

REC, LLC

RENEWABLE ENERGY CONSULTANTS, LLC

Distributors of SIM / Fuzzy Logic Multi-Fuel Boilers

Pellets® Fuzzy Logic 2

automatic boilers group with innovative second generation Fuzzy Logic power modulation and combustion process controlled with lambda sensor module

ecocombustion



broadband 6-wire lambda sensor

models [kW]

15 25 40 50 75 100

1.7 m

fuels

- pellets
- pellets / oats 50 / 50
- coal
- wood
- control
- service 7/24
- boiler steel P265 GH
- heat resistant steel H12KH2012
- boiler efficiency > 91%
- 6 years warranty + 2 years extended warranty

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Description

Pellets Fuzzy Logic 15, 25, 40, 50, 75, 100 kW boilers with automatic fuel ignition set the new trends for solid fuel boilers. Combusted fuels: sawdust (pellets), pea coal, oats and wood (with optional grates, included at standard boiler equipment). The fuel is fed to the large capacity pellet reservoir.

Full charge allows automatic operation for 7 to 30 days depending on the building heat demand¹.

1. recommended pellets/oats ratio - 50/50
2. depending on building heat demand
3. Second generation Fuzzy Logic control method allows to reduce fuel consumption by up to 20%
4. starts automatic hot water heating

Features

- High quality durable steel heat exchanger was designed following 3T guidelines (time, turbulator, temp.).
- Burner constructed to combust pellets, oats, pea coal (three burner end-plates as standard boiler equipment).
- Second generation Fuzzy Logic modulation method for improved comfort and reduced fuel consumption.
- The amount of air for proper combustion is determined by the lambda sensor (automatic air supply).
- Automatic pea coal, pellets and oats ignition and plenty of other equipment in standard.

1. Three draught, steel boiler heat exchanger.

Pellets Fuzzy Logic 2 vertical steel heat-exchanger is made of 4 - 6 mm boiler steel P265GH, three draught system. It features optimal shape and length, and low susceptibility to ash settling on heat exchanger walls. The ash is removed to the ash pan by gravity. Longer heat exchanger means significant flue gas flow resistance and thus exhaust gas ventilator at the flue aiding the natural flue draught is used.



1 exhaust gases turbulator
additional heat exchanger component reducing exhaust gases temperature

2 second generation Fuzzy Logic controller
full weather automatic integrated at standard boiler equipment, all sensors included

3 exhaust ventilator
apart from improving chimney draught, the exhaust ventilator can be used during boiler cleaning or ash removal. It prevents unpleasant odours and dust access to the boiler room.

4 Fuzzy Logic retortric burner
standard version with three burner end-plates, and hot air fuel ignition system.

5 Second generation Fuzzy Logic controller with broadband lambda sensor
fully automatic and even more precise air supply saves up to 20% fuel

6 sight glass for flame control with door closed

7 reservoir
large capacity, 7 to 30 days operation upon a single pellets, pea coal or oats charge

8 fuel reservoir
large reservoir for burning wood at the grate without removing the burner

9 fuel feeding screw made of acid resistant steel
high resistance to humidity, abrasion and corrosion for at least 4 years

10 air pressure ventilator
distributes primary and secondary air (boiler rear end)

11 ignition ventilator
air ventilator and ignition mechanism for pellets, oats and pea coal

12 gear motor
energy efficient gear motor (boiler rear end)

13 large ash pan
emptied every 5 months

Burner end-plates:
A) steel for pellets
B) cast iron with steel additive for oats
C) cast iron for coal

Technical specification

Manufacturer reserves the right to design changes due to improvements.

PARAMETER	PFL 15 kW	PFL 25 kW	PFL 40 kW	PFL 50 kW	PFL 75 kW	PFL 100 kW
Power modulation range	5-15	8-25	12-40	15-50	23-75	30-100
Control method	FL 2*, PID	FL 2*, PID	FL 2*, PID	FL 2*, PID	FL 2*, PID	FL 2*, PID
Class as per PN-EN 303-5	3	3	3	3	3	3
Water capacity (l)	65	80	100	120	150	200
Max. operating pressure (bar)	2	2	2	2	2	2
Test pressure (bar)	4	4	4	4	4	4
Flue draught (mbar)	0.15-0.25	0.15-0.25	0.15-0.25	0.2-0.3	0.2-0.3	0.4
Min. return water temperature (°C)	50	50	50	50	50	50
Flue gas temperature at nominal / minimum thermal power (°C)	140 / 90	140 / 95	140 / 95	160 / 100	180 / 110	180 / 110
Average fuel consumption at nominal / minimum power pellets (kg)	3.48 / 1.16	5.8 / 1.9	9.28 / 2.78	11.6 / 3.48	17.4 / 5.33	23.25 / 6.97
Exhaust diameter (mm)	230	230	230	230	230	230
Supply/return connector diameter (in.)	1.5	1.5	1.5	1.5	2.0	2.5
Power supply (V)	230	230	230	230	230	230
Max. power consumption (ignition) (W)	140 / 900	140 / 900	140 / 900	200 / 900	200 / 900	200 / 900
Weight (kg)	370	430	510	700	810	1100
Fuel reservoir capacity (l)	250	310	310	450	570	570
Fuel loading doors dimensions (mm)	360 x 360	360 x 360	360 x 360	360 x 360	360 x 360	360 x 360

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Fuel parameters

Sawdust pellets as per DIN 51731

- size 5–8 mm
- recommended calorific value 17 500–19 500 kJ/kg
- ash content <0.5%, i.e. 600–700 kg/m³
- moisture content < 12%
- specific weight (density) 1.0–1.4 kg/dm³

Oats¹

- moisture content <12%

1. Recommended pellets/oats ratio – 30/70

Wood

For nominal boiler power use dry wood with 20% maximum moisture content (around 18 months period of drying woodlogs under cover). Use of larger logs increases burning time upon a single charge up to 8 hours.

Pea coal

- size 5–25 mm
- recommended calorific value > 23 000 kJ/kg
- ash content 12%
- moisture content < 12%
- VOC 28–40%
- ash fusion temperature > 1150°C
- low caking
- low swelling



second generation Pellets Fuzzy Logic controller

Smooth and
intelligent
adjustment of
fuel and air supply

Compatible with pellets, oats,
pea coal and wood burning boilers.



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Control

- fuel conveyor from the reservoir
- 2 air supply ventilators
- exhaust ventilator
- fuel igniter ventilator
- fuel ignition mechanism
- boiler temperature
- central heating supply temperature
- domestic hot water temperature
- programmable room temperature
- wireless programmable room temperature
- additional room installed boiler control panel
- oxygen amount at exhaust gases.
- central heating pump
- domestic hot water pump
- mixing valve2

Second generation Fuzzy Logic controller with broadband lambda sensor.
Special electronic system maintaining constant boiler temperature by adjusting proper fuel and air supply. Control of the entire heating system with all the necessary sensors included.

- high and stable combustion chamber temp. reducing carbon oxide emission;
- burner power calculated with advanced second generation Fuzzy Logic controller;
- Pellets Control M Fuzzy Logic controller adjusts burner power to the building heat demand;

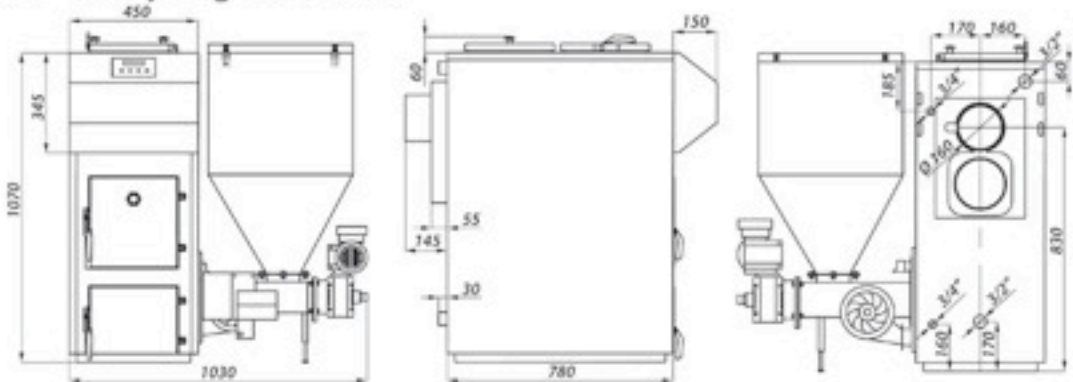
Why second generation Fuzzy Logic controller?

- burner operates longer with heated combustion chamber at maximum efficiency;
- excessive burner ignitions reduces the device efficiency;
- saves up to 20% fuel;
- eliminates impurities and soot in the boiler;
- stable boiler temperature - eliminates water condensation in the boiler;
- second generation Fuzzy Logic algorithm is more advanced than PID and first generation Fuzzy Logic used in other devices.

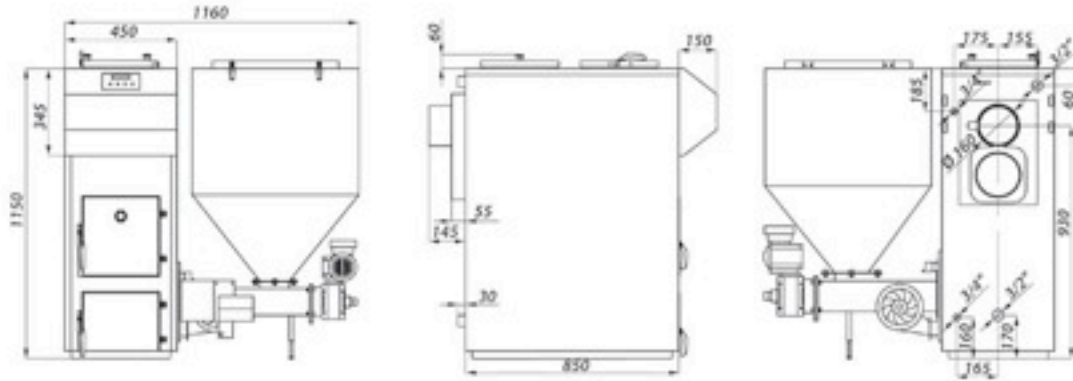
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Dimensions

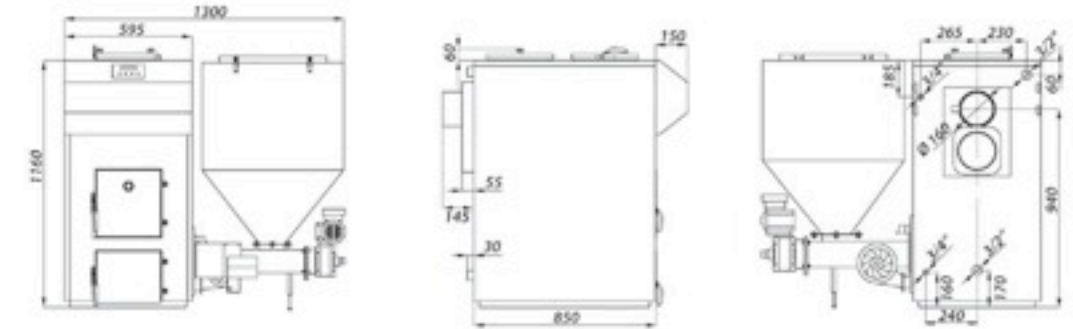
Pellets® Fuzzy Logic 2 15 kW



Pellets® Fuzzy Logic 2 25 kW

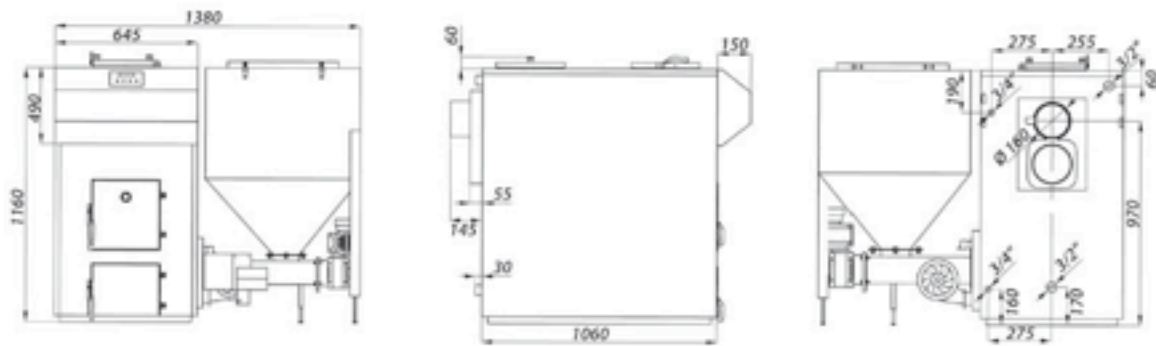


Pellets® Fuzzy Logic 2 40 kW

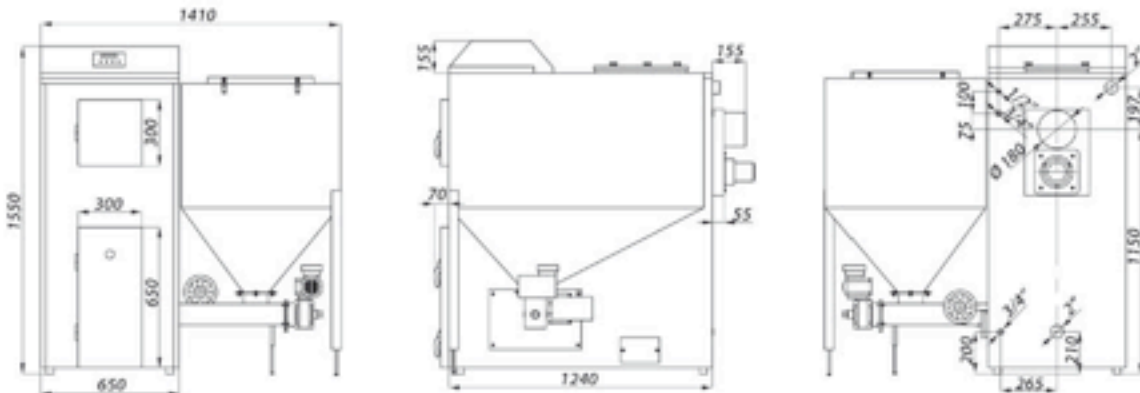


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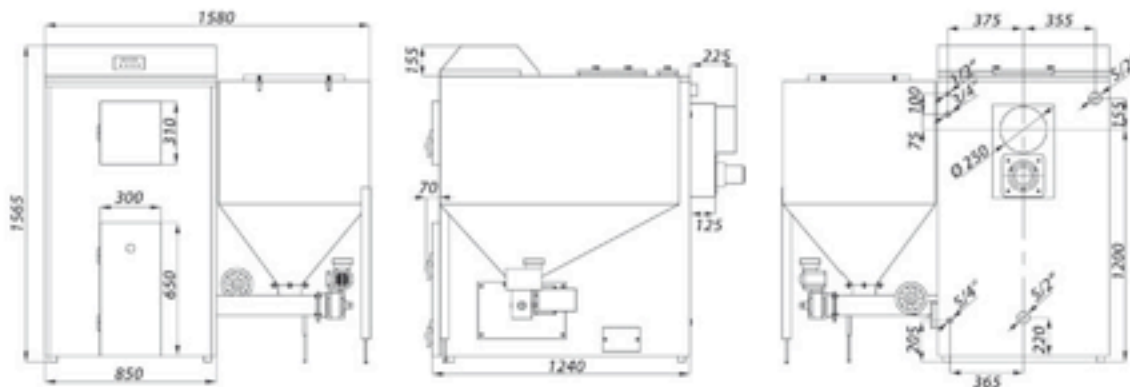
Pellets® Fuzzy Logic 2 50 kW



Pellets® Fuzzy Logic 2 75 kW



Pellets® Fuzzy Logic 2 100 kW



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