Operation manual
Wood chip boiler
Eco-HK 70-120

HARGASSNER
HEIZTECHNIK DER ZUKUNFT

Follow and store this manual

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Dear customer!

Thank you for choosing an innovative wood biomass boiler from our company. This boiler from Hargassner Ges mbH is a state-of-the-art product and manufactured to the latest production standards. We are very pleased about your decision and guarantee that you've chosen a reliable quality product.

However, as important as the products' high performance is, a professional installation, commissioning and service is just as crucial. Supportive are attached hydraulic schematics, and connections- and installation drawings. To ensure a long service life, exactly read and follow this operation manual. High costs for reparation and long downtimes may be prevented.

Keep this manual within easy reach.

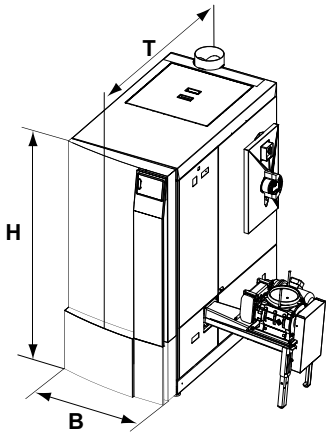
This operating manual is intended to help:
- you familiarise yourself with the boiler
- you use it for its intended purpose

This manual contains important information on operating the boiler
- Safely
- Properly
- In an environmentally friendly manner
- Economically

Guidelines within this manual will:
- Prevent hazards
- Reduce breakdowns and wear
- Increase the reliability and lifetime of the boiler

Chapter I: Technical Data

1 Dimensions



Dimensions in (...) valid for Eco-HK 100 - 120

Designation	Description	Value	Unit
B	Total width	745	mm
T	Total depth	1560	mm
H	Total height	1610	mm
	Total weight	865 (890)	kg

2 Intended use

The automatic wood biomass boiler is only intended for heating water. Only fuels permitted by Hargassner Ges mbH may be burned in this system. Only use the boiler in technically perfect working order. Rectify errors immediately.
The appropriate operation also covers observation of all items of this operation manual and the carrying out of inspection- and maintenance works.

3 Seasonal space heating emissions

Carbon monoxide	< 500 mg/m³
Nitrogen oxide	< 200 mg/m³
Gaseous organic compounds	< 20 mg/m³
Dust	< 40 mg/m³

Seasonal space heating emissions at 10% residual oxygen in dry flue gas

4 Fuel quality

Only use fuels that comply with **EN ISO 17225**.

W A R N I N G

- ☞ Only use released and permitted fuels
- ☞ Always consult Hargassner before using new fuels and have their compatibility checked by Hargassner

4.1 Wood chips (A1-B1)

For proper extraction of the fuel storage room and to ensure perfect combustion, use **A1-B1** class wood chips according to **EN ISO 17225- 4:2014** only.

- Max. water content M35
- Particle sizes P16S - P31S

4.2 Pellets (A1)

Ensure quality standards, when wood pellets are ordered and delivered.
Quality criteria:

- Max. water content M10
- Least possible dust content
- Hard, shiny surface
- 100% natural wood, no additives, etc.
- Pellets class **A1** defined in **EN ISO 17225-2:2014** and **EN ISO 20023**

Calorific value	Density	Diameter	Length	Fine material rate
> 4.6 kWh/kg	600-750 kg/m³	6 ± 1 mm	3.15-40 mm	< 1 %

4.3 Inadmissible fuels

- Fuel with water content >35%
  ☞ The formation of condensate causes more corrosion in the system
- Paper, cardboard
- Chip boards, impregnated timber
- Black coal, brown coal or lignite
- Waste
- Plastics

5 Boiler room design

Boiler rooms must designed in accordance with local regulations.
⇨ See "Execution of boiler room" installation manual

- Keep the boiler air inlets clear
- Never store flammable materials in the boiler room
- Design the boiler room to be frost-proof
- Ensure fireproof, level and solid floor and ceiling construction
- In accordance with regulations, have the main heating switch installed by an electrician (depending on building regulations)
- Fire extinguisher

6 Design of the fuel storage room

Fuel storage rooms must be designed in compliance with local regulations.

- No electrical installation or devices inside the storage room
- All lines to be installed concealed
- Watch for sound insulation at the wall opening for the extraction auger (transmission of structure-borne sound)
- Protection against moisture, water and dust

D A N G E R

Burns due to the explosive combustion of dust (fine wood shavings)

- No motors in fuel storage room, unless it is an agricultural building
- No other ignition sources (light) in the storage room
- No electrical equipment (switches) in the storage room
- No welding work in dusty environments

7 Design of heat circuits

Proper design of the heat circuits is essential for optimum boiler operation.

⇨ See enclosed hydraulic schemes

Accumulators, pumps and mixers for heat circuits must be designed according to current standards by the commissioning engineer

8 Back-end protection unit

If the temperature of the heating water return into the system is below the value preset in the parameters, hot water flow from the boiler is mixed to the return. Use of a back-end protection unit is mandatory when operating the boiler.

⇨ See "Back-end protection" installation manual

9 Flue pipe - chimney connections

Description	Unit	Eco-HK 70	Eco-HK 90	Eco-HK 100	Eco-HK 110	Eco-HK 120
Nominal heating output	kW	70	90	99	110	120
Flue gas temperature	°C	140	150	140	150	160
CO2	%	14				
Flue gas mass flow rate	kg/sec	0.0402	0.0519	0.0571	0.0636	0.0696
Req. delivery pressure	Pa	2				
Max. flue draught	Pa	10				
Diameter of flue pipe connection	mm	180				

10 Electrical connection

⇨ See enclosed electrical manual

Dimensions in (...) valid for Eco-HK 100 - 120

Electrical energy	Characteristics	Unit
Voltage	400	V ± 5 %
Frequency	50	Hz ± 5 %
Back-up fuse	13	A
Power consumption[a]	222 (232)	W

a. Calculated in accordance with the EN 303-5 testing requirements without the pumps and fuel extraction system

- The electrical connection has to be executed according to the enclosed electrical manual through a licensed and authorised electrician
- Attach a lockable main power switch outside of the boiler room (acc. to building regulations)
- Max. back-up fuse **13 A** (C type)
- It is absolutely imperative that the intrinsically safe cables are **permanently installed**
  - Use suitable mechanical fixing material
- Establish mains supply **L** and **N** (see electrical manual)
- Connect equipotential bonding conductor
- Use highly flexible cables (e.g. **H05VV-F**)

Chapter II: Safety regulations

1 General safety regulations

1.1 Obligation to instruct, external visitors and children

D A N G E R

Risk of death, injuries, damage from improper operation

- Observe safety instructions attached to the system and in the manual
- Read the operation manual before commissioning the boiler
  ☞ There is a storage compartment in the cladding door

Incorrect actions by unauthorised individuals

- Only let qualified and experienced staff work on the system/boiler
- Decide who is responsible for managing the system/boiler
- Keep external, unauthorised and untrained people away from the system/boiler and the fuel storage room
- Do not disclose control entry codes
- Observe legal minimum age of staff
- Place prohibition sign on boiler room door and fuel storage door

Work on the boiler's electrical parts must only be carried out by an electrician and in accordance with the electrical engineering regulations.

Work on hydraulic systems must be carried out only by personnel with specialised knowledge and experience in hydraulics.

1.2 Special measures prior to commissioning by the operator

- Observe your local official regulations for system operation and accident prevention
- Carry out the required checks prior to commissioning
  ⇨ See "Prior to commissioning" on page 14.
- Carry out the required checks before switching the system/boiler on
  ⇨ See "Inspections before starting up the boiler" on page 15.

1.3 Key issuing

D A N G E R

Unauthorised commissioning

The boiler may only be commissioned by staff authorised by Hargassner

- Prevent unauthorised commissioning
  ☞ Lock the main power switch and keep keys safe

2 Remaining risks

The following residual risks must be particularly taken into account when the system is operated properly and in accordance with its intended purpose:

D A N G E R

Burns due to hot surfaces and boiler components

- Switch off the system and let it cool down before carrying out any maintenance or servicing work
- Do not reach into the system/boiler during operation
- Wear heat resistant safety gloves
  - ☞ The ash in the ash container stores heat
- Put ash in closed, non-flammable vessels only
  - ☞ Do not empty hot ash into dustbin

Scalds due to sprinkling, hot water

- Check all hoses, lines and connections periodically for leakages, wear and tear or any other damage
  - ☞ Rectify damage immediately
- Depressurise the boiler before performing maintenance work on the water circulation system
- Check that all valves are in the correct position

D A N G E R

Burns due to the explosive combustion of dust (fine wood shavings)

- No motors in the storage room (acc. to country-specific regulations)
  - ☞ Except agricultural buildings
- No other ignition sources (light) in the storage room
- No electrical equipment (switches) in the storage room
- No welding works in dusty environment

D A N G E R

Burns from explosive combustion of residual gases (CO) in the combustion chamber

- Open combustion chamber door carefully
  - ☞ At first, open door only slightly
  - ☞ Hold back body and face from the combustion chamber door
- Do not open the combustion chamber door during or immediately after a power blackout
  - ☞ The risk of deflagration increases significantly after uncontrolled boiler conditions (e.g. power loss)
- Do not open combustion chamber door during heating operation



D A N G E R

Risk of injury due to moving parts

- Refrain from accessing augers or motors when the boiler is switched on
- Do not work on the boiler while people are in the danger zone
  ☞ Secure / lock storage room
- Only clean the augers and remove blockages using suitable tools and when the main power switch is turned off and locked
- The spring blades of the fuel extraction system are retracted under the cover disc and are under tension when the fuel storage room is completely full
  ☞ These springs may shoot up suddenly
- Watch out for the spring blade position when entering the fuel storage room
- Only eliminate cavity formations using rods and shovels
- Wear safety shoes
- Observe storage room sticker

D A N G E R

Electric shock from contact with live terminals

- Observe information signs
- Before starting work, check that no voltage is present using a voltmeter

D A N G E R

Poisoning and danger of suffocation from flue gases in the boiler room / building

- Check boiler doors and seals for leaks
- Burning creosote-treated wood (paint, varnish, impregnation) results in toxic ash
  ☞ Avoid skin and eye contact

W A R N I N G

Risk of injury due to unexpected operating conditions

- Limit switches or motors are not monitored in manual operation
  ☞ Reverse operation of augers permissible for max. 2 [sec.]
- Allow trained staff only to manually operate the system

3 Measures in case of danger

3.1 Fire in the boiler room

❒ Switch off the main heating switch before fighting any fires
↳ Disconnect the main power supply
❒ Switch off main power switch and disconnect power supply to boiler room

3.2 After a power outage

Do not open the boiler's doors or reach into it during a power failure.
☞ Danger of deflagration
☞ Danger of crushing by the augers
After the electrical supply is switched on again, the control starts in **Heat up** mode and monitors the flue gas temperature.
↳ As the flue gas temperature increases, the system will heat up and regulate the transfer of heat according to the preset parameters

3.3 Leak in the water circulation system (no water)

When the water pressure is too low, not enough heat is transferred from the boiler to the heat circuits, the HWT and the accumulator.
↳ Danger of boiler overheating
❒ Stop heating up the boiler
❒ Fix leak
❒ Fill / refill water circulation system
❒ Check water pressure

3.4 Leak in the system (smoke escaping)

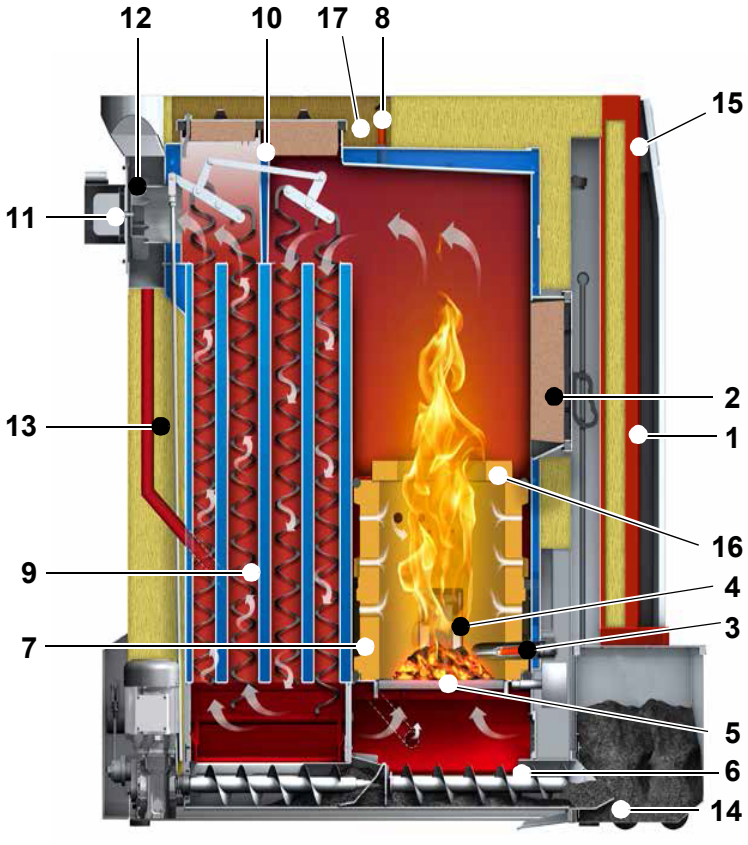
❒ Stop heating up the boiler
❒ Check the seals of the doors and cleaning covers, and have them replaced

3.5 Auger blockages

Do not touch the blocked augers.
☞ Danger of crushing from sudden release of blockage
❒ Briefly run the blocked auger backwards in manual mode (max. 2 seconds)
↳ Danger of fuel being compressed in the auger
❒ Only clean the augers and remove blockages using suitable tools and when the main power switch is turned off and locked

Chapter III: Operation

1 Overview of boiler components



Item	Description
1	Boiler cover door
2	Combustion chamber door
3	Ignition
4	Firebed monitoring
5	Double rotary step grate
6	Ash auger
7	Refractory
8	Lambda sensor
9	Turbulators
10	Cleaning lid
11	Exhaust fan
12	Flue gas sensor
13	Recirculation
14	Ash box (suction system optional)
15	Control unit
16	Flame concentration jet
17	Combustion chamber sensor

The system consists of the combustion chamber and the heat exchanger and controls the combustion air with air flaps and the exhaust fan.
The lambda sensor consistently monitors the flue gases.
The turbulators clean the heat exchanger using a rod. The boiler cleans itself at regular intervals using the de-ash system. The ash extraction auger transports the fly ash, as well as the grate ash into the ash box. Optionally a suction system into a 300 litre ash bin is available for the ash.
Ignition is via the automatic energy-saving ignition (300 W).

1.1 Function

- Fuel transport from the storage room
- Transport of the fuel into the combustion chamber
- Ignition and combustion of the fuel
- Control of heat transfer to the heating-water system
- Cleaning of the boiler and the ash extraction into the box
- Evacuation of the flue gases

1.1.1 Operating modes

- Automatic mode
- HWS operation
- Manual operation
- Off (frost protection and residual heat use activated)
- Firing off

2 Prior to commissioning

D A N G E R

Death, personal injury or damage due to missing, defective or bypassed safety devices or boiler parts

- Check safety devices and boiler parts carefully to ensure they are working properly and as intended
- Never modify or bypass safety devices
- Perform repair measures immediately in case of a malfunction or defect
- Place, position and function of all safety devices must be known

D A N G E R

Dangers due to unexpected operating conditions

Commissioning by untrained or unauthorised personnel

- Make sure that commissioning/start-up ist performed by **Hargassner GmbH** or **specially trained staff**

W A R N I N G

Risk of crushing from moving parts in the vicinity of the fuel extraction system, ash extraction system and grates

- Make sure that no persons are in the boiler's danger zone
- Do not reach into any reachable mechanical parts
- Do not stand on the boiler
- Do not leave any foreign parts (tools, etc.) in the boiler

2.1 Checks prior to commissioning

- Safety on-site and plumbing and electrical installations
- Correct assembly of the boiler/system
- Check all necessary components
  - Check tightness, proper function, rotation of all motors, etc.
  - Check correct position of combustion chamber lining

2.2 Commissioning

Once the boiler has been installed properly and all the required safety devices have been checked, the boiler can be commissioned in accordance with the commissioning checklist in the inspection book.

A T T E N T I O N

The boiler must be commissioned by an engineer with a Hargassner commissioning certificate. The completed commissioning checklist must be sent back to Hargassner Ges mbH with the commission number within 30 days of commissioning, **otherwise the warranty becomes void**. A copy remains in the commissioning book on-site.

2.3 Customer instructions

- Explain cleaning and maintenance intervals
- Explain inspections prior to any fuel refill
- Explain how to operate the system and troubleshoot

2.4 Starting the boiler for the first time

The boiler can be started for the first time once commissioned.

❒ Switch the system to manual mode

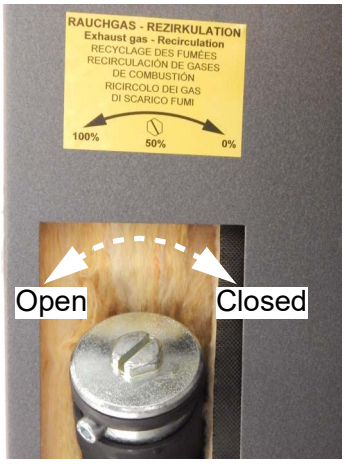
☞ Use parameter no. 10 to fill the empty combustion chamber in manual mode

↳ Prevents an error due to missing fuel

❒ Switch the system to **Auto** or **HWT**

↳ Boiler starts automatically when hot water is needed

2.5 Recirculation setting



☞ The default recirculation setting is **50%**

❒ When using clinker-producing fuels such as miscanthus, set the recirculation to **100%**

❒ For pellets, set the recirculation to **100%**

❒ If clinker occurs, the setting is continuously adjustable

☞ Set in small steps so that a thermal state of inertia of the changed temperature can be reached

2.6 Inspections before starting up the boiler

❒ Check water pressure in boiler, heat, HWT and accumulator circuits

❒ Pay attention to the display for notifications (error messages and operating status)

❒ Rectify any errors

❒ Check and lock the fuel storage room

2.7 Filling the fuel storage room

A T T E N T I O N

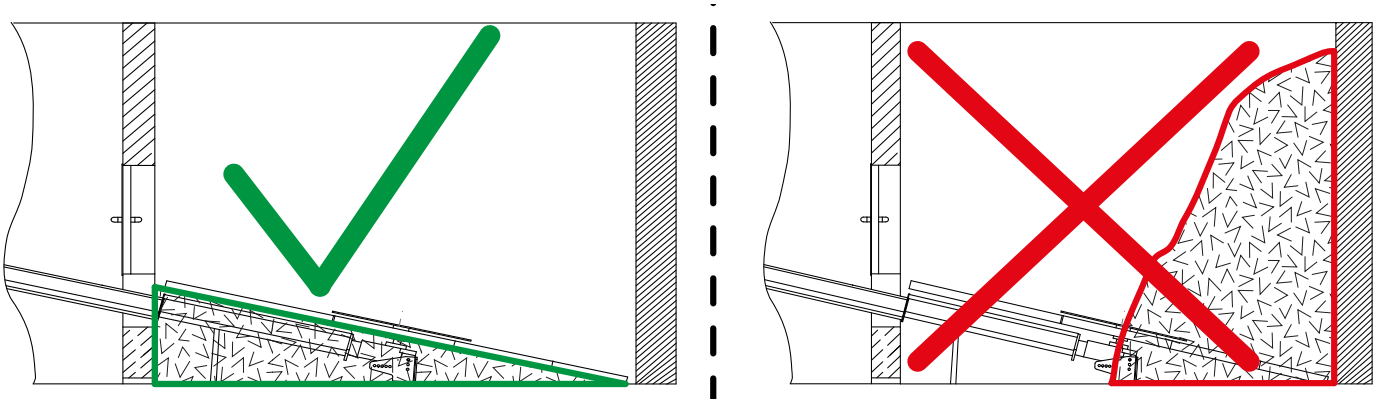
Always switch on the boiler fuel extraction system before and while filling the storage room with fuel

☞ So that the spring arms can move during the filling under the cover disc

Protect fuel against moisture

When filling the fuel storage room for the first time, only use a small amount of fuel to start with and spread it out (so it reaches under the spring blades).

☞ Make sure the fuel piles up at an angle (see the note on the cover disc)



3 Control unit

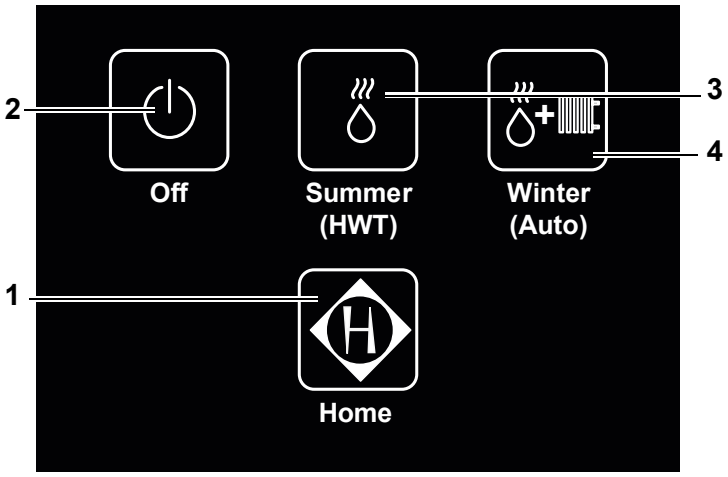
D A N G E R

Incorrect operation of the control unit

Risk of injury and damage to the boiler due to unexpected operating states

- Only allow trained staff to operate the control unit
- Access to all functions of the control unit is protected by codes
  - ☞ Service settings and commissioning settings
  - ☞ Codes may not be disclosed to third parties

3.1 Home view



Item	Description	Function
1	Standard menu	Switching from **Home** to the **Standard menu** ⇨ See "Standard menu view" on page 19.
2	Operating mode **Off**	Quick select button for operating mode **Off** ⇨ See "Operating modes" on page 20.
3	Operating mode **Summer**	Quick select button for operating mode **Summer** (HWT mode)
4	Operating mode **Winter**	Quick select button for operating mode **Winter** (Automatic)

☞ After the time set in the **No. 02 Display settings** setup parameter has elapsed, the control unit automatically switches to the Home view

3.2 Touchscreen

The control unit is designed as a touchscreen.

☞ It is operated using finger pressure on the display.

❒ Scroll through the menu with 

❒ To return to the previous menu, press  **Standard**

❒ To return to the Standard menu, press  **Standard** (you may have to press 2x)

☞ Possible from every menu

❒ Activate the operating mode by pressing the 

Function selection button

❒ Activate the input field by pressing it

↳ Values are displayed in **red**

❒ Change the active values: 

↳ Values flash **red**

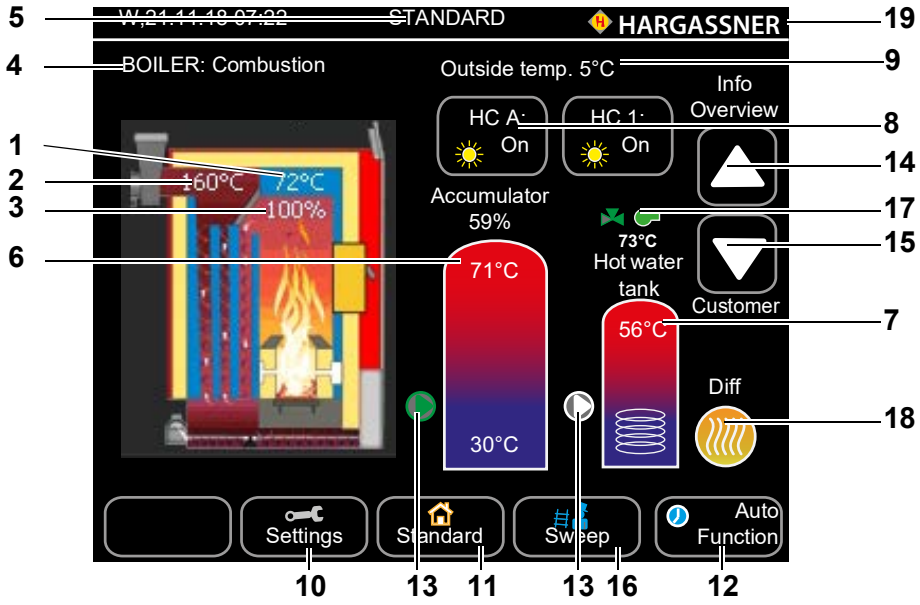
↳ Buttons flash **green**

❒ To enter or save any changes, press 

❒ You can jump straight to the customer settings by pressing on the respective graphic in the Standard menu

☞ Possible for: boiler, accumulator, HWT, external heat boiler and heat circuits

3.3 Standard menu view



Item	Description	Function
1	Boiler temperature	Displays the current boiler temperature
2	Boiler flue gas temperature	Display of the current flue gas temperature
3	Boiler output	Display of the current boiler temperature
4	Status display of the boiler	⇨ See "System status indicators" on page 21.
5	Status display of the control unit Display of the current menu name	• Description of the active menu • Error (flashes red) / warnings (yellow) • Current position in menu tree • **Locked in x days -** dongle error
6	Temperature display in accumulator tank (if available) Display of accumulator filling level in %	Current temperatures (top, mid, bottom) of connected accumulator sensors currently filled heat capacity
7	HWT temperature indicator	Display of the current water temperature in the HWT
8	Status display of heat circuits	• OFF Heat circuits switched off • Sun - Heat circuits in day mode • Moon - Heat circuits in reduced mode • Frost - Heat circuits in frost protection mode
9	Display of outside temperature	Outside temperature measured with outdoor sensor
10	Settings	Switches to the menus for customer, commissioning engineer and service settings and to the control unit's setup.
11	Standard	Displays the standard menu. You can switch directly to the Standard menu from any menu. After 10 minutes of no activity, the display switches back to the **Standard** display menu
12	Function	Select boiler operating mode. ⇨ See "Operating modes" on page 20.
13	Pump	Pump operating mode: green: Pump is running. White: Pump has stopped
14	Info	• Switching to the Info menu
15	Customer	• Switching to the customer settings
16	Test mode (chimney sweep)	By pressing the test mode button, a special boiler status programme is started to measure the flue gas consistency
17	External heat boiler	Status display of external heat boiler (if available) green: released. white: locked
18	Differential controller	Pressing on the symbol will take you to the differential controller info page
19	Hargassner logo	Press on the logo to display the boiler data

4 Operating modes

- **Automatic (Auto):** The standard mode in which the heating system is operated according to the preset temperatures and on/off times

- **Hot water (HWT):** The heating system is only used to ensure the hot water supply, not to heat any floor heating system or radiators.
  - ☞ Heat circuits are not controlled (except for frost protection function)
  - ☞ Pumps **Off** and mixers **Closed**

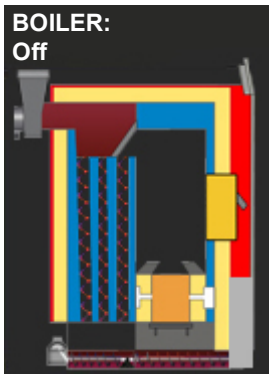
- **Switch off (Off):** The heating system is switched off - with the exception of the frost protection function. The touchscreen continues to show all current information
  - ☞ Heat circuits are not controlled (except for frost protection function)
  - ☞ Pumps **Off** and mixers **Closed**

- **Manual mode (Manual):** Allows various actions to be carried out manually, such as manual activation of individual pumps and mixers. Also shows additional information and values.
  The Standard menu view is kept in the Automatic, Hot water and OFF operating modes.

- **Test mode button:** The button for the chimney sweep to manually switch the boiler **On** or **Off** during emission tests
  The following options are available:
  - ☞ **Full load:** If an accumulator is connected, press this button to have the control unit automatically change to full load measurement
  - ☞ **Empty accumulator:** Press this button to switch off all the boiler's programmed control functions. The boiler operates at full load, assumes very low outdoor temperatures and tries to transport as much as possible heat into the heating system. All regulating devices like thermostatic valves and automatic control valves have to be opened manually to ensure that the required amount of heat is transferred. This function ends automatically after 2 hours If the test mode button is pressed and no accumulator is connected, the control unit offers two options: **full-load measurement** and **partial-load measurement**. All programmed control functions are switched off in the partial load measurement function. The boiler controls up to full load. After 15 minutes of full load, output is reduced to 50% (partial load). After 5 minutes of partial load, the message "**Start test mode measuring**" will appear on the display.

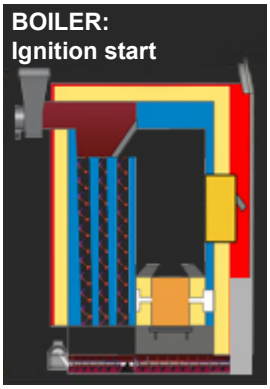
- **Firing OFF:** Button for switching firing off. Firing can be switched off immediately or at a preset time.
  - ☞ Control of the heating circuits with the pumps and mixer continues; only firing is switched off.

5 System status indicators

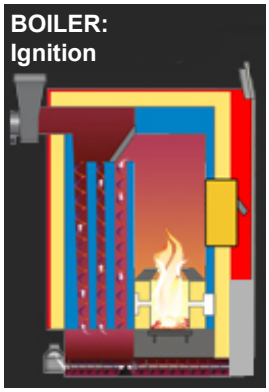


The control unit uses the temperatures and flue gas values to detect the status of the boiler.

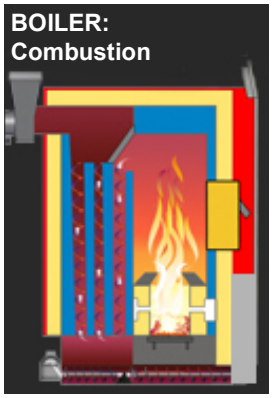
Off
The boiler switches off if there is no demand from the heat circuits or HWTs or if the accumulator takes care of the demand.



Ignition start
Fuel is transported into the combustion chamber and the boiler monitors if autonomous ignition occurs due to residual embers.



Ignition
The electric ignition starts and the fuel is ignited.

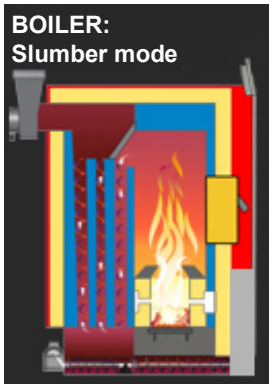


Combustion
The boiler controls exhaust fan output (air volume) according to the heat demand and required boiler temperature, and the optimum fuel amount according to the lambda sensor signal.

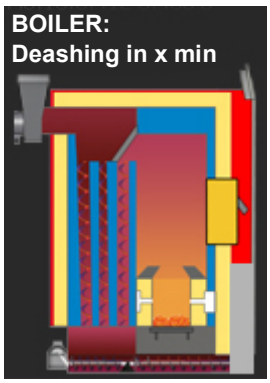
- ☞ Combustion output range from 30-100%

Burnout
The system controls the burnout depending on the O2 content and the set minimum and maximum burnout time (service settings).

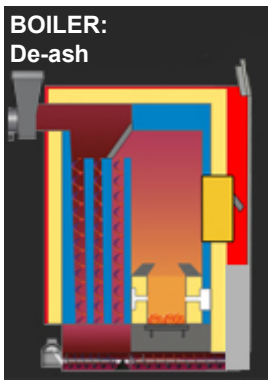
- ☞ Primary air to 100%
- ☞ Exhaust fan to 100%



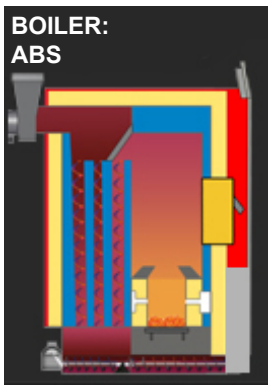
Slumber mode
If the heat demand drops below the minimum boiler output, the system switches to slumber mode.



Deashing in x min
When the maximum combustion time is reached, the combustion chamber is "burnt out".



De-ash
- **Partial de-ash:** The ash grate makes a full rotation until it stops at its original position. The turbulators clean the heat exchanger. The ash falls onto the ash auger and is transported and compressed in the ash box. The system returns to the required state afterwards
- **Complete de-ash:** All grates are opened completely and the turbulators clean the heat exchanger. The ash falls onto the ash auger and is transported and compressed in the ash box. The system returns to the required state afterwards



ABS Automatic blockage protection
Exhaust fan, ash auger, cleaning device and ash auger system are started (duration 10 seconds). The touch screen displays **CAUTION, ABS function is starting**.

☞ During the **ABS** state, do not switch off the boiler, do not open the boiler's doors or reach into the boiler.

6 Info menu

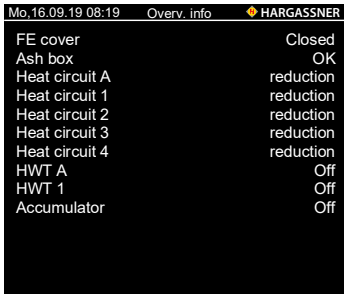
❒ Press 

in the **Standard** menu

❒ Use these arrow to scroll through the menu: 
Target: Adjustment value / target value
Actual: Current value (position)

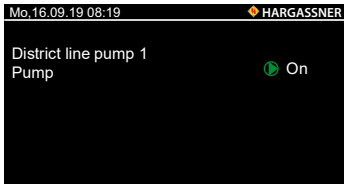
❒ In the respective Info menu, press the  symbol to go straight to the settings

6.1 Overview



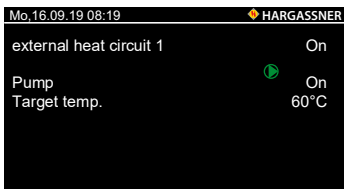
Shows an overview of heat circuits, HWT and any other components of the individual heating system.

6.2 District line pump



If a heat circuit has a district line, the status of the district line pump is shown on this page (green = **On**, white = **Off**).

6.3 External heat circuit

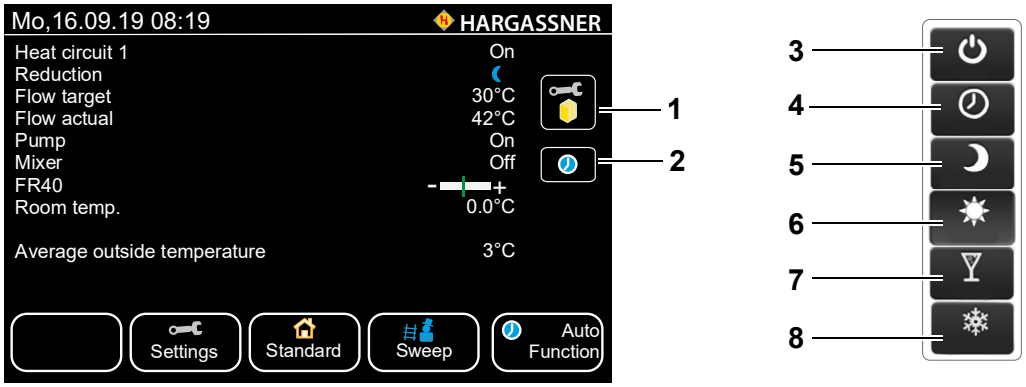


If an external heat circuit is available, a corresponding info page is shown at this point.

6.4 Heat circuits

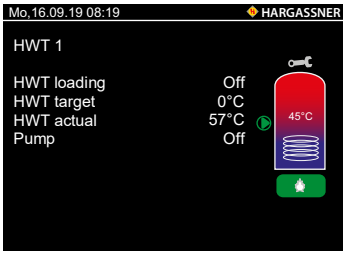
Shows the status of the heat circuits. One heat circuit is displayed per page. If there are several heat circuits, several info pages are available in the menu. If the mixer pump is running, this is indicated as text and by a green arrow icon.

❒ Use the button next to the heat circuit **(1)** to call up the configuration pages
❒ The first heat circuit page can be accessed directly via the heat circuit button in the Standard menu
☞ If a FR25, FR35 or FR40 is used, it is shown in an additional line
❒ Select the heating mode with the heating mode button **(2)**



Item	Description	Function
1	Heat circuit configuration	The button next to the corresponding heat circuit is used to jump to the setting options in the configuration pages
2	Heating mode configuration	The button is used to enter the pop-up menu for selecting the heating mode
3	Off	Heat circuit is switched off (except for frost protection function)
4	Automatic	Heat circuit runs according to the timer programme's settings
5	Continuous reduction	The room temperature is continuously being reduced to the preset room temperature (reduction mode)
6	Continuous heating	The room temperature is continuously being heated to the preset room temperature (heating mode)
7	1x heating	The heat circuit heats the room temperature to the target value (heating mode) and switches back to the automatic timer programme during the next heating cycle (or after 24 hours at the latest)
8	1x reduction	The heat circuit reduces the room temperature to the target value (reduction mode) and switches back to the automatic timer programme during the next heating cycle (or after 24 hours at the latest)

6.5 Hot water tank



Info page about the HWT status

- HWT loading
- Target temperature
- Actual temperature
- HWT fill level display
- Pump status

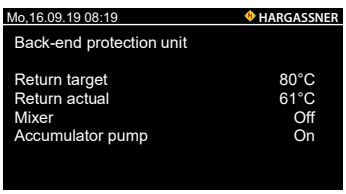
If more HWT are parametrised, more info pages are also available. The circular arrow button next to the HWT graphic shows whether the HWT pump is currently running or not (green = on, white = off).

☞ Use the HWT icon to access the HWT setting options in the configuration pages

- **One-time charge** button 

☞ Press the button to recharge the HWT once to its target temperature

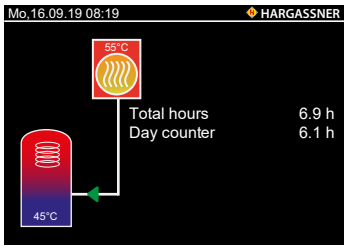
6.6 Back-end protection unit



Info page about the current status of the back-end protection

- Return target
- Return actual
- Mixer
- Accumulator pump

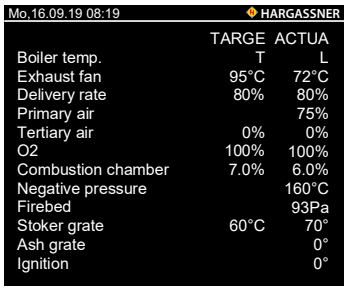
6.7 Differential controller



Info page about the current status of the differential controller

- Operating hours of the differential controllers
- Total / day
- Current heat source temperature
- Current temperature at differential sensor (S2)

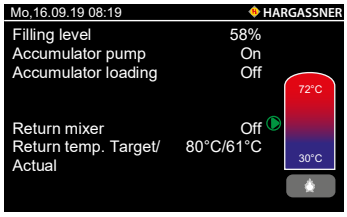
6.8 Boiler



Info page about the current set / actual values of the boiler

- Current operating status of the boiler
- Water temperature in the boiler
- Induced draft fan speed in % of maximum speed
- Currently necessary fuel rate
- Primary air flap position in % of maximum opening
- Tertiary air flap position in % of maximum opening
- Flue gas oxygen value in % - measured on the lambda sensor
- Current temperature in the combustion chamber (post combustion chamber)
- Negative pressure in Pascal - measured at the negative pressure box
- Firebed sensor position (tongue)
- Ignition active / not active
- Stoker grate 1 / 2 position
- Ash grate / intermediate grate position

6.9 Accumulator



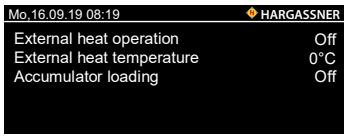
Info page about the current actual values of the accumulator

- Accumulator fill level display
  - ☞ Filling level: 80% = **red**
  - ☞ Filling level: 30% = **blue**
  - ☞ Filling level between 30 and 80% = **blue / red** 

  - ☞ Return temperature Target / Actual = Temperature of boiler return
- **One-time charge** button 

☞ Press the button to recharge the HWT once to its target temperature

6.10 External heat



Info page about the current values of the external heat

- External heat operation indicator (**On / Off**)
- Current external heat sensor temperature
- External heat valve indicator (**On / Off**)
- External heat pump **On / Off**

6.11 Trend

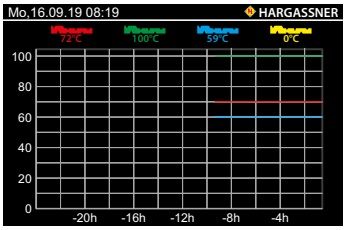
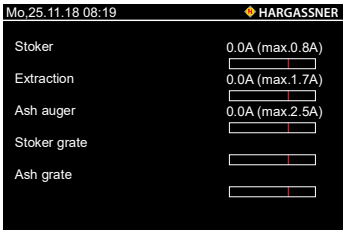


Diagram of recording from the last 24 hours

- Boiler temperature
- HWT temperature
- Power
- Accumulator filling level

☞ The timeline can be set for activated service settings

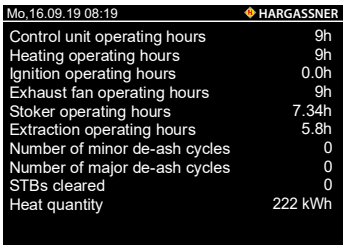
6.12 Electricity

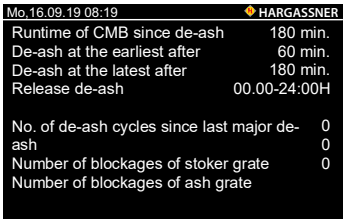


List of current electricity consumption

- Stoker
- Extraction
- Ash auger
- Stoker grate
- Ash grate

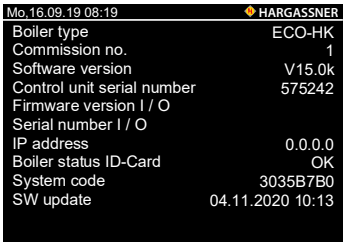
6.13 Meter





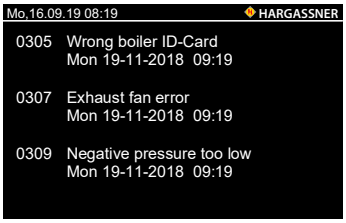
List of current operating hours

6.14 Serial number



Overview of the relevant boiler data

6.15 Error



Overview of current errors

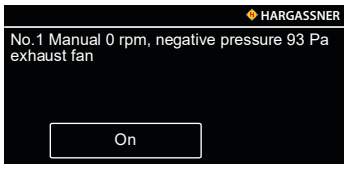
☞ Once the fault is rectified, the error message is no longer shown

7 Manual operation

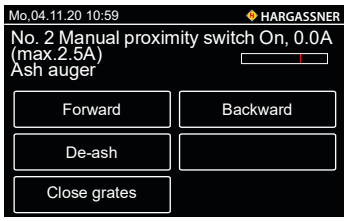
	**W A R N I N G** **Risk of injury due to unexpected operating conditions** • Limit switches or motors are not monitored in manual operation ☞ Only run the augers backwards briefly (2 seconds maximum) • Allow trained staff only to manually operate the boiler

Manual mode is used to:
- Check all electrical functions
- Manually operate or check the drives after a malfunction

❒ To activate the function, press or press and hold the button
❒ To deactivate the function, press again or release the button
☞ To activate continuous operation, (2 minutes maximum) press the button twice when the service settings are activated
Only the selected function is activated. All other functions are inactive

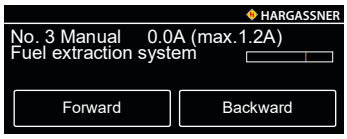


No. 1 Function check of exhaust fan
- Speed reached: approx. 3,500 rpm



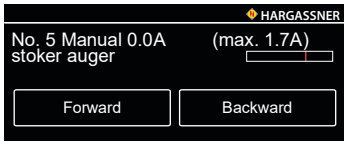
No. 2 Function and rotation check of ash extraction motor
- Forward
- Backward
- De-ash
- Close grates

☞ Press Backward button only **briefly**



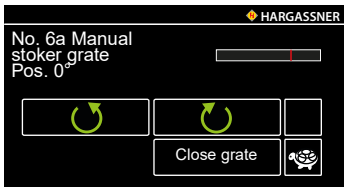
No. 3 Function and rotation check of storage room extraction motor
- Manual forward and backward of the motor to clear any blockages

☞ Press Backward button only **briefly**
☞ For double fuel extraction system, the additional parameter **No. 3a** is shown

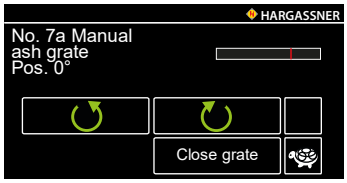


No. 5 Function and rotation check of stoker auger motor
- Manual forward and backward to fill the stoker auger

☞ Press Backward button only **briefly**
☞ For double rotary valve, the additional display parameter **No. 5a** is shown



No. 6a Function and rotation check on stoker grate motor
- Manual forward or backward of the motor
- Close grate



No. 7a Function and rotation check on ash grate motor
- Manual forward or backward of the motor
- Close grate

No. 7b Calibration of all rotary grates
- Automatic calibration process for all rotary grates

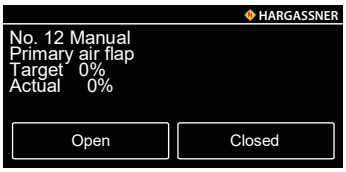
No. 10 Pre-filling the empty augers (especially when restarting)

☞ Prevents an error due to too long absence of fuel

No. 11 Function check of ignition

☞ After a maximum of 1 minute, the coil should be hot

☞ After 3 minutes the ignition coil switches off

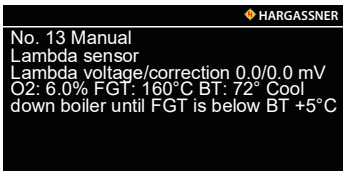


No. 12 Function and position check of the primary air flap (TARGET/ACTUAL)

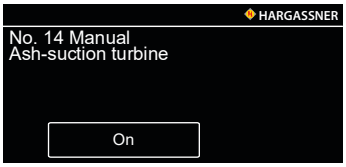
☞ 100% - **Open**; 0% - **Closed**

❒ Position at both extremes **0%** and **100%**

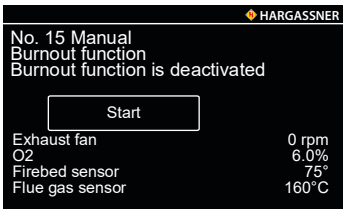
↳ Press **Open** or **Close** and monitor the actual value as it changes



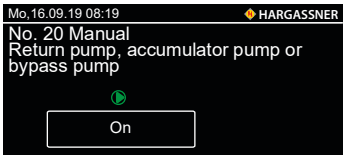
No. 13 Lambda sensor



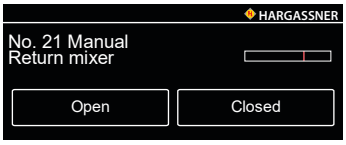
No. 14 Function test on the ash suction turbine (optional)



No. 15 Automatic burnout function in case of error



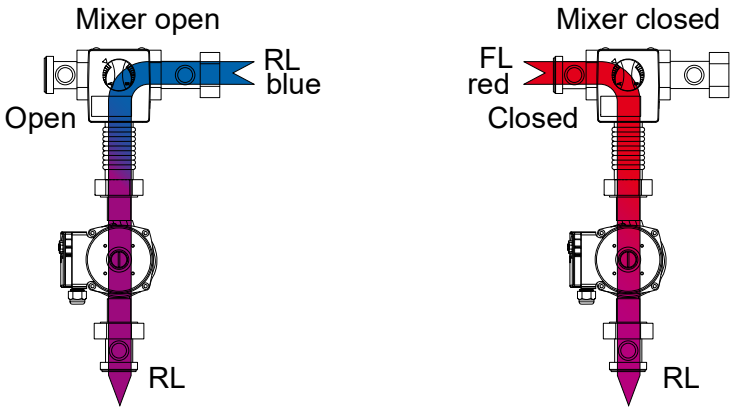
No. 20 Function check or manual operation of the parametrised pump



No. 21 Function and rotation check of return mixer

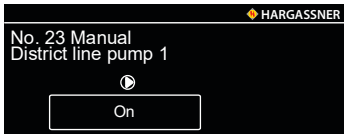
- The mixer is **Closed** when the boiler circuit is closed
- The mixer is **Open** when the return is open

☞ During operation, the return temperature increases when the mixer **Closes** and the return temperature decreases when the mixer **Opens**

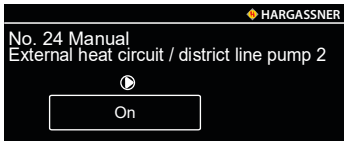


No. 22 Function check of the heat circuit valve, accumulator or external heat valve

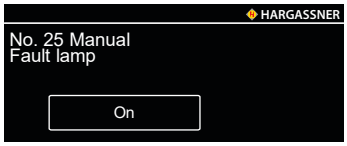
☞ As per parametrisation (accumulator or external heating)



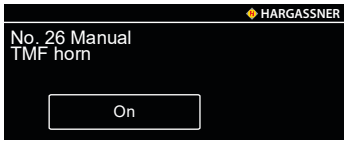
No. 23 Function check or manual operation of district line pump 1



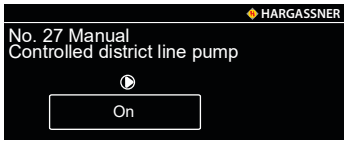
No. 24 Function check or manual operation of external heat circuit pump or district line pump 2



No. 25 Function check or manual operation of the fault lamp

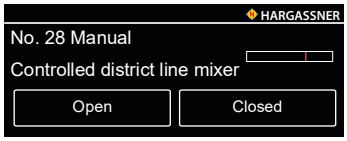


No. 26 Function check or manual operation of the signal horn TMF



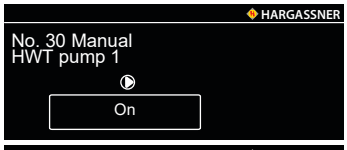
No. 27 Function check or manual operation of the pump for the controlled district line

☞ Only when **CDL** is connected



No. 28 Function and rotation check of the mixer for the controlled district line

☞ Only when **CDL** is connected



No. 30 Function check or manual operation of HWT loading pump 1

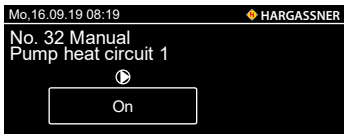
☞ Only with connected **HKM 0**

☞ Nos. 40, 44, 50 and 60 for HWT pumps A, B, 2 and 3 only when **HC A**, **HC B** and **HKM 1** and **HKM 2** are connected

No. 31 Function check or manual operation of HWT circulation pump 1

☞ Only with connected **HKM 0**

☞ Nos. 41, 45, 51 and 61 for HWT circulation pump A, B, 2 and 3 only possible when **HC A**, **HC B**, **HKM 1** and **HKM 2** are connected

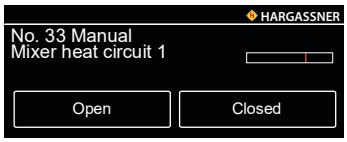


No. 32 Function check or manual operation of heat circuit pump 1

No. 34 Function check or manual operation of heat circuit pump 2

☞ Only with connected **HKM 0**

☞ Nos. 42, 46, 52, 54, 62 and 64 for heat circuit pumps A, B, 3, 4, 5 and 6 only possible when **HC A**, **HC B**, **HKM 1** and **HKM 2** are connected

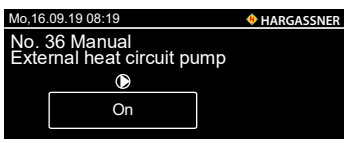


No. 33 Function and rotation check of mixer of heat circuit 1

No. 35 Function and rotation check of mixer of heat circuit 2

☞ Only with connected **HKM 0**

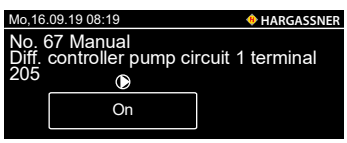
☞ Nos. 43, 47, 53, 55, 63 and 65 for mixer heat circuits A, B, 3, 4, 5 and 6 only possible when **HC A**, **HC B**, **HKM 1** and **HKM 2** are connected



No. 36 Function check or manual operation of the external heat circuit pump 1

☞ Only with connected **HKM 0**

☞ No. 56 and 66 for external heat circ. pump 2 and 3 only when **HKM 1** and **HKM 2** are connected

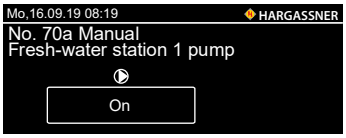


Nos. 67 and 67a Function check or manual operation of the differential control pumps

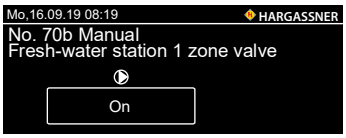
☞ Only when a differential controller is connected

No. 67b for pump heat source, No. 67c for valve / return mixer

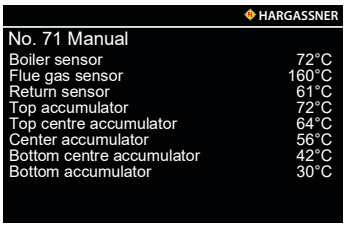
No. 68 for differential controller 2, No. 68b for pump heat source and No. 68c for valve / return mixer



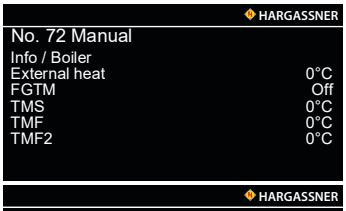
No. 70a Display of fresh-water station of circulation pump
Only when fresh water supply switched on



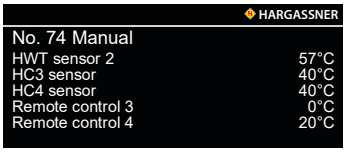
No. 70b Display of the zone valve's fresh-water station
☞ Only when fresh water supply switched on

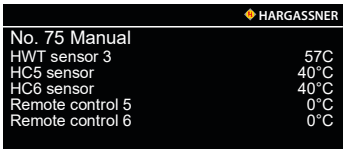


No. 71 - 74 Display of the current sensor values
☞ According to parametrised heating system



Display of the current sensor values
☞ According to parametrised heating system





☞ Depending on the parametrised heating system, other parameters can follow

8 Settings menu

Press the **Set** button on the standard menu to access the settings menu:

- Customer
- Commissioning engineer
- Service
- Setup

8.1 Customer

This button will take you to the configuration screens, which can also be accessed from the standard menu.

See "Customer settings" on page 34.

8.2 Commissioning engineer

Permits advanced system settings and is only available to commissioning engineer and Hargassner service personnel The individual parameter settings depend on the respective heating system configuration.

Code: 33

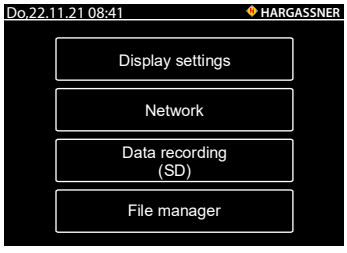
See "Commissioning settings" on page 41.

8.3 Service

Allows more parameter details to be changed and is only available to service personnel. The individual parameter settings depend on the respective heating system configuration.

Note: Commissioning and service settings are protected by a code. Only service personnel can change them, as the parameters may impair the functionality of the heating system if poorly selected.

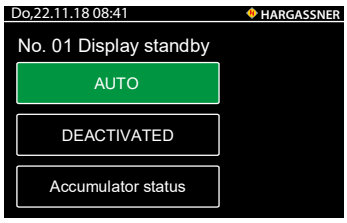
8.4 Setup



The following setting options are available:

- Display settings
- Network
- Data recording (SD)
- File manager

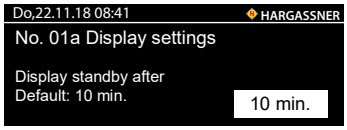
8.4.1 Display settings



No. 01 Display standby

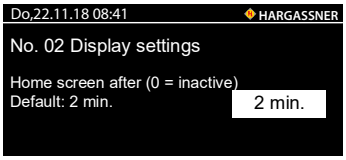
☞ Activates or deactivates standby mode

☞ Accumulator status shows the current accumulator loading in standby mode



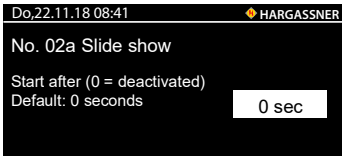
No. 01a Display settings

☞ Display switches to standby mode after preset time



No. 02 Display settings

☞ Display switches to HOME view after a set time

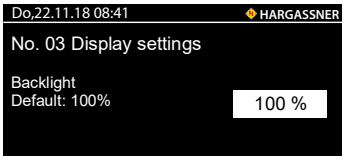


No. 02a Slide show starts

☞ Display switches to slide show after a set time

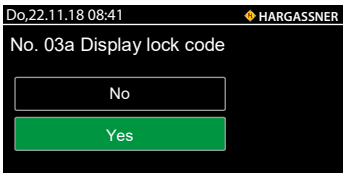
No. 02b Slide show switches image

☞ The slide show image changes after a set time



No. 03 Display settings

☞ Set display backlight (10% - 100%)

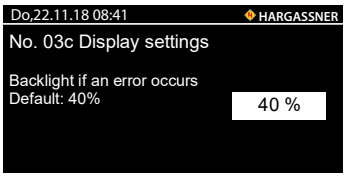


No. 03a Display lock code

☞ Select whether you want to enter a code to lock the display

No. 03b Display lock code

☞ Enter 4-digit lock code

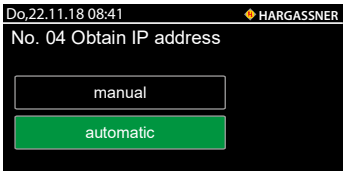


No. 03c Display settings

Specifies the screen brightness when a message/error is displayed.

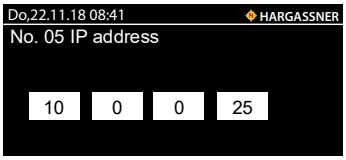
☞ Set screen brightness (10 - 100%)

8.4.2 Network settings



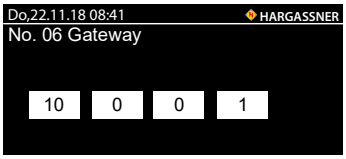
No. 04 Obtain IP address

☞ Select whether you want to generate the IP address manually or automatically



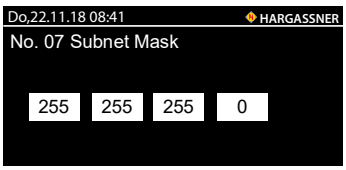
No. 05 IP address

☞ Manual entry of the IP address



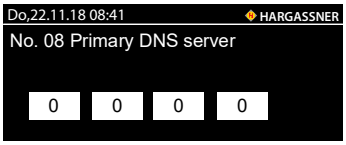
No. 06 Gateway

☞ Manual entry of the gateway



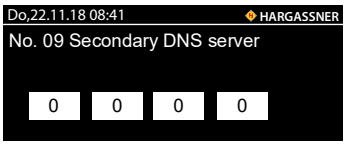
No. 07 Subnet mask gateway

☞ Manual entry of the Subnet Mask



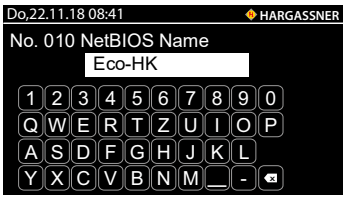
No. 08 Primary DNS server

☞ Manual entry of the Primary DNS server

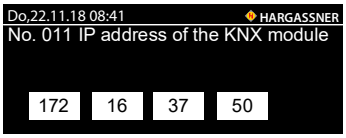


No. 09 Secondary DNS server

☞ Manual entry of the secondary DNS server

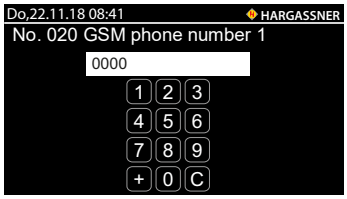


No. 010 Display of the name of device



No. 011 IP address of the KNX module

8.4.3 GSM phone number settings



Nos. 020-022 GSM phone number

Specifies the phone numbers errors and information messages are to be sent to.

☞ Up to three phone numbers can be entered

8.4.4 Data recording (SD)

Additional saving of current boiler data on the SD card.

❒ To finish the protocol, press **Stop SD Logging**

8.4.5 File manager

Used to import and export parameter information, text files, languages, backups and error lists.

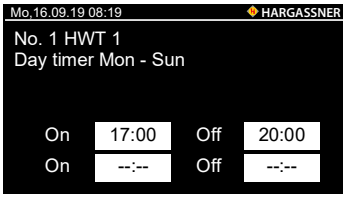
9 Customer settings

- ❒ In the standard menu, press the **Set** button and then press the **Customer** button
- ❒ Select the desired setting value with the arrow button
- ❒ Select the values by touching the fields highlighted in white
  - ↳ The font colour of the parameters changes to **red**
- ❒ Press the **+** and **-** buttons to set the values, the display flashes
  - ☞ Press and hold the **+** or **-** buttons for quick adjustment
- ❒ Confirm the set value with the green checkmark

9.1 HWT control

☞ The day clock is set to weekly clock and the number of blocks is changed in the commissioning engineer settings (parameter D9 + D10)

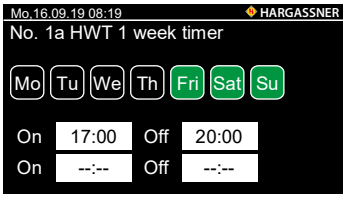
9.1.1 Day timer



No. 1 HWT 1 day timer Mon-Sun

☞ Setting the loading times of the HWT using the day timer

9.1.2 Week timer



Nos. 1a - 1g HWT 1 week timer

Setting the loading times of the boiler using the week timer

☞ Selected day = **green**

9.1.3 Target temperature

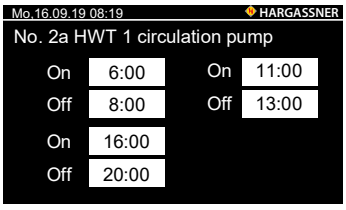
No. 2 HWT 1

☞ Temperature setting range 10 - 95 °C

Setting the HWT target temperature

☞ HWT loading is done only during the set **loading times**

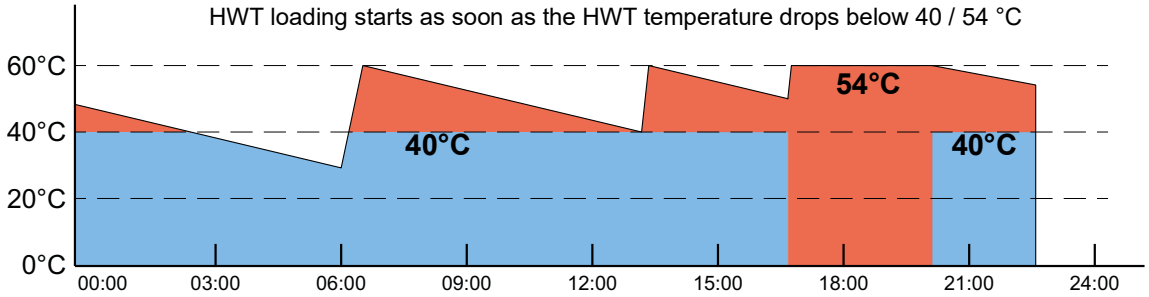
9.1.4 Circulation pump



No. 2a HWT 1 circulation pump

☞ Setting the switching times of the circulation pump (if available)

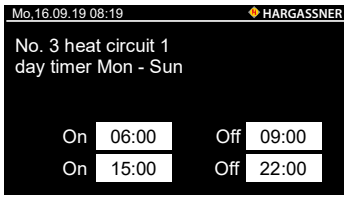
HWT temperatures according to factory settings



9.2 Control of heat circuits

☞ Changing from the day timer to the week timer and setting the number of blocks can be done in the commissioning engineer settings (parameters D9 and D10)

9.2.1 Day timer

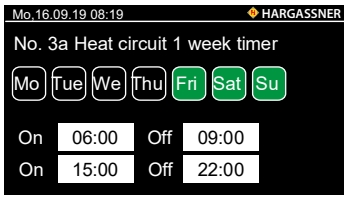


No. 3 heat circuit 1 day timer Mon-Sun

☞ Setting the heating times using timer

☞ The selected times are the same for all weekdays

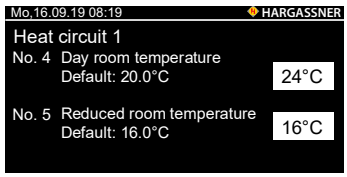
9.2.2 Week timer



Nos. 3a - 3g Heat circuit 1 week timer

☞ Setting the heating times using the week timer

9.2.3 Room temperature



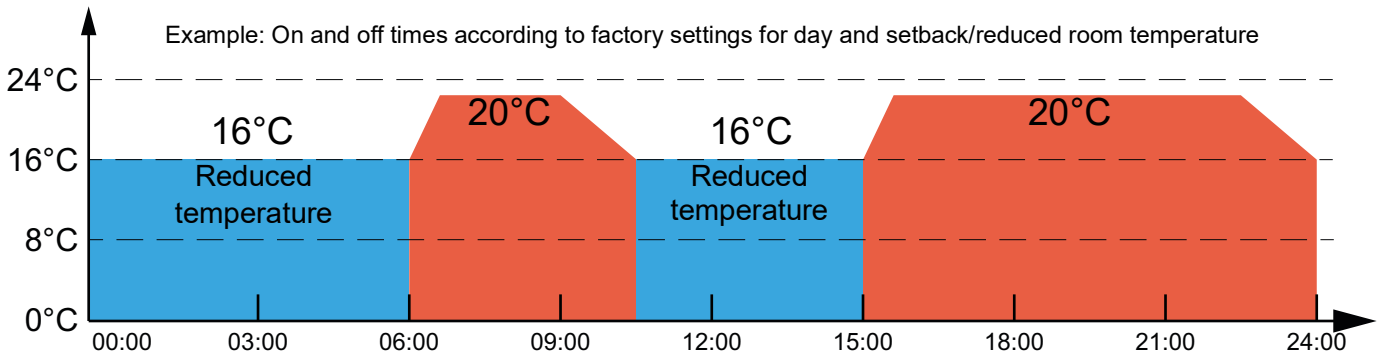
No. 4 day room temperature

No. 5 Reduced room temperature

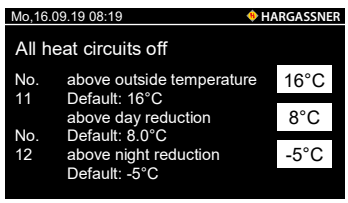
☞ Set the desired room temperature

☞ Range of the day room temp.: 14°C - 26°C

☞ Range of the setback/reduced room temperature: 8°C - 24°C



9.2.4 Outside temperature shut-down



Setting the temperatures for the outside temperature shut-down

☞ Three possible thresholds depending on the heating programme and time

- **No. 11 All heat circuits off above outside temperature:**

☞ Range: 0 - 50 °C

☞ If the average outside temperature exceeds the set value, the heat circuits will be switched off (summer shut-down)

- **No. 12 All heat circuits off during day reduction:**

☞ Range: -40 - 50 °C

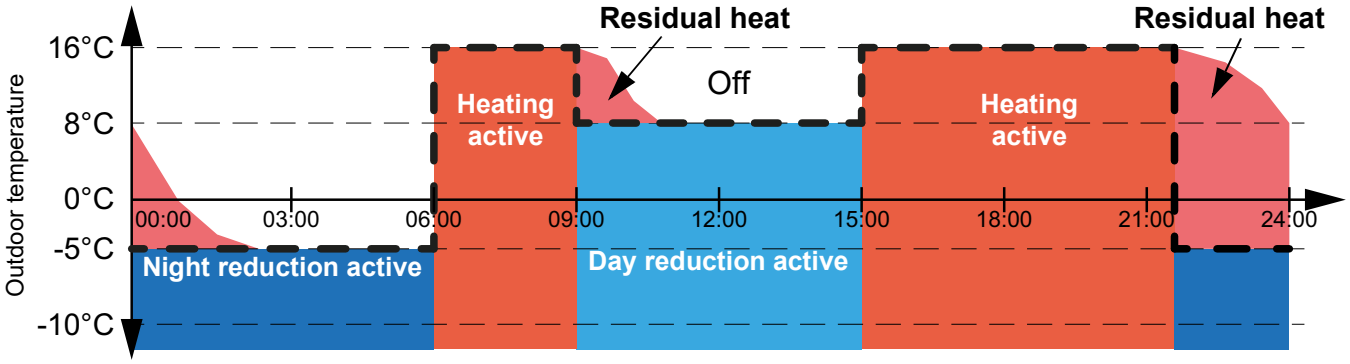
☞ If the average outside temperature exceeds the set value in day reduction mode, the heat circuits will be switched off

- **No. 13 All heat circuits off during night reduction:**

☞ Range: -40 - 50 °C

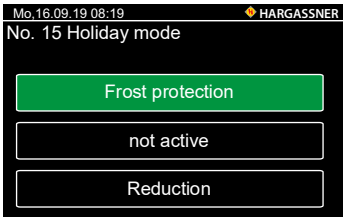
☞ If the average outside temperature exceeds the set value during the night

reduction time, the heat circuits will be switched off



9.3 General settings

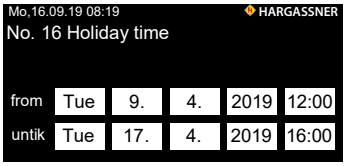
9.3.1 Holiday mode



No. 15 Holiday mode

- Setting the holiday mode function

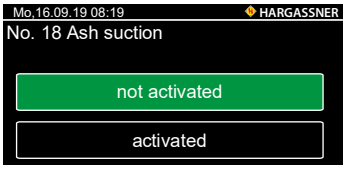
☞ Only activated if parameter D11 is set to **Yes** in the commissioning engineer settings



No. 16 Holiday time

- Setting the holiday time during which holiday mode is activated

9.3.2 Starting de-ash



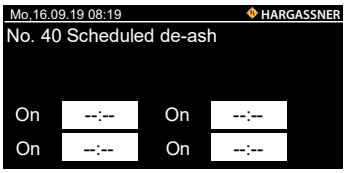
No. 18 Ash suction

☞ Only activated if parameter D50 is set to **Available** in the commissioning engineer settings

No. 18a Start de-ash

Press the **Yes** button to start the de-ash and cleaning process.

☞ De-ash only possible when the boiler's operating mode is **On**

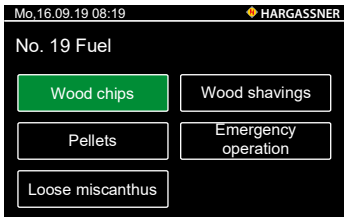


No. 40 Scheduled de-ash

The boiler will perform a de-ash at the set time if the CMB (combustion) runtime meter displays a reading above 0 for the period since the last de-ash.

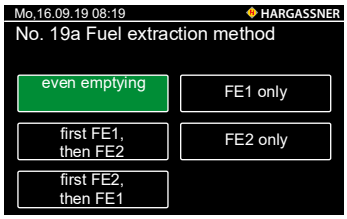
HARGASSNER Heating technology for *Biomass* A 4952 Weng OÖ Tel.: +43/7723/5274-0 Fax: +43/7723/5274-5 office@hargassner.at

9.3.3 Fuel



No. 19 Fuel

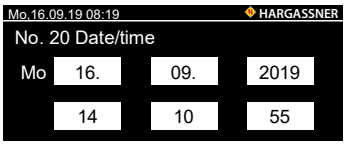
- Selecting the fuel
  - Wood chips
  - Pellets
  - Loose miscanthus
  - Wood shavings
  - Wood log



No. 19a Fuel extraction method

Specifies the order to be followed if there are two fuel extraction augers.

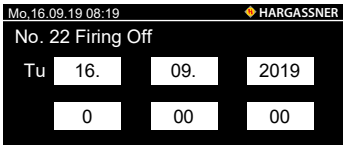
9.3.4 Date/time



No. 20 Date/time

☞ Setting the date and time

9.3.5 Firing off



No. 22 Firing **Off**

☞ Setting the date and time for when firing is to be switched off (e.g. when the chimney sweep is expected)

9.4 Parameter list of customer settings

9.4.1 Extension module 0

Menu	Description	Default
1	HWT 1 day timer Mo-Su	On 17:00 Off 17:30
1a-g	HWT 1 weekly Mo/Tu/We/Th/Fr/Sa/Su	On 17:00 Off 17:30
2 2_HT	HWT 1 set temperature	60°C
2a	HWT 1 circulation pump	On 06:00 11:00 16:00 Off 08:00 13:00 22:00
3	Heat circuit 1 day timer Mo-Su	On 06:00 15:00 Off 09:00 22:00
3a-g	Heat circuit 1 week timer Mo/Tu/We/Th/Fr/Sa/Su	On 06:00 15:00 Off 09:00 22:00
4	Heat circuit 1 day room temperature	20°C
5	Heat circuit 1 reduced room temperature	16°C
6	Heat circuit 2 day timer Mo-Su	On 06:00 15:00 Off 09:00 22:00
6a-g	Heat circuit 2 week timer Mo/Tu/We/Th/Fr/Sa/Su	On 06:00 15:00 Off 09:00 22:00
7	Heat circuit 2 day room temperature	20°C
8	Heat circuit 2 reduced room temperature	16°C

9.4.2 Heat circuit board HC A

Menu	Description	Default
HP1	HWT A day timer Mo-Su	On 17:00 Off 17:30
HP1a-g	HWT A week timer Mo/Tu/We/Th/Fr/Sa/Su	On 17:00 Off 17:30
HP2 HP2_HT	HWT A set temperature	60°C
HP2a	HWT A circulation pump	On 06:00 11:00 16:00 Off 08:00 13:00 22:00
HP3	Heat circuit A day timer Mo-Su	On 06:00 15:00 Off 09:00 22:00
HP3a-g	Heat circuit A week timer Mo/Tu/We/Th/Fr/Sa/Su	On 06:00 15:00 Off 09:00 22:00
HP4	Heat circuit A day room temperature	20°C
HP5	Heat circuit A reduced room temperature	16°C

9.4.3 Extension module HKM 1

Menu	Description	Default
H1	HWT 2 day timer Mo-Su	On 17:00 Off 17:30
H1a-g	HWT 2 weekly Mo/Tu/We/Th/Fr/Sa/Su	On 17:00 Off 17:30
H2 H2_HT	HWT 2 set temperature	60°C
H2a	HWT 2 circulation pump	On 06:00 11:00 16:00 Off 08:00 13:00 22:00
H3	Heat circuit 3 day timer Mo-Su	On 06:00 15:00 Off 09:00 22:00
H3a-g	Heat circuit 3 week timer Mo/Tu/We/Th/Fr/Sa/Su	On 06:00 15:00 Off 09:00 22:00
H4	Heat circuit 3 day room temperature	20°C
H5	Heat circuit 3 reduced room temperature	16°C
H6	Heat circuit 4 day timer Mo-Su	On 06:00 15:00 Off 09:00 22:00
H6a-g	Heat circuit 4 week timer Mo/Tu/We/Th/Fr/Sa/Su	On 06:00 15:00 Off 09:00 22:00
H7	Heat circuit 4 day room temperature	20°C
H8	Heat circuit 4 reduced room temperature	16°C

9.4.4 Extension module HKM 2

Menu	Description	Default
H 11	HWT 3 day timer Mo-Su	On 17:00 Off 17:30
H11a-g	HWT 3 weekly Mo/Tu/We/Th/Fr/Sa/Su	On 17:00 Off 17:30
H12 H12_HT	HWT 3 set temperature	60°C
H12a	HWT 3 circulation pump	On 06:00 11:00 16:00 Off 08:00 13:00 22:00
H13	Heat circuit 5 day timer Mo-Su	On 06:00 15:00 Off 09:00 22:00
H13a-g	Heat circuit 5 week timer Mo/Tu/We/Th/Fr/Sa/Su	On 06:00 15:00 Off 09:00 22:00
H14	Heat circuit 5 day room temperature	20°C
H15	Heat circuit 5 reduced room temperature	16°C
H16	Heat circuit 6 day timer Mo-Su	On 06:00 15:00 Off 09:00 22:00
H16a-g	Heat circuit 6 week timer Mo/Tu/We/Th/Fr/Sa/Su	On 06:00 15:00 Off 09:00 22:00
H17	Heat circuit 6 day room temperature	20°C
H18	Heat circuit 6 reduced room temperature	16°C

9.4.5 Heat circuit board HC B

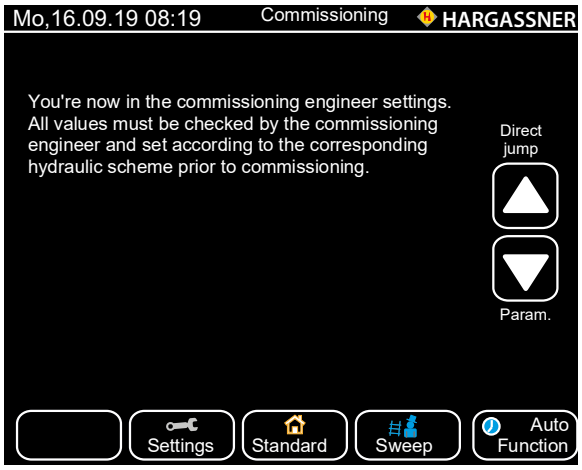
Menu	Description	Default
H21	HWT B day timer Mo-Su	On 17:00 Off 17:30
H21a-g	HWT B week timer Mo/Tu/We/Th/Fr/Sa/Su	On 17:00 Off 17:30
H22 H22_HT	HWT B target temperature	60°C
H22a	HWT B circulation pump	On 06:00 11:00 16:00 Off 08:00 13:00 22:00
H23	Heat circuit B day timer Mo-Su	On 06:00 15:00 Off 09:00 22:00
H23a-g	Heat circuit B week timer Mo/Tu/We/Th/Fr/Sa/Su	On 06:00 15:00 Off 09:00 22:00
H24	Heat circuit B day room temperature	20°C
H25	Heat circuit B reduced room temperature	16°C

If **Outside temperature shut-down separated** is chosen (commissioning engineer parameter no. D12), different temperatures can be set for each heat circuit

Menu	Description	Default
11	Heating off at outside temperature over	6°C
11a-i	Heat circuit 1-B and external HC off above outside temperature	6°C
12	All heat circuits off during day reduction	8°C
12a-h	Heat circuit 1-B off during day reduction	8°C
13	All heat circuits off during night reduction	-5°C
13a-h	Heat circuit 1-B off during night reduction	-5°C
15	Holiday mode	not active
15a-h	Holiday mode heat circuit 1-B	not active
16	Holiday time	from...
16a-h	Heat circuit 1-B holiday time	from...
17	Holiday time	until...
17a-h	Heat circuit 1-B holiday time	until...
18	Ash suction	not active
18a	De-ash start	No
19	Fuel	Wood chips
19a	Fuel extraction method	even emptying
20	Date/time	
21	Release of remote maintenance	not released
21a	Automatic deactivation of release	1 h
22	Firing off	from... - until...
40	Planned de-ash	On 00:00 00:00 Off 00:00 00:00

10 Commissioning settings

❒ In the standard menu, press the **Setup** button and then press the **Commissioning engineer** button
❒ Release by entering the code: 33



❒ Use the arrow key to select the desired setting values
☞  Takes you straight to the parameter groups
☞  Selects all parameters
❒ Select the values by touching the fields highlighted in white
↳ The font colour of the parameters changes to red
❒ Press the **+** and **-** buttons to set your desired values - the display flashes
☞ Press and hold the **+** and **-** buttons for to adjust the values quickly
❒ Confirm the set value with the green checkmark

10.1 Parametrising the heat circuits and HWT

Extension module 0 (HKM0)
- Heat circuit 1 (No. A1 - No. A10)
- Heat circuit 2 (No. A11 - No. A20)
- HWT 1 (No. B1 - No. B9b)

Extension module 1 (HKM1)
- Heat circuit 3 (No. A21 - No. A30)
- Heat circuit 4 (No. A31 - No. A40)
- HWT 2 (No. B11 - No. B19b)

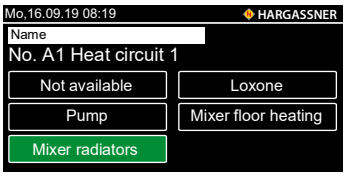
Extension module 2 (HKM2)
- Heat circuit 5 (No. A41 - No. A50)
- Heat circuit 6 (No. A51 - No. A60)
- HWT 3 (No. B21 - No. B29b)

Heat circuit board A (HC A)
- Heat circuit A (No. A61 - No. A70)
- HWT A (No. B31 - No. B39b)

Heat circuit board B (HC B)
- Heat circuit B (No. A71 - No. A80)
- HWT B (No. B41 - No. B49b)

☞ The parameters of the heat circuits, HWTs, extension modules and the heat circuit board are only displayed when hardware is connected

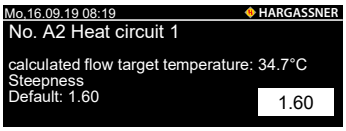
10.2 Parameter A - heat circuits



Nos. A1 and A11 Heat circuit **1** and **2** when extension module **0** is used
Nos. A21 and A31 Heat circuit **3** and **4** when extension module **1** is used
Nos. A41 and A51 Heat circuit **5** and **6** when extension module **2** is used
No. A61: Heat circuit **A** when heat circuit board **A** is used
No. A71: Heat circuit **B** when heat circuit board **B** is used
5 options:

- Heat circuit not available
- Heat circuit with pump
- Heat circuit with pump and mixer motor for radiator heat circuit
- Heat circuit control by Loxone
  - ☞ Parameter A10 emergency operation target temperature if a Loxone connection error occurs
- Heat circuit with pump and mixer motor for floor heat circuits

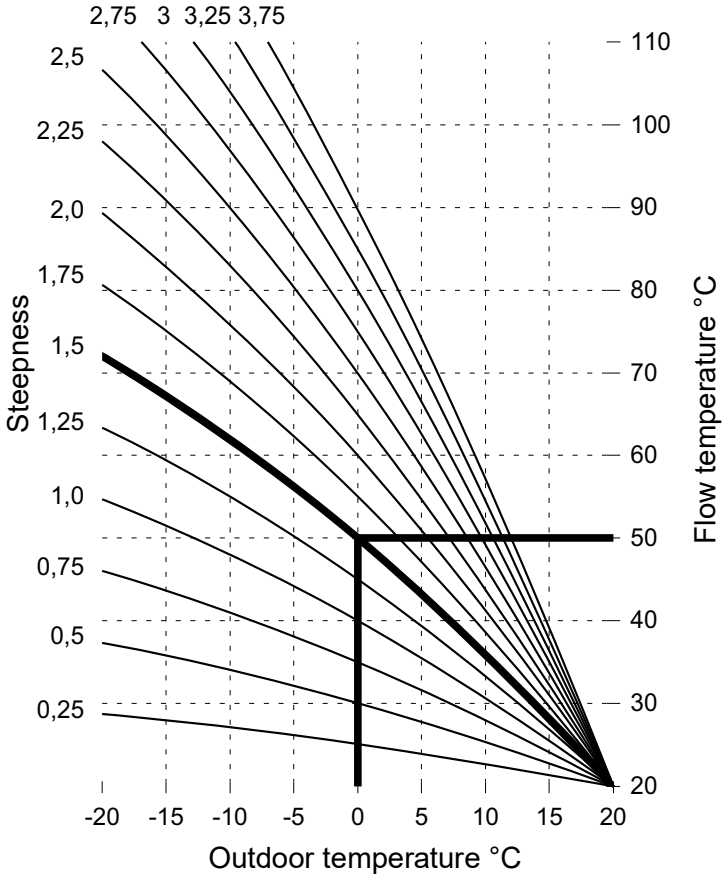
☞ If No. A1 is set to **not available**, then No. A2 to No. A6 are not displayed
❒ Press **Name** to name each heat circuit separately, (e.g. Living room)



Nos. A2, A12, A22, A32, A42, A52, A62 and A72 Steepness Heat circuit **1 - B**
Nos. A2a, A12a, A22a, A32a, A42a, A52a, A62a and A72a Steepness FLH Heat circuit **1 - B**
Describes the relationship between flow and outside temperatures (see heating curve)

- Range: 0.2 - 3.5
- Recommended settings:
  - Floor heating: 0.3 - 1.0
  - Radiator heating: 1.2 - 2.0
  - Convector heating: 1.5 - 2.0

☞ Change in small steps only and for a longer period



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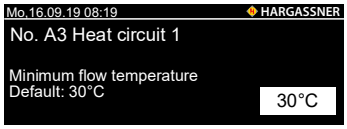
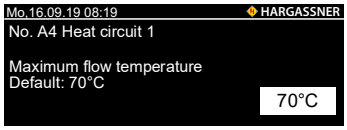


Nos. A3, A3a, A13, A13a, A23, A23a, A33, A33a, A43, A43a, A53, A53a, A63, A63a, A73 and A73a Minimum limit for flow temperature of heat circuit **1 - B**

☞ This flow temperature won't be underrun in heating or reduction mode

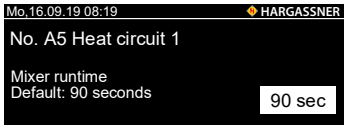
☞ Range: 1 - 80 °C



Nos. A4, A4a, A14, A14a, A24, A24a, A34, A34a, A44, A44a, A54, A54a, A64, A64a, A74 and A74a Maximum limit for flow temperature of heat circuit **1 - B**

☞ This flow temperature won't be overrun in heating or reduction mode

☞ **Floor heating:** Integrate an additional electromechanical thermostat which interrupts the power supply to the relevant heat circuit pump

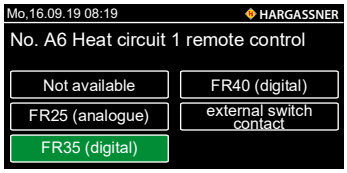


Nos. A5, A15, A25, A35, A45, A55, A65 and A75 Used to enter the actual mixer runtime for heat circuit **1 - B**

☞ For the actual mixer runtime, see the type plate

☞ Duration from closed to open condition

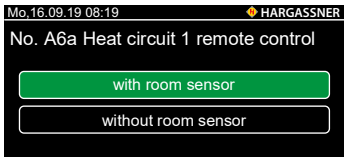
☞ Range: 10 - 300 Sec.



Nos. A6, A16, A26, A36, A46, A56, A66 and A76 Heat circuit **1 - B** remote control

☞ 5 options:

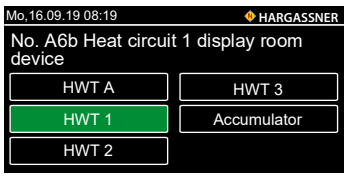
- Not available
- Heat circuit with analogue remote control FR25
- Heat circuit with digital remote control FR35
- Heat circuit with digital remote control FR40
- External switch contact



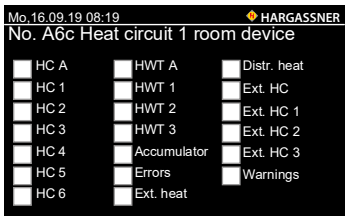
Nos. A6a / b / c, A16a / b / c, A16a / b / c, A26a / b / c, A36a / b / c, A46a / b / c, A56a / b / c, A66a / b / c and A76a / b / c Heat circuit **1 - B** remote control

The remote control can be installed with or without a room sensor

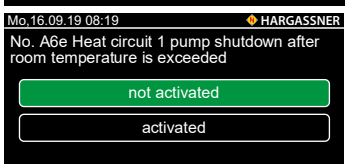
- Heat circuit with analogue remote control **FR25 without room sensor**
  - No automatic adjustment of the room temperature
  - Wire FR25 at **terminals 1 and 3**
- Heat circuit with analogue remote control **FR25 without room sensor**
  - Automatic adjustment of the room temperature
  - Wire FR25 at **terminals 1 and 2**



- Heat circuit with digital remote control **FR35** or **FR40**
- If **FR35** is set, parameters **A6b**, **A16b**, **A26b**, **A36b**, **A46b**, **A56b**, **A66b** and **A76b** will appear

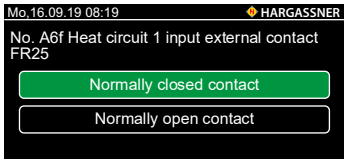


- If **FR40** is set, detail parameters **A6c**, **A16c**, **A26c**, **A36c**, **A46c**, **A56c**, **A66c** and **A76c** will appear



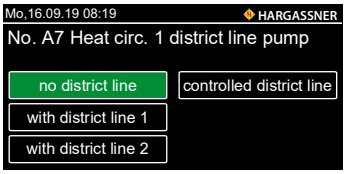
Nos. A6e, A16e, A26e, A36e, A46e, A56e, A66e and A76e Heat circuit **1 - B** pump shutdown after the room temperature is exceeded

- **Not activated**: Standard heat circuit control
- **Activated**: If the room temperature (set temperature) is exceeded by the set value (No. M6 service parameter), the heat circuit pump switches **Off** and the mixer is **Closed**
  - ☞ The pump and mixer will come **On** again when the room temperature drops below the set room temperature by the preset value (service parameter M6a)



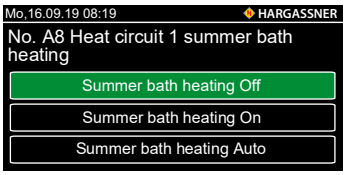
Nos. 6f, 16f, 26f, 36f, 46f, 56f, 66f and 76f Heat circuit **1 - B** input external contact FR25

☞ Used to specify whether the external contact FR25 is a normally closed contact or a normally open contact



Nos. A7, A17, A27, A37, A47, A57, A67 and A77 Used to enable the district line pump when heat circuit pump **1 - B** are running

☞ Used to specify whether the district line pump is enabled at the same time as heat circuit pump **1 - B**

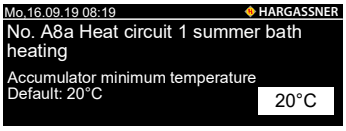


Nos. A8, A18, A28, A38, A48, A58, A68 and A78 Activation of the summer bath heating for heat circuit **1 - B**

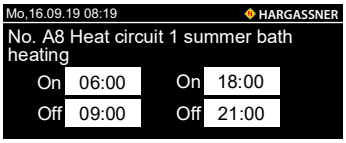
☞ Heat circuit will be switched on (depending on timer settings) if accumulator is on temperature

☞ Is only activated in menu **HWT**

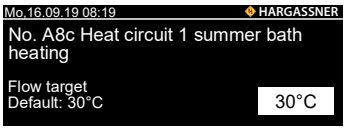
☞ If **On** is selected, parameters **A8a - A8c**, **A18a - A18c**, **A28a - A28c**, **A38a - A38c**, **A48a - A48c**, **A58a - A58c**, **A68a - A68c** and **A78a - A78c** will appear



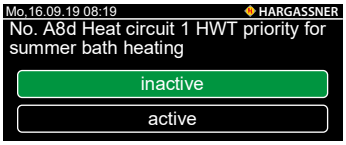
Nos. A8a, A18a, A28a, A38a, A48a, A58a, A68a and A78a Used to enter the accumulator minimum temperature for heat circuits **1 - B**



Nos. A8b, A18b, A28b, A38b, A48b, A58b, A68b and A78b Used to enter the switch-on and switch-off times for heat circuits **1 - B**

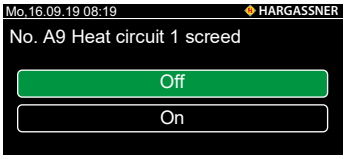


Nos. A8c, A18c, A28c, A38c, A48c, A58c, A68c and A78c Used to enter the flow target temperatures for heat circuits **1 - B**



Nos. A8d, A18d, A28d, A38d, A48d, A58d, A68d and A78d Heat circuits **1 - B** HWT priority for summer bath heating

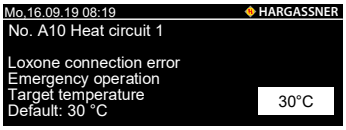
☞ Used to specify whether HWT priority operation is activated for heat circuits **1 - B** during summer bath heating



Nos. A9, A19, A29, A39, A49, A59, A69 and A79 Used to activate the screed dry-out programme for heat circuits **1 - B**

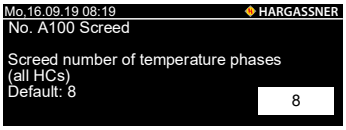
☞ If **On** is selected, parameters **A100-A103** appear

☞ Pressing the **Heating curve** button will take you straight to parameter **A100**



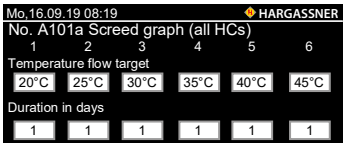
Nos. A10, A20, A30, A40, A50, A60, A70 and A80 Heat circuits **1 - B** emergency operation target temperature

☞ Used to specify the temperature to be supplied to heat circuits **1 - B** if the connection to the Loxone server is interrupted



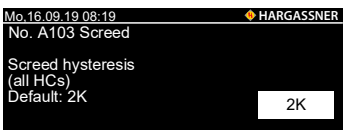
No. A100 Screed temperature phases

☞ Specifies the number of phases used to increase the temperature for the screed heating process



No. A101a Screed graph

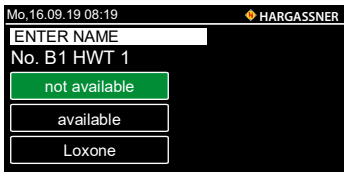
☞ The target temperature and holding period can be specified for each phase



No. A103 Screed hysteresis

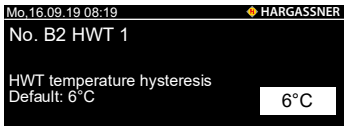
☞ If the flow temperature drops below the screed heating target temperature by this value, the timer for the holding period will be stopped and won't resume until the target value has been reached again

10.3 Parameter B - HWT



- Nos. B1, B11, B21, B31 and B41 HWTs **1 - B** (extension modules **0 - 2** and heat circuit boards **A - B**) set to **available**
  - ☞ Control of HWTs 1 - B
- HWTs **1 - B** (extension modules **0 - 2** and heat circuit boards **A - B**) set to **Loxone**
  - ☞ HWTs **1 - B** are controlled by the Loxone controller
- Parameter no. B1, B11, B21, B31 or B41 set to **Not available**
  - ☞ If no. B1, B11, B21, B31 or B41 is set to **Not available** , no. B2 - no. B6, no. B12 - no. B16, no. B22 - no. B26, no. B32 - no. B36 and no. B42 - no. B46 are not displayed

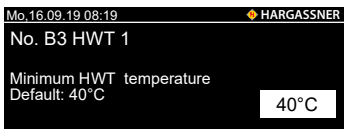
❒ Press on **Name** to name each HWT separately



Nos. B2, B12, B22, B32 and B42 HWTs **1 - B** hysteresis

☞ Value at which the HWT is switched on below the set minimum temperature

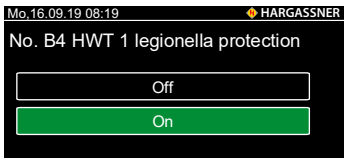
☞ Range: 1 - 40 °C



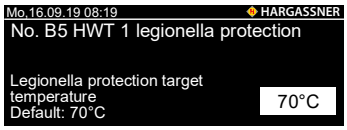
Nos. B3, B13, B23, B33 and B43 Minimum limit for HWT temperature

☞ If the HWT temperature drops below the preset value, HWT loading starts within the set time (installer setting no. B90) regardless of the HWT time programme (customer setting no. 1)

- Range: 1 - 80 °C

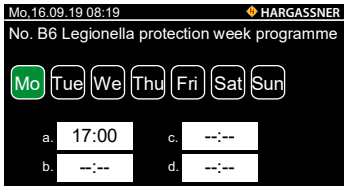


Nos. B4, B14, B24, B34 and B44 Used to activate the Legionella protection programme



Nos. B5, B15, B25, B35 and B45 HWT target temperature for Legionella protection

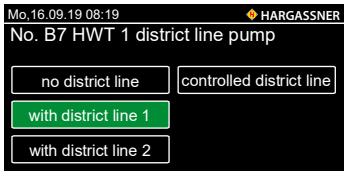
☞ Temperatures of 70°C or above for more than 3 minutes will kill all legionella in the HWT



Nos. B6, B16, B26, B36 and B46 Legionella protection week programme

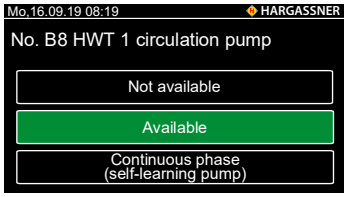
☞ Green = active

☞ Start legionella protection programme during HWT loading only



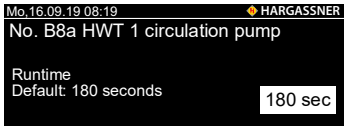
Nos. B7, B17, B27, B37 and B47 HWTs **1 - B** district line pump

☞ Activate the district line pump when HWT pumps **1 - B** are running



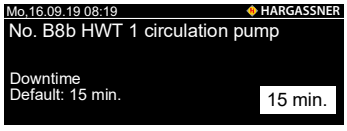
Nos. B8, B18, B28, B38 and B48 HWTs **1 - B** circulation pump

☞ The circulation pump can be set for each HWT parametrised on the controller

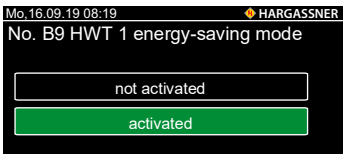


Nos. B8a, B18a, B28a, B38a and B48a Runtime circulation pump HWT

☞ The runtime depends on the length of the heating pipes and on the heat loss (insulation) in the line

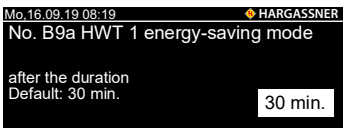


Nos. B8b, B18b, B28b, B38b and B48b Downtime circulation pump HWT



Nos. B9, B19, B29, B39 and B49 Energy-saving mode

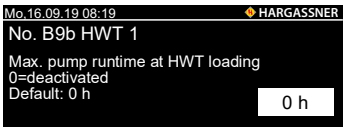
- **Not activated**: The HWT is loaded in accordance with the settings in the customer parameters
- **Activated**: The HWT is loaded regardless of the loading times if the following criteria are met for the set length of time (**No. B9a**) before setback/reduction:
  - HWT has nearly reached its minimum temperature
  - Outside temperature is higher than the temperature for day reduction
  - Boiler is in lower partial-load operation (minimum output + 10%)



Nos. B9a, B19a, B29a, B39a and B49a Switch-on time energy-saving mode

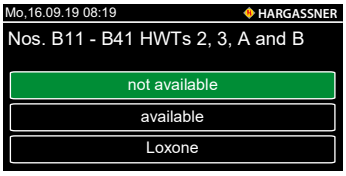
☞ The HWT is loaded when the following criteria have been met for 30 minutes **before** reduction:

- Outside temperature above 16 °C (customer setting no. 5)
- HWT temperature below 50 °C (installer setting no. B3 (40 °C) + 10 °C)
- Boiler heat output below 60% (service setting no. K1 50% + 10%)



Nos. B9b, B19b, B29b, B39b and B49b Maximum pump runtime when HWT is loading

☞ Default: 0 h (=deactivated)



No. B11-B49b: Additional HWTs

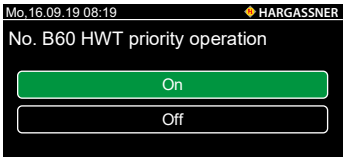
B11 - B19b: When using an extension module **1**

B21 - B29b: When using an extension module **2**

B31 - B39b: When using a heat circuit board **A**

B41 - B49b: When using a heat circuit board **B**

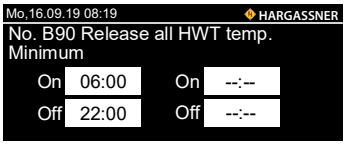
☞ Setting options: See commissioning engineer settings **B1 - B9**



No. B60 HWT priority operation for quick HWT loading

☞ For heat circuits with pumps, the heat circuit pumps are switched off throughout HTW priority operation. No heat is transferred from the boiler to the heat circuits

☞ The heat circuit flow temperatures for heat circuits with mixers and pumps are reduced throughout priority operation



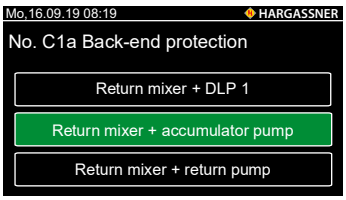
No. B90 HWT loading outside the loading times

☞ When the HWT temperature drops below the minimum HWT temperature (commissioning engineer setting **B3**)

No. B100-B117d Fresh-water station 1-4

⇨ See the fresh-water station FWS operation manual

10.4 Parameter C - accumulator



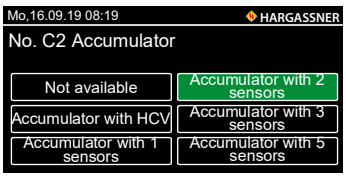
No. C1a Back-end protection

- Return mixer with district line pump 1
- Return mixer with accumulator loading pump
- Return mixer with return pump (hydraulic separator)

No. C1b Mixer runtime

☞ Specifying the actual mixer runtime

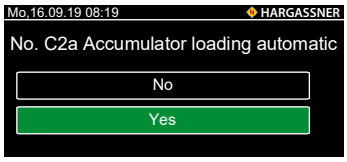
☞ Range: 10 - 300 sec.



No. C2 Accumulator

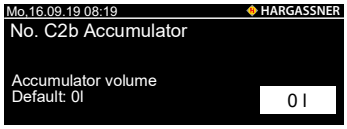
- Not available
- Accumulator with heat circuit valve
  - ☞ For low-temperature heat circuits, (e.g. floor or wall circuits)
- Accumulator with 1 sensor
  - ☞ For a hydraulic scheme with accumulator unloading control
- Accumulator with 2 sensors
  - ☞ For a hydraulic scheme with loading and unloading control

- Accumulator with 3 or 5 sensors
  - ☞ For an accumulator diagram with loading (partial-load operation) and unloading control



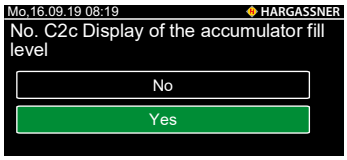
No. C2a Accumulator loading automatic

☞ Specifying whether the accumulator should be loaded automatically



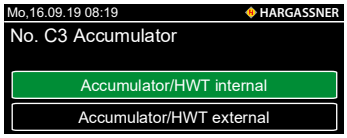
No. C2b Accumulator volume

☞ Setting the accumulator volume in litres



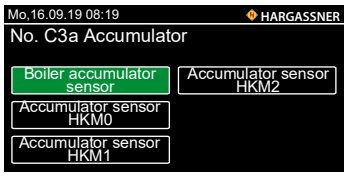
No. C2c Display of the accumulator fill level

☞ Specifying whether the accumulator fill level should be displayed



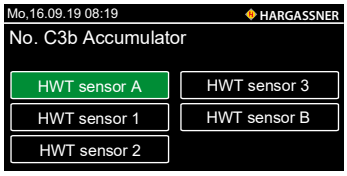
No. C3 Accumulator

- Accumulator/HWT internal
  - ☞ Accumulator tank with HWT integrated (Stainless steel coil or external tap water heat exchanger)
- Accumulator / HWT external (external HWT)
  - ☞ For on-site differential control between accumulator and HWT, set to **accumulator / HWT internal**



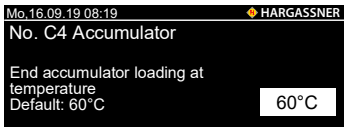
No. C3a Accumulator sensor selection

- Accumulator in the boiler room: Select **accumulator sensor-boiler**
- Accumulator next door (HKM): Select **Accumulator sensor-HKM 0-2**



No. C3b HWT sensor selection

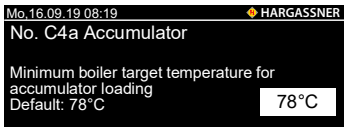
☞ Only for **Accumulator / HWT internal** (commissioning engineer setting C3)



No. C4 End accumulator loading (measured on accumulator sensor below)

☞ Only displayed when commissioning engineer setting **C2** is set with **2, 3** or **5 sensors**

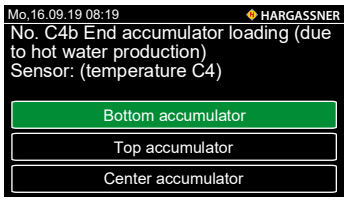
☞ If heat is requested, the accumulator is loaded to its target temperature **C4** = 60°C (bottom accumulator sensor)



Nos. C4a and C4a_HT Accumulator

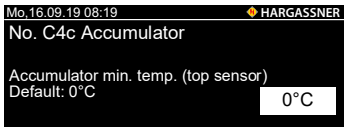
☞ Used to specify the boiler target temperature when accumulator loading is active

☞ Only displayed when commissioning engineer setting **C2** is set with **2, 3** or **5 sensors**



No. C4b End accumulator loading when temperature (parameter C4) has been reached on the selected sensor

☞ Only displayed when commissioning engineer setting **C2** is set with **2, 3** or **5 sensors**

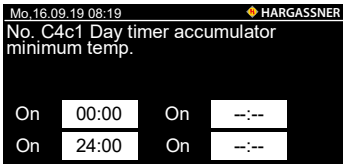


No. C4c Accumulator minimum temperature

Lower accumulator limit temperature

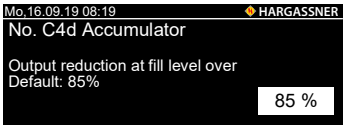
☞ When the accumulator temp is below the set value (accumulator sensor top), accumulator loading starts

☞ C4c must beat least 10°C lower than C4a



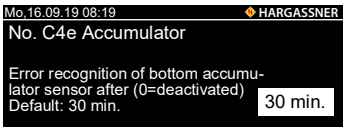
No. C4c1 Day timer for accumulator minimum temperature

☞ Used to specify the period in which the accumulator temperature in C4c is monitored



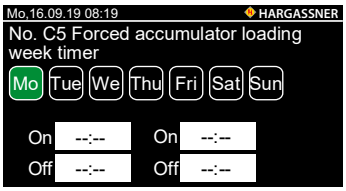
No. C4d Accumulator output reduction

☞ When the preset accumulator filling level is reached, the system's output is reduced



No. C4e Accumulator error recognition

☞ A warning is issued when the mixer is completely open for the preset time and the temperature at the bottom accumulator sensor is 11 °C below that of the return sensor



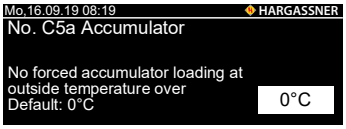
No. C5 Accumulator forced loading

☞ Setting the time for accumulator forced loading

☞ Displays only if parameter **C2** is set to **AT with 2 sensors** or **AT with 3 sensors**

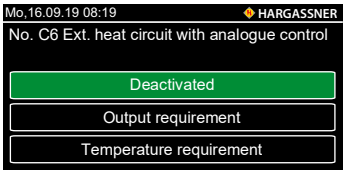
☞ Accumulator forced loading at the set time and activated set temperature

☞ E.g. for peak loads in the morning (e.g. 4:00 - 10:00)



No. C5a Accumulator forced loading

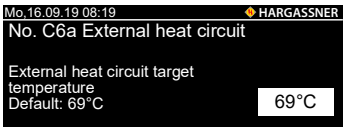
☞ No accumulator forced loading when the set outside temperature is exceeded



No. C6 External heat circuit with analogue control

☞ Setting whether the external heat circuit is controlled in an analogue way

- Deactivated
- Output requirement
- Temperature requirement

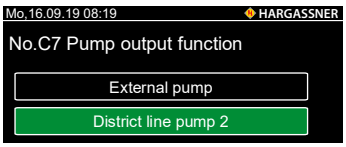


Nos. C6a and C6a_HT External heat circuit

☞ Adjusting the boiler set temperature for an activated external heat circuit

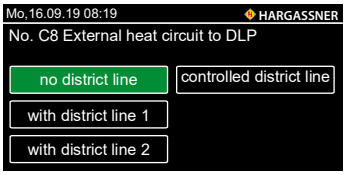
☞ If the value is changed and parameter **C7** is set to **External pump**, service parameter **L5** = 50 °C must be adjusted as well

☞ L5 ca. 5 - 10 °C less than **C6a**



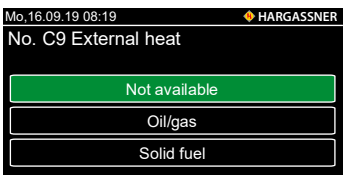
No.C7 Pump output function

- Pump external heat circuit
  - ☞ System is heated to the temperature set in parameter **C6a**
  - ☞ External heat circuit pump is switched on at release temperature (service setting **L5**)
- District line pump
  - ☞ District line runs when a heat circuit or HWT pump parameterised for **district line** is switched on



No. C8 External heat circuit to DLP

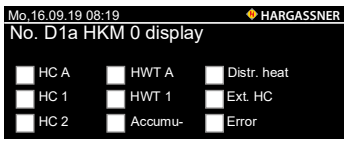
☞ District line pump runs if one of the referred pumps run



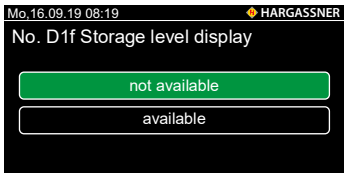
No. C9 External heat

- Not available
- Oil/gas boiler
- Solid fuel boiler

10.5 Parameter D - general



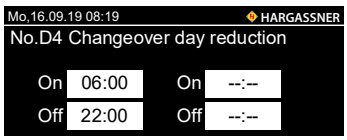
No. D1a Selection regarding display options at connected HKM 0
- Parameter No. D1b at connected HKM 1
- Parameter No. D1c at connected HKM 2



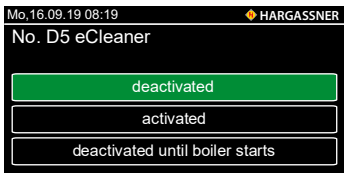
No. D1f Storage level display
☞ Used to specify whether the fuel storage level and consumption calculations are available

No. D2 Frost protection
☞ Heat circuit pumps are switched on when the value drops below the set value
☞ Heat circuits with mixers are adjusted to the **D3** parameter temperature

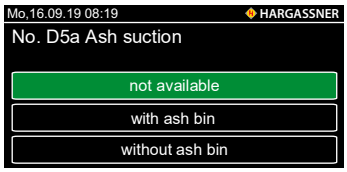
No. D3 Frost protection
☞ Flow temperature when parameter **D2** is not reached



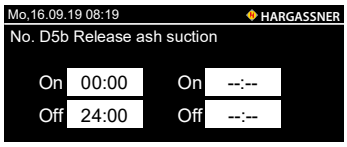
No.D4 Changeover day reduction
☞ Changeover point at which time the outside-temperature reduction logic changes from night to day settings (customer settings 12 and 13)



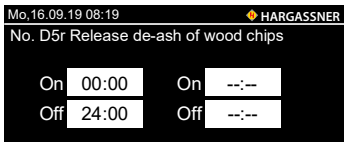
No. D5 eCleaner
☞ Used to specify whether the eCleaner is enabled



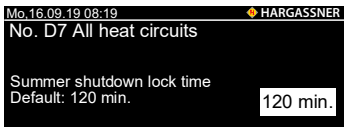
No. D5a Ash suction
- Not available
- With ash bin
- Without ash bin



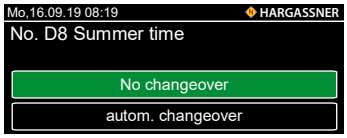
No. D5b Release ash suction
☞ The fully automatic ash suction process is only performed within the set time



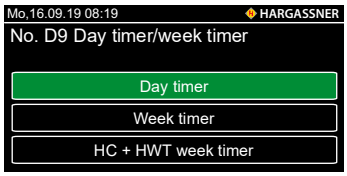
No. D5r Release de-ash of wood chips
☞ The de-ash is performed within the set time



No. D7 Summer shutdown lock time of all heat circuits
Duration of the switch-off delay for summer switch-off
☞ If the outside temperature rises above 16 °C for the duration of the set time (customer setting no. 11), the system switches off

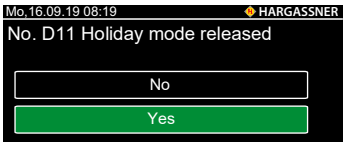


No. D8 Summer time
☞ Automatic changeover from summer to winter time

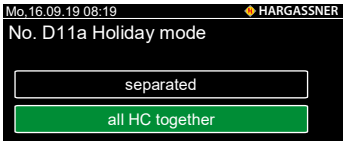


No. D9 Day timer/week timer
☞ Display day or week timer in the customer settings
- Day timer: Heat circuits and HWT on day timer
- Week timer: Heat circuits on week timer, HWT on day timer
- HC + HWT week timer: Heat circuits and HWT on week timer

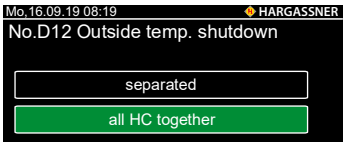
No. D10 Number of blocks for week timer
- ☞ Display in the customer settings
- ☞ Range: 1 - 7



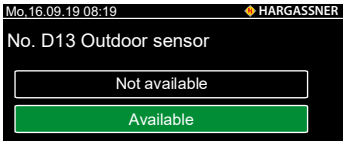
No. D11 Holiday mode released
- ☞ Holiday mode released in the customer settings



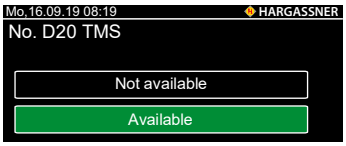
No. D11a Holiday mode
- ☞ Used to specify whether one common switch-off time can be set for all the heat circuits or whether each heat circuit has to be given its own switch-off time



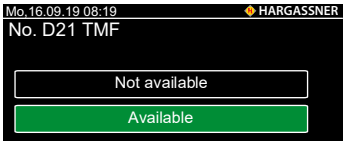
No.D12 Outside temp. shutdown
- ☞ Outdoor temperature switch-off values individually or for all heat circuits together



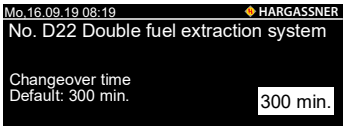
No. D13 Outdoor sensor
- ☞ Set whether an outdoor sensor is available
- ☞ Set to **not available** for active, external heat circuits



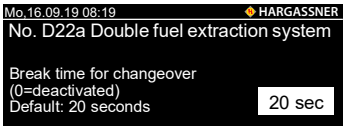
No. D20 Temperature monitor stoker auger
- ☞ Used to specify whether a stoker temperature monitor is available



No. D21 Temperature monitor in the fuel storage room
- ☞ Used to specify whether a temperature monitor is available in the fuel storage room

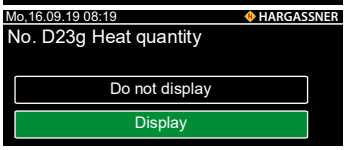


No. D22 Double fuel extraction system changeover time
- ☞ Setting the switch time between the fuel extractions

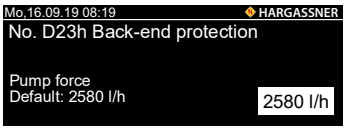


No. D22a Double fuel extraction system break time
- ☞ Setting the break between the changeover times

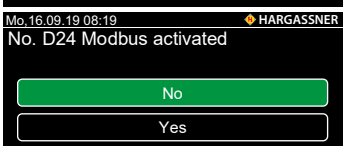
No. D23 Info / Trend
- ☞ Used to specify whether the graphical representations for records should be shown on the **Info Trend** page



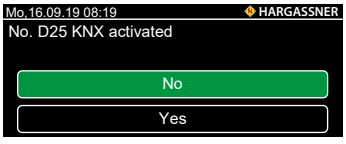
No. D23g Heat quantity
- ☞ Setting whether the heat quantity is displayed in the Info menu



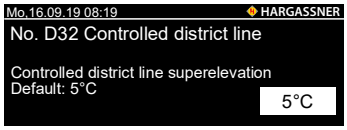
No. D23h Back-end protection
- ☞ Setting the pump force, for calculating the heat quantity



No. D24 Modbus activated
- ☞ Specifying whether a Modbus is available
- ☞ Only visible when a Modbus ID card is inserted

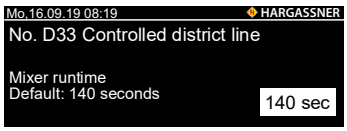


No. D25 KNX activated
- ☞ Specifying whether a KNX building controller is available
- ☞ Only visible when a KNX ID card is inserted



No. D32 Controlled district line

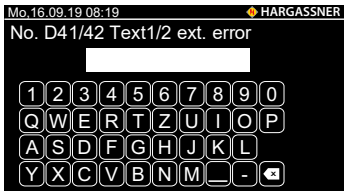
☞ Used to specify the heat source superelevation for when the controlled district line pump is switched on



No. D33 Controlled district line mixer runtime

☞ Mixer runtime from the closed to the open status

☞ Range: 10 - 300 sec.

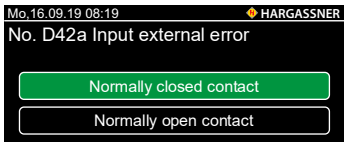


No. D41 Text1 external error

☞ External error (terminal 72/73) text that is issued on the display

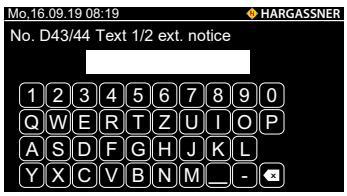
No. D42 Text2 external error

☞ External error (terminal 72/73) text that is issued on the display



No. D42a Input external error

☞ Setting whether the external input is normally closed or normally open

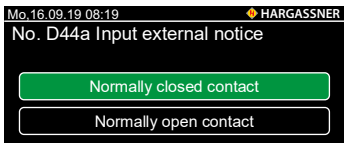


No. D43 Text 1 external notice

☞ External message (terminal 66/67) text that is issued on the display

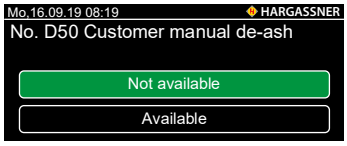
No. D44 Text 2 external notice

☞ External message (terminal 66/67) text that is issued on the display



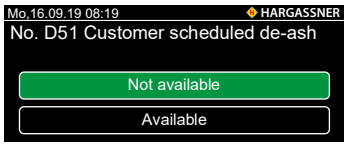
No. D44a Input external notice

☞ Setting whether the external input is normally closed or normally open



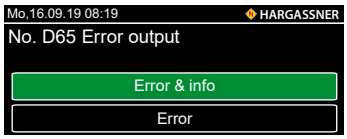
No. D50 Customer manual de-ash

☞ Used to specify whether the customer can start the de-ash by hand



No. D51 Customer scheduled de-ash

☞ Used to specify whether the customer can set a scheduled de-ash

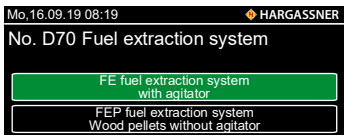


No. D65 Error output

☞ Used to specify whether the error output will emit a signal with messages and errors or just with errors (terminal 97)

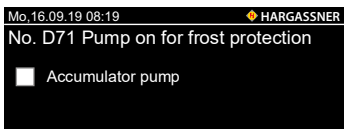
No. D66 Heat circuit / hot water tank on standard screen

☞ Used to specify whether the heat circuit / hot water tank is displayed on the standard screen



No. D70 Fuel extraction system

☞ Used to specify whether a fuel extraction system is available with or without an agitator



No. D71 Pump on for frost protection

Selection of the pumps that are active during frost protection.

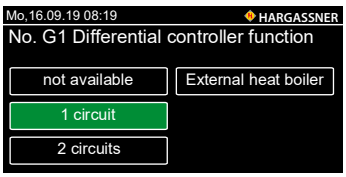
No. D73 Boiler frost protection

☞ If the boiler is in frost protection and the boiler temperature or return temperature falls below this value, the return mixer is opened and the selected pumps (D71) are switched on

10.6 Parameter E - languages

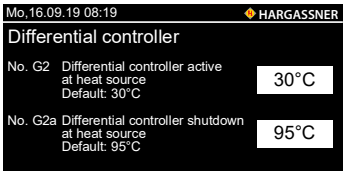
No. E1 Language

10.7 Parameter G - differential control



No. G1 Differential controller function

- Not available
- 1 circuit
- 2 circuits
- External heat boiler



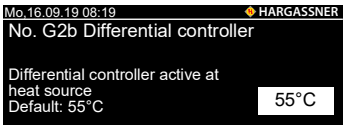
No.G2 Differential controller switch-on temp.

Set temperature the heat source sensor has to reach for differential controller to start regulating.

No.G2a Differential contr. switch-off temp.

Set temperature the heat source sensor has to reach for differential controller to stop regulating.

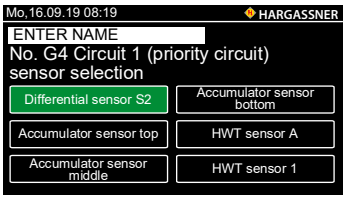
☞ Differential controller shutdown to protect boiler



No. G2b Differential controller's switch-on temperature

☞ Only active if **G1** is on **External heat boiler**

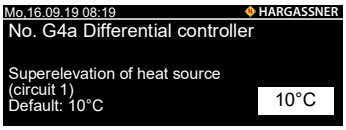
Set temperature the heat source sensor has to reach for differential controller to stop regulating.



No. G4 Circuit 1 (priority circuit) sensor selection

Set which sensor is used for differential control.

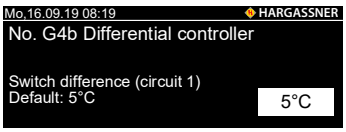
☞ Temperature will be determined using the heat source sensor and the sensor selected here



No. G4a Superelevation of heat source

Used to set heat source's superelevation.

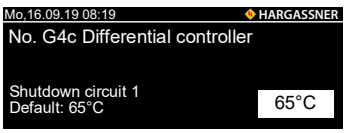
☞ If the heat source exceeds the first circuit's temperature plus the superelevation specified here, the pump will be activated



No. G4b Circuit 1 hysteresis

Used to set the heat source's hysteresis.

☞ If the heat source drops below the circuit's temperature plus the superelevation minus the hysteresis specified here, the pump will be switched off



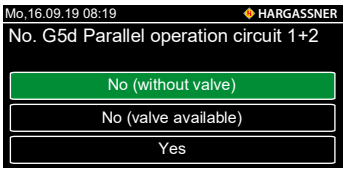
No. G4c Circuit 1 shutdown

Specify circuit 1's shutdown temperature.

☞ If circuit 1 reaches this shutdown temp., the pump will be switched off

Nos. G5 - G5c Circuit 2

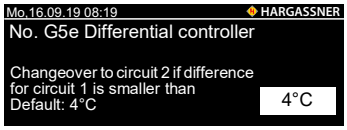
Same settings as **G4 - G4c**.



No. G5d Parallel operation circuit 1+2

Definition of parallel operation of the two circuits.

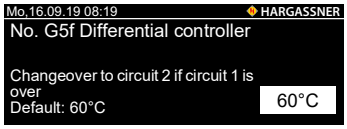
- **No (no valve available)**: Pumps for two circuits will not run simultan.
- **No (valve available)**: A changeover valve will switch between two circuits
  ☞ Only one pump is being used for both circuits
- **Yes**: The pumps for both circuits can be actuated at the same time
- **Caution:** For two-circuit operation with a pump and a changeover valve, select **No (valve available)**



No. G5e Temp. difference for changeovers to circuit 2

Specify temp. differ. betw. circuit 1 and heat source dictating if changeover to circuit 2 occurs.

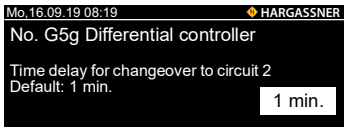
☞ If temp. difference is dropped below, controller will switch to circuit 2 after period specified in **G5g**



No.G5f Temperature for changeovers to circuit 2

Specify circuit 1 temp. dictating if changeover to circuit 2 occurs.

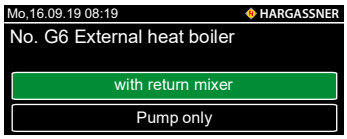
☞ If this temperature is reached, controller will switch to circuit 2



No. G5g Time delay for changeovers to circuit 2

Used to specify the time delay for changeovers to circuit 2.

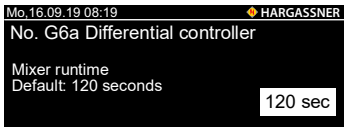
☞ If **G5e** and **G5f** are fulfilled in this period, controller will switch to circuit 2



No. G6 External heat boiler switch-on

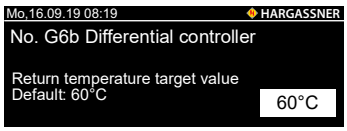
☞ Only active if **G1** is on **External heat boiler**

☞ Return temp. regulated by sensor specified in **G6e**



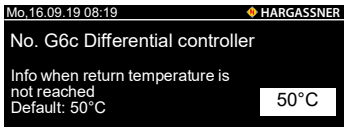
No. G6a External heat boiler mixer runtime

Set the external heat boiler's mixer run time.



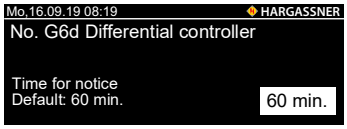
No. G6b External heat boiler return temp.

☞ Return temperature of heat source according to the manufacturer



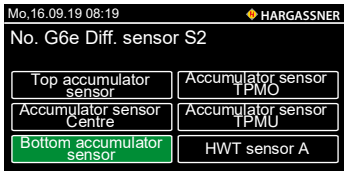
No. G6c Message if external heat boiler return temp. is not reached

Set the return temperature the external heat boiler has to drop below for a message to be issued.



No.G6d Period ext. heat boiler message

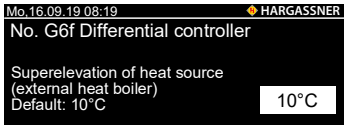
Used to specify how long the external heat boiler's return temperature has to be below the temperature specified in **G6c** for a message to be issued.



No. G6e External boiler S2 sensor selection

Set which sensor is used for differential control.

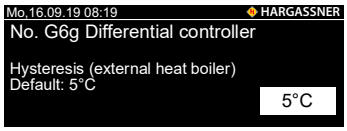
☞ Temperature will be determined using the heat source sensor and the sensor selected here



No. G6f Superelevation of heat source

Set from which temperature superelevation the differential controller is activated.

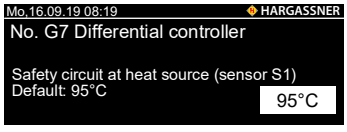
☞ If external heat boiler exceeds the circuit's temperature plus superelevation specified here, the pump will be activated



No. G6g External heat boiler hysteresis

Set the hysteresis of the external heat boiler.

☞ If the external heat boiler drops below the circuit's temperature plus the superelevation minus the hysteresis specified here, the pump will be switched off



No. G7 Safety control

Used to specify external heat boiler's maximum temperature.

☞ If external heat boiler exceeds this temperature, pump will be activated or remain activated and mixer will open

Nos. G11 - G17 External heat controller 2

Same settings as **G1 - G7**.

Nos. G21 - G28g PWM diff. controller

⇨ See installation manual for S additional board

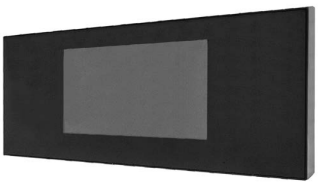
11 Optional remote controls

Using a remote control makes it easy to adjust the room temperature and also the heating and setback settings. The heating temperatures and times can be set and changed with the FR35 and FR40 digital remote controls. One heat circuit may be parametrised per remote control, which can be parametrised with or without using room temperature.

- 1 heat circuit on the extension board (**HC A** digital remote control only)
- 2 heat circuits per extension module (**HKM 0 - 2**)
- 2 heat circuits per heat circuit controller (**HKR 0 - 15**)

11.1 Digital remote control FR40

With the FR40, all the heat circuit functions available on the boiler can be set from wherever the remote control is in the user's living space.



Operation modes:

OFF

The heat circuit is switched off (except for frost protection).

AUTOMATIC

The heat circuit is operated according to set times.

PERMANENT REDUCTION (in automatic mode)

The heat circuit is in permanent reduced mode.

PERMANENT HEATING (in automatic mode)

The heat circuit is in permanent heating mode.

1x HEATING (heating on a single occasion)

The heat circuit switches to permanent heating mode on a single occasion and automatically reverts to automatic mode at the next preset heating time.

1x REDUCTION (reduction on a single occasion)

The heat circuit switches to permanent reduced mode on a single occasion and automatically reverts to automatic mode at the next preset heating time.

Fine adjustment of room temperature:

Increase of up to 3°C [37.4°F]

Decrease of up to 3°C [37.4°F]

11.2 Digital remote control FR35

The remote control is also available in a wireless version.
The following selection options are available on the remote control only when the boiler is in **Automatic** mode:

- Selection of the heat circuit's operating mode
- Selection of modes at remote control

Operation modes:

OFF
The heat circuit is switched off (except for frost protection).

AUTOMATIC
The heat circuit is operated according to set times.

PERMANENT REDUCTION (in automatic mode)
The heat circuit is in permanent reduced mode.

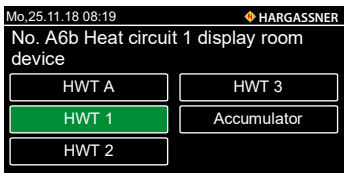
PERMANENT HEATING (in automatic mode)
The heat circuit is in permanent heating mode.

1x HEATING (heating on a single occasion)
The heat circuit switches to permanent heating mode on a single occasion and automatically reverts to automatic mode at the next preset heating time.

1x REDUCTION (reduction on a single occasion)
The heat circuit switches to permanent reduced mode on a single occasion and automatically reverts to automatic mode at the next preset heating time.

Fine adjustment of room temperature:
/ Increase / decrease of 2 to 3°C [35.6°F to 37.4°F]

Fault lamp:
Lights up if an error occurs on the boiler



Display parameters:
Select which temperature should be shown on the room device (FR35).

- HWT temperature 1 - A
- Accumulator fill level

11.3 Analogue remote control FR25 (only on HKM or HKR heat circuits)

The following selection options are available on the remote control only when the boiler is in Automatic mode :

Selection of the heat circuit's operating mode with the rocker switch

The heat circuit switches to permanent reduced mode.

The heat circuit switches to day / week mode.

The heat circuit switches to permanent heating mode.

Fine adjusting the room temperature with the rotary knob
Increase / decrease of up to 3°C [37.4°F].

Fault lamp:
Lights up if an error occurs on the boiler.

Chapter IV: Cleaning



D A N G E R

Risk of injury due to moving parts

- Refrain from accessing augers or motors when the boiler is switched on
- Do not work on the boiler while people are in the danger zone
  ☞ Secure / lock storage room
- Only clean the augers and remove blockages using suitable tools and when the main power switch is turned off and locked
- The spring blades of the fuel extraction system are retracted under the cover disc and are under tension when the fuel storage room is completely full
  ☞ The spring blades may release and shoot up suddenly
- Watch out for the spring blade positions when entering the fuel storage room
- Only eliminate cavity formations using rods and shovels
- Wear safety shoes
- Observe storage room sticker

D A N G E R

Electric shock from contact with live terminals

- Observe information signs
- Check that there is no voltage before beginning any work



D A N G E R

Risk of injury from reaching into a danger zone due to re-commissioning

- Before carrying out any work on the system, turn off the main power switch and prevent it from being turned on again by securing it with a padlock. Keep the key with you for the duration of your work. Only hand out the key for the lock to the person in charge
- After triggering main power switch, do not reach into the danger zone without thinking
- Rectify error
- When re-commissioning, check that no person is in the danger zone

D A N G E R

Risk of burning from inflammable materials

- Do not spray any inflammable sprays on hot surfaces (e.g. lubricating moving parts in the combustion chamber)
  - ☞ Spray drops can cause explosive fire
- Do not use any inflammable lubricants
- Allow system (combustion chamber) to cool down

Risk of fire in the vacuum cleaner

- Let ash cool down prior to vacuum-cleaning

A T T E N T I O N

Formation of dust and smoke due to system leakages

- Clean sealing surfaces with industrial alcohol and a dry and soft (scratch-free) cloth only
- Make sure the cleansing material is evaporated before commissioning

Dirt and boiler breakdown due to escaping ash

- Empty and clean according to the maintenance instructions
- Ash may escape when the ash box is overfilled
- Ash box must be positioned correctly and locked on both sides

☞ Small cracks may occur in the refractory in regular operation. These are stress cracks that form an expansion joint.
This cracking is important and does not lead to any functional impairment. The customer is therefore not entitled to claim for this while the boiler is under guarantee

☞ The specified cleaning and maintenance intervals are absolutely necessary for safe and clean operation of the system.
State regulations and the responsible chimney sweep's inspection and sweeping intervals dictated by these regulations must be observed

1 Maintenance contract

If you sign a maintenance contract with Hargassner Ges mbH, the annual cleaning and maintenance takes place during the annual service performed by personnel authorised by Hargassner.
Service must be carried out regularly by the manufacturer (every one to three years) depending on your country's regulations. This service must be carried out by the manufacturer or by trained and authorised individuals.

☞ To ensure optimum operation of the system, extensive cleaning of the boiler is required
  ☞ At least once a year
  ☞ After a set number of operating hours in the event of an error

☞ The cleaning intervals will change or shorten depending on the composition of the fuel and if low-grade material is used

2 Weekly/monthly cleaning and checks

2.1 Weekly intervals

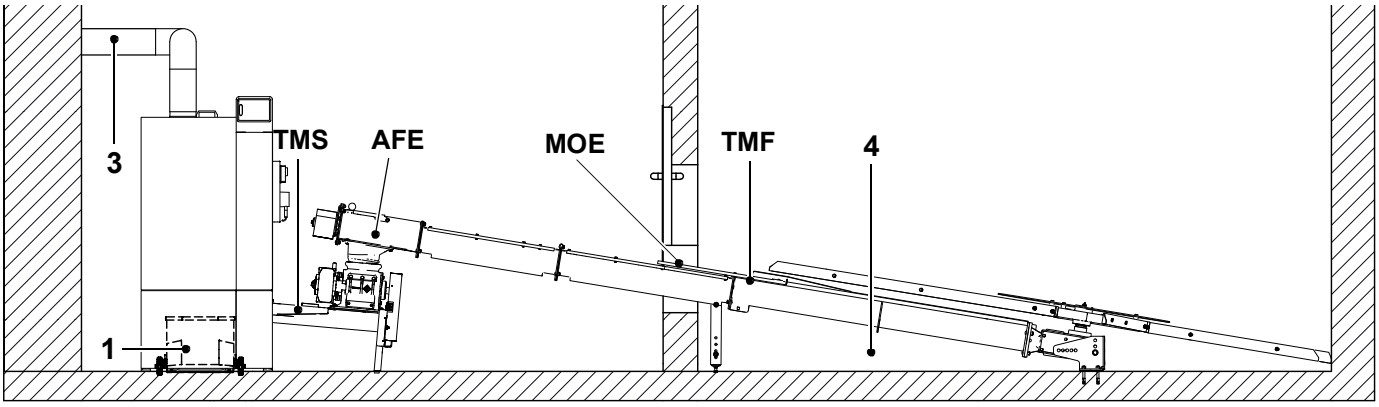
- ❒ Carry out a visual check of the entire system, including the fuel storage chamber, once a week
  - ↳ Rectify identified defects immediately
- ❒ Empty ash box **(1)** if required

	N O T E
☞	**Disposal of the created ash** ☞ Dispose ash according to country-specific regulations ☞ If natural wood is used as a fuel, then the ash can be regarded as a high-quality mineral fertilizer and can be used for composting ☞ **Caution:** watch out for ember pockets

2.2 Monthly intervals

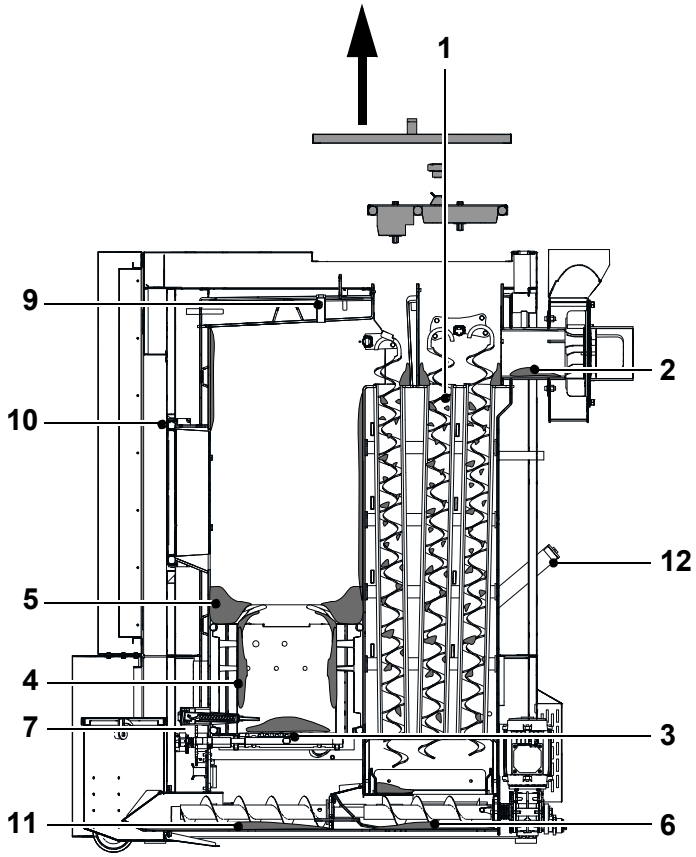
⇨ See "Monthly checks" in the commissioning book

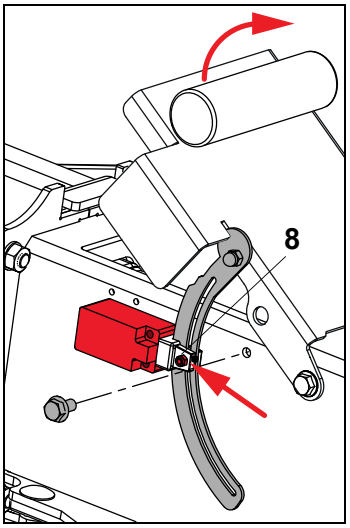
- ❒ Check the safety equipment **(2)** (TRVB H118)
  - ☞ This may be waived if an annual inspection is performed by the manufacturer
  - ⇨ See "Maintenance contract" on page 57.
- ❒ Check the flue pipe **(3)**
- ❒ Ensuring proper condition of the boiler room
- ❒ Readiness of portable fire extinguishers
- ❒ Ensuring proper storage of ash
- ❒ Remove debris under the fuel extraction system **(4)**
  - ☞ After each emptying of the storage room



Item	Cleaning tasks and checks	Frequency
1	Clean and empty ash box (optionally ash suction)	as required
2	Check safety devices (main switch, safety valve of TMS, MOE / AFE, TMF)	Once a month (waived if a maintenance contract has been signed)
3	Check and clean flue pipe (more often at excessive contamination)	1x monthly
4	Remove debris and larger wood pieces	after each emptying

3 Annual cleaning





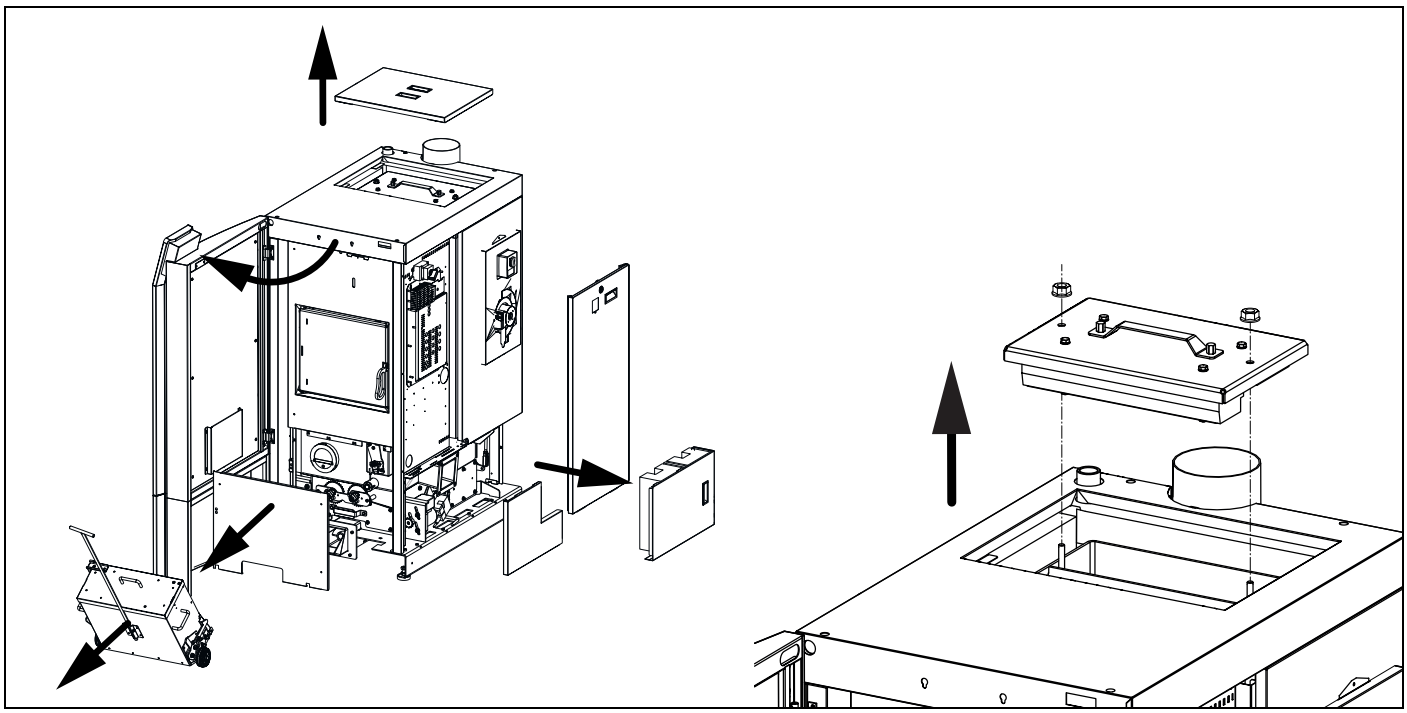
Item	Cleaning tasks	Item	Cleaning tasks
1	Pull out turbulators, tap off and clean the turbulator space	8	Grease rivet at position switch
2	Clean flue gas exhaust fan and flue pipe with vacuum cleaner	9	Clean lambda sensor and combustion chamber sensor
3	Clean rust holes	10	Check sealings
4	Clean combustion chamber with ash cleaner	11	Remove ash under the grate (especially from by the ash grate)
5	Remove and clean flame concentration plate	12	Clean recirculation with vacuum cleaner
6	Remove maintenance opening and clean fly ash space	13	Check the safety devices (main switch, TMS, MOE / AFE, TMF and warning device)
7	Clean ignition		
Frequency: at least once annually and no later than after 4000 full-load hrs, 8000 partial-load hrs or after a message has appeared on the control panel			

☞ Boiler monitoring and cleaning intervals are based on the operation hours and fuel quality.
Observe country-specific regulations and the inspection and sweeping intervals dictated by these

IV Cleaning

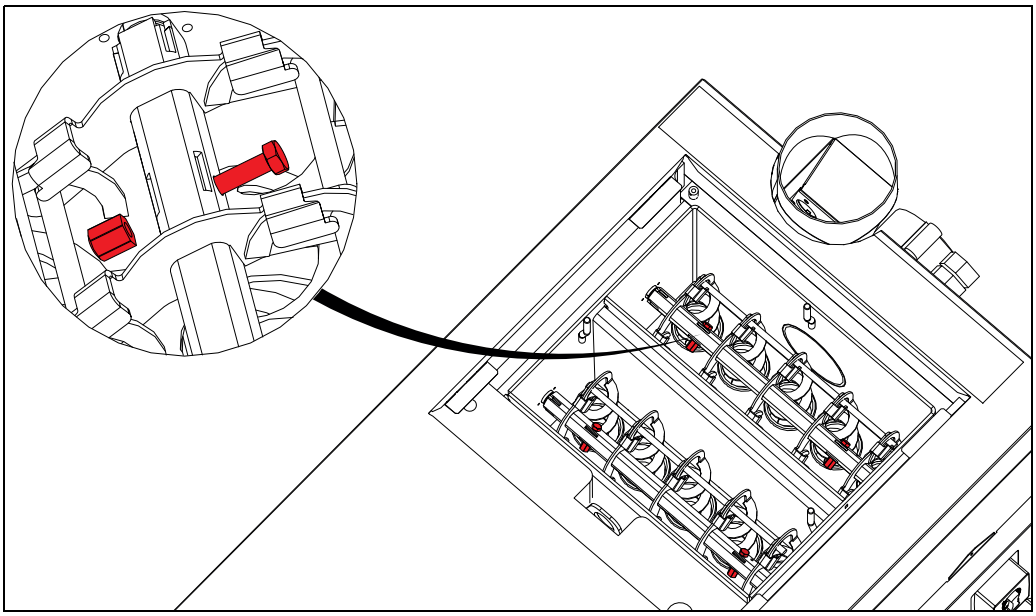
3.1 Preparation for cleaning

- ❒ Switch off system at the control unit (BCE) (**Off** operating mode)
- ❒ Let boiler cool down
- ❒ Disconnect the boiler from the power supply (**Off** main switch)



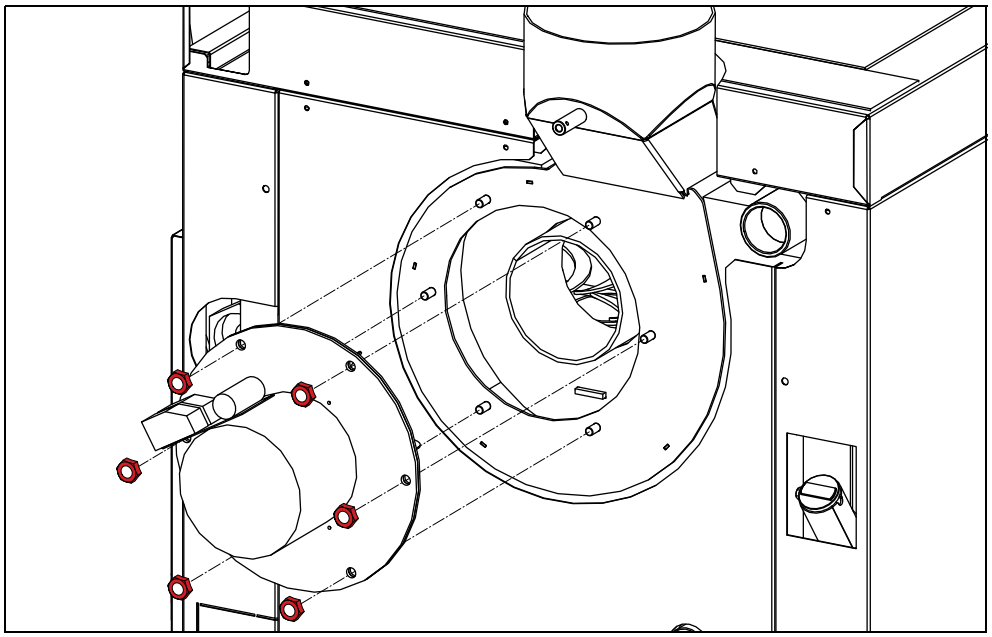
- ❒ Remove cover lid and maintenance lid
  - ☞ Clean maintenance lid over the heat exchanger
- ❒ Open the cover door and remove the ash box
- ❒ Dismount lower front wall
  - ❒ Remove 4 screws
  - ❒ Disconnect ash box switch
  - ❒ Pull cover forwards
- ❒ Remove the cover of the control box
- ❒ Remove lower side covers
  - ❒ Loosen screw at the back cover of the fly ash space
  - ❒ Pull cover backwards and remove
  - ❒ Remove insulation
  - ❒ Lift cover from the stoker and remove

3.2 Cleaning the turbulators and the turbulator chamber



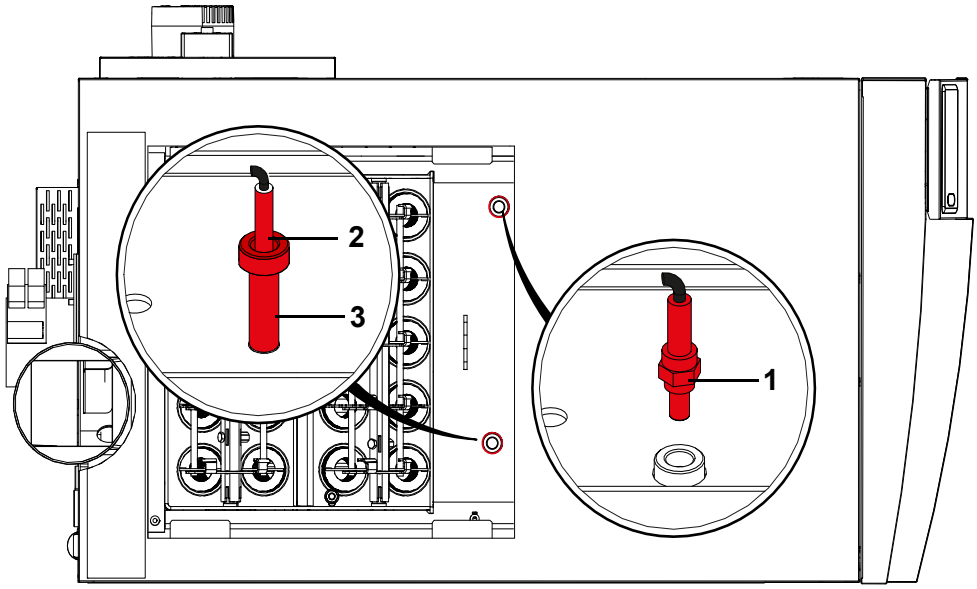
❒ Loosen the turbulators' fixing points
❒ Tap turbulators and remove upwards

3.3 Cleaning the flue pipe



❒ Disconnect electrical connection from the motor
❒ Loosen copper nuts and remove exhaust fan backwards
☞ The ring sealing on the exhaust fan housing protects the exhaust fan seal from sticking to the housing
↳ If the exhaust fan sealing gets stuck, replace both it and the ring sealing
❒ Clean dirt from the flue pipe, housing and impeller
☞ Don't damage the impeller (don't use compressed air)
❒ Clean recirculation junction of the housing
☞ Clean with vacuum cleaner

3.4 Cleaning the lambda sensor and the combustion chamber sensor

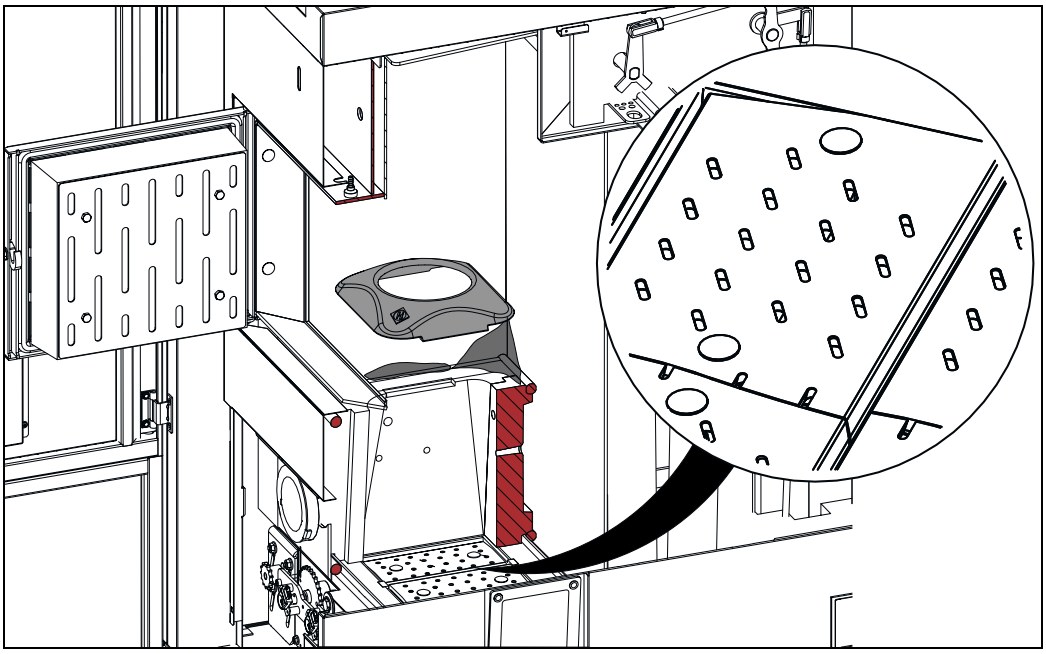


- ❒ Disconnect and unscrew the lambda sensor **(1)**
- ❒ Place sensor head down
- ❒ Remove dirt with a soft cloth
  - ☞ Debris falls down

	N O T E
☞	• Do NOT "tap" the sensor! • Do not blow off with compressed air • Do not touch the sensor with sharp items and do not use any chemicals for cleaning (brake cleaning fluid, etc.)

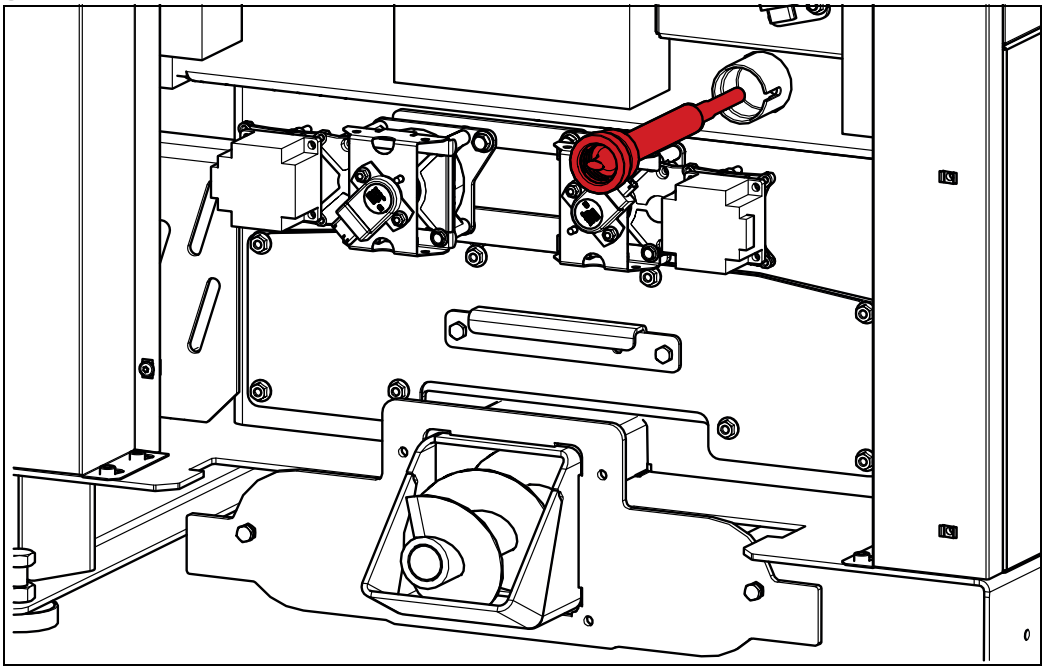
- ❒ Pull out the combustion chamber sensor **(2)** and the ceramic protective pipe **(3)** if present and wipe them with a soft cloth

3.5 Cleaning the combustion chamber and post-combustion chamber



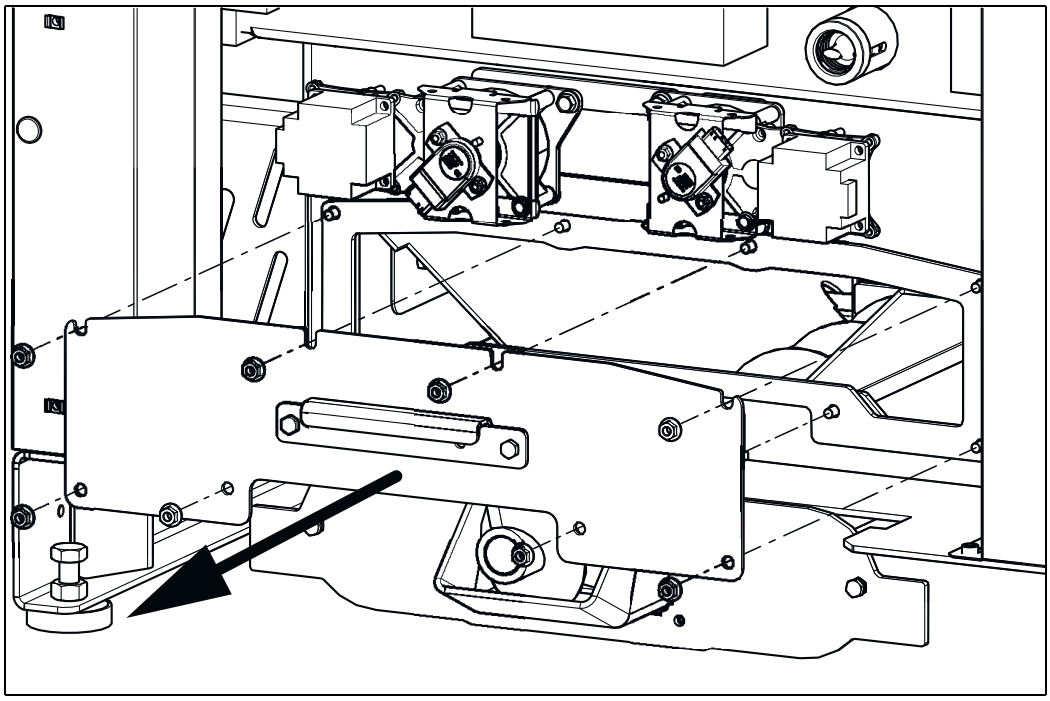
- ❒ Open combustion chamber door
- ❒ Remove flame concentration plate from combustion chamber
- ❒ Clean flame concentration plate in the combustion chamber
- ❒ Clean the combustion chamber and post-combustion chamber with a cleaning stick
- ❒ Clean the rotating grates and ensure the holes are free of any dirt

3.6 Cleaning the ignition

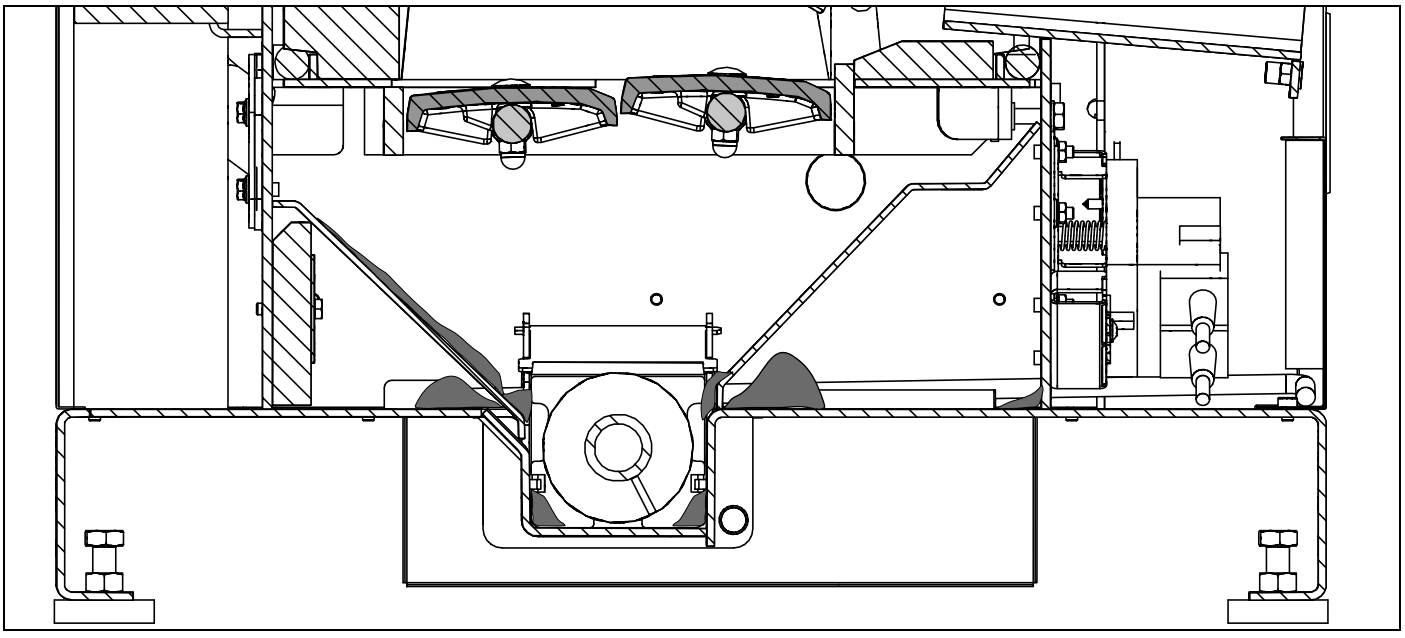


- ❒ Loosen electric connection to the ignition
- ❒ Unscrew the ignition
- ❒ Clean ignition and ignition sleeve (on the boiler) using a vacuum cleaner
- ☞ Mount ignition hand-tight only

3.7 Cleaning the ash chamber

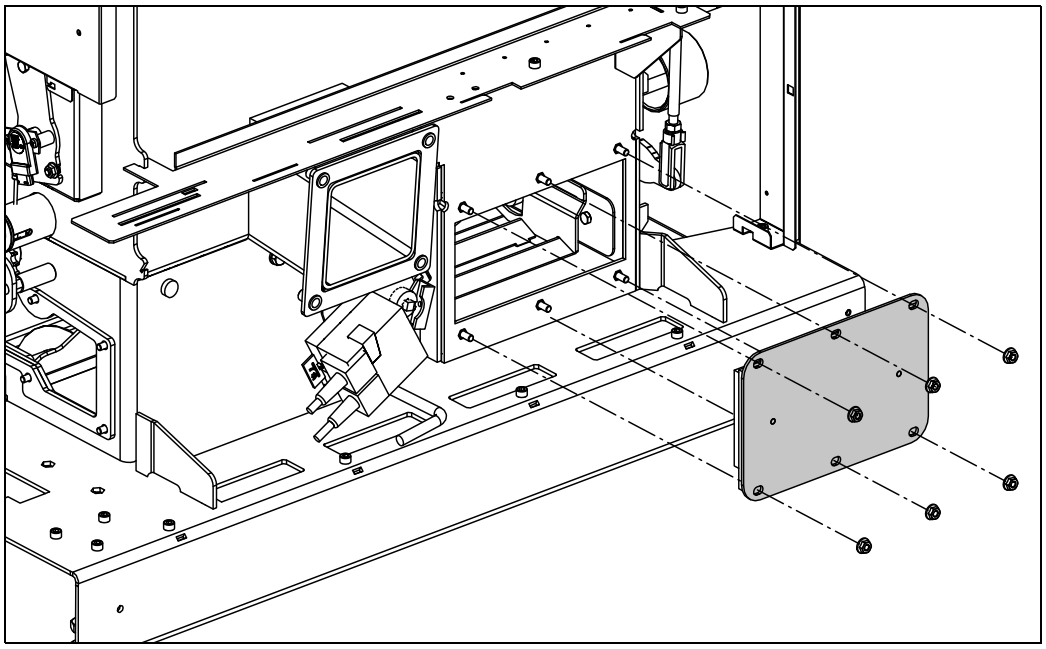


❒ Loosen the maintenance lid's fastenings and remove it

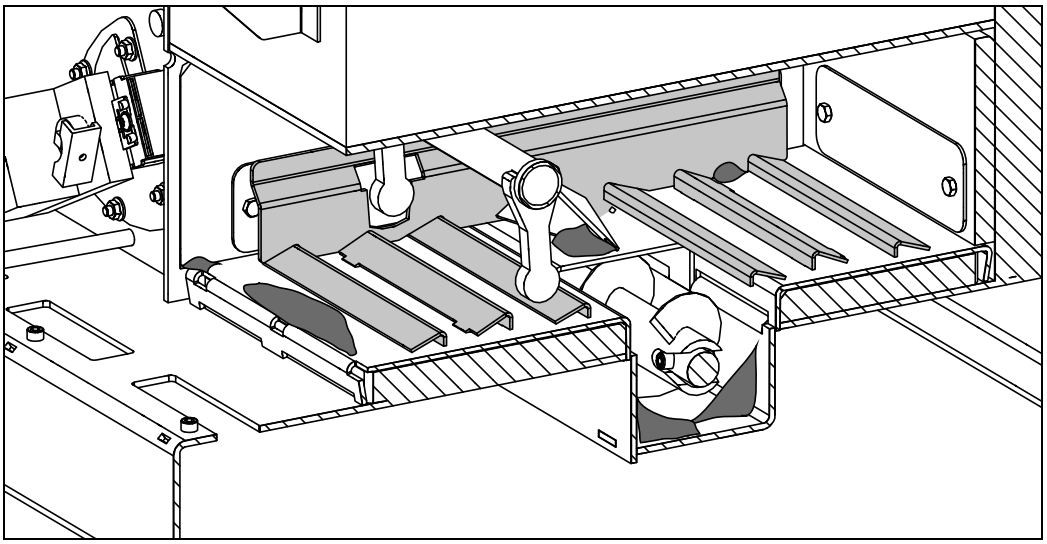


❒ Remove any accumulated ash and debris from the ash chamber
☞ Especially from under the ash grate

3.8 Cleaning the fly ash chamber

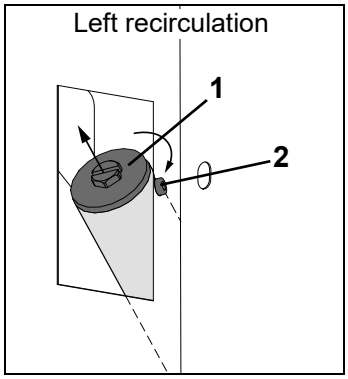


❒ Loosen the fastenings of the fly ash chamber's cover and remove it

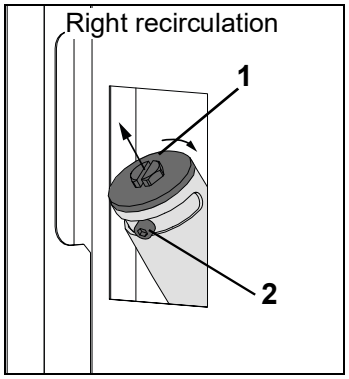


❒ Remove any accumulated ash and debris from the fly ash chamber

3.9 Cleaning the recirculation



❒ Mark recirculation settings
❒ Turn the recirculation slider **(1)** until the screw **(2)** can be loosened
❒ Unscrew completely
❒ Pull the recirculation slider out of the tube
❒ Clean slider of recirculation and tube with vacuum cleaner



4 Disposal information

4.1 Disposal of created ash

- ❒ Ash must be disposed of according to your national waste management regulations (Austria: AWG Waste Management Act)
  - ☞ If natural wood is used as a fuel, then the ash can be regarded as a high-quality mineral fertilizer and can be used for composting
- ☞ **Caution:** watch out for ember pockets

4.2 Disposal of wear and spare parts

- ❒ Disposal of the wear and spare parts must be according to your national waste management regulations (Austria: AWG Waste Management Act).
  - ☞ Only use equivalent spare parts approved by Hargassner Ges mbH

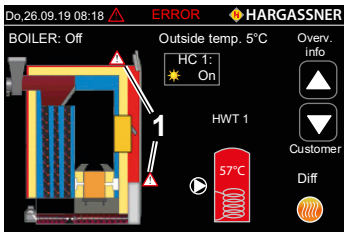
4.3 Disposal of system components

- ❒ Ensure environmentally compatible disposal in accordance with country-specific regulations (Austria: AWG Waste Management Act)
- ❒ Recyclable materials must be cleaned and sorted before being passed on for recycling
  - System (boiler)
  - Fuel extraction system
  - Insulation material
  - Electrical and electronic parts
  - Plastics

Chapter V: Troubleshooting

	ATTENTION
	**Injuries or damage to the boiler due to deviation from regular operation** • Contact the commissioning engineer/Hargassner immediately in case of higher power consumption, higher temperatures or vibrations of motors, unusual noises or smells, release of safety devices, etc. • Perform mandatory maintenance and inspection tasks regularly

1 Information and error display



Information and error messages are displayed on the touchscreen.

☞ A warning triangle appears on the standard menu at the position where the error has occurred **(1)**

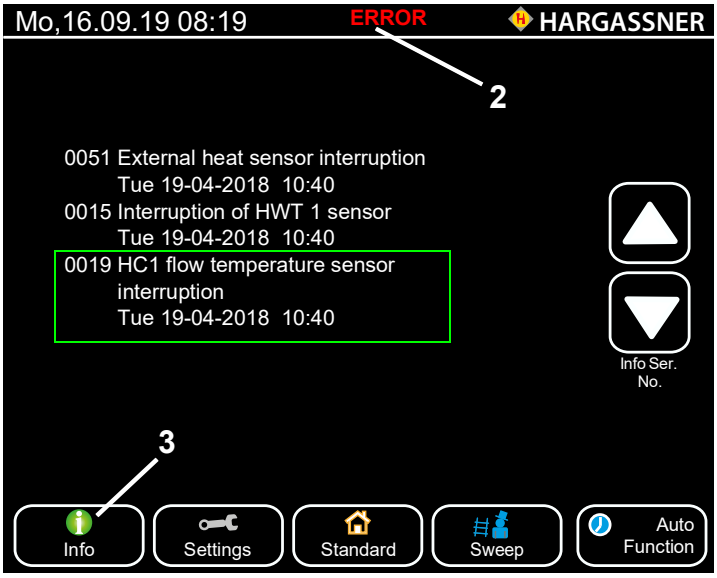
☞ Yellow triangle = information

☞ Red triangle = error

The following instructions for rectifying errors are intended for the operator of the system

If it is not possible to rectify the error through the operator, the commissioning engineer/Hargassner must be informed

2 Viewing the error list



❒ If error messages occur, press **Error (2)**

☞ Displays the error list (current errors)

3 Acknowledging and rectifying an error

❒ Press the info button **(3)**

❒ Follow the instructions to rectify the error

❒ After rectifying the error, press the  button

4 BCE failure

A T T E N T I O N

Risk of injury

Electric shock from contact with live terminals

- Observe information signs
- Before starting work, check that no voltage is present using a voltmeter

A BCE failure can occur due to a defective fuse, missing power supply or missing connection to the main board.

❒ Check the voltage supply and fuse
  ☞ Fuse F13 on the main board
  ☞ Mains supply of terminal L / PE / N
❒ Check LED H7 on the main board
  ☞ Check CAN bus cable
  ☞ Replace BCE or cable

⇨ See Electrical manual

5 Temporary emergency operation (restart without HW test)

If the error is clearly a result of a defective main board, i.e. the connected component functions correctly, control can be run in **temporary emergency operation** (until the service department arrives) without a hardware test of the component in question.

❒ Ignore the hardware test as soon as the error message appears or
❒ Switch to **Manual** operating mode on the control unit
❒ Switch to the respective manual parameter
❒ Confirm **Without HW test**
❒ Boiler operates with max. 60% output

Appendix

	N O T E
	**Please be advised that we do not accept responsibility for damage or malfunctions resulting from non-observance of the manual.**

1 Copyright notice

This manual should be kept confidential. The manual is intended solely to be used by authorised persons.
The transfer to third parties is prohibited and is liable to compensation. All rights reserved, also translations.
No part of this manual may be reproduced or processed, duplicated or distributed using electronic systems without the permission of Hargassner Ges mbH.

1.1 Measures prior to commissioning by the operator

Licensing requirements for safe operation and accident prevention regulations must be observed!
Work on hydraulic systems must be carried out only by personnel with specialised knowledge and experience in hydraulics.

1.2 Liability

This **wood biomass boiler** has been manufactured and tested in accordance with recognised safety regulations and the latest engineering standards, and is therefore safe to operate. However, improper use may cause lethal hazards for the operator or third parties or may damage the unit and other property.

This **wood biomass boiler** must only be used as intended, when it's in technically perfect condition and with safety and danger in mind. Especially errors tending to affect the safety shall be cleared immediately.

Liability for the **wood biomass boiler** functioning correctly will always be borne by the owner or operator if the device has been improperly maintained or repaired by individuals who have not been authorised by Hargassner Ges mbH or has been handled or operated in a manner that does not comply with the device's intended use.
In the interest of the continuous development and improvement of our products, we reserve all rights to make technical changes to the information contained in our printed material.
These kinds of changes, errors and misprints do not constitute grounds for any claims for damages.
Only original Hargassner spare parts and accessories must be used.
In addition to the guidelines in this operation manual, please follow general guidelines for safety and accident prevention. Hargassner Ges mbH is not liable for any damage resulting from failure to observe the instructions and guidelines in this manual. This boiler system's reliability is guaranteed by **Hargassner Ges mbH** vast experience, very modern production methods and extremely high quality standards. **Hargassner Ges mbH cannot** be held liable for safe operation of the **wood biomass boiler** if it has been handled or operated in a manner that does not comply with its intended use.

The customer has NO warranty claims:

- if heating fuel is missing wrong or of poor quality
- if damages occur through incorrect assembly, misuse or lack of maintenance
- if the installation manual and operation manual is NOT observed
- for defects that do not affect the performance of the system. E.g.: Paint defects,....
- for damages arising from force majeure like fire, flooding, lightning stroke, electrical surge, power loss, ...
- if a non-licensed installer or non-licensed plumber installs the product
- for damage caused by air pollution, heavy dust, aggressive vapours, oxygen corrosion (non diffusion-tight plastic tubing), installation in inappropriate rooms (laundry room, hobby room, ...) or continued use despite the occurrence of a defect

To ensure repair or maintenance work relating to defects and malfunctions not mentioned in this manual is carried out properly, always contact **Hargassner Ges mbH** beforehand.
The warranty and liability terms in **Hargassner Ges mbH** general terms and conditions will not be extended because of information in this manual.
The **safety instructions** in this manual must be observed. Only use Hargassner replacement parts or equivalent replacement parts that have been approved by **Hargassner Ges mbH**. Constant technical innovations mean that we reserve the right to modify the design of our products and services without notice.
Please make sure you include the **serial number** of your **wood biomass boiler** in any queries.

We wish you all the best with this **wood biomass boiler** from Hargassner.

Declaration of Conformity

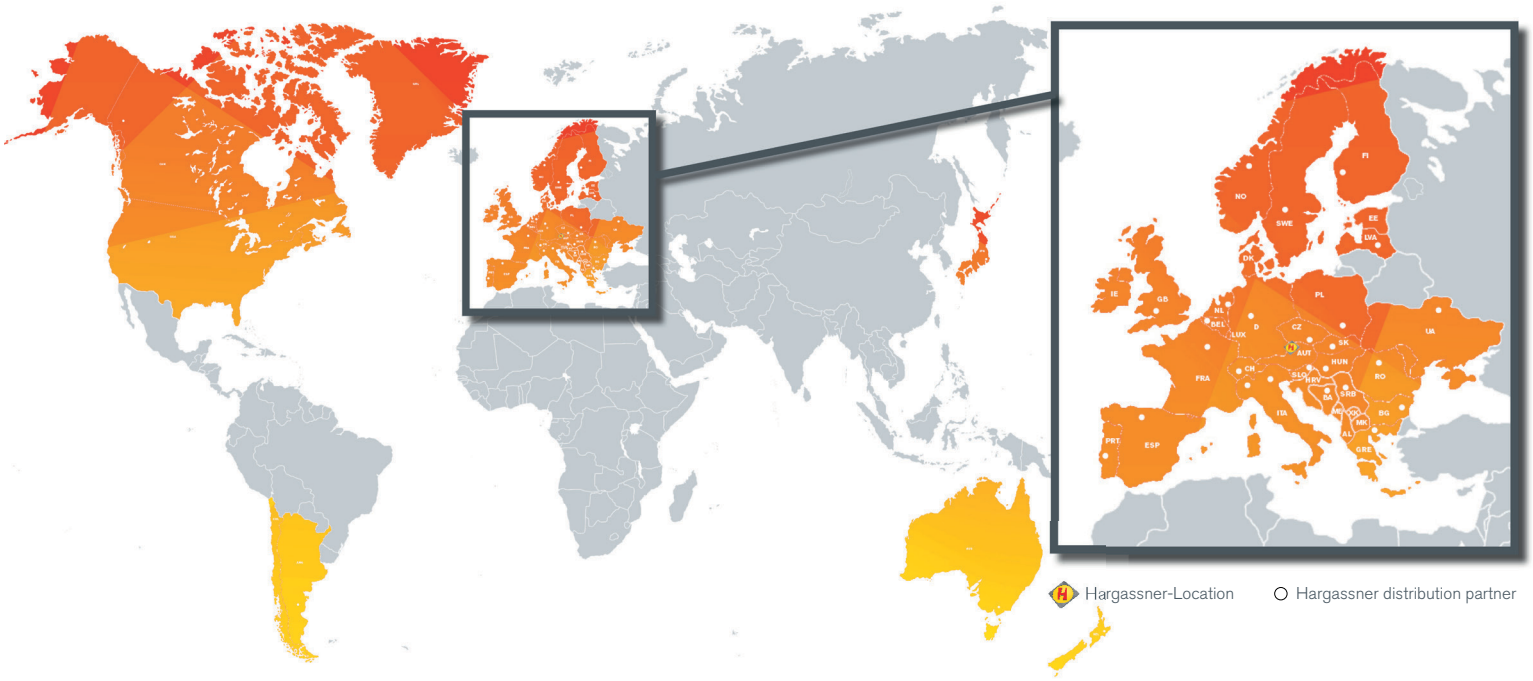
HARGASSNER
HEIZTECHNIK DER ZUKUNFT

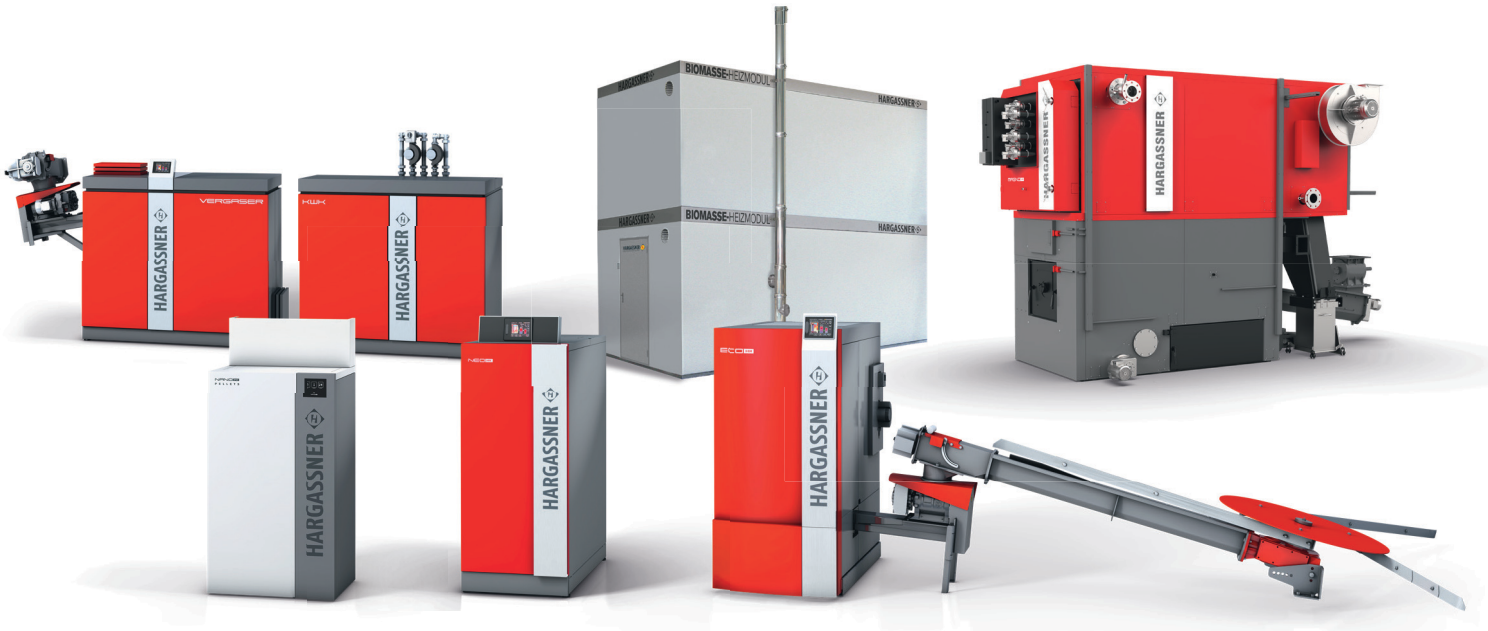
Manufacturer:	**HARGASSNER Ges mbH** **Anton Hargassner Strasse 1** **A - 4952 Weng** **AUSTRIA** The manufacturer is also the party authorised to put together the accompanying technical documents.
Type of machine:	**Boiler for solid fuels with automatic loading**
Type:	**WOOD CHIP BOILERS** **Eco-HK 70-120** **Also available with a fuel extraction system** ECO-RA, RAC, RAP **Also available with eCleaner particulate filter**
Standard:	**From 23.09.2019**
The manufacturer hereby declares that the products mentioned above comply with the regulations laid down in the following European directives: Directives:	• Machinery Directive 2006/42/EC • Low Voltage Directive 2014/35/EU • EMC Directive 2014/30/EU • Ecodesign Directive (EU) 2015/1189
Conformity with the guidelines is verified through the manufacturer's compliance with the relevant requirements, which are laid down in the following standards among other places: Standards:	• EN 303-5:2012 Heating boilers for solid fuels, manually and automatically stoked, nominal heat output of up to 500 kW • EN ISO 12100:2010 Safety of machinery - General principles for design - Risk assessment and risk reduction • ÖNORM EN 60335-2-102:2016 Household and similar electrical appliances - Safety - Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections • DIN EN 60730-1:2017 Automatic electrical controls - General requirements
Place, date:	Weng, 23.09.2019
Name: Signature: Function:	Dr Johann Gruber ..... Head of Development

notes

HARGASSNER

Your expert for **PELLET | WOOD LOG | WOOD CHIP** HEATING





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