

Report-No.: S 4732015 T1

Testing of a  
Firebox for liquid fuels based on  
DIN 4734-1:2011-01

Firebox: BIONOVA Box Burner L

Manufacturer: Nova Vizantija

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**Publication of page 2 is permitted.**



**The test results presented in this report refer solely to the test object stated.**

## Initial type testing

Based on DIN 4734-1:2011-01

**Fireplaces for liquid fuels — Decorative appliances producing a flame using ethanol based or gelatinous fuel —**

**Part 1: Use in private household**

Manufacturer / Contractor:	Nova Vizantija Vlajkoviceva 5 Belgrade Serbia
Product:	Firebox for liquid fuels
Type designation:	BIONOVA Box Burner L
Test subject:	The test subject is a standalone fire box which can be used as a part for a complete appliance according DIN 4734-1:2011.
Fuel:	Liquid denatured ethanol >96% acc. EC-Security datasheet
Dimensions (width x height x depth):	363 x 168 x 260 mm
Dimensions burner opening:	46 x 240 mm
Fuel capacity:	2,85 l
Fuel consumption	0,41 l/h
Test requirement:	DIN 4734-1:2011-01 as far as applicable
Test result:	BIONOVA Box Burner L fulfils the requirement according DIN 4734-1:2011 as far as applicable. To get a full conforming with DIN 4734-1 the final design of the fireplace has to be defined and tested in combination. Only the relevant requirements of the fire box were taken into consideration in the present report.
Cologne, June 02 <sup>nd</sup> 2015 432/rs	Test Centre for Energy Appliances
Inspector	Dep. Head of Test Centre
	
Dipl.-Ing. R. Steinbüchel	Dipl.-Ing. M. Reibold

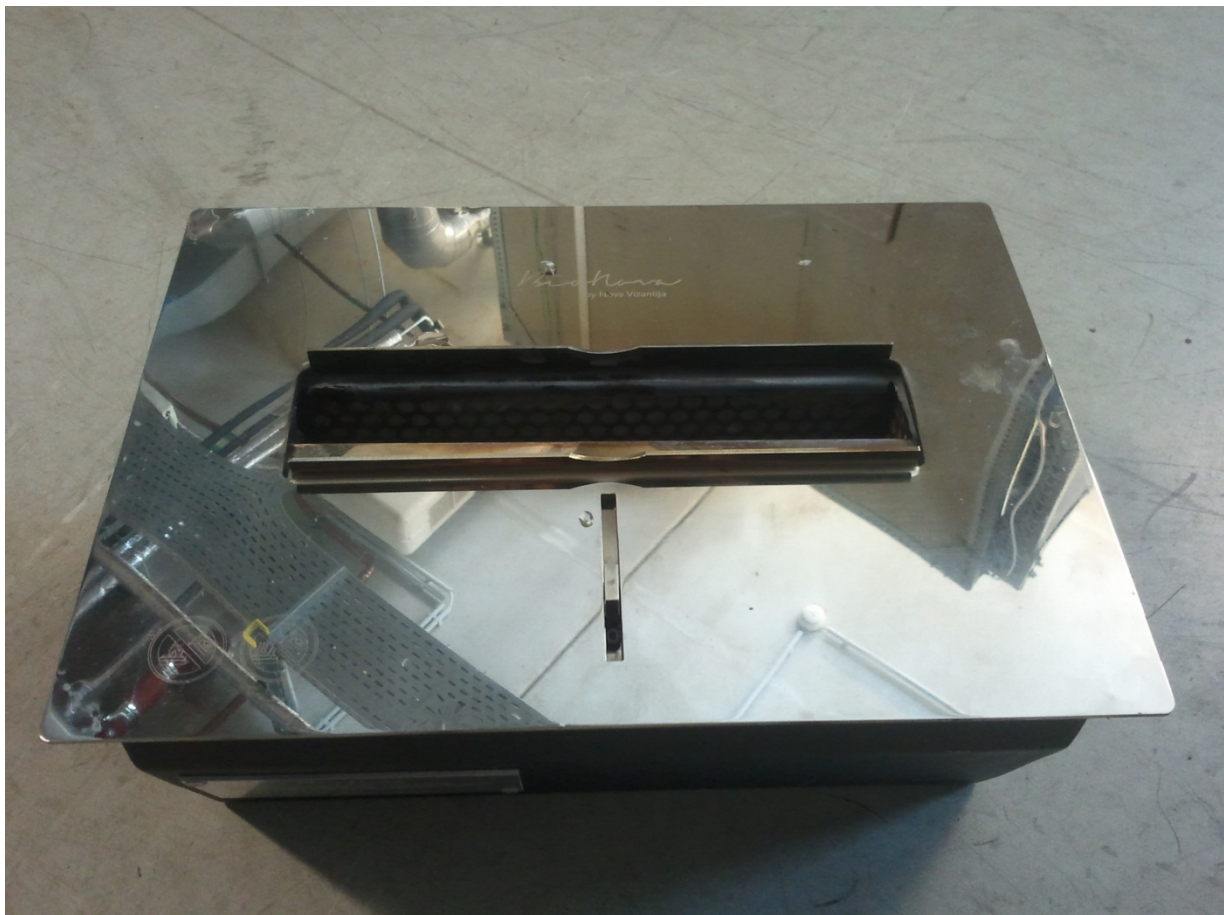
## 1 Cause of test

Initial type testing based on DIN 4734-1:01-2011 Fireplaces for liquid fuels — Decorative appliances producing a flame using ethanol based or gelatinous fuel — Part 1: Use in private households.

## 2 Description of test subject

The test subject BIONOVA Box Burner L is a fire box construction for placement in a body housing which is fixed to the building. It is a standalone fire box which can be used as a part for a complete appliance according DIN 4734-1:2011.

The fire box is operated manually on the top. The burner is made of stainless steel. The fuel is filled in the inlet on the top of the burner. A mark inside the burner visualize the user when the limit of 2,85 liter is reached.



### 3 Aim of test

The aim of this test is to achieve the compliance with DIN 4734-1 as far as applicable.

### 4 Approval test

The test were conducted in March and April 2015 in the Test Centre for Energy Appliances TÜV Rheinland in Cologne.

The fuel was provided by the manufacturer.

The examination of the construction and operation was carried out according to the requirements of DIN 4734-1:01-2011.

#### 4.1 Test of constructional requirements

- P (pass / Anforderung erfüllt) /
- N.A. (not applicable / Anforderung nicht zutreffend)
- F (fail / Anforderung nicht erfüllt)
- N.T. (not tested / nicht geprüft)

p.t.	Requirements acc. DIN 4734-1	Result
4.1	General - no deformation after testing - no damage from tensions during testing - no dangerous situation occurred during testing	P
4.1.1	Fuel content Fuel mark shows limit at 2,85 l < 3.0l As long as the device is been used acc. the manual, there is no possibility of overfilling.	P
4.1.2	Construction - Device has a shut-down function which extinguishes the flame - The faultless possibility to assemble replaceable parts or parts for on-site assembling; - End-to-end welding seams at the fuel storage tank with contact to the fuel in normal conditions; - No sharp edges on parts for the use and/or maintenance which represent a risk of injury for the user.	P
4.1.3	Materials	P
4.2	Stability	-
4.2.1	General requirements	N.A.
4.2.2	Test against shifting and fuel leakage by impact loading Displacement: after impact from the side: 150mm after impact from the front: 130mm no fuel leakage	N.A.

4.2.3	Test against tilting by impact load After impact from side and front: No fuel leakage No tilting	N.A.
4.2.4	Safety against tilting and shifting No tilting and shifting at 10° in all four directions	P
4.2.5	Appliances with safety shutdown → device shuts down in less than 10 sec and doesn't present any dangerous situation	N.A.
4.2.6	Appliances with protection against leakage  → When fuel is spilled, device shuts down.	N.A.
4.3	Safety against leakage of fuel No leakage at 10° in all directions with 2.75l fuel content	P
4.4	Fuel storage container - Sealed - Separate fuel container - No additional risks in cause of fuel in separate fuel container - Overfilling prevented by mark - Usage of symbols for filling during hot state or operation	P P P P P
4.5	Ignition device	P

## 4.2 Test of operational requirements

p.t.	Requirements acc. DIN 4734-1	Result
5.1	General → Tested in maximum mode	P
5.2	Test conditions Temperature: 21,7°C Rel Hum. 38% Measurement uncertainties for CO, CO <sub>2</sub> , temperature sensors and the scale are fulfilled	P
5.3	Fuel flow Runtime less than eight hours	P P
5.4	Reliability	P
5.5	Combustion performance ->see attached results	P
5.6	Fire safety	-
5.6.1	General → Tests performed with maximum fuel throughput	N.A.
5.6.2	Floor temperature < 65K	N.A.
5.6.3	Movable wall temperature < 65K	N.A.
5.6.4	Temperature of the operating handles Metal < 60K Porcelain < 45K Plastic material < 100K	P
5.6.5	Temperature of touchable surfaces Metal < 60K Enamelled metal < 65K Glass and Ceramics < 80K Plastic material < 100K	N.A.

5.6.6	Ignition, expiration the flame, relighting (from warm/cold state)	P
5.7	Electrical safety	N.A.

### 4.3 Marking

p.t.	Requirements acc. DIN 4734-1	Result
6.1	General	
6.2	Label — name and address of the manufacture; — commercial description of the appliance; — identification number if the manufacture uses one; — sort and type of the using fuel; — capacity; — distances to combustible materials and articles; — minimum room volume.	N.T.
6.3	Warning label	
	— not suitable for continuous operation;	N.T.
	— only use the intended fuel;	N.T.
	— only operated in ventilated rooms;	N.T.
	— before operating the instruction manual have to be read intently;	N.T.
	— caution, hot surfaces;	N.T.
	— don't put flammable items on; — don't use as a heating appliance.	N.T.
6.4	Marking on the package —intended use of the appliance;	N.T.
	— sort and type of the using fuel;	N.T.
	— the symbol "Before starting read the instruction manual!";	N.T.
	— the note "Appliance for temporary operation";	N.T.
	— number of this standard.	N.T.
6.5	Warning notice fuel storage tank	N.T.

### 4.4 Documentation

p.t.	Requirements acc. DIN 4734-1	Result
7.1	<b>General</b>	N.T.
7.2	<b>Installation instruction</b> — advice of national and local directions, which have to be minded for the installation of the appliance;	N.T.
	— type of the appliance;	N.T.
	— real assembly of detachable parts;	N.T.
	— horizontal, stable installation;	N.T.
	— weight of the appliance in kg;	N.T.
	— advice about the positioning of the appliance on flat head;	N.T.
	— name and address of the manufacturer;	N.T.
	— commercial description of the appliance;	N.T.
	— identification number if the manufacturer uses one;	N.T.
	— distances to combustible materials and articles;	N.T.

	— minimum room volume;	N.T.
	— the requirements for the feeding of combustion air and if applicable to the aeration and the operating with other fireplaces;	N.T.
	— advice for the positioning of the fireplace only on adequate capacity of the area of assembly. At inadequate capacity, applicable arrangements (e.g. panel for load sharing) must be decided to reach them;	N.T.
	the assembly of the fireplace at delivery in prefabricated parts, if applicable;	-
	— advice about the safe fastening of appliances, especially with wall-mounted appliances;	N.T.
	— installation only in a protected area against cross-aeration;	N.T.
	— convection air lattice and rear ventilations may not be (covered) closed;	N.T.
	— don't put flammable items on.	N.T.
7.3	<b>Operating instruction</b>	
	— advice of national and local directions, which have to be minded for the installation of the appliance;	N.T.
	— advice for the intend use (decorative fireplaces use in private households/outdoors, but not for heating);	N.T.
	— instruction of refilling the fuel, about the maximum tank filling height and burning period;	N.T.
	— describing of the ignite process;	N.T.
	— describing of the real and safe operating of the appliance;	N.T.
	— advice of the minimum room volume and of the aeration;	N.T.
	— advice of arrangements at reigniting after a rapid shut down;	N.T.
	— Warning: „It's not allowed to ignite the appliance if it is in a at hot state“;	N.T.
	— advice of real operation of the adjustment device and controls;	N.T.
	— aeration requirements for synchronous operating with other appliances for combustion of ethanol, if applicable;	N.T.
	— precaution against fire danger of combustibile components;	N.T.
	— warnings that the construction of the appliance couldn't been changed;	N.T.
	— advice of the assembly that only spare parts, allowed by the manufacture could be used;	N.T.
	— name and address of the manufacturer;	N.T.
	— commercial description of the appliance;	N.T.
	— identification number if the manufacturer uses one;	N.T.
	— distances to combustibile materials and articles;	N.T.
	— explanation of the warnings and instructions sings;	N.T.
	— a register of recommended fuels;	N.T.
	— error detection and the method of safe shutdown of the fireplace at breakdown;	N.T.
	— a warning notice that parts of the fireplace - especially the outer surfaces - getting hot while operating and that an adequate attention is necessary;	N.T.
	— a warning notice that the operation of many appliances is only possible if the fuel flow does not exceed 0,5 l/h and a separate ventilation of the room is necessary;	N.T.



— instruction for the safety filling of the burner with the advice for a suitable bin for filling;	N.T.
— advice for the regularly check of the containment, if fuel is filled in. If fuel is in, this has to be exhausted (e.g. for every re-filling the containment);	N.T.
— advice: not suitable for continuous operation;	N.T.
— possible cessation for operation (min/max cessation);	N.T.
— advice: Only operate under supervision;	N.T.
— warnings of the fuel e.g. from the safety data sheet;	N.T.
— advice: The use of other than the specified fuel is prohibited;	N.T.
— advice for the used fuel (e.g. brand of the fuel or the advice that the fuel can be purchased at the outlet of the appliance) and its packaging and storage.	N.T.

#### 4.5 Factory production control

p.t.	Requirements acc. DIN 4734-1	Result
8	<b>Factory production control</b>	-
8.1	<b>General</b>	N.T.
8.2	<b>Materials and prefabricated parts</b>	N.T.
8.3	<b>Control of analyser and testing equipment</b>	N.T.
8.4	<b>Process control</b>	N.T.
8.5	<b>Control, check and evaluation of the product</b>	N.T.
8.5.1	General	N.T.
8.5.2	Materials <ul style="list-style-type: none"> <li>a) Type</li> <li>b) Strength</li> <li>c) Size</li> <li>d) Survey characteristic</li> </ul>	N.T.
8.5.3	Insulant <ul style="list-style-type: none"> <li>a) Characteristic</li> <li>b) Heat conductance</li> </ul>	N.T.
8.5.4	sealing gaskets and sealing material <ul style="list-style-type: none"> <li>a) Type</li> <li>b) Size</li> </ul>	N.T.
8.5.5	Manufacturing control Construction type and dimensions <ul style="list-style-type: none"> <li>a) Adjustment device</li> <li>b) Construction of combustion chamber</li> <li>c) Convection system</li> </ul> Other supervisory measure <ul style="list-style-type: none"> <li>a) Leak tightness of burner</li> </ul>	N.T.
8.6	<b>Non-conform-products</b>	N.T.
8.7	<b>Corrective- and preventive measures</b>	N.T.
8.8	<b>Conveyance, storage, packing, preservation and delivery</b>	N.T.



## **5 Confirmation of conformity with test standard**

The fireplace:

**BIONOVA Box Burner L**

By the company:

**Nova Vizantija**

Does fulfil the requirements of the

**DIN 4734-1:2011-01**

as far as applicable.

To get a full conforming with DIN 4734-1 the final design of the fireplace has to be defined and tested in combination. Only the relevant requirements of the fire box were taken into consideration in the present report.

The local, applicable installation conditions are to be observed.

## 6 Attachement

<b>Attachement No.</b>	<b>Description</b>
Annex 1	Measurement results
Annex 2	Measurement equipment
A01	Installation and Operation Guide Box Burner L ENGLISH rev2.pdf
A02	Djordje Urosevic141-141.pdf
A03	Testing protocol 01_0515

**Annex 1: Measurement results**

<b>Parameter</b>	<b>Unit</b>	<b>Test 1</b>
Date		13.03.2015
Time		09:13 - 14:52
Start weight	Kg	8,351
End weight	Kg	6,008
Fuel consumption	l/h	0,41
CO Average	ppm	0,51
CO Maximum	ppm	4
CO <sub>2</sub> Average	ppm	174
CO <sub>2</sub> Maximum	ppm	257

**Annex 2: Measurement equipment**

The requirements for measuring instruments are observed. Before each measurement, the gas analysers got calibrated with zero and span gas.

<b>Measure</b>	<b>Measure principle</b>	<b>Device</b>	<b>Index- Nr.</b>	<b>Range</b>
CO - Content	Infrared-Absorption	Horiba	2262	100...5000 ppm
CO <sub>2</sub> - Content	Infrared-Absorption	Horiba	2262	1...20 Vol.-%
Temperature	Contact	Testo 920	1219 1745	-60...1000 °C
Weight	-	Mettler Toledo	2414	0 - 150 kg

Certificates of Calibration and other gases used are stored in the laboratory.