

**BURNiT**  
by **SUNSYSTEM**



ISO 9001  
ISO 14001  
Certification



**NES Ltd.**  
**new energy systems**

MANUAL for INSTALLATION and OPERATION of  
**SOLID FUEL BOILER**  
model **BURNiT NWB PRIME**

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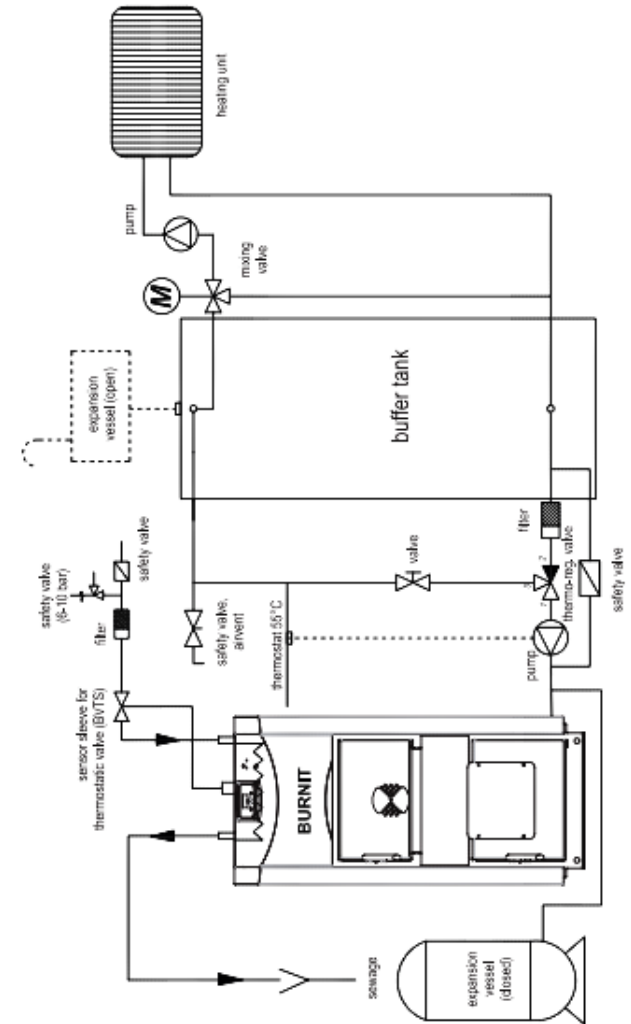
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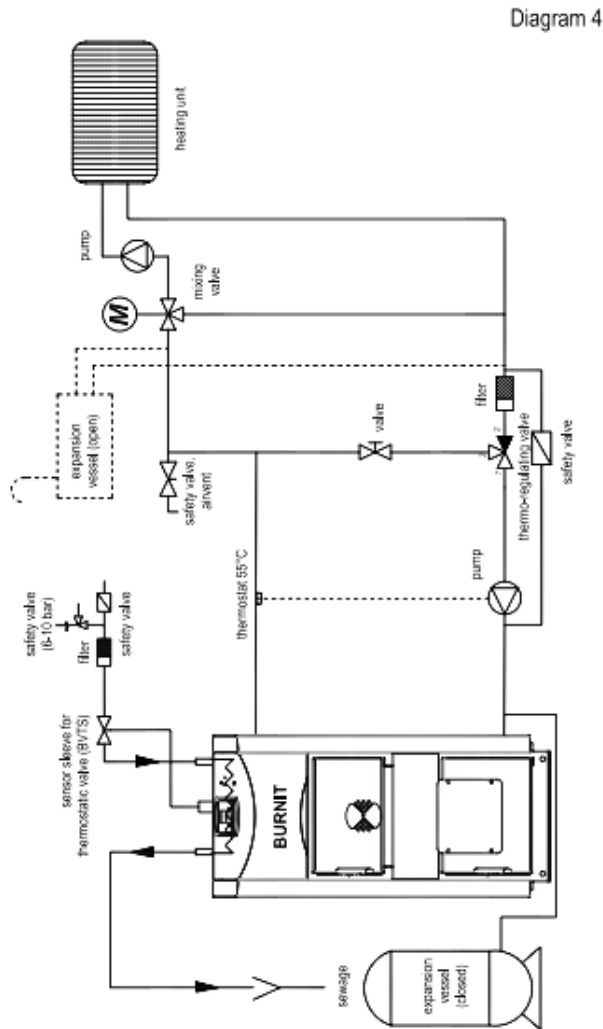
Diagram 5

Recommended diagram for connecting the boiler with a buffer tank



12. Recommended diagrams for boiler connections

Recommended diagram for connecting the boiler with the thermo-regulating valve



INTRODUCTION

Dear customers,

The present technical description and instruction for installation and operation is designated to introduce the device and the conditions for its correct operation and maintenance. Observing the references of the present instruction is in buyer's interest and this is one of the warranty conditions.

1. General description of the solid fuel boiler **BURNiT** NWB PRIME

The boiler has an up-to-date construction and design and is produced from high quality materials, welded and assembled using new technologies. The model is tested and approved according to the European Norm EN 303-5 and meets all the specific requirements for its connection to the installation and central heating. The combustion chamber has a large heat exchange surface and low chamber resistance. The cleansing of the boiler effected at the face side is maximum facilitated.

2. Components supplied with the boiler

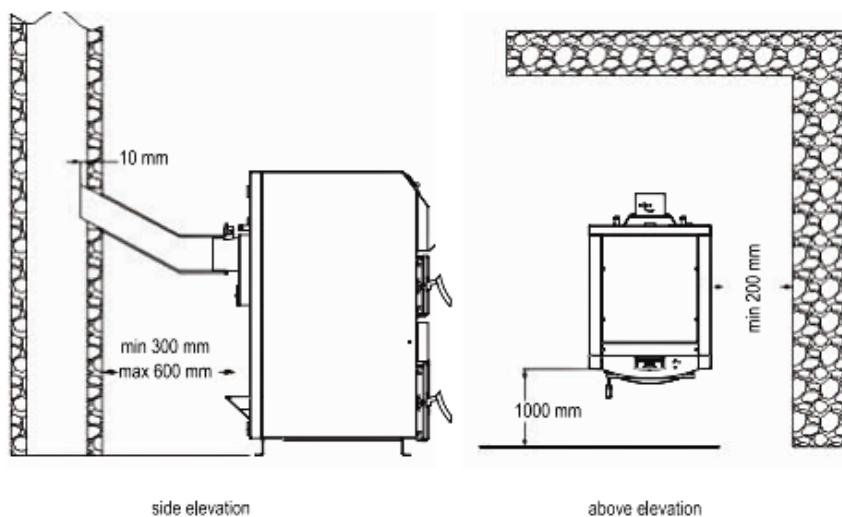
The supplied boiler unit contains the following:

- 1) Boiler body with boiler doors
- 2) Thermo protective covering and cleaning kit
- 3) Safety valve of 2.5 bar

### 3. Installment and assembly

The assembly and the installment of the boiler are to be fulfilled by an authorized expert. The boiler has to be placed on a basement with a minimal height of 100 mm above the boiler room level, which room in turn has to be protected against freezing and to ensure good ventilation. The boiler has to be positioned so that it can be cleaned and manhandled as easily as possible. The installment has to be completed according the assembly diagram, which includes the protective shell to the boiler.

Diagram 1 Recommended diagram for connecting the boiler to a chimney



### 10. Recommendations for durable and correct boiler operation

We recommend observance of requirements in Section 7. Boiler Operation, as well as of requirements listed in the service book of unit.

### 11. Setup of boiler microprocessor control unit

The boiler is fitted with a microprocessor control (MPC) unit, that controls the fan power according to preset temperature. The fan unit secures the air intake into the boiler. It helps you achieve the optimal power setup, depending on condition of chimney and chimney draft.

We recommend that the MPC unit setup be conducted by an authorized manufacturer's service technician, using gas analyzing device.

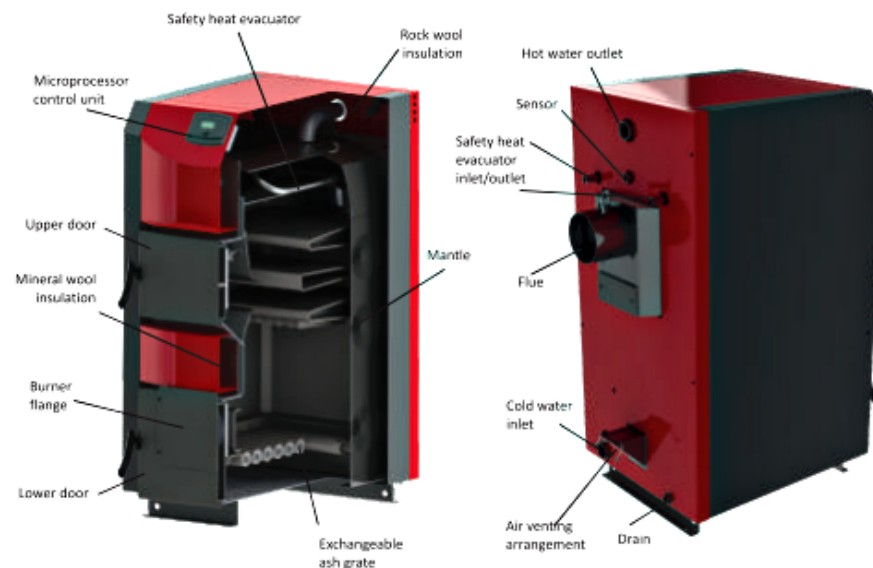


Diagram 3

9. Technical parameters

Таблица 3

Model	BURNIT NWB PRIME 20	BURNIT NWB PRIME 25	BURNIT NWB PRIME 30	BURNIT NWB PRIME 40	BURNIT NWB PRIME 50	BURNIT NWB PRIME 70	BURNIT NWB PRIME 90	BURNIT NWB PRIME 110
Heat output	20 kW	25 kW	30 kW	40 kW	50 kW	70 kW	90 kW	110 kW
Length, mm	970	1050	1050	1050	1110	1225	1225	1225
Width, mm	570	570	630	730	730	730	790	850
Height, mm	1330	1330	1330	1330	1330	1470	1470	1470
Overall weight *, kg	238	260	282	318	342	368	391	432
Mantle volume, l	92	100	105	118	128	141	156	171
Operating pressure, bar	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Firebox volume, l	58	62	73	84	97	120	133	160
Max. length of w. chunks, mm	400	400	400	400	500	600	600	600
Connections								
Water inlet/outlet, G	1½"	1½"	1½"	1½"	1½"	2"	2"	2"
Sensor sleeve on safety heat evacuator, G	½"	½"	½"	½"	½"	½"	½"	½"
Drain, G	½"	½"	½"	½"	½"	1"	1"	1"
Safety heat evacuator, inlet/outlet, R	½"	½"	½"	½"	½"	½"	½"	½"
Resistance of the combustion chamber	Pa	10	11	12	15	26	41	67
	mbar	0.10	0.11	0.12	0.15	0.26	0.41	0.67
Required chimney draught	Pa	16	20	21	23	24	38	47
	mbar	0.16	0.20	0.21	0.23	0.24	0.38	0.47
Flue, mm	ø150	ø150	ø150	ø180	ø180	ø206	ø206	ø206

\* Boiler insulation and casing are included in total weight

4. Setting up the boiler to the chimney neck

One of the most important conditions for the correct working of the boiler with maximum economy during the working process is the proper implementation and estimation of the chimney. It requires a good thermal insulation and gas proof. The door for cleaning has to be installed in the lowest section of the chimney. The chimney's wall has to be three-plyed where the medium layer is from mineral wool. The thickness of the insulation is not less than 30 mm when the chimney is setting up inside the house and the thickness is 50 mm, when the setting up is outside.

The inner diameter of the chimney depends on its real height and the power capacity of the boiler (fig.1). You are kindly requested to charge a qualified expert for the selection and the installment of the chimney. The required spacing between the boiler and the chimney is 300 - 600 mm.

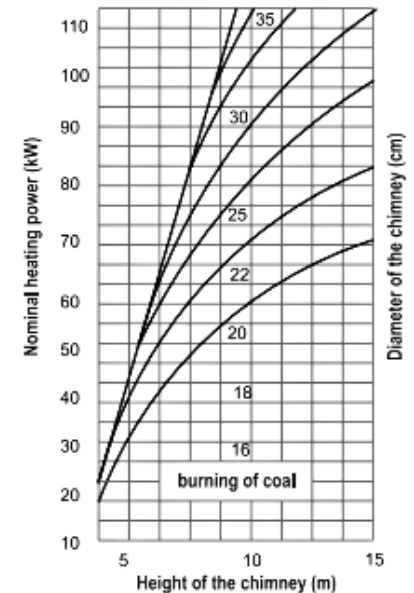


Fig. 1  
Size of a chimney for a boiler BURNIT

5. Ventilation

Each stokehold must have a correctly estimated air inlet orifice, according to the boiler power. The orifice has to be protected by a grid or shield.

$A=6.02Q$  – where:

A – surface of the orifice in cm

Q – power of the boiler in kW

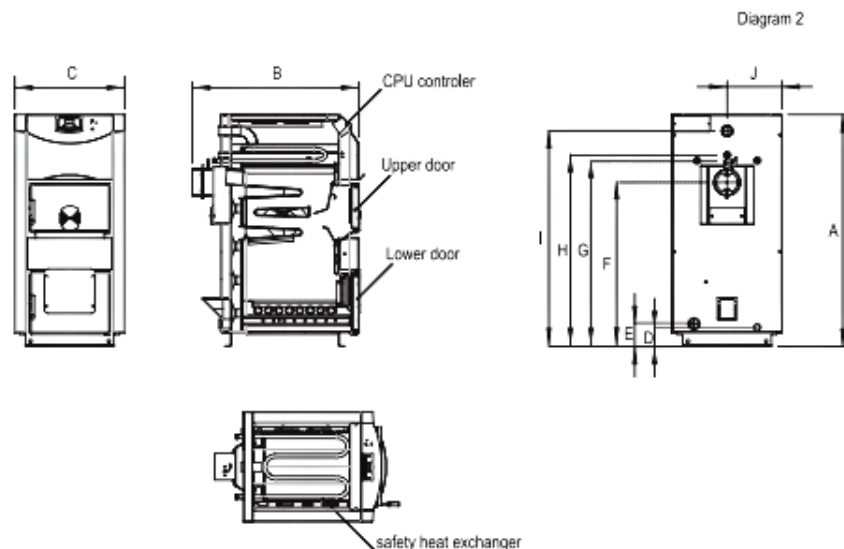


Table 2

Dimensions, mm	Model:							
	BURNIT NWB PRIME 20	BURNIT NWB PRIME 25	BURNIT NWB PRIME 30	BURNIT NWB PRIME 40	BURNIT NWB PRIME 50	BURNIT NWB PRIME 70	BURNIT NWB PRIME 90	BURNIT NWB PRIME 110
A	1330	1330	1330	1330	1330	1470	1470	1470
B	970	1050	1050	1050	1100	1225	1225	1225
C	570	570	630	730	730	730	790	850
D	110	110	110	110	110	110	125	125
E	130	130	130	130	130	135	135	135
F	945	945	945	930	930	1055	1055	1055
G	1070	1070	1070	1070	1070	1210	1210	1210
H	1125	1125	1100	1125	1125	1240	1240	1250
I	1235	1235	1235	1235	1235	1380	1400	1400
J	285	285	315	315	365	365	395	425

## 6. Integrating the boiler with the heat installation

When the boiler is connected to the heat system it is obligatory to set up a safety valve of 2.5 bar and an expansion vessel. There must be no shut-off elements between the valve or the expansion vessel and the boiler.



It is mandatory that a three-way valve (Laddomat or other) or a four-way mixing valve is installed, so as to provide a minimum temperature of 65°C of the heat carrier (water), which returns back to the boiler from the heating system.

## 7. Operation

In order to increase the lifetime of the boiler during the working process and its safety, we recommend the following:

- 1) The admissible humidity of the used fuel should not exceed 20%;
- 2) During the combustion process in the combustion chamber can form tars and appears low temperature corrosion. For that purpose install a thermostatic mixing valve "ESBE", adjusted so, that the minimum temperature of the reversing water in the boiler to be 65°C. This will prolong the life of the boiler and its safety. The working temperature of the water in the boiler has to be in the range of 80-90°C.
- 3) It is not recommended continuous operation of the boiler at an output lower than 50%. We recommend the installation of a storage tank (buffer) with capacity 55 l/1kW installed capacity

## 8. Connection of a safety heat exchanger.

The safety heat exchanger is designed to protect to overheat the boiler. To see diagram 4 and diagram 5.

We recommend to use a thermostatic valve type BVTS (Danfoss) or analog to connect to the safety heat exchanger.