



Testing Laboratory 1045.1

Accredited by the Czech Accreditation Institute pursuant to
ČSN EN ISO/IEC 17025:2005

Strojírenský zkušební ústav, s.p. Testing Laboratory, Hudcova 424/56b, 621 00 Brno
Workplace Brno, Hudcova 424/56b, 621 00 Brno, Czech Republic

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TEST REPORT

39-11540-T-1

Product: Wood stove

Type designation: ALLEGRO Ecodesign

Customer: PANADERO DENIA, S.L.
Poligono Industrial Campollano
AVDA.5a, No 13-15, 02007 Albacete
Spain

Manufacturer: PANADERO DENIA, S.L.
Poligono Industrial Campollano
AVDA.5a, No 13-15, 02007 Albacete
Spain

Employee responsible: Milan Holomek

Report issue date: 2018-07-10

Distribution list: 1 copy to the Customer
1 copