

# Operating manual

Pellet boiler



**Orlan  
Pellet**

# Contens

1. Boiler's use.....	3
2. Boiler's way of working .....	3
2.1. Burning up.....	3
2.2. Appropriate operating .....	4
3. Regulator description.....	5
4. Use.....	5
5. Technical data .....	6
5.1. Boiler sizes .....	6
5.2. Technical data .....	7
5.3. Technical data of regulator .....	7
5.4. Electrical data of gear- motors .....	8
5.5. Mechanical data of gear-motors .....	8
6. Hydraulic connection of a boile .....	9
6.1. Connection scheme .....	9
6.2. Hydraulic connections description .....	9
7. Loading system.....	10
8. Protection against flame getting into the container .....	10
8.1. Acceptable fuel temperature excees in the feeder .....	10
8.2. Fuel loading outage .....	10
9. Ventilation in a boiler room.....	10
9.1. Supply ventillation.....	11
9.2. Exhaust ventilation .....	11
10. Connecting boiler to the chimney .....	11
11. Utilizing .....	12

# 1. Boiler's use

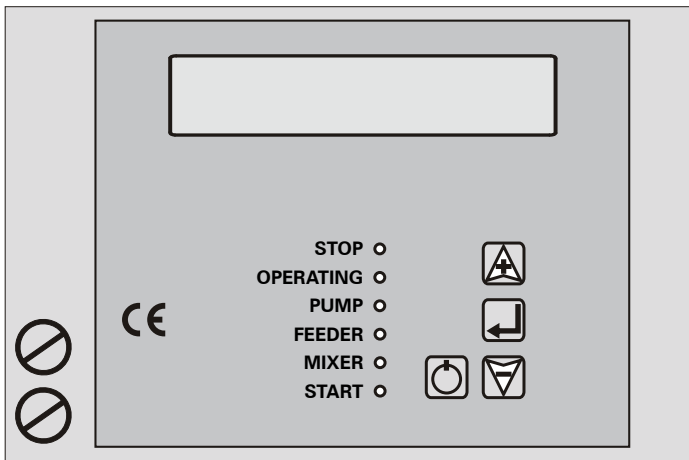
Low-temperature pellet boilers produced by Eko-Vimar Orłański company are for water heating in central heating and for combustion of pellet at sizes: diameter- 6 up to 8 mm; length 10 up to 50 mm. Pellet's container allows for long lasting burning process with no extra loading necessity.

Pellet boiler is to be installed in open pressure vessel system assuring boiler's working in nominal working pressure.

The boiler is equipped with a controller enabling boiler's working at right temperature's range and it secures the boiler against its overheating thanks to burner's exhaust fan switching on.

## 2. Procedure rule of pellet boiler

### 2.1. Burning up



*Regulator before turning on*

1. Fill In the container with pellet and close the cover tight
2. Connect the plug with a connector at 230V/50Hz , then connect the controller with a network switch



**NOTICE!**

Connection socket should be secured with the 4A fuse and anti-shock switch (max power 20 mA ).



**NOTICE!**

It is forbidden to connect other appliances to the system!!!

3. Turn on with START button(5). Turning on with START cause also demister and feeder's turning on. When temperature reaches the needed one- demister and feeder turn off automatically.

When the regulator starts working, there is a display as below:



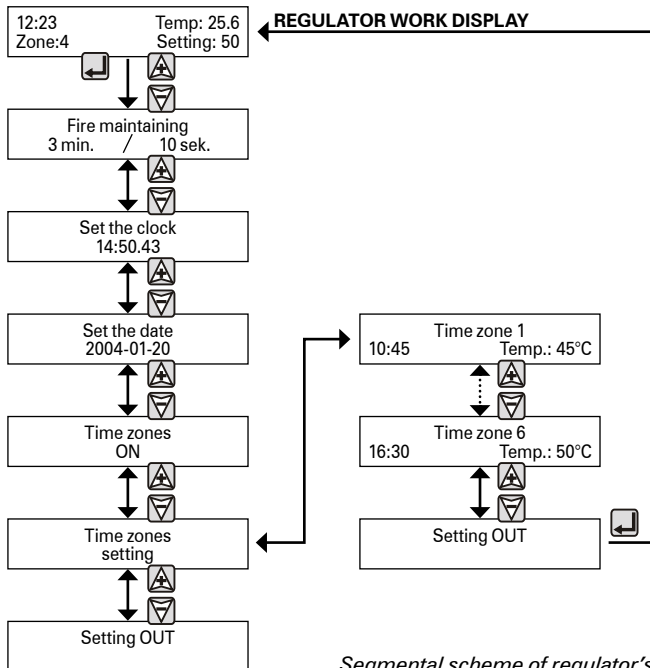
## 2.2. Appropriate operating

When all of the points above are accomplished, the controller ensures:

1. Keeping permanent temperature of the boiler - set by the user temperature of the boiler by automatic connecting of blow and feeder.
2. Self- turning off of the demister right after fuel ending.
3. Continuous boiler's temperature, time and eventually time zone checking.

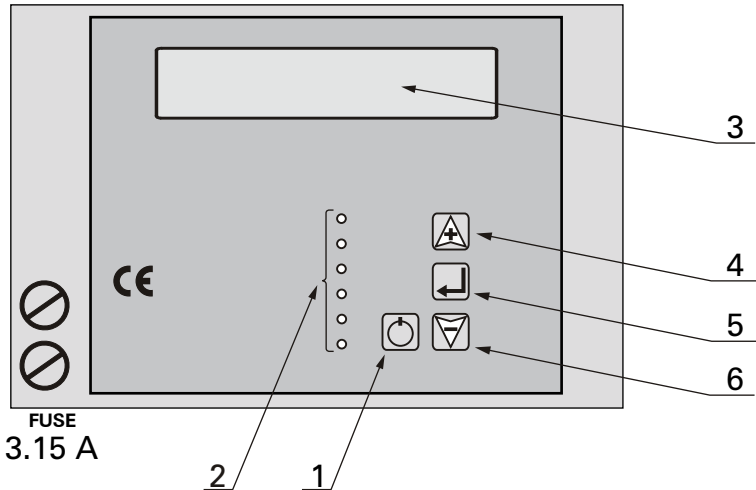
At the front panel there are control lights (2) telling about the controller's operating:

- I. STOP** - signals the controller's working ending – it's on automatically in case of fuel shortage
- II. FAN** - signals about the blower's turning on
- III. HEATER** - electric heater turning on
- IV. FEEDER 1** - signals about the feeder 2,
- V. FEEDER 2** - signals about the feeder 1 connecting 2
- VI. START** - signals about boiler's burning up mode turning on. It turns off automatically right after reaching by boiler the temperature previously set



Segmental scheme of regulator's menu.

### 3. Regulator description.






1. Regulator ON switch,

2. Signalization indicator,

3. Scree,

4,5,6. Keypad buttons for the appliances' operation:

  4,6 - change of the parameter chosen value (cursor highlighted) ex: temperature setting. The buttons are for "moving" among the parameters in the MENU.

 5 - in normal working mode START / STOP button. Long holding ( about 2 sec) gives an access to the MENU. When MENU programming it's possible to confirm the previous setting choice with the buttons 4,6.

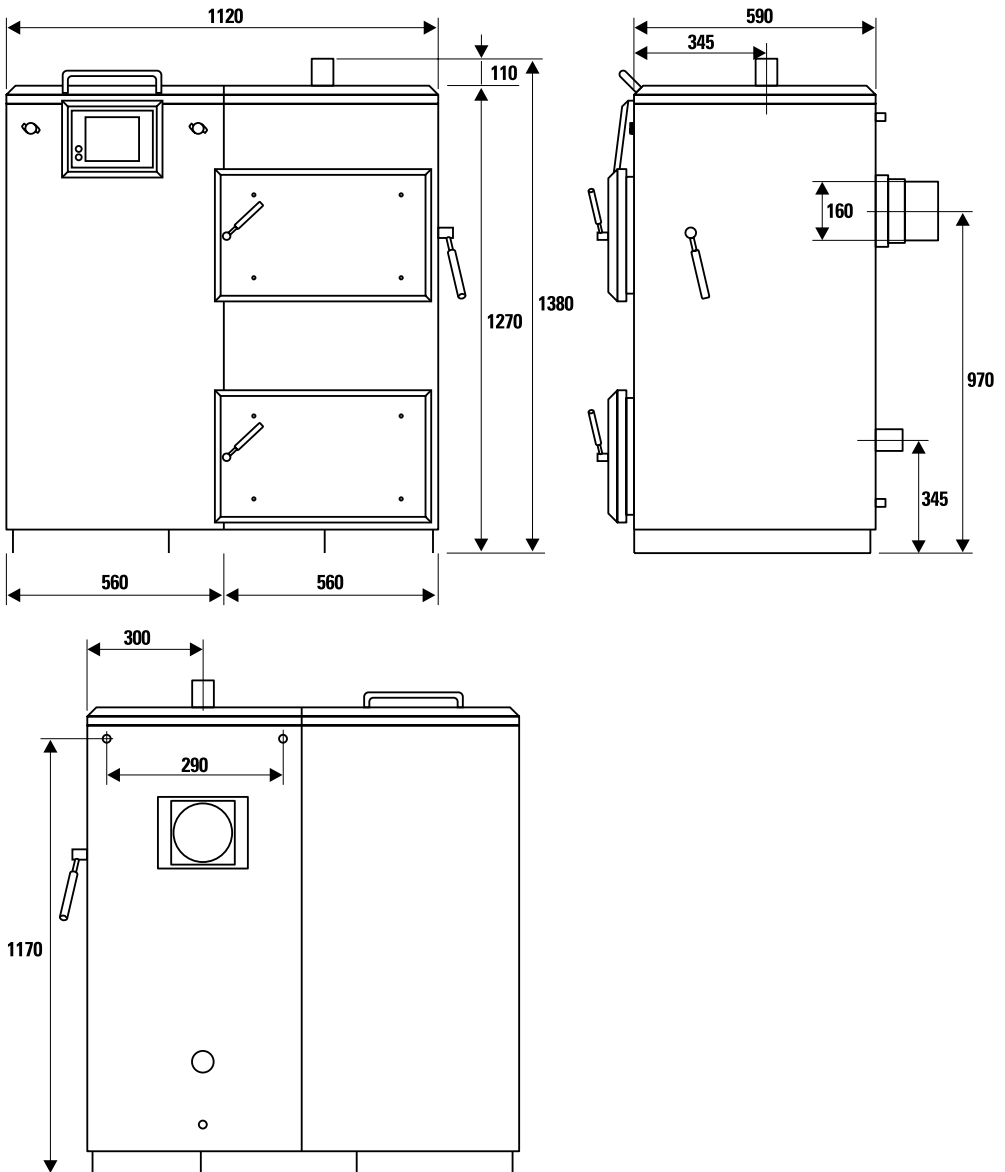
### 4. Use

The appliance's main use is automatic controlling of boiler's operation. By controlling we mean water's warmth controlling.

Algorithm of working enables for time intervals' defining (called as „Time intervals“), where the boiler should keep water's temperature set by the user. Such function gives an opportunity of more effective temperature's regulation (ex. cooler at night and warmer during the day) and as it follows - it decrease the fuel's taking.

## 5. Technical data of the boiler.

### 5.1. Boiler's sizes



## 5.2. Technical data

No.	Description	Unit	Value
1.	Boiler's power	kW	30
2.	Power range	kW	od 8 do 30
3.	Power consumption	W	250
4.	Max water temp.	°C	90
5.	Fumes temp.	°C	150
6.	Water capacity	dm <sup>3</sup>	60
7.	Weight	kg	300
8.	Container's capacity	dm <sup>3</sup>	135
9.	Chimney flue diameter	mm	160
10.	Max pressure	MPa	0,2
11.	Chimney thrust needed	Pa	od 10 do 20
12.	Boler's efficiency	%	92
13.	Heated space	m <sup>2</sup>	do 300
One loading working time			
14.	8 kW burner's working	h	90
15.	15 kW burner's working	h	55
16.	30 kW burner's working	h	30

## 5.3. Technical data of a regulator

No.	Description	Unit	Value
1.	Temperature regulation range	°C	35 - 90
2.	Water's measurement range	°C	0 - 95
3.	Fumes' measurement range	°C	0 - 600
4.	User communication		Alfa-numeric LCD screne
6.	Burning maintaining regulation	min.	1 - 5 stopover 1 - 60
9.	Flow blow's regulation		Panning (possibility of service mode turning off)
10.	Boiler working programming		Max 6 time zones established by the user in 24 hour time
11.	Fumes temperature control		Fumes' control enabling for more economic and safer boiler's using
12.	Operating in surroundings' temperature	°C	0 - 50
13.	Second grade of thermal safety		standy thermostat (STB - 95°C)
14.	When power shortage		Automatic setting keeping when power shortage

## 5.4. Electrical data of gear- motors

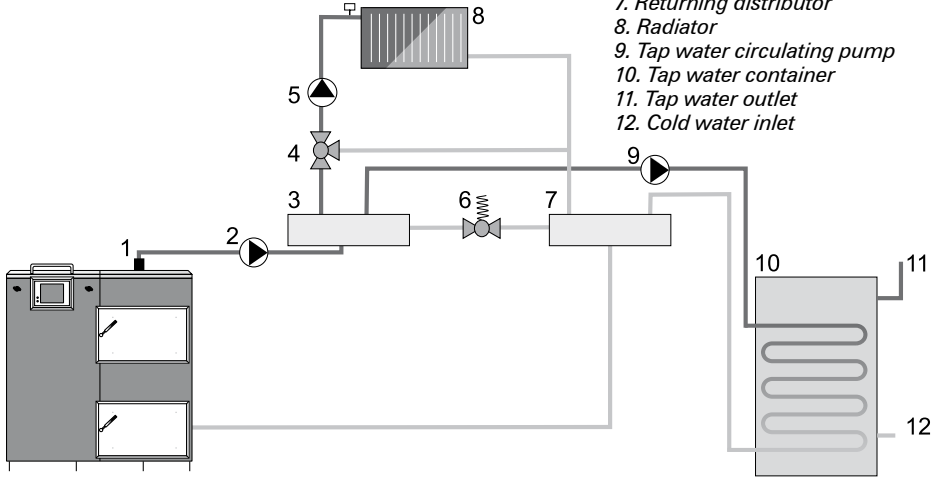
No.	Description	Value	
1.	Type	commutator motor with a gear	
2.	Voltage	AC 230 V 50 Hz	
3.	Fields' quantity	2 P	
4.	No charge engine characteristics	4.1. Current	0,65 A $\pm$ 15%
		4.2. Initial power	72 W $\pm$ 15%
		4.3. Rotation power	5,4 rot/min $\pm$ 10%
		4.4. Voltage	161 V MAX
5.	Loading characteristic - 1 min after the engine's starting working	5.1. Limit load	33 Nm MIN.
		5.2. Acceptable load	25 Nm MIN.
		5.3. Start loading	20 Nm MIN.
6.	Max power	1,2 A MAX.	
7.	Dialectic stamina	An engine takes 1500V RMS voltagew in 1 minute time (1800V RMS by 1 sec) measured between engine's coil and its core (trial current 3 mA).	
8.	Insulation constant	100 M $\Omega$ min at 500V constant equivalent measured between a coil and casing	
9.	Thermal protection	Thermal secured engine (up to 120 °C)	
10.	Insulation category	category „E“	

## 5.5. Mechanical data of gear-motors

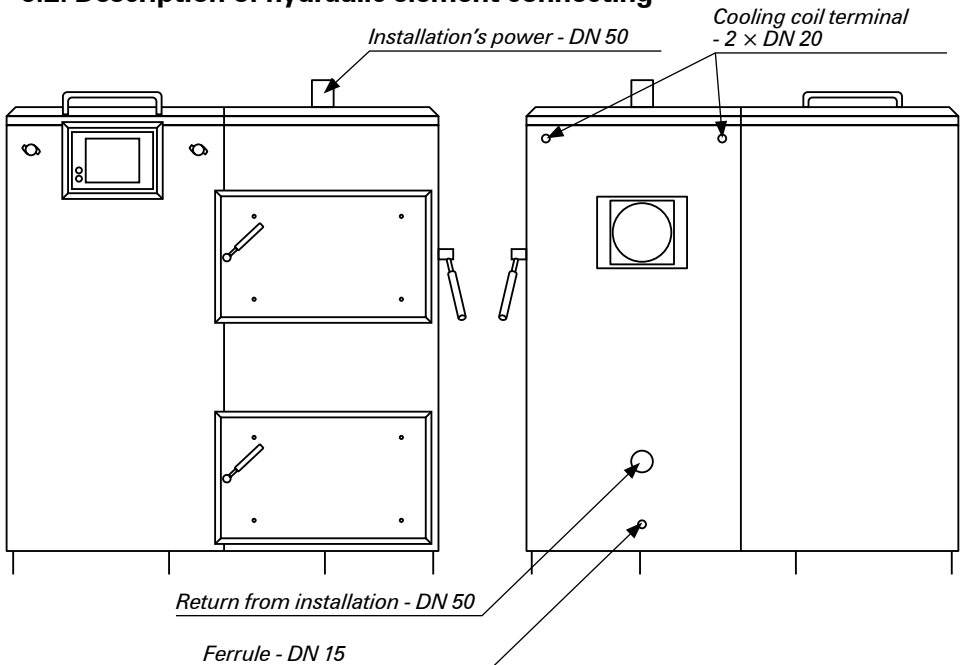
No.	Description	Value
1.	Lubrication	mineral oil & grease
2.	Volume	25 dB MAX (no charges)
3.	Weight	2,2 kg
4.	Driveshaft's placement	horizontal
5.	Ratio	1 : 532
6.	Bearings	ball bearings

## 6. Hydraulic connection of the boiler

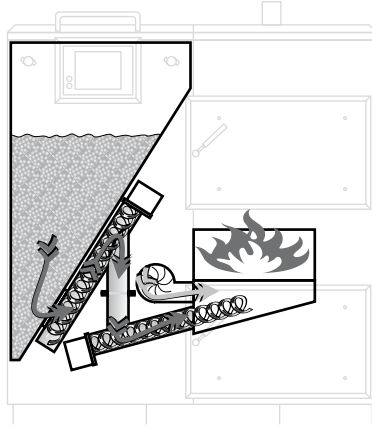
### 6.1. Connection scheme



### 6.2. Description of hydraulic element connecting



## 7. Loading system



*Scheme of pellet's loading and its burning*

## 8. Protection against the flame getting into the container

### 8.1. Acceptable fuel temperature exceeds in the feeder

Controller is equipped with safety thermostat which turns the boiler off when it exceeds the fuel's acceptable temperature. It measures the feeder's pipe. The controller alarms and in the same time turns off the boiler when the temperature exceeds 95°C .



#### **NOTICE!!!**

**Standby resetting is manual by pressing the button at safety thermostat. Before standby resetting it's necessary to find the overheating reason and to get rid of it.**

### 8.2. Fuel loading outage

Pellet feeding system is constructed in the way as to let the flames to get into container. Two feeders joined with a chute pipe ensure safe pellet's feeding.

Boiler regulator ensures right operating of the both feeders. The feeders co-operate together in the way that the vertical spilling pipe sector is always empty and that assures stopping of pellet's feeding continuity.

## 9. Ventilation in a boiler room

Every boiler room should have a ventilation built-in. Its purpose is to ensure right boiler's working and safety for the users. Lack of ventilation causes boilers faulty working ( smoke, problems with higher temperature achieving). Exhaust ventilation's purpose is to remove gas and the used air out of the room. In the boiler room with natural thrust mechanical ventilation cannot be applied.

## 9.1. Supply ventilation

1. Supply ventilation conduit's sizes should be equal 50 % of chimney cross-section , it can't be less than 20x20 cm. The duct should be placed 1m over the floor.
2. In the intake slot or in the conduit there should be an appliance air flow controlling. The appliance however cannot limit the cross - section to more than 1/5 of total space. Ventilation flue should be made of non- flammable material.

## 9.2. Exhaust ventilation

1. The conduit's size needed - 25% of the chimney sectional view - should be bricked (min 25% of the chimney's sectional view) however it cannot be smaller than 14 x 14 cm. Any of the appliances cannot block the chimney inlet slot. Exhaust slot should be placed under the ceiling and it should be at least 1,5 m over the roof.
2. Ventilation flue should be made of non - flammable material. Boiler room should be at least 2,2 m high.

## 10. Connecting boiler to the chimney

Chimney conduit should be made in conformity with PN-87/B-02411 and PN-89/B-10425 norms „Smoke, combustion and ventilation conduits made of the brick. Requirements and checking on acceptance test“ and Infrastructure Minister's regulation from the 12.04.2002 (Journal of Laws no. 75).

The segment of fuse discharging is called chimney flue. To decrease fumes' flow resistance chimney flue should be arranged as straight one and if there is a necessity of its changing the changes should be made softly - as 45° curves.

Because of the fumes' temperature boilers can be assembled in chimney flue which is made of brick with smoothed interior walls.

The chimney flue itself should be build starting with the boiler room's floor because the fuse coming out of the boiler should be able to turn back.

About 30 cm above the floor there should be an airtight closure washout hole. To limit fumes' flow the chimney's cross - section should be round or similar to the square shape. Min hydraulic diameter of the chimney is 160 mm.

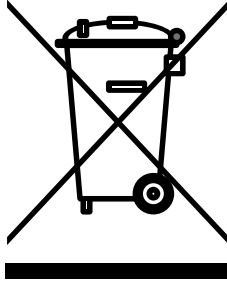
Chimney should reach out of the roof. Chimney outlet placement depends on the roof' tilt range and its flammability range.

Chimneys at up to 12% hipped roof end's tilt range should stick 0,6 m out of the roof ridge.

Boilers above 12° angle of depression should stick out of the roof edge: in case of inflammable roof cladding - 0,6 m, in case of non or hard - flammable roof cladding the exhaust can be placed about 0,3 m above the roof edge.

Producer prescribes mounting of chimney flue regulator which in case of too large underpressure in the chimney opens and withdraw the air by suction boiler doesn't take it in.

## 11. Utilizing



The appliance is approved according to the European Directive 2002/96/EC in the matter of electrical and electronic devices' waste(WEEE). Ensuring right its scrapping you help to protect the environment.

The symbol placed either on the device or in the documents enclosed means that the product isn't classified as a household waste.

The appliance should be taken to an authorized collection point in the matter of electric and electronic components recycling.

Pellet boiler should be scrapped according to local regulations according waste utilization.

More informations according utilization, scrapping and recycling you can get in the local city hall, in civic waste utilization company or in the place of he machine buying.



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