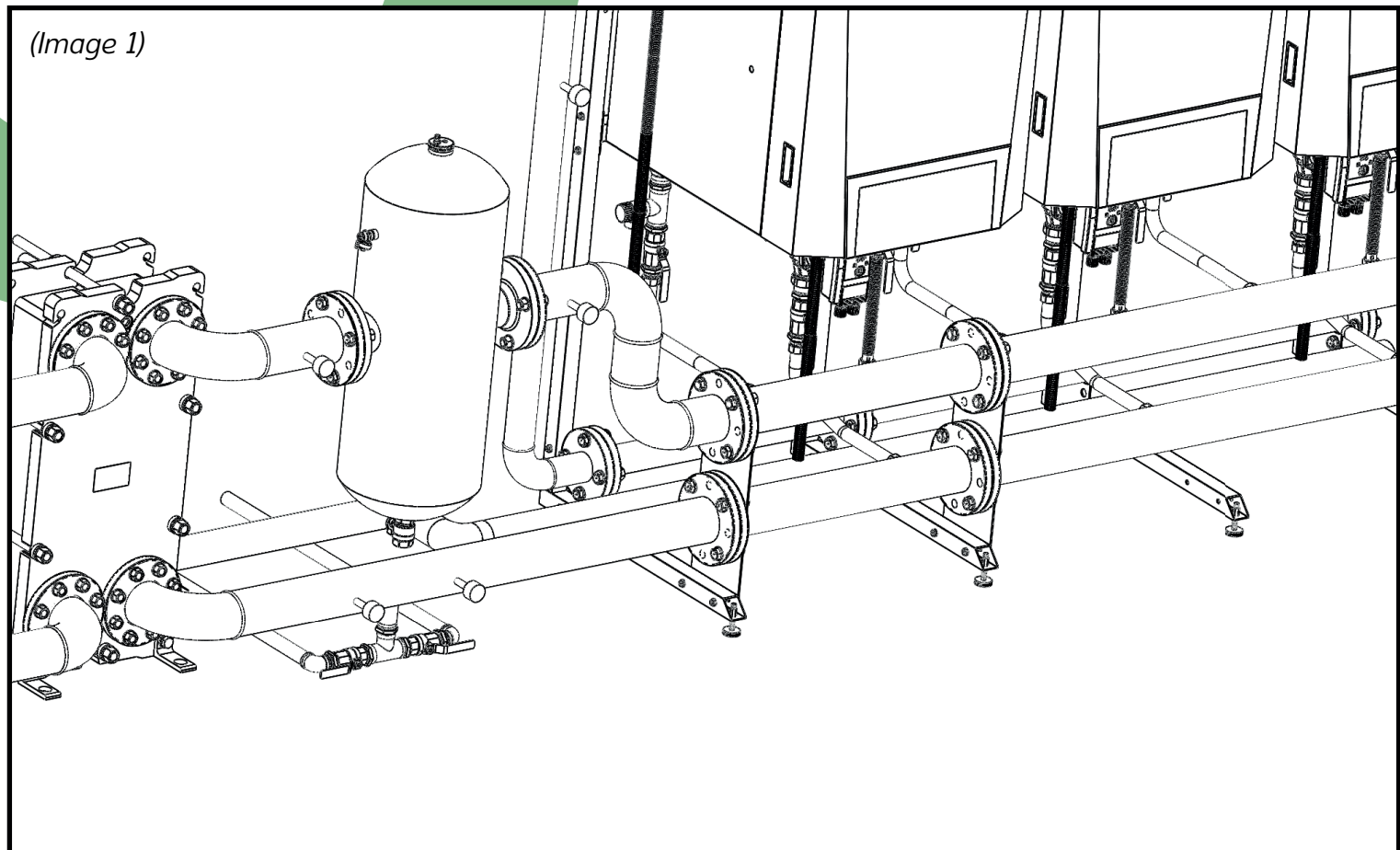


# Product Commissioning, Operation and Maintenance Manual

Gas Fired Wall Mounted Condensing Equipment

**X-130 AND X-150 Series**



**GRON**

## PREAMBLE

First of all, thank you for choosing **GRON** brand and quality. This manual covers information about commissioning, operation and maintenance of our stainless exchanger equipment which are our own production. Before considering the instructions herein, you need to have examined the “Product Technical Brochure” and fulfilled the instructions set forth in the “Product Installation Guide”.

**GRON** company is not only an equipment manufacturer, but also is counted among a few heat exchanger producers in the world. This heat exchanger is the combustion chamber and most important part of the equipment. This product has been invented and patented in the name of our company as an outcome of 3-year R&D studies. Therefore, preferring **GRON** product does not only mean purchasing a heating device, but also ensuring long-term durability and safe comfort thanks to its unique heat exchanger design.

Maximum security conditions have been taken into consideration in the design process of our equipment, which are produced by using the latest technological methods.

Furthermore, contrary to many firms, each equipment produced by GRON company is subjected to safety tests, as well as productivity and emission tests via laboratory devices before their packaging. Thereby, economy and environmental sensitivity are also attached importance in addition to the maximum safety. **THEREFORE, THE INSTRUCTIONS UNDER THE GAS CONFIGURATION SECTION IN THIS MANUAL SHOULD NOT BE IMPLEMENTED UNLESS ABSOLUTELY NECESSARY.**

Please read this guide carefully to ensure sustainability of long-term reliable comfort offered by our firm. In case you encounter any item not included in the guide or do not understand any item, please contact our authorized service or firm. We will be glad to help you.

Please keep this guide near the product. We hope you to enjoy the GRON product!

Regards,

**GRON**  
Hasan Hüseyin ERASLAN



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# 1. Symbol Explanations and General Information

## 1.1 Symbol Explanations

Warning symbols used in this document and their explanations are mentioned below.



Safety warnings used in this document are indicated with the warning triangle on the left



Electrical hazard warnings in the document are indicated with the symbol on the left.



Actions that should be strictly prevented are indicated with the symbol on the left.



Important information in the text are shown with the symbol on the left.

Warning words in the document and their explanations are mentioned below.

- **DANGER:** Indicates that fatal injury may occur.
- **WARNING:** Indicates that serious and fatal injury may occur.
- **CAUTION:** Indicates that minor and moderate injury may occur.
- **NOTICE:** Indicates that damage on the equipment may occur.

## 1.2 General Security Information

### Mounting and Setup of the Equipment

- Mounting and setup of the equipment should be made in accordance with the instructions explained by the producer in this guide.
- Mounting and setup works should be performed only by authorized **GRON service and company personnel**.
- Please contact the company whenever it is required.

### Proper Use

**GRON** heating equipment is produced by using the state-of-the-art technology and in compliance with the safety techniques. However, life-critical conditions may occur in case of improper use. Furthermore, improper use will shorten the usage life of the equipment

This equipment can only be used to heat the heating installation water within closed heating systems. Our company is not responsible for any damage that occur due to improper equipment use, which is **excluded from the scope of the warranty**.



## Control and Maintenance

Incomplete control or inadequate maintenance may shorten the usage life of the product and may result in life threatening risks. Besides, fuel consumption increases due to the decreasing efficiency in the equipment whose regular maintenance is not conducted. Therefore;

- Equipment should be controlled by the authorized services once in every year.
- Heating installation should be checked by the authorized service once in every year and necessary maintenance and cleaning works should be conducted
- We recommend you to conclude “Maintenance Contract” with the authorized service.

