer defect	• correct fuel values • Abate ruler hysteresis • Boiler Max too high adjusted • Renew backflow pump resp. backflow mixer
CHIMNEYCLEANMODE *Fault 414*	Chimney clean mode is active	• Only advice
SOLARANTIFREEZE *Fault 416*	Antifreeze for Solar	• Only advice
SOLARBFPROT *Fault 418*	Solar back cool function active	• Only advice
SOLAROVERTEMP *Fault 420*	Solar overheating protection active	• Only advice
SOBLOCKIERPROT. *Fault 422*	Solar equipment blocking protection is carried out	• Only advice
F:AUTOREBOOT *Fault 500-571*	New start because of runtime, exception,..	• Call service Co. HERZ

Annoyance without advice on display (START UP)

Boiler capacity falls gradually	• Ash in the retort • Flue ash room full • After circuit heating face strong clogged and sooted	• Abbreviate shaker interval resp. clean by hand. • Clear Flue ash room. • Clean After circuit heating face
Wished operation temperature was not reached.	• Too low grade resp. too wet fuel. • Detached boiler capacity higher as existing boiler capacity • Under niveau	• Exchange fuel if necessary • Built in bigger boiler • Exalt fuel niveau
Aschenaustritt am Kamin	• Flue ash room full • Fuel with too much fine resp. micro-milled rates • Too high Ventilator rotation numbers • Too high chimney draft	• Remove flue ash • Exchange fuel if necessary or refit dust removal. • Reduce rotation numbers • Refit chimney draft

MAINTENANCE PLAN (CUSTOMER INSPECTION)

(Some points will be also mandatory according to TRVB H 118!)

All over security reasons you must carry out the maintenance works only with switched off main switch. When you must climb into the tundish or in the bunker, do that only under survey of a second person.
A possible carbon monoxide accumulation put at risk your life.

Interval	Field of activity	Agitation
Weekly	a.) Firewater tank b.) Whole equipment	a.) The firewater tank must be full filled with water. b.) The whole fire-equipment include the fuel storing must come under scrutiny sight control
All 1 – 4 weeks	a.) Ash	a.) Flue ash, fire room and ash tank are to clean resp.to empty (if necessary). b.) The Heat Exchange-Cleaning (Shake lever) is to check several times
All 4 weeks	a) BFP – Image (Look 88) b) extinguisting installation, including water supply c) Fluegas ways, after circuit heating face d) Handler e) Annoyance advice f) Burning air blower, ID-Fan ventilators g) Fire room h) Primary air canals - Illustration i) Extinguisher j) Ash storage k) Heat room l) Roof m) Fire prevention terminations	a.) Proof all over functional efficiency (close after switch off of equipment or of cavity holding) and impermeability. Therefore must removed the maintenance cap. Remove dust and impurities. b.) Test thermic downspout security, backburn repressiv arrangement (BRA) on insertion screw pipe, manually extinguisting installation (MEI) (if available), of water admission by activity. c.) The Fluegas ways, after circuit heating face, Smoke pipe, Chimney connection) have to be cleaned d.) Control switch on and off. Control of function e.) Control: Annoyance must be also adviced. f.) Control: Ventilators have to go round accordingly in operation g.) Control of fire room and if necessary clean it h.) Clean with available round brush. i.) Control: operational readiness have to be given j.) Control:: Accordingly storage k.) No flammables storages have to be available l.) It may not be available flammable deposit on roof m.) Must be in accordingly state (f. E..: Fire prevention doors closes itself)

All years	a.) Oil level of gear ID-Fan ventilator – Illustration	a.) Control and if necessary complete b.) Dismantle and clean
All 3-5 years	a.) Fire equipment b.) Gear oil	a.) Review according to current TRVB H118 b.) Exchange gear oil

Additional maintenance works look equipment master data list for product types / control book.

Function and maintenance of multi cyclone

The flue gas acquires from the boiler over the flue gas pipeline in the raw gas chamber of flue gas dust removal. Due to the high stream resistance was the flue gas constant on the specific turn corps = cyclones distributed an by streaming through in these displaced in a fast turn movement. Through the now in the in the flue gas contained solids active centrifugal forces will be these pressed on the wall of the mandril, on which they slide down in a batten or dust bin. This so cleaned flue gas streams now over dip pipes in the pure gas chamber.

The flue gas ventilator, which is used for overcoming of stream resistance of flue gas dust removal, which will be driven from a maintenance free rotary current – squirrel-cage motor with tough special journals, high temperature consistant winding isolation, warmth deflector cycle on the convolutions side and radial blow fan on the motor end for effective cooling, and claims the flue gas through the chimney in the atmosphere.

Maintenance:

The dust extraction:
These succeed depending on remote ash amount and is therefore timely non cyclic. But you can calculate with a time interval about two days

Before opening the ash tank – door or dust bin – connection must be absolute switched off the flue gas ventilator, to anticipate a unmeant absorption in the flue gas dust removal.

After finishing of emptying you have to close again the door or dust-bin connection hermetic, because a little leakyness can damage extensive the coefficient of flue gas dust removal.
If a dust bin connection has available a lock gate valve in the locking, must be closed before dismantling of barrel claims locked the gate valve . The thick faces have to free of any deposits or incrustations.

The motors:

These obtained from movement a fireproof constancy greasing, but it must be checked after 1000 operating hours the grease ability of hot journal grease in the convolutions- and motor journals.
Should be established oscillations on ventilator, so let it lead back to a unbalance of ventilator run cycle In this case is to be made immediate the demounting of this one and the fins of blower cycle have to be cleaned via a wire brush. This cleaning should be carried out in all case precise, because a insufficient cleaning can effected still a bigger unbalance and so the motor journals experience a stronger inroad

Illustration BFP – Handler

Proof BFP of leakyness

- The BFP-flap is to proof of leakyness, by controlling on Belimo motor with closed BFP-flap the condition advice like following illustration. Is obvious an deviation you must to assume therefrom that the leakyness is not given - contact at once our service office.

On this white marking should be situated the adjustment.
Should this be not the case -> Contact service office.

Maintenance free:

- Angular gear RI 110/130 – Spring agitator
- Spur gear ABM – Holding screw
- Spur gear ABM – Insertion screw
- Flange- resp. Clamping journal FAG (cast iron) – Insertion screw
- Flange- resp. Clamping journal SKF UCF210 – Insertion screw
- Gear motor Lenze - autom. Ash holding resp. Flue ash holding

All headed gears, gear motors and journals are life-time greased . But it is advisable before beginning of heating time to control all components of lubricant emissions. This can be absolutely in case of a convolution gasket breakage.

EC Declaration of conformity

CE

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

Declaration of machine/ product: **HERZ BioFire BioControl**

Type: **HERZ BioFire BioControl 500**
HERZ BioFire BioControl 600
HERZ BioFire BioControl 800
HERZ BioFire BioControl 1000
HERZ BioFire BioControl 1250
HERZ BioFire BioControl 1500

Machine type: **Biomass furnace inclusive discharge system**

The description of the specification and the intended use are to be taken from the order confirmation and the instructions of the machine documentation – other agreements are not being used.

In accordance with regulations the installation and commissioning of the biomass furnace inclusive discharge system must be carried out by specialist personnel authorised by HERZ. If the installation or commissioning, a connection to other machines or changes of the technical specification were not carried out in accordance with regulations, this declaration loses its validity.

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 – directive	**Standard**	
2014/35/EU Low tension units decree	EN 60335-1:2012 EN 60335-2-102:2006	
2014/30/EU Electromagnetic compatibility	EN 55014-1:2006 EN 61000-3-2:2014 EN 61000-3-3:2013	EN 61000-6-2:2005 EN 61000-6-3:2007
2006/42/EG Machine Guideline	ISO 12100:2010 EN ISO 13849-1:2015	
97/23/EG Pressure equipment	EN 303-5:2012 EN ISO 3834-3:2005	
Standard applied additionally	prTRVB 118 H	

Person authorized to compile technical documentation:

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

Pinkafeld, April 2016

DI Dr. Morteza Fesharaki - Managing director

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NOTES: