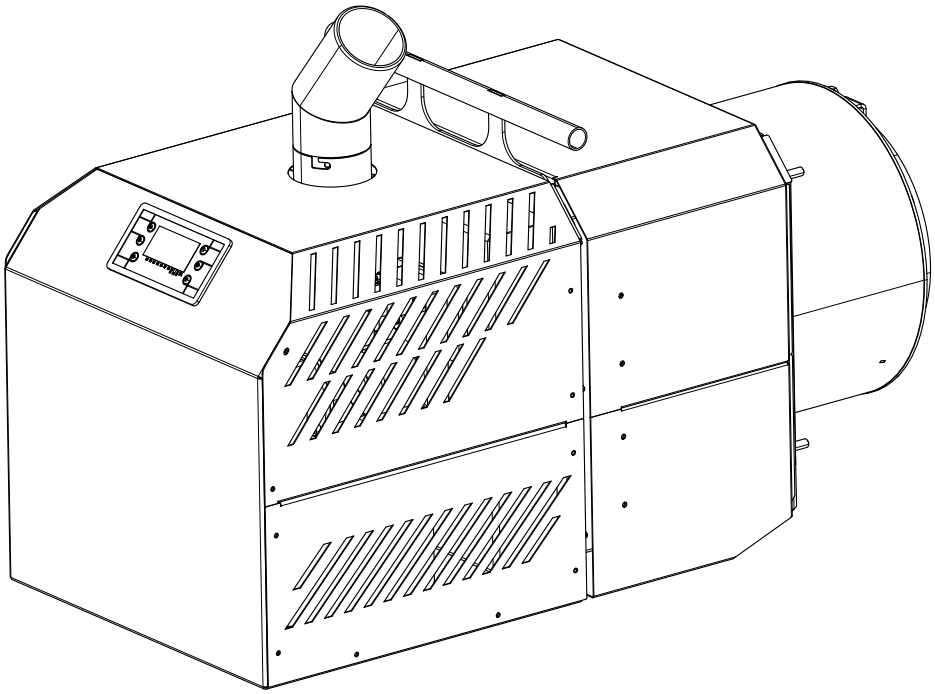
Mareli Systems

STEP FORWARD

SMB 100 ROTARY Pellet burner

Assembly and exploitation manual



- "Mareli Systems" expresses its gratitude towards the clients who purchased the manufactured products.
- "Mareli Systems" provides the present manual as an aid to the team, which will install, adjust and maintain the device, as well as to the client which will exploit it.
- "Mareli Systems" requires that the technicians who will carry out the above mentioned procedures have passed a training course on the activities, associated with this product.

ATTENTION! For Your safety, it's necessary to read carefully this manual as well as the exploitation and installation manual of the automated pellet burner before attempting any installation, adjustment and exploitation activities. Also read the installation and exploitation manual of the pellet bunker if the device is provided with one. The non-fulfillment of prescriptions and violation of active regulations and directives may lead to damage and unexpected consequences for which "Mareli Systems" accepts no responsibility.

Do not discharge into garbage container!!!

This sign on the burner means that the product must be disposed of only in an a specially designated for that purpose space for the collection and recycling of waste. Disposal of this device falls under the regulation of the Directive on waste of electrical and electronic equipment (EEE) of the European Union. Dear customers, let us contribute to the preservation of the environment!

- *This appliance is not intended for use by persons (including children) with limited physical, sensory or mental abilities or lack of experience and knowledge. The installation must be performed by a qualified expert in the field of heating installations or authorized by "Marelli Systems' service. The place and way of connecting the product should be selected carefully in accord with the safety instructions. Install away from flammable objects!*
- *Never try to make changes to the torch! It is forbidden to use flammable liquids for ignition! Servicing the burner decorating your done by an adult who is familiar with the operating conditions!*
- *Introduction of inflammable liquids in room with a working burner is strictly prohibited!*
- *Children should not be left unattended in the room where the product is installed!*
- *Safe distances: When installing the product a safe distance of at least 200 mm must be respected. This distance applies to the product located near materials of B or C flammability level. The safe distance is doubled if the product is close to materials of C3 combustion level.*

1. Description and advantages of pellet burner "SMB 100 Rotary"

Pellet burners of this series are designed to utilize wood pellets. It has a welded steel construction. The resulting heat is absorbed by the heat exchange surface of the boiler body and transmitted in the heating system. These boilers used for heating in local heating systems, but also for heating domestic water.
Automated pellet burner is part of the system and can utilize the following types of fuel: Wood pellets size 6 and 8 mm Class A;

The kit comprises: pellet burner equipped with a control panel;

Advantages of the product:

- Designed to utilize pellets, making it cleaner for the environment;
- Product is highly automated and can be used in systems with programmable room thermostat ensuring maximum thermal comfort and fuel economy;
- Efficiency;
- Low emissions;
- Compact design allowing for simple installation and easy maintenance and cleaning;
- Opportunity for domestic hot water (DHW);
- Minimal operating costs;

Basic information of pellet burner:

- The pellet burner is mounted horizontally secured by M10 screws.
- The pellet burner is an independent module that can be mounted on already installed boilers making it compatible with wood pellets as a fuel source.
- The burner is equipped with a control panel.
- Wood pellets allow easy automation of the process of combustion and give high efficiency. However, the wood pellets and any other solid fuel also create ash as a bi-product, but its amount is less than what remains from firewood or coal.

The pellet burner is a compact modular design with integrated electronic control unit, consisting of the following components:

1. Combustion chamber made of high quality stainless steel;
2. Grill in the combustion chamber that is easily removed and allows for easy ash removal;
3. Air duct, which ensures an even supply of air for combustion and cooling elements of the burner;
4. Electric heater, which ignites the fuel, positioned beneath the inclined portion of the combustion chamber;
5. Fan, equipped with a voltage regulation;
6. Photo-sensor, which monitors the combustion process and applies a corresponding program;
7. Emergency temperature sensor to extinguish the burner in case of "Backfire" in the pipe of the unit;
8. Controller, which monitors and controls the burner and indicates its mode of operation;
9. Connector auger, which realizes the power of the auger;
10. Interface panel equipped with indicator lights;



Electrically powered auger that transports fuel to the burner depending on the operating mode of the burner. The screw consists of a compact geared motor with a built-in protection against overheating tube which transports fuel until it reaches the hole through which is supplied to the flexible tube.

End view of the system for pellet burner auger

- **The installation must be performed by a qualified expert in the field of heating systems. The place and way of connecting the burner must be chosen carefully, follow the safety instructions!!!**
- **Never try to make changes to the burner! It is forbidden to use flammable liquids for ignition! Maintenance should be done by an adult who is familiar with the operating conditions! Introduction of inflammable liquids in room with a working burner is strictly prohibited! Children should not be left unattended in the room where the product is installed!**

Table degrees of combustibility	
Degrees of flammability of construction materials	Building materials with a degree of flammability
A - non-flammable	Granite, sand, concrete, ceramics
B – not easily flammable	Acuminata, isomin, Heraclitus, basalt tiles, fiberglass, novodur.
C1 - hardly flammable	Deciduous. lumber, plywood, werzalit and others.
C2 - medium inflammable	Coniferous wood, cork boards, rubber flooring
C3 - inflammable	Chipboard, cellulosic materials, polyurethane, polystyrene and others.

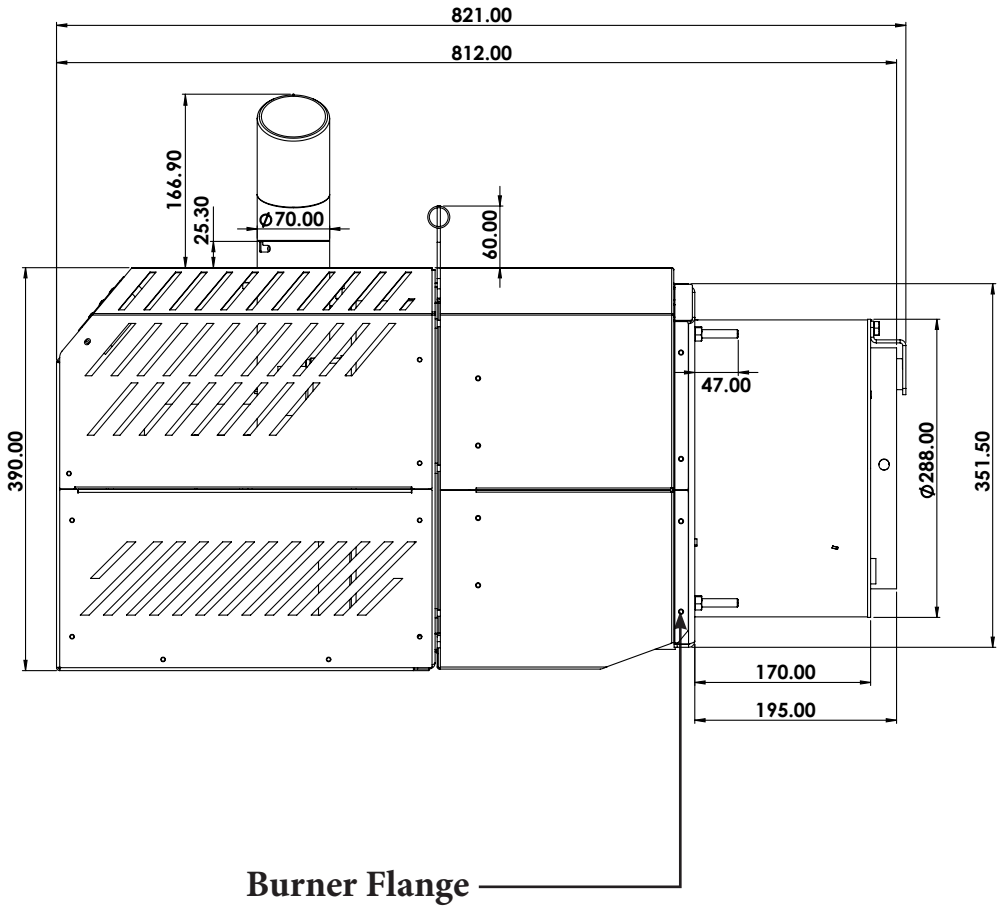
2. Measures to improve safety

- The burner is controlled by a microprocessor.
- The process of ignition is monitored by a photo sensor, if there is no ignite the first time, the microprocessor feeds a second dose of pellets and ignition starts again. If after 2 attempts ignition does not take place burner goes into error mode.
- If the hopper has no more pellets, the burner will not ignite.
- If during operation temperature sensor detects a temperature higher than 90 ° C, the auger conveyor stops and the burner is turned off (goes into error).

3. Connection (installation) to the boiler:

The pellet burner can be attached to a steel or cast-iron boiler with power from 30 to 100kW. The minimum depth of the combustion chamber should be 450 mm. Pellet burner without secondary air supply.

- Distance between the flame and the cooling surface of the boiler 200-300 mm.
- The unit is located so that there is enough space for cleaning, removing ash from the burner, boiler and exhaust pipes.
- Putting objects on the unit is forbidden, so as not to break the seal. There is a danger of breaking and violating the integrity of the burner.
- The opening for installation of the burner must have a diameter 288 mm. The size of the door, to be joined must allow for the incision of the above-described mounting hole (if there is none).
- The burner is installed in the boiler door with the corresponding seal. Secured tightly with screws M10. The connection between the burner and boiler should be well sealed in order not to get gas leaks into the room. When installing the equipment is in optimal horizontal position and the inlet hose pellets should be straight and clamps must be properly tightened.



Appendix 1
Reconstruction of hot water boiler with automated burner

- Cut a hole in the available door (if there is no such planned). The sizes described in the instructions should be respected.
- Thoroughly clean the interior walls of the boiler from ash residue, soot, etc., which would have led to appearance of thermal resistance during operation. After cleaning, the drawer for collection of the ash from the combustion chamber must also be taken out.
- Then, mount and securely attach a pellet burner to the door through M10 screws

Explanation: It must be checked whether sealing ropes of the doors fit snugly to the boiler housing. If any gaps are found, the corresponding sealing rope must be replaced and ensure the density of this zone;

- Install the fuel supply conveyor, which feeds the automated pellet burner.

- Install the fuel transport auger that feeds the pellet burner.

The fuel supply conveyor must be installed in such a way so that fuel can be freely extracted from the hopper – from its lowest point. In the event that the hopper is made/assembled on site, it is recommended to make a manhole for servicing the rowing area of the screw conveyor. The screw conveyor pipe itself also must be fastened, so as to ensure against upheaval and possible change of the screw conveyor axis angle against the horizontal plane.
Explanation: The tilt angle (between the screw conveyor axis and the horizontal plane) of the screw conveyor has a direct effect on its performance, i.e. the fuel flow which it will provide at a specified operating mode. That is why adjustment of the burner settings is likely to be required upon change of this angle, in order to insure specific heating power.

Power supply is provided through a Shockproof type plug directly in the mains.



CAUTION! The burner control unit should be plugged into an outlet, which must be earthed. There is a risk of electric shock in the absence of earthed plug! The manufacturer bears no responsibility!

Pellets are stored in a hopper. Mareli hoppers have a 45-degree tilt. The screw conveyor pipe must be placed therein. The Screw conveyor draws pellets from the hopper and feeds the burner through a flexible connection. Dosing is controlled by the control unit by changing the operating time of the screw conveyor. The initial loading of the screw conveyor with pellets (filling the screw conveyor pipe) is carried out when the screw conveyor plug is connected to a normal 230V/50Hz outlet. As pellets start to fall through the flexible connection, the plug is shifted to the burner.

Important: For ensuring normal operation of the burner a minimum of 20 Pa chimney draught is required. After starting the burner, wait for about 3 hours for the chimney to be warmed up and measure the draught. Install additional chimney fan (controlled by the control unit of the burner) if necessary.

4. Maintenance and operation of the pellet burner

Requirements for the characteristics of the fuel, which is used for operation of a pellet burner SMB 100 Rotary. The following table shows the requirements for the types of wood pellets utilized in automated pellet burner.

Table 1

Parameter	uom	Value
Typical grain size	mm	6-8
Recommended calorific value of fuel (lower calorific value)	MJ/kg	>17.2
	kWh/kg	>4.7
Category of wood pellets	A	
Ash content	%	See Table 2
Humidity	%	Max 8-10%

The following table shows classification of wood pellets depending on their physical parameters - according to an evaluation methodology applied by Mareli Systems:
Pellets are stored in a pellet hopper at a dry and ventilated place.

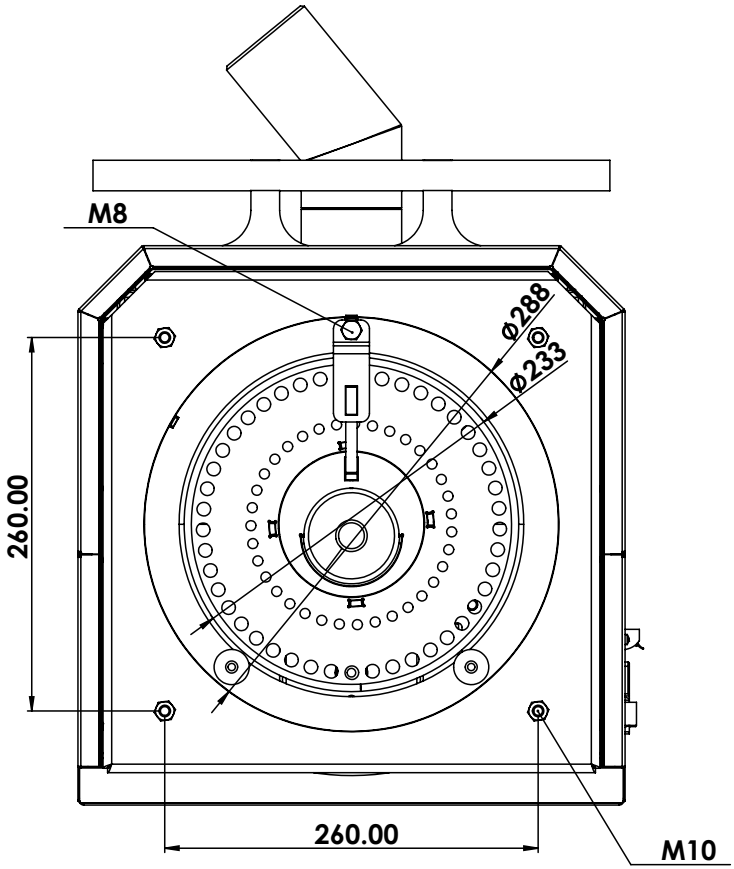
Table 2

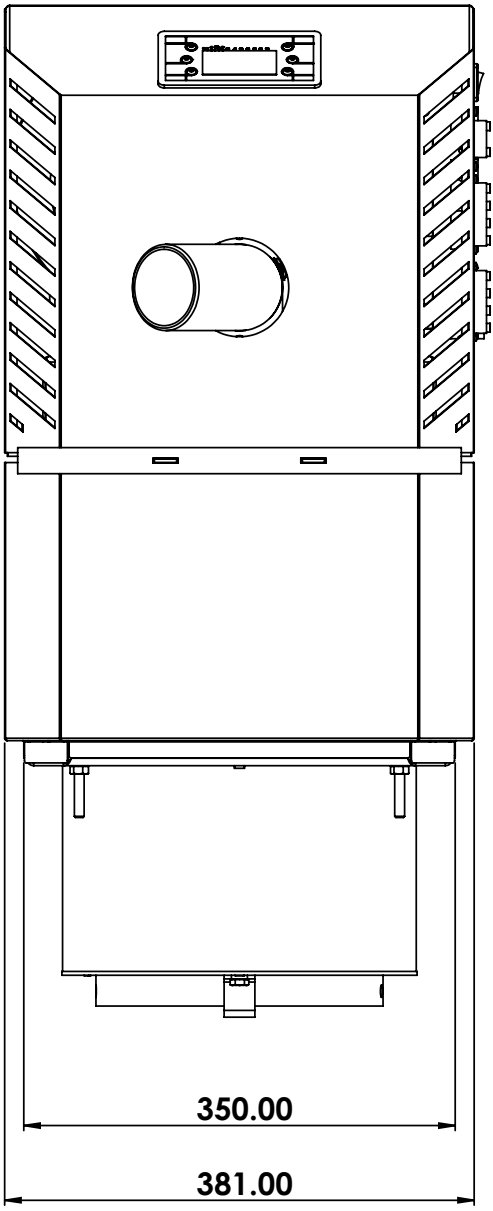
Pellet types	A^d	DU
A	$A^d \leq 0.6\%$	$DU \geq 97.0\%$
AB	$A^d \leq 0.6\%$	$DU < 97.0\%$
B	$0.6 < A^d \leq 1.0\%$	$DU \geq 97.0\%$
BC	$0.6 < A^d \leq 1.0\%$	$DU < 97.0\%$
C	$1.0\% < A^d \leq 2.0\%$	$DU \geq 97.0\%$
CD	$1.0\% < A^d \leq 2.0\%$	$DU < 97.0\%$
D	$2.0\% < A^d \leq 3.0\%$	$DU \geq 97.0\%$
DE	$2.0\% < A^d \leq 3.0\%$	$DU < 97.0\%$
E	$A^d > 3.0\%$	$DU \geq 97.0\%$
EF	$A^d > 3.0\%$	$DU < 97.0\%$

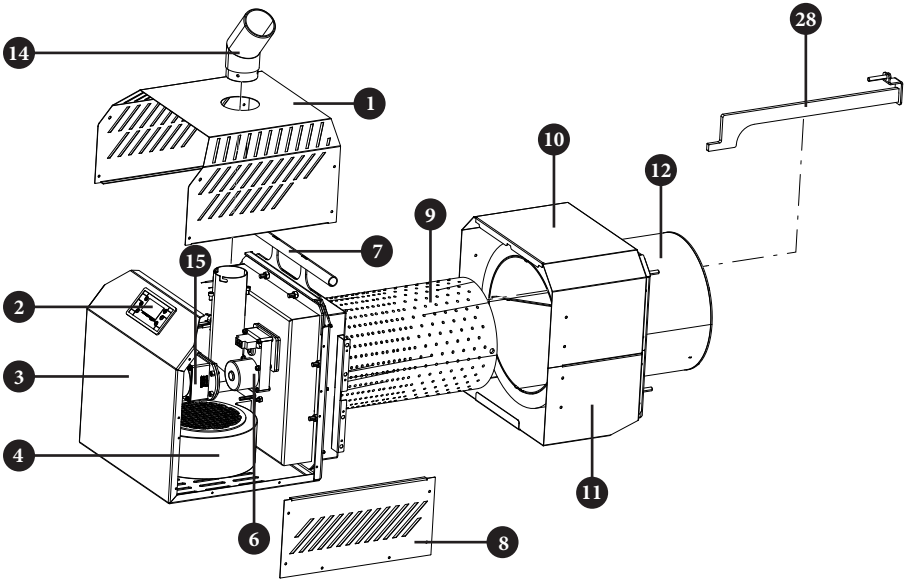
Ad - ash content in dry mass
DU - Mechanical resistance

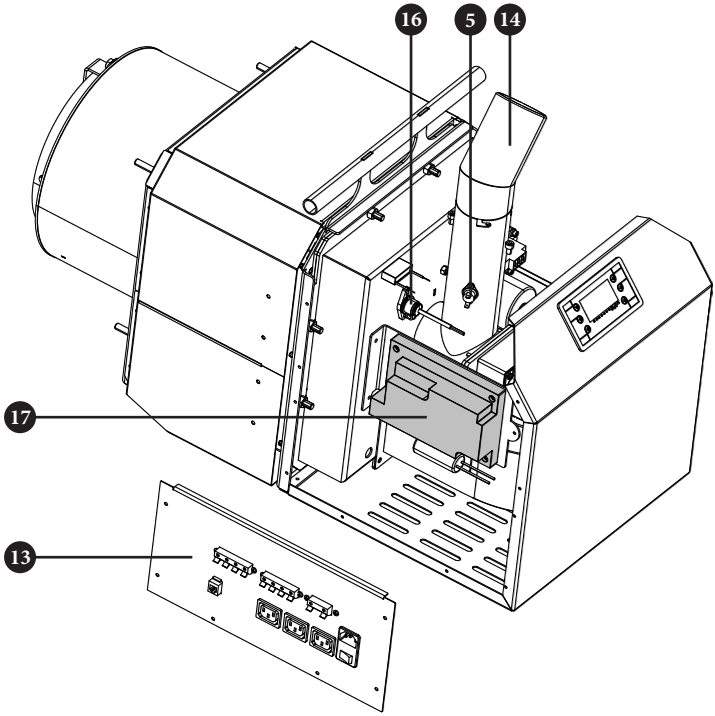
Appendix 2
Technical data

Power output min. / max.	kW	30 - 100
Power consumption (electrical)	W	60 - 350
Feeder	mm	1500 / 75
Min. Chimney draft	Pa	20
Weight	Kg	71
Fuel		Pellet F6 - F8
Noise level	dB	56 +/- 3 dB
Electric power supply	V / Hz	230 / 50
Working environment temperature	C	5 - 40
Humidity level, working range 30 C	%	85

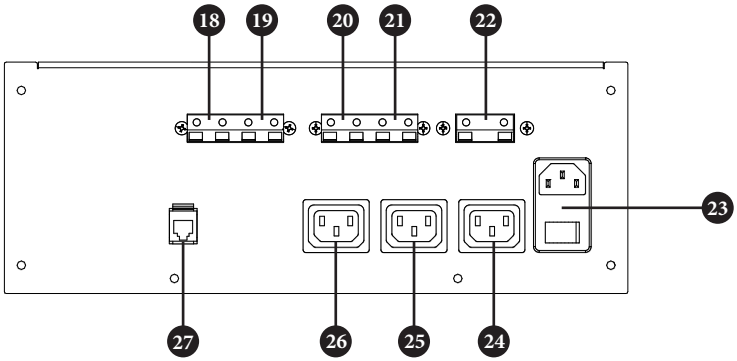



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1	Top burner cover	15	Always on auger motor
2	Display Interface	16	Photo-sensor
3	Burner housing	17	Main control-board
4	Combustion fan	18	High buffer sensor
5	Return flame sensor	19	Low buffer sensor
6	Motor rotary mechanism	20	Room Thermostat
7	Burner handles	21	DHW Sensor
8	Side burner cover	22	Pellet boiler temperature sensor
9	Rotary combustion chamber	23	On / Off switch
10	Top isolation cover	24	Main pellet feeding auger motor
11	Bottom isolation cover	25	DHW Pump
12	Outer combustion chamber tube	26	Circulation Pump
13	Component connection cover	27	RJ 45 service connector
14	Pellets feeding inlet pipe	28	Combustion chamber stabiliser



The joint operation of the system which the automated pellet burner applies to / depends on:
- Heat output to which the burner is set;
- The heating surfaces of the heater, for which it is intended.
- The seal degree of the door and covers of the combustion chamber (condition of sealing ropes);
- Chimney draught;

Good chimney draught is essential for proper functioning of the heating system. Boiler capacity and economical operation depend largely on it.



Attention: Suffocation hazard due to lack of oxygen in the installation room.
- Ensure sufficient fresh air supply through holes out.
- Risk of injury/damage to equipment due to lack of combustion air can lead to tar and noxious gas formation.
- Ensure sufficient fresh air supply through holes out.
- Notify the user of the installation that these holes must remain open.

NOTES:
When using the circulation pump for the transmission of heat energy from the hot water boiler to the heating system,d it is not recommended that the return („cold ") water's temperature is lower than 60oC. A local (in the heat exchanger of the boiler) over-cooling of flue gases and condensing water vapour is possible, which is one of the end products of fuel combustion.

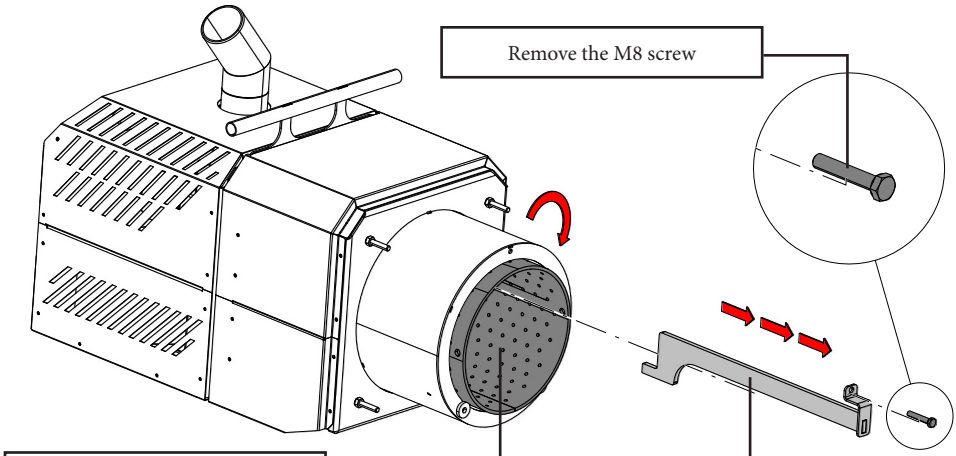
Why is regular maintenance important?
Heating systems should be maintained on a regular basis for the following reasons:
- To maintain high efficiency and to operate the heating system economically (with low fuel consumption);
- Achieving high safety of operation;
- Achieving high environment-friendly combustion;

5. Pellet burner cleaning

The appliance must be cleaned regularly for long and good operation of the pellet burner. Cleaning is done when the burner is stopped and switched off from the mains. The more quality the pellets used, the longer the intervals between cleaning will be.

Boiler: Clean the ashes from the boiler with a brush and remove the soot.
Pellet hopper: Clean the pellet hopper periodically. When using lower quality pellets, they generate ash, which accumulates on the hopper base and impedes the passage of the pellets.

When necessary	Weekly	Once per every two weeks	Monthly	Every 6 months	Annually	
X	X	X				Clean the combustion chamber, if solid ash precipitated
		X	X			Clean the dust and ash under the grate of the burning chamber
X				X		Clean the photo sensor
				X		Clean the fan from dust – if necessary
X		X	X			Clean the burner and the boiler
					X	Check the sealing rope and replace it when worn out
X						Adjust the burner set up



Additional instructions:
1. Remove the ash and slag from the boiler once a week or according to the volume of ashtray.
2. Check boiler flues periodically and clean them if there is congestion.
3. Check the burner adjustment once a year using a gas analyser.
4. Clean ash at the pellet hopper bottom when it is necessary.
5. Clean boiler chimney once every two years.
6. If there is law draught in the chimney, install additional chimney suction fan. Its control is planned and integrated in the control unit of the burner.

The maintenance timetable is recommended, cleaning must be made whenever necessary.

The need of cleaning varies individually, since the choice of pellets, the system itself, and the settings of the burner affect the frequency of cleaning. Unforeseen risks upon cleaning and maintenance.
Hand burn hazard: Possible reason – high temperature in the burning chamber. This risk exists in case of unburned fuel pellet, as well as not cooled burner when cleaning by the user!
It may occur upon cleaning and maintenance of the burner. The use of special protective equipment (gloves) is recommended!
Electrical shock hazard: The maintenance of the burner during operation as well as under voltage is prohibited! If a short circuit or possible damage occurs, an authorised technician should be called. Touching the conducting parts is prohibited!
Dust in eye hazard: May occur during work both upon cleaning and maintenance. The use of special protective equipment (safety goggles, tightly fitted) is recommended!

CAUTION: Periodic cleaning, as well as supervision of the burner will prevent any incidents caused by faulty pellet fuel, incorrect slopes of burner and of screw conveyor, as well as incorrect combustion settings. Read this manual before installing and working with the burner. The manufacturer bears no responsibility!

A burner with properly adjusted settings operates well and cost-efficiently. If there are problems, please, contact the supplier for the removal of any defects or for setting up the burner.

POSSIBLE FAULTS AND TROUBLESHOOTING:
The verification shall be carried out only by a qualified electrical technician or an authorized by Mareli Systems service centre.

The unit does not work:
- Check the hopper for sufficient quantity of pellets.
- Check operation of the igniter.
- Check operation of the screw conveyor (whether it feeds pellets). Check the flexible connection. The facility does not start: (display is not illuminated).
- Check fuses on the circuit board.
- Check the power source for loose connections.

It is important that faulty parts are replaced immediately !!!

Always keep in stock additional photo sensor and heater for replacement.

At the end of the period, upon decommissioning the burner, clean the fuel surfaces from any deposits. Clean the screw conveyor and the hopper from residual sawdust. Cut off the burner power supply.

Additional information:
1. Cables of the thermal sensors can be extended up to 10 m.
2. Installation of the thermal sensors should be done with immersion sleeves or applied under insulation pipes.
3. Sensors are part of the controller. Do not replace them with others.
4. Indoor thermostats with relay output must be used.
5. The required chimney draught is at least 20 Pa. Install additional chimney fan (controlled by the control unit of the burner) if the values are lower.
6. When wiring pumps or a chimney fan, the wiring inputs in the housing of the burner must be used. If there is a shortage of inputs, additional inputs must be installed.
7. The time for pellet loading before ignition - must be sufficient so that the fallen pellets. Cover the holes in the combustion basin.
8. If there is no additional chimney fan, smoke leakage is possible through the seals on the boiler doors. The smoke usually disappears during normal operation.
9. To achieve the desired output of the burner, do the following:
    - Start the burner and go to manual loading option in the user menu.
    - Disconnect the flexible connection from the burner and collect the pellets passed from the conveyor into a bag for 10 min.
    - Weigh the pellets passed and multiply by the factor 0.03.
    - The calculated value is the power in KW/h.
    - Example: If the screw conveyor passes 1,300 g pellets for 10 min. 1,300x0.03 = 39 Kw - heating power.

Instructions for installer and service technician:

Screw conveyor installation:
Install the screw conveyor at an angle of 45 ^{0} into the pellet hopper.
Fill the hopper and plug the screw conveyor to 230V/ 50Hz. Wait for the screw conveyor pipe to be filled with pellets and switch the plug to the burner. In order to ensure the normal free-fall of the pellets from the screw conveyor to the burner, the flexible connection must be well tensioned and the difference in levels between the screw conveyor outlet and the burner input shall be at least 40 cm.

Parameter adjustment:
The fuel process of the burner depends on several parameters. Fan speed (V), time for feeding pellets from the screw conveyor (s), time for the rest of the screw conveyor (s). These parameters are adjusted separately for the five degrees of power. The degrees are upstream. It is not recommended that the power of the first or second degree is greater than the power of third, fourth, and fifth. For the recommended settings, please refer to the manual for programming the controller of the pellet combustion system.

If the unit does not operate satisfactorily:

- Check the quality of pellets (must be free from dust). Upon normal operation of the burner, the quantity of the pellets on the grate (combustion basin) must be such so that its holes are covered.

The criterion for good operation of the burner is the colour of the flame - IT MUST BE YELLOW. When it is dark red, mixed with smoke it is most likely that the volume of input air is less than required for good combustion and must be increased.
Adjustment of the air affects essentially the combustion mode, the aim must be a calm, stable combustion, without residue.
Sometimes, if the initial loading dose for ignition is large, "choking" of the burner may occur, i.e. it may not ignite and upon re-activation of the ignition (second attempt) the basin may clog up with pellets. The volume of the first dose must be decreased so as to avoid choking.

NOTE: It is desirable when adjusting the burner settings to use exhaust gas analyser.

IMPORTANT:
Default values of the parameters should not be taken for granted. The settings must be adjusted individually according to REQUIRED POWER, TILT OF THE SCREW CONVEYOR, QUALITY OF PELLETS, CHIMNEY DRAUGHT, CUSTOMER REQUIREMENTS!

Switching off the burner and the boiler
Switching off the automated pellet burner should be done according to the guidelines in its manual. After cooling of the boiler, the burner also should be switched off. It is also recommended that the unit is cleaned from the accumulated ash.

An emergency stop of burner and boiler
During operation of the automated pellet burner an emergency situation may arise. Some situations of this kind are recorded by the burner controller and a procedure for their prevention is automatically performed. The monitoring controller also indicates the burner status. In the event of an accident check the reason for its occurrence and take appropriate measures for its removal.

Faults and Troubleshooting

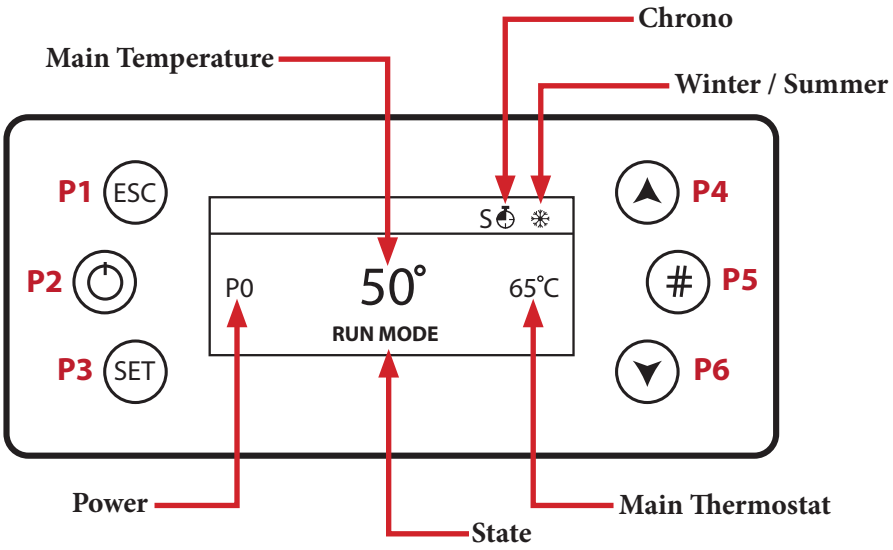
In the presence of a fault in the operation of the burner-boiler system, one should be familiar with the problems and how to solve them as described in the user manual for operation of steel hot water boiler, as well as in such for automated pellet burner. In the following table this information is supplemented by data that will be of assistance to the service technician.

No.	Fault	Reason	Method of remedy
1	There is no pellet ignition	Faulty heater for fuel ignition	Check the status of the electric heater
2	There is no feeding of pellets in the area of combustion in the burner	Failure of the screw conveyor	Check the proper functioning of the drive gear motor. Check the connection of the engine to power control of the burner.
3	Smoke leakage of flue gases from the boiler	Leaks in the boiler	Check connection to the chimney. Check seals of the boiler doors.
4	Deformation of the burner in the area of the combustion process	Overheating of the burner structure	Replace the burner and change the combustion process settings.
5	Other problems	Must be specified by the service technician	Consult the service team.

In case of „first "commissioning of the boiler condensation of water vapour on the heating surfaces of the heat exchanger may occur. This one-time process does not cause problems in the operation of the unit;

Operation of the automated pellet burner in modes, which exceed its heating power according to its technical parameters, is not allowed. In the case of exceeded rated thermal power of the automated pellet burner irrevocable deformations may occur in the area of the combustion chamber of the burner, which lead to its failure – in such cases the factory warranty of the burner is not recognized by the manufacturer.

CONTROL PANEL K500 (NG21)



P1 - Exit from menu/submenu refill Function (push for 3 seconds)
P2 - Ignition, extinguishing and errors reset (push for 3 seconds) Enable/Disable Chrono
P3 - Access to User Menu 1/ submenu / Access to user 2 menu (push for 3 seconds) / Save Data
P4 - Access to combustion power / Menu Increase
P5 - Enable chrono time slot /Access to the Info Menu
P6 - Access to Room Thermostat / Boiler Thermostat / Menu Decrease

P3 + **P5** - Direct access to the Secondary Information menu inside the Service menu. (push for 3 seconds)

G - Daily Chrono on / **S** - Weekly chrono on / **FS** - Week End Chrono On

DHW demand or buffer tank thermostat not reached

Local room heating target reached

USER MENU 1

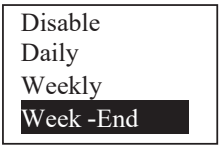
Power - Pellet Menu to modify the combustion power of the system in Pellet mode. It is possible to set it in auto or manual mode: in the first case the system chooses the power combustion, while in the second one, the user selects the power. On the left of the display the combustion mode is reported (A= automatic combustion, M=manual combustion) and the system working power.

Thermostats
Boiler - Menu to modify the Boiler Thermostat value. You can program the minimum and maximum value by setting the Thermostats Th26 and Th27. With climatic function switched on the thermostat value cannot be modified, because it is automatically computed by the system.
Buffer Tank - Menu that allows to modify the Buffer tank Thermostat value; it is shown if; it is displayed if a hydraulic plant requiring it has been selected.
DHW - Menu to edit the DHW thermostat value.

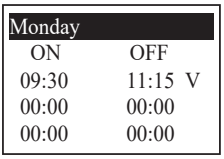
CHRONO

This Manu allows selecting the programming modalities and and the Ignition/Extinguishing time slots.

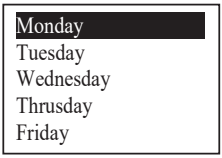
Modality - It allows selecting the disired modality, or disable all set programming.
1. Enter modification mode through the key **P3**.
2. Select the chosen modality (Daily, Weekly or Week end).
3. Enable/disable chrono modality through the keys **P2**.
4. Save the settings through the keys **P3**.



Programming
The system includes three type of programming: Daily, Weekly, Week end.
After selecting the desired kind of programming:
1. Select the programming time through the keys **P4/P6**.
2. Enterthe adjustment modality (selected time will be flashing) through the keys **P3**.
3. Change the time via keys **P4/P6**.
4. Save the programmong with the keys **P3**.
5. Enable (a "V" is displayed) or disable the time slot (a "V" is not displayed") by pressing the keys **P5**.



Daily
Select the day of the week to program and set the ignition and extinguishing times.
Programs around midnight
Set the clock On of the previous day at the desired time: Ex. 20.30
Set the clock of OFF of the previous day at: 23:59
Set the clock On of the following day at 00:00
Set the clock of OFF of the following day at the desired time: Ex. 6:30
The system turns on at 20.30 on Tuesday and turns off at 6.30 on Wednesday



Weekly
The programs are the same for all days of the week.
Week-end
Choose between 'Monday-Friday' and 'Saturday-Sunday' and then set the switching on and off times.



USER MENU 2

Settings
Time and Date - It allows you to set day, month, year and current time.
Language - It allows you to modify the language of the keyboard.
Recipe - Menu for the selection of the combustion recipe.
Summer/Winter - Menu to edit the functioning of the hydraulic system according to the season.

Service
Counters - **Ignitions** (Number of attempted Ignitions) - **Failed Ignition** (Number of failed ignitions) - **Working hours** (Operating hours in Run mode, Modulation and Safety).
Errors List - The menu shows the last 10 errors; in each line the error code and time/date of the error itself are shown.
Secondary Information - Information about configurable outputs and inputs are only available if they have been set.
Cleaning Reset - Menu to reset the function 'System Maintenance 2'. It is displayed only if T67>0.
Auger Calibration - This menu allows you to modify the default values of the Auger speed or its On times. You can set the values in a range within –7÷7. The default value is 0.
Fan Calibration - This menu allows you to modify the default values of the Combustion Fan speed. You can set the values in a range within –7÷7. The default value is 0.
Mixer Valve - Menu to manage the Mixer Valve operation.
Automatic Power - This menu allows you to set combustion power in automatic mode only. If you set it, power change menus are no longer displayed.
Loading - The procedure enables the pellet manual charge and it is automatically interrupted after 300 seconds. In order to enable this function, the system must be on mode Off.
Loading Test - The procedure allows calculating the amount of pellet used in 10 minutes with the auger.

Display
Contrast - It allows you to adjust the screen contrast.
Screen saver - This Menu allows the user to enable and disable the screen saver.
Acoustic Alarm - Menu to enable/disable the acoustic alarm.
Minimum Brightness - It allows you to adjust the screen brightness when not using the controls.

MESSAGES

Description	Code
Anomaly of the probes checking, during Check Up phase.	**PRob**
Room temperature greater than 99 °C.	**Hi**
This message notifies that the planned hours of functioning (parameter T67) are reached.	**Clean**
Door Open.	**Port**
The message appears if the system is turned off during Ignition (after Preload) not manually: the system will stop only when it goes in Run Mode.	**Ignition block**
Periodical Cleaning in progress.	**Cleaning on**
No communication between motherboard and keyboard	**Link Error**

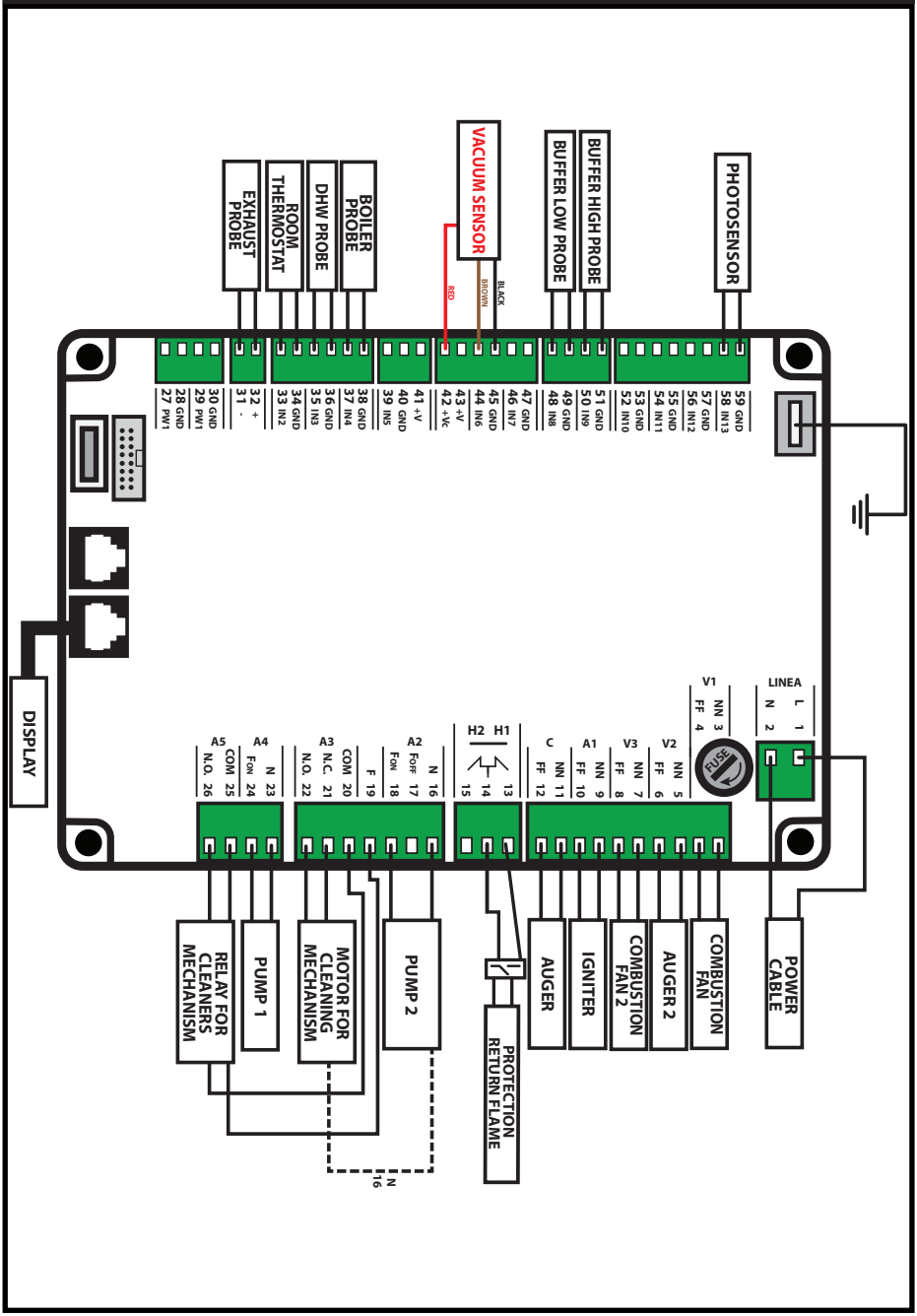
VISUALIZATIONS

Exhaust T. [°C] - Exhaust temperature;
Room T. [°C] - Room Temperature ; it is displayed only if an input has been set as a Room Probe;
Boiler T. [°C] - Boiler Temperature;
Buffer T. [°C] - Buffer Temperature, it is visible only if P26 is set on 2,3,4;
Pressure [mbar] - Water pressure;
Air Flux - Air flow; it is visible only if A24 is different from 5;
Fan Speed [rpm] - Exhaust fan speed; it is visible only if P25 is different from 0;
Auger [s] - Auger work time; it is visible only if P81 is equal to 0;
Recipe [nr] - Combustion recipe set; it is visible only if P04 is greater than 1;
Product Code: 510 - Product code;

ALARMS

Er01 - Security Error High Voltage 1. It may also intervene with the system off;
Er02 - Security Error High Voltage 2. It can only intervene if the Combustion fan is active;
Er03 - Extinguishing for low exhaust temperature or missing light in the brazier;
Er04 - Extinguishing for water over temperature;
Er05 - Extinguishing due to high exhaust temperature;
Er06 - Pellet Thermostat open (flame return from the brazier);
Er07 - Encoder Error. The error may occur due to lack signal from Encoder;
Er08 - Encoder Error. The error can occur due to problems of adjustment of the number of revolutions;
Er09 - Water pressure low;
Er10 - Water pressure high;
Er11 - Clock Error. The error occurs due to problems with the internal clock;
Er12 - Extinguishing for ignition failure;
Er15 - Extinguishing due to power failure for more than 50 minutes;
Er16 - RS485 communication error (Display);
Er17 - Adjusting the Air Flow Failed;
Er18 - No more Pellet in the bunker;
Er23 - Boiler probe or Back boiler probe or probe Buffer open;
Er25 - Engine cleaning brazier broken;
Er26 - Engine cleaning broken;
Er27 - Engine cleaning 2 broken;
Er39 - Sensor Flowmeter broken;
Er41 - Minimum air flow in Check Up is not reached;
Er42 - Maximum air flow exceeded;
Er44 - Open door error;
Er47 - Error Encoder Auger: missing signal Encoder;
Er48 - Error Encoder Auger: Auger regulation speed not achieved;
Er52 - Error Module I/O I2C;
Er57 - Test 'Forced Draught High' in Check Up fail;
Service - Service error. It notifies that the planned hours of functioning is reached. It is necessary to call for service.

DIAGRAM FOR SMB ROTARY (NG21)





Mareli Systems

STEP FORWARD

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