## General Warnings

- ➔ After the equipment is unpacked, check that the equipment does not contain any damage. In case you detected any damage, please contact your supplier.
- ➔ Ensure that the location where the equipment is to be installed and operated is smooth and has the capacity to bear the weight of the equipment. We recommend you to use the installation kit sold optionally to ensure long-term comfort.
- ➔ Installation should be made in compliance with the mounting images in the guide. Any work to be conducted without using the equipment indicated in the mounting images shall shorten the usage life of the equipment and result in fatal risks. These situations cause exclusion of the equipment from the scope of the warranty.
- ➔ Spaces between the equipment and working area that are indicated in the guide should be left for maintenance and service works.
- ➔ Electrical connections should be cut from the main switch during the Mounting, Maintenance and Service works.
- ➔ If the equipment is not used when the ambient temperature decreases under 0 degree, electrical and gas supply should not be closed. The equipment is designed to operate in a self-operated manner for a short time to prevent freezing in such cases. If it is needed to turn off electrical and gas supply in the aforementioned cases, closed circuit heating fluid within the equipment should be discharged. Otherwise, damage may occur due to freezing within the equipment and installation outside the equipment.
- ➔ Combustible material should be avoided within the environment wherein the equipment is placed.
- ➔ Minimum operating pressure of the equipment is 0.8 bar. Heating fluid should be added to the system in case the pressure is below this value.
- ➔ Except for the maintenance works, it is not correct to add heating fluid frequently due to the leakages that may occur in the installation. In such cases, leakages should be identified and prevented permanently. Otherwise, usage life of the equipment will shorten
- ➔ Maximum operating pressure of the equipment is 6 bar. It is necessary to insert safety valve on the installation and conduct periodical controls. Otherwise, damage may occur on the equipment operating under high pressure
- ➔ Acidic corrosion-resistant hoses should be used and connected to an outlet to enable discharge of condensate that occur during operation of the equipment. Discharge of condensate from the outlets should be checked frequently to avoid any damage due to the blockage of these outlets over time. Otherwise, service should be contacted
- ➔ Ensure that the location wherein the equipment is installed is not accessible by the unauthorized persons and children.
- ➔ This equipment is produced for closed circuit heating purposes. Boiler or heat exchanger should be available within the installation that have the standards and capacity to work with this equipment in an integrated manner to heat hot running water.

- Circulation pump of the equipment should comply with the characteristics identified by the producer. Otherwise, useful life of the equipment shall shorten and damage shall occur as an outcome of insufficient transmission of the heat within the equipment to the outside.
- A generator should be connected to the electrical supply side of the equipment to prevent damages due to power failures.
- The equipment should be operated in a properly ventilated environment. Otherwise, drowning and intoxication may occur.
- In case of heating circuits using floor heating system, it is required to place heat transfer exchanger between the heating installation and the equipment. Otherwise, damage may occur on the equipment.
- Clean air suction side of the equipment should be clear of acidic gases and halogen hydrocarbons (spray, paint and chemical materials). Otherwise, these gases may cause damage in the burning chamber of the equipment.

**Actions against Waste Gas Smell**

This may cause poisoning. If there is a smell of waste gas, the heating device should be turned off and the environment should be ventilated. Then, the service should be contacted.

**Actions against Combustible Gas Smell**

This situation may cause poisoning and even explosion. If you smell combustible gas, the heater should be turned off and the doors and windows should be opened to ventilate the environment, which has to be left. Also, avoid situations that create combustible open flames. Turn off the main gas meter valve. Then contact the service and gas distribution firm.

**Information for the User**

The person performing installation of the equipment should provide information to the user about operation of the equipment after the installation process is completed.

**Equipment Cleaning**

Wipe the outer surface of the boiler with a damp cloth. You can also use a solvent free soap. Sprays, solvents and cleaning materials which include chloride can damage the outer surface, connection components and the control unit of the equipment. Do not use these materials for cleaning.



## 2. Gas Configuration



Contrary to many firms, each equipment produced by GRON company is subjected to safety tests, as well as productivity and emission tests via laboratory devices before their packaging. Therefore, **prepacking gas configuration is already set in every equipment. Do not tamper with gas settings unless necessary.**



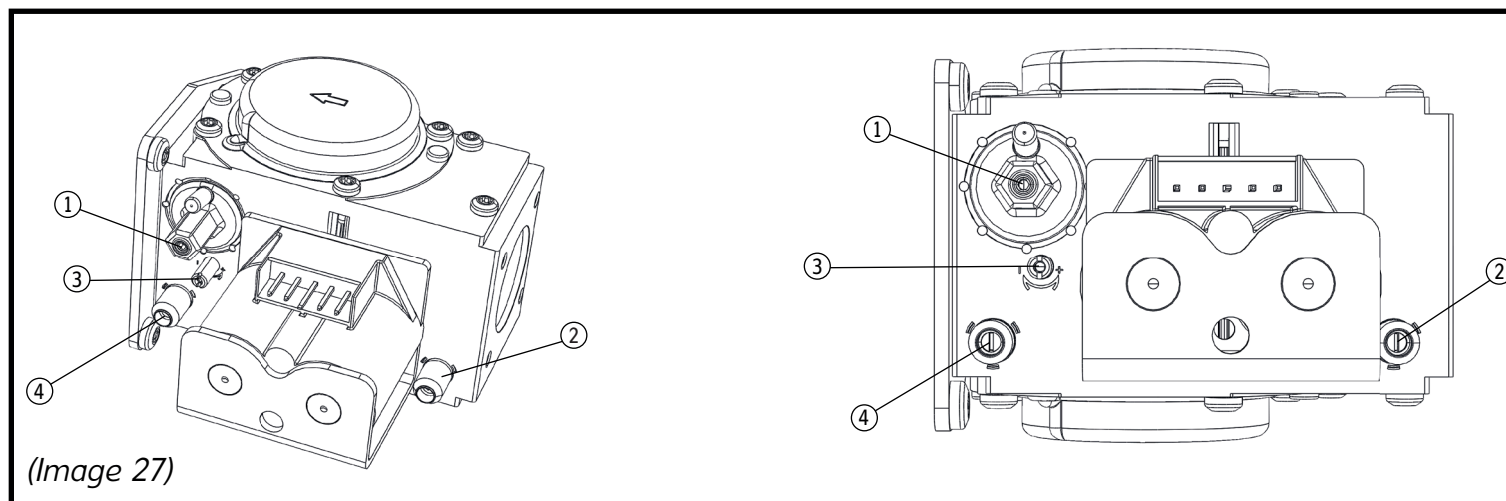
If the equipment has never been operated before, in advance to gas configuration, the instructions of commissioning under “3.1 Operation” in this manual should be performed in the first place.

### 2.1 Gas Configuration Points



This manual has been prepared for specialized service technicians. Therefore, gas configuration can only be performed by **GRON** authorized services. It is necessary to make configurations only with proper tool kits.

Minimum and maximum gas setting is made with the gas valve on the equipment. The configuration points on the gas valve are as follows;



(Image 27)

[1] Minimum Gas Flow Adjusting Screw  
[2] Gas Supply Pressure Measurement Plug

[3] Maximum Gas Flow Adjusting Screw  
[4] Burner (Gas Valve Outlet) Gas Pressure Measurement Plug

## 2.2 Calorific Value Table

The values in the following tables are the values that should be measured by emission equipment in the optimal operation of the equipment. Please consider these values for minimum and maximum configuration of the equipment.

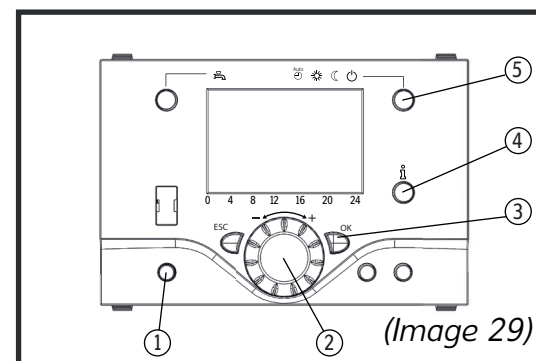
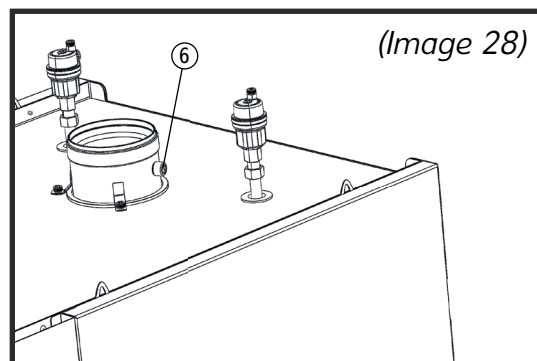
X 130	CO <sub>2</sub> %	Gas Flow (m <sup>3</sup> /h)
Min.	8,3	2,222
Max.	8,8	12,698

X 150	CO <sub>2</sub> %	Gas Flow (m <sup>3</sup> /h)
Min.	8,8	2,540
Max.	9,0	14,815

## 2.3 Gas Configuration at Maximum Force



In gas configuration, it is very important to properly calibrate flue gas analysis equipment. The equipment's gas-air mixture balance can be set improperly after a configuration to be made with equipment with improper calibration. This will not only cause loss of efficiency but also lead to damages to the burner and exchanger parts of the equipment



[1] Reset Button

[2] Navigation Button

[3] OK Button (Confirm Settings)

[4] Info Button

[5] Select Heating Mode

[6] Gas Measurement Point

During gas configuration, first put the equipment in full modulation rate and set at maximum force. In order for the equipment to operate at full force, press and hold the heating mode button until the screen reads "Controller Stop Function Disabled". After that, press the info button and proceed to the window which reads the modulation rate. Press OK button and then, bring modulation percentage to 100% with the navigation button, and press OK again. After these settings, the device will begin to operate at full force. After that, connect the probe of the flue gas analyzer to the gas measurement point no 6 displayed in "Image 26".





After the flue gas analyzer is connected, connect the manometer to the gas supply measurement plug no 2 displayed in “Image 27”. The gas pressure should be in the range set forth in the table to properly configure the emission values at maximum operation. After that, tamper with the values until reaching the values set forth in the table under 2.2 with the CO2 adjustment valve as displayed in “Image 27”. Rotate counter clockwise to reduce and clockwise to increase CO2.



After completing the equipment maximum configuration, detach the manometer and tighten the screw of the gas supply pressure measurement plug again. Failure in retightening this screw can lead to vital risks.

## 2.4 Gas Configuration at Minimum Force

After completing configuration at maximum force, press OK on the screen where you set 100% modulation settings and bring it to 0% with the navigation button. When you press OK again after this action, the equipment will begin to operate at minimum force.

After the equipment starts operating at minimum force, this time, attach the manometer to the gas valve output measurement plug no 4 as displayed in “Image 27” as you did with the maximum force.

After the manometer and flue gas analyzer are ready, reconfigure the CO2 value with the minimum gas flow adjustment screw as displayed in “Image 27”. Rotate clockwise to increase and counter clockwise to reduce CO2.



After making the foregoing setting, gas configuration is complete. Please make sure the screws on the holes where the manometer is attached have been tightened and the hole where the flue gas analyzer is attached has been plugged on.

## 3. Operation

### 3.1 Commissioning

After performing system installation according to the instructions in the “Installation Guide”, commission the equipment by performing the below controls in the following order.

- 1) Check the equipment’s power installation and cascade structure have been configured properly.
- 2) Make sure the surroundings of the equipment are free from flammable substances.
- 3) Check there is not any leak from the gas line in the room by using foam.
- 4) Check there is sufficient gas pressure at the equipment inlet. After that, turn off the main gas valve.
- 5) Check the expansion tank has proper initial pressure.
- 6) Check all valves on the equipment and the heating installation are open.
- 7) Start filling installation fluid to the system from the installation fluid supply valve. While doing this, check if there is air output from the air relief cocks on the system on one hand and the manometer values on the system are changing on the other hand. Wait until air output from air relief cocks stops.
- 8) Check the equipment is properly earthed before energizing.
- 9) Energize the equipment after making sure the main gas valve is closed again and the installation liquid supply valve is open. After the screen is on, press and hold the “Manual Mode” button for 5 seconds. The “Air Supply Procedure Function” will be activated on the screen. With this procedure, the circulation pumps will start to operate. After the circulation pumps start operating, the air left on the installation will be discharged. While this procedure varies by the structure of the installation, it will take about 15 minutes. You can stop this procedure after making sure there is no more air output from the installation and the installation pressure is between 2-4 bars.
- 10) Check there is no water leak in the installation and the equipment.
- 11) Turn off the installation supply valve before commissioning.

Congratulations, your system is now ready to operate after completely fulfilling the foregoing actions. You can commission the equipment after reading “3.3 General Operation Information”.



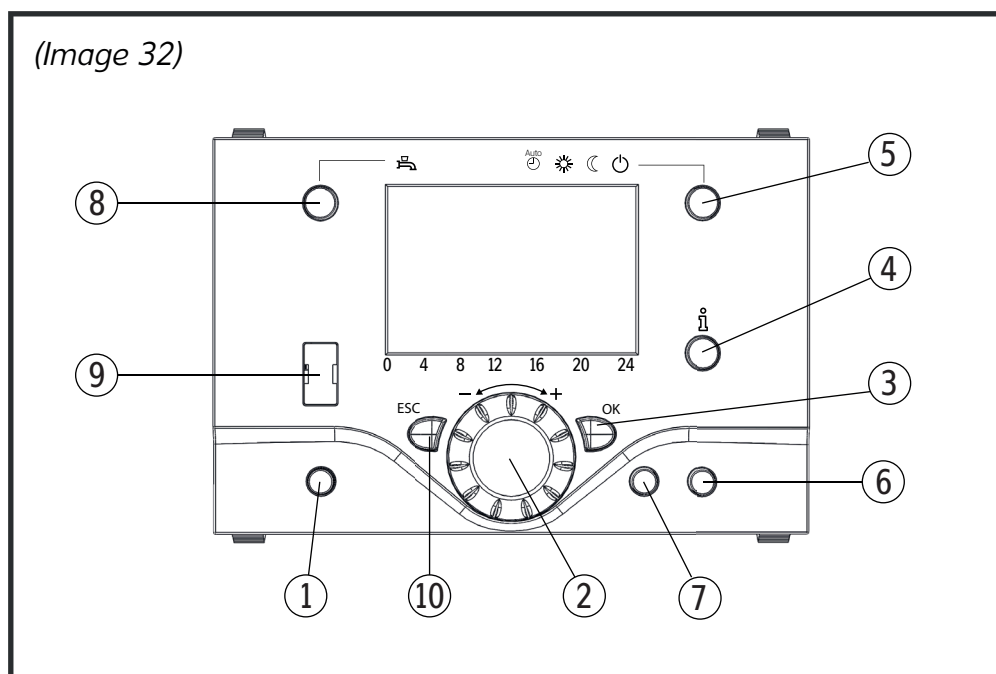
## 3.2 General Operation Information



Improper use of the equipment might lead to vital risks as well as shortening its service life.

X series equipment are commanded by a Siemens control unit. This unit can control a heating system with 3 different zones and building automation.

The Equipment Control Unit comprises of the following components;



- [1] Reset Button
- [2] Navigation Button
- [3] OK Button (Confirm Configuration)
- [4] Info Button
- [5] Select Heating Mode
- [6] Flueman Function (STB Test)
- [7] Manual Control
- [8] Service Connection (BSB)
- [9] Select Domestic Water Mode
- [10] Exit Configuration

### Screen Symbols

	Set comfort temperature for heating
	Heating circuit reference
<b>ECO</b>	Eco function enable
	Burner activated
	Holiday function enable
	Error message
<b>PROG</b>	Programming menu enabled

	Change battery
<b>INFO</b>	Info menu enabled
	Programming menu enabled
	Set freeze protection for heating
	Maintenance / Special Mode
	Set lowered temperature for heating

## 3.3 Application Modes

### Select Heating Mode Range

This setting is used for switching between different operation modes. The selection is displayed with the related symbol underlined.



#### Auto Mode Auto ☺

The auto mode controls room temperature according to the time program. Auto mode properties:

- Heating mode according to the time program
- “Heating at Comfort Value” ☀ or “Economic setting point” ☾ heating configuration according to heating programs
- Protective functions active
- Auto switch between summer/winter (ECO functions)

#### Continuous operation ☀ or ☾

Continuous operation keeps room temperature at predefined operation level.

☀ Heating at comfort value

☾ Heating at lowered value

Continuous operation properties:

- Heating mode without time program.
- Protective functions active.
- 24 hour heating limit not active at Auto switch between summer/winter (ECO functions) and Continuous operation at comfort value.

#### Protection ☺ or OFF

While using the protection mode, the heating system is off, but freeze protection (freeze protection temperature) is active if there is not any power error.

Protection properties:

- Heating off
- Temperature according to freeze protection



- Auto switch between summer/winter (ECO functions) and auto 24-hour heating limit active.

### Select Winter Mode

The winter mode is selected by using the winter button. The selection is indicated with a setting bar under the related symbol.



### Winter mode

The winter mode controls room temperature according to the time program. Winter mode properties:

- Manual winter mode
- Winter mode configured according to the time program
- Temperature set for “Comfort winter value”
- Protective functions active
- Auto switch between summer/winter active
- Summer compensation

### Select DHW (domestic hot water) heating mode

Use the indicated button to turn on and off the DHW heating mode. The selection is indicated with a setting bar under the related symbol.

### DHW heating mode

- On  
DHW is heated according to the selected switch program.
- Off  
DHW heating is not on. But protective functions are active.



### DHW Button

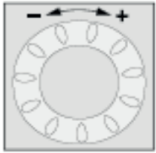
It is activated by pressing and holding for at least 3 seconds the DWH operation mode on the room unit or the operator. It can also be started on the following conditions:

- When the operating mode is “Off”
- When the operating mode switches H1 or centrally (LPB) active,
- When all heating circuits are on holiday mode.

## Change Room Temperature Configuration Point

To decrease or increase the Comfort value ☀ turn the configuration button towards the direction of + or -.

For lowered configuration point ☾



Press Ok.

- Select the "Heating circuit" on the operation page
- Set the temperature for economy.

**i** After every configuration, wait for at least two hours for the room temperature to get to the defined value.

### Standby Button

When rooms are not in use for a while, you can press the standby button to lower the room temperature to save on heating energy.

When rooms are in use again, press the standby button to resume heating.



☀ Comfort heating configuration point

☾ Economy heating configuration point

The standby button is only active in auto operation. The present selection is active until the next selection of the heating program.

### Indicator Info **i**

Press the Data button to display various data.

### Probable Indicators

Some of the information lines listed below might not be displayed depending on the unit type, configuration and operation status.



Indicator:

- Probable error messages
- Probable service messages
- Probable special mode messages

Other indicators:

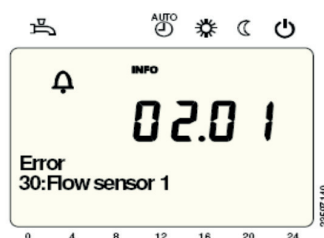
- Room temperature
- Minimum room temperature
- Boiler status
- Maximum room temperature
- Solar status
- Boiler water temperature
- Solid fuel boiler status
- Outdoor temperature
- Backup storage tank status
- Minimum outdoor temperature
- Swimming pool status
- Maximum outdoor temperature
- Date and time
- DHW temperature 1
- Customer services phone
- Heating circuit 1 status
- Heating circuit 2 status
- Heating circuit P status
- DHW status

### Special Conditions

On special conditions, one of the following symbols is displayed on the main indicator:

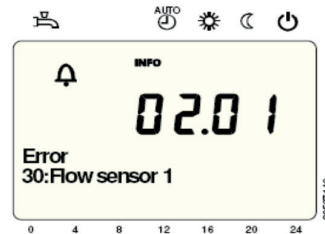
#### Error Messages

This symbol means an error in the unit. Press the data button and read detail information.



### Maintenance and special procedure;

This symbol gives a maintenance alarm and means the unit has switched to the special mode. Press the data button and read detail information.



### Reset Function;

If the present work line allows “reset” (End user/enterprise mode/heating engineer) the reset function for measurement devices and resettable parameters is displayed on the bottom line of the screen



If manual operation is active, there is no more energy inlet to the relays and energy is cut off depending on the control status; however, it can be set to the predefined manual operation depending on its function.

Energy to the burner relay, which is energized in the control status, can now be cut off with the electronic heat controller (TR).

### Configuring a set points in manual operation

After activating manual control, a change should occur in the main indicator. Here, maintenance/special mode symbols are displayed.

Press the info button to switch to the “Manual mode” data screen for configuration.

### Flue Measurement (and maintenance-cleaning) Function

It is performed after a short press on the flue cleaning function button (max. 3 seconds). This function offers the necessary operation status for emission measurements.

### SLT Test

SLT test (SLT = safety limit thermostat) is performed after a long press on the button on the flue (longer than 3 seconds). The button should be kept pressed on during the entire test. The test stops when the button is released. SLT test is displayed on the screen






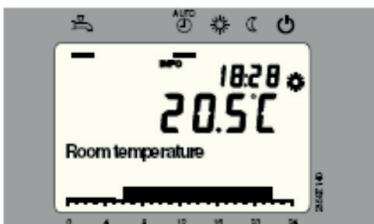

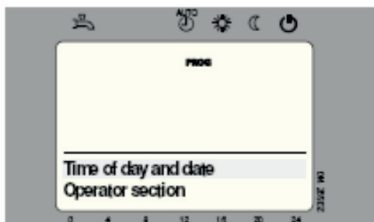

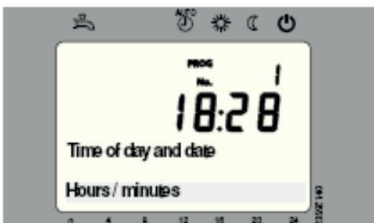
## Programming


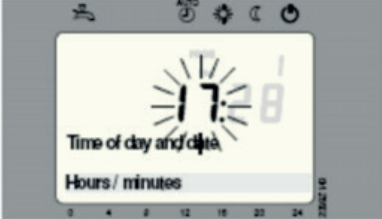



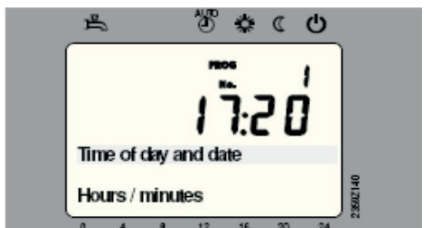
### Configuration Principles

Configurations which cannot be realized with direct operation components require programming. For this purpose, individual configurations are created in the form of operation pages and operation lines. The below example shows how to configure day and time

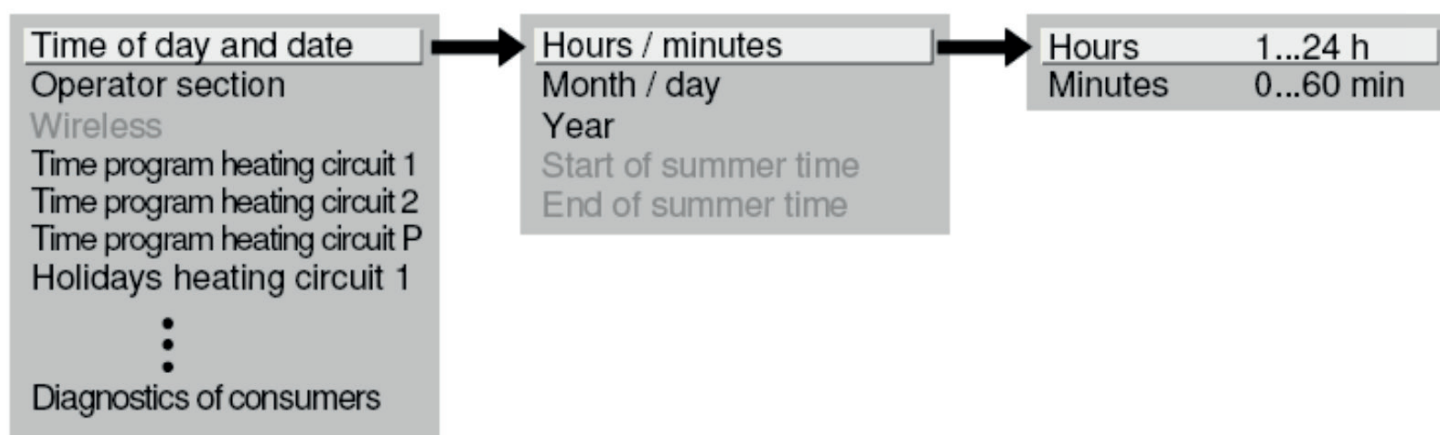
#### Example: "Set time and date"

- Press ESC to go back in time settings, readjusted values are not acceptable.
- If it is not set in 8 minutes, the indicator automatically switches back to the main indicator.
- Operating lines might not be displayed depending on user levels, controller type and set configuration.

Action	Indicator Example	Description
1	 	<p><b>Main Indicator</b></p> <p>If the main indicator is not displayed, press ESC. Press OK.</p>
2	 	<p>A few operating pages are displayed on top of the indicator. Rotate the configuration button until the operating line hour/minute is displayed.</p> <p>Press OK to confirm.</p>
3	 	<p>The first operating line of the operating page on top of the indicator (time and date period displayed).</p> <p>Press OK to confirm.</p>


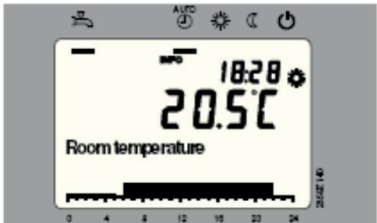

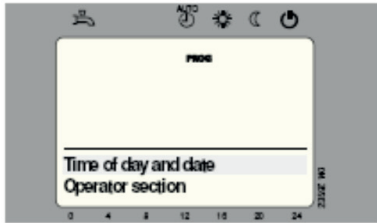

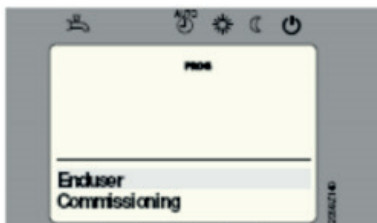

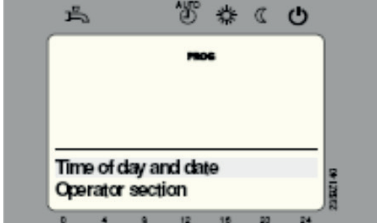
Action	Indicator Example	Description
4 		Hour indicators flash. Rotate the button until the hour period is set.  Press OK to confirm.
5 		Minute indicators flash. Rotate the button until minute and day are set.  Press OK to confirm.
6 		Settings are recorded and the indicator is fixed. From now on, you can make other configurations or press the operating mode button to go back to the main indicator.

### Example menu structure



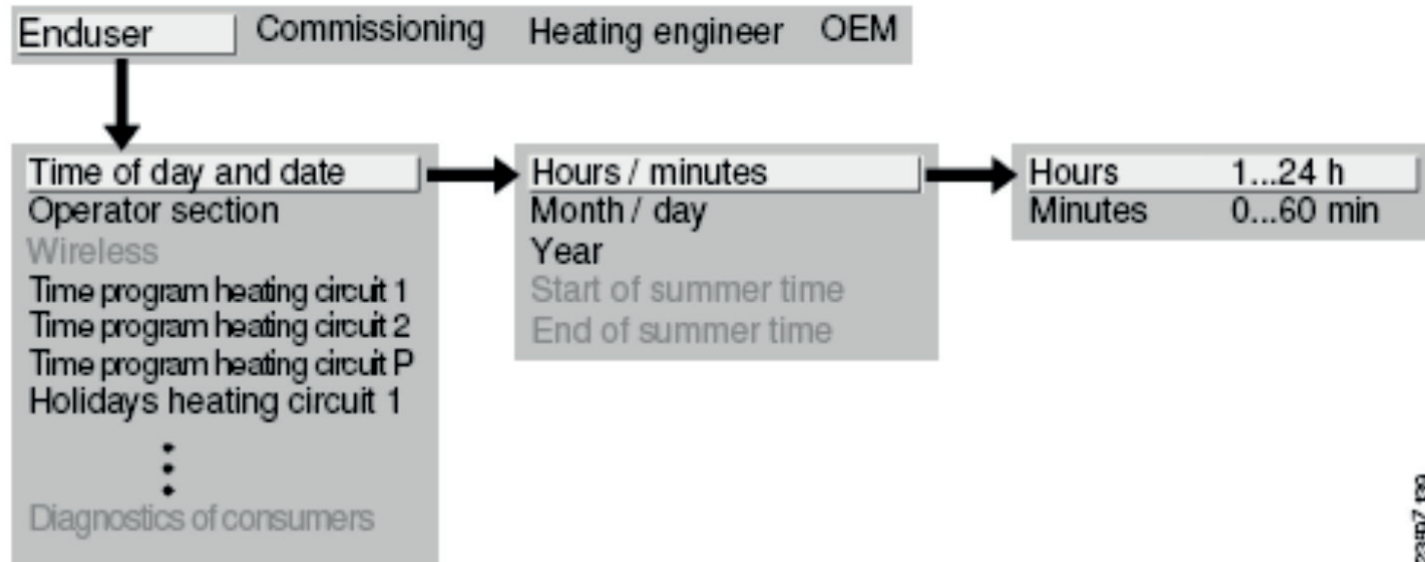
## Programming

User levels only allow for configurations to be made by authorized user groups.  
Apply the following to get to the desired user level;

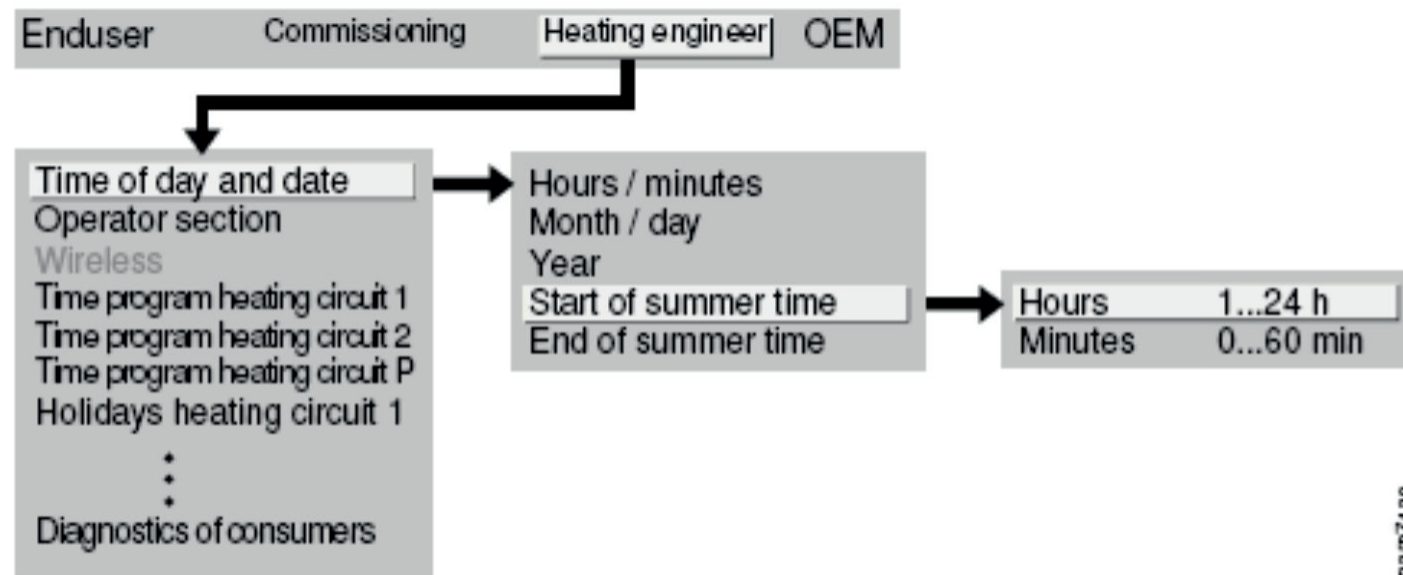
Action	Indicator Example	Description
1	 	<p><b>Main Indicator</b></p> <p>If the main indicator is not displayed, press ESC. Press OK.</p>
2	 	<p>Indicates you are at the end user level. Press INFO and hold for 3 seconds.</p>
3	 	<p>User selection is offered. Rotate the configuration button until reaching the desired user level.</p> <p>Press OK.</p>
4	 	<p>User selection is offered. Indicates you are at the desired user level.</p>

Oem level requires password.

## Configuring "End user" structure



## Configuring "Heating engineer" structure



### 3.4 Error and Failure Codes

Error Code	LPB Code	Error Code Description
10		Outdoor air temperature sensor error
20		Boiler 1 temperature sensor 1. error
25		Solid fuel boiler sensor error
26		Shared outlet water temperature sensor error
28		Flue gas temperature sensor error
30		Outlet water 1 temperature sensor error
38		Outlet water, boiler first circuit command sensor error
40		Return water 1 temperature sensor error
46		Cascade return water temperature sensor error
47		Shared return water temperature sensor error
50		Domestic how water (DHW) 1 temperature sensor error
52		Domestic hot water (DHW) 1 temperature sensor error
54		Outlet water DHW sensor error
57		DHW circulation sensor error
60		Room temperature_1, sensor error
65		Room temperature _2, sensor error
68		Room temperature _3, sensor error
70		Boiler tank temperature_1 (top) sensor error
71		Boiler tank temperature_2 (bottom) sensor error
72		Boiler tank temperature_3 (center) sensor error
73		Collector temperature_1, sensor error
78		Water pressure, sensor error
82		LPB addressing error
83		BSB cabled section/communication loss problem
84		BSB cabled addressing error
85		BSB RF communication error
91		EEPROM Data excess problem
98		Extension module_1 error
99		Extension module _2, error
100		2 time clock administrator
102		Time clock administrator without backup
103		Communication error
105		Maintenance message
109		Boiler controller temperature error
110		STB (SLT) locking
111		Overheating safety closing
117		Water pressure too high



Error Code	LPB Code	Error Code Description
118		Water pressure too low
119		Water pressure switch deactivated
121		Heating circuit_1 outlet water temperature not reached
122		Heating circuit_2 outlet water temperature not reached
125		Boiler maximum temperature exceeded
126		DHW Boiler tank heating temperature not reached
127		DHW Boiler tank Legionella clearance temperature not reached
128		Loss of flame during operation
129		Faulty air supply
130		Flue gas temperature threshold exceeded
132		Gas supply pressure pressostat safety closing
133		Flame formation safety time exceeded
146		Sensor/control components configuration error
151		LMS14...error, internal error
152		Parameter error
153		Unit manually locked
160		Fan speed threshold not reached
162		Air pressure pressostat does not close
164		Heating circuit -Boiler outlet/Pressostat- error
166		Air pressostat error, does not open
169		Sitherm Pro system error
170		Primary circuit, water pressure sensor error
171		Alarm contact_1 active
172		Alarm contact_2 active
173		Alarm contact_3 active
174		Alarm contact_4 active
176		Water pressure_2 too high
177		Water pressure_2 too low
178		Heating circuit_1 temperature limiter
179		Heating circuit_2 temperature limiter
183		Unit, parameter mode
195		Refill time for every fill range exceeded
196		Weekly maximum fill time exceeded
209		Heating circuit error
214		Engine monitoring
215		Fan air separator valve error
216		Boiler error
217		Sensor error
218		Pressure control

Error Code	LPB Code	Error Code Description
218		Pressure control
241		Efficiency measurement outlet sensor, error
242		Efficiency measurement return sensor, error
243		Swimming pool sensor error
260	217	Outlet water temperature_3, sensor error
270	215	Heat exchanger temperature difference too high
317	214	Power supply frequency outside the allowable value
320	217	DHW fill temperature sensor error
321	217	DHW outlet temperature sensor error
322	218	Water pressure sensor_3 value too high
323	218	Water pressure sensor_3 value too low
324	146	BX inlets, same sensors
325	146	BX inlet / extension module, same sensors
326	146	BX inlet / mixture group, same sensors
327	146	Extension module, same sensors
328	146	Mixture group, same function
329	146	Extension module / mixture group, same function
330	146	Bx1 inlet sensor dysfunctional
331	146	Bx2 inlet sensor dysfunctional
332	146	Bx3 inlet sensor dysfunctional
333	146	Bx4 inlet sensor dysfunctional
335	146	Bx21 inlet sensor dysfunctional
336	146	Bx22 inlet sensor dysfunctional
339	146	Collector pump Q5 not detected
340	146	Collector pump Q16 not detected
341	146	B6 sensor not detected
342	146	B31 solar heating system outlet not detected
343	146	Unity with the solar heating system not detected
344	146	Solar heating tampon tank control component K8 error
345	146	Solar heating swimming pool control component K18 error
346	146	Solid fuel boiler pump Q10 not detected
347	146	Solid fuel boiler comparison sensor not detected
348	146	Solid fuel boiler addressing error
349	146	Tampon storage tank return valve Y15 not detected
350	146	Tampon storage tank addressing error
351	146	Primary control / installation pump, address error
352	146	Primary / secondary circuit balance container address error
353	146	B10 sensor not detected
371	209	Heating circuit_3 outlet water temperature error



Error Code	LPB Code	Error Code Description	
372	209	Heating circuit_3 temperature limiter	
373	103	Extension module_3 error	
374	169	Sitherm Pro calculation error	
375	169	BV step motor error	
376	169	Flue draught, test limit value	
377	169	Flue draught test prohibited	
378	151	Internal repetition	
382	129	Repetition rate	
384	151	External light / flame detection	
385	151	Power supply voltage low	
386	129	Fan speed outside tolerance	
387	129	Air pressure outside tolerance	
388	146	DHW sensor does not operate	
426	151	Flue gas damper feedback error	
427	152	Flue cap damper configuration error	
429	218	Dynamic water pressure too high	
430	218	Dynamic water pressure too low	
431	217	Primary heat exchanger sensor error	
432	151	Earthing function not connected	
433	216	Primary heat exchanger temperature too high	
Maintenance Code		Maintenance Description	Priority
1		Burner no ... operating time exceeded	6
2		Burner no ... commissioning number exceeded	6
3		Maintenance period exceeded	6
5		Heating installation water pressure too low	9
10		Change outdoor air sensor batteries	6
18		Heating circuit_2 water pressure too low	9
10		Change outdoor air sensor batteries	6
22		Heating circuit_3 water pressure too low	9
25		Automatic water fill function activated	3



## 4. Maintenance

Incomplete control or inadequate maintenance may shorten the usage life of the product and may result in life threatening risks. Besides, fuel consumption increases due to the decreasing efficiency in the equipment whose regular maintenance is not conducted. Therefore;

- Equipment should be controlled by the authorized services once in every year.
- Heating installation should be checked by the authorized service once in every year and necessary maintenance and cleaning works should be conducted
- We recommend you to conclude “Maintenance Contract” with the authorized service.

### 4.1 Maintenance Procedure



All actions taken during maintenance procedures should be noted on the maintenance form.



Unsuitable parts of the equipment should be replaced during maintenance. Operating equipment with unsuitable parts will lead to vital risk as well as increasing fuel consumption.

Before initiating maintenance, fill out the main areas on the maintenance form such as equipment serial number, maintenance date etc. Ask the customer about any problems with the equipment. Customer review is important for maintenance. Record customer review on the maintenance form. Before starting maintenance, cut off power and shut down gas connection to the equipment.

If the customer does not have a negative review, maintenance is rendered in the following order.

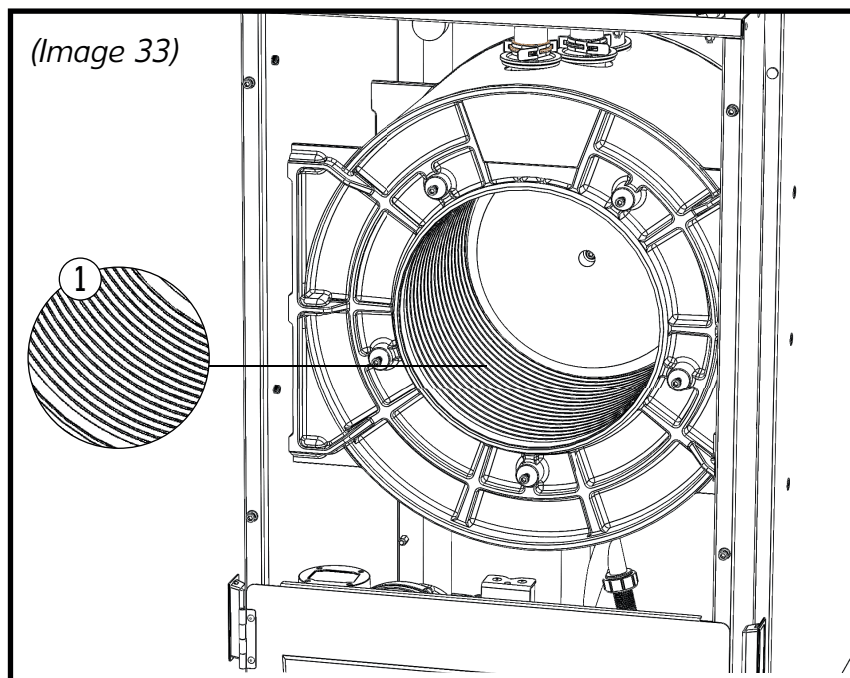
#### Burner and Fan Control

During this procedure, make sure the equipment electric connection and the gas line are off. Detach the sockets connected with fans and electrode cables. After that, unscrew 6 pieces of M6 bolts on the cover. While unscrewing the bolts, pull the cover in alignment and carefully detach it. If it is not done properly, the vermiculite (insulation material) inside the cover can be damaged. After removing the fan cover, control the burner surface. After that, detach the venturi at the fan suction inlet and control fan blades. If the blades are dirty, rotate and clean each blade with a damp cloth. **If there is degradation on the burner surface, the burner should absolutely be replaced.**



## Heat Exchanger / Combustion Chamber Control

While the exchanger front cover is removed, control any residues or dirt on the inner surface of the exchanger. If there is residues that block combusted gas flow between the profile bundles on the inner surface, vacuum them with a vacuum cleaner and clean with the exchanger maintenance kit we supply for our services. After this procedure, clean the inner surface of the exchanger with water. After this maintenance, residue and dirt will flow from the inside of the exchanger to the flush. Therefore, make flush cleaning after these actions.



## Heat Insulation Material and Front Cover Seal Control



Problems with the condensation liquid discharge line might lead to accumulation of condensation liquid in the exchanger. It might cause deformation on the insulation materials inside the combustion chamber.

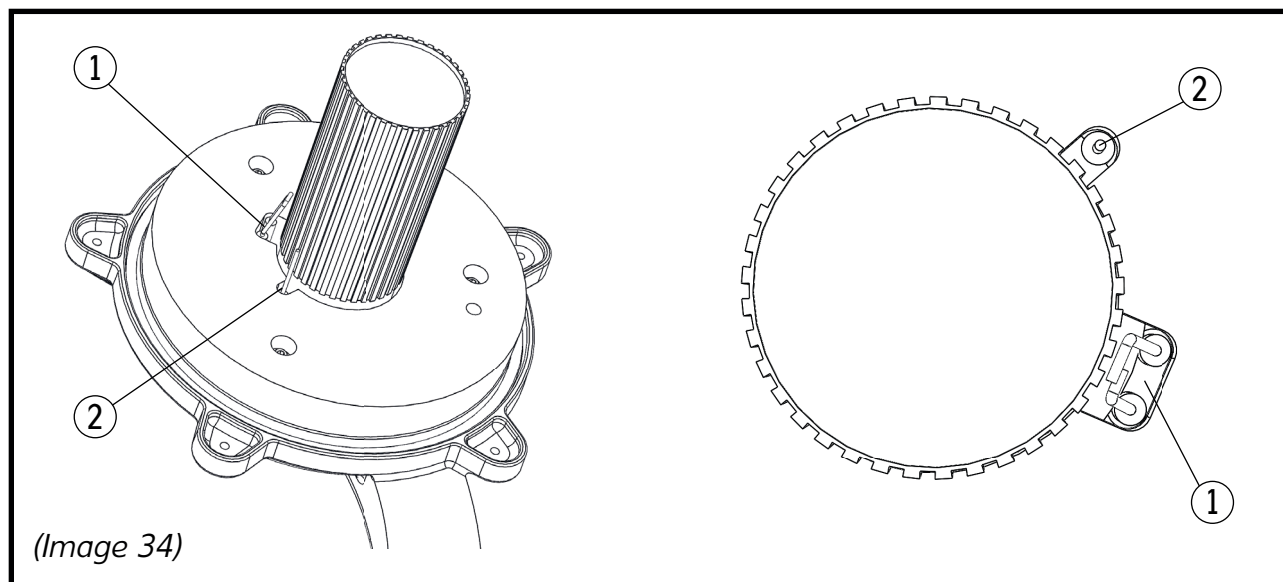
While the exchanger front cover is detached, control the vermiculite (insulation material) on the exchanger back wall and the vermiculite on the exchanger front cover for integrity. While doing this, control the seals for sealing between the front cover and the exchanger.

## Water Leak and Pump Control

Before starting this procedure, energize the equipment but make sure the gas line is off. After the equipment screen opens, press the “Manual Mode” button and hold for 5 seconds. The “Air Inlet Procedure Function” will be active on the screen. With this action, the circulation pumps will start to operate. With this action, control if the pumps work properly. If there is any pump that is believed to work improperly, you can control the rotation of the pump by loosening the screw on the pump. After completing pump controls, check the system pressure. If the system pressure is low, add installation liquid to the system until the optimal level of 2-3 bars. During this action, check for any leaks in the installation. If so, eliminate them

## Electrode Control

Check if the electrodes on the removed exchanger front cover have a distance to the burner surface and to each other as provided in the drawing. If the distances are not proper, slightly bend to set the distance. If there is any crack on the electrodes after this procedure, absolutely replace the product.



[1] Ignition Electrode

[2] Ionization Electrode

## Gas Line Control

Before this procedure, tightly attach back the front cover of the exchanger. Attach back the detached cables to their initial form. After that, as the gas connection point on the gas valve on the equipment will be detached and attached again, after connecting the flex gas pipe to the gas valve, check for any gas leaks on the connections by opening the main gas valve

## Gas\Air Ratio



While working with this section, the equipment used for emission values should be calibrated. As measurements made with non-calibrated equipment will not be correct, efficiency configuration is not possible.



Operate the equipment after making sure the gas line does not leak. While the equipment is working, check if it has the combustion values at minimum and maximum provided in 2.1 gas configuration in this manual, if there is any deviation, reconfigure as described in the drawing under 2.2.

### **Flue Gas Leak**

After completing the foregoing procedures without any problems, check for any gas leak in the flue gas discharge and blockage in the air suction line. Additionally check the condensation flush on the flue.

### **Condensation Discharge Flush Maintenance**

After cleaning inside the exchanger is finished, remove the flush inside the equipment. After cleaning the flush, fill the flush with water and put it back to its place. During and after this action, check there is not any water left inside the equipment and water does not reach to the electric installation while detaching and attaching the flush. After that, pour water inside the discharge hose and check for proper operation of the drains after flushing.

## 4.2 Troubleshooting Diagram

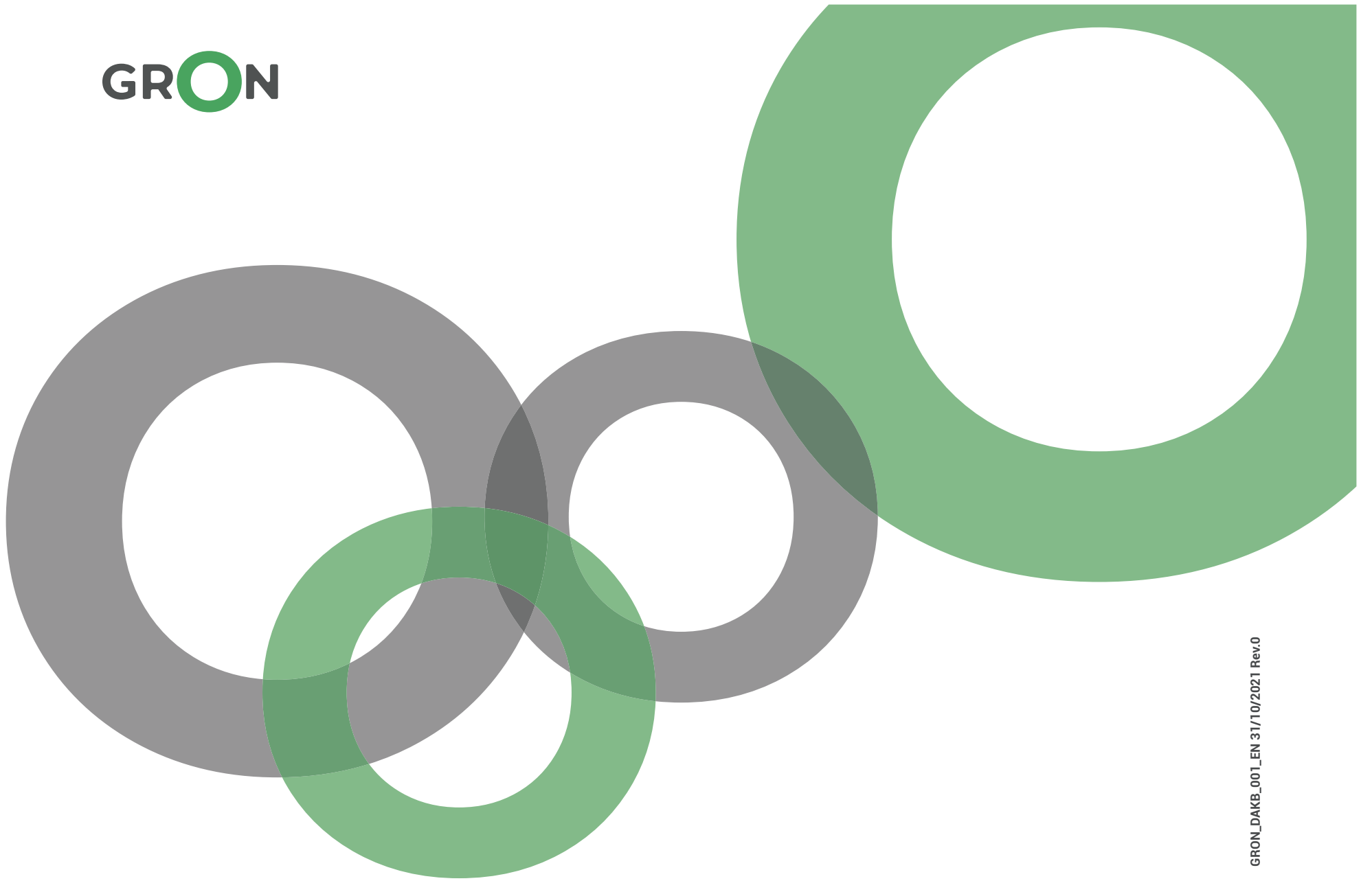
This section covers common problems with equipment and solutions.

Problem	Reason	Solution
Gas Smell	1. Leak on gas supply line	Check sealing of the connections on the gas line and make sure pressure measurement points are closed.
Half Burned Gas Smell	1. Leak on waste gas discharge line	Remove any blockage on the flue line and check sealing of the line.
Improper Combustion	1. Burner Gas Pressure 2. Diaphragm placed? 3. Burner and exchanger status 4. Exchanger profile intervals blocked 5. Fan operation error	Correct gas pressure setting. Check diaphragm diameter. Replace if burner and exchanger surface disrupted Clean spaces between profiles Repair the fan
Recoiled Operation of Burner	1. Burner gas pressure disrupted 2. Ignition electrode	Check gas valve settings. Check the position of the ignition electrode and any cracks on the surface, replace the electrode if necessary.
Boiler gets dirty quickly	1. Burning disorder	Check the flame color, if there is any problem with the flame color, adjust combustion settings.
Equipment does not work despite proper signal transmission from the electronic card	1. Gas valve inoperable	Check if power reaches the gas valve.



Problem	Reason	Solution
Pump does not work	1. Pump failure	Reset the pump and check if power reaches the pump. Replace the pump if necessary.
Boiler does not reach operating temperature	1. Boiler command setting wrong 2. Inside of exchanger dirty 3. Gas flow to burner low	Check the operating mode and adjustment temperature Clean the combustion chamber. Check gas valve settings.
Equipment sensors reach desired temperature but installation is cold	1. Pump failure 2. Air in installation	Reset the pump and check if power reaches the pump. Replace the pump if necessary. Deflate the installation.
Safety valve opens too frequently	1. High pressure in installation 2. Expansion tank failure 3. Safety valve failure	Check installation pressure. Lower if necessary. Check expansion tank, replace if necessary. Check integrity of the safety valve.

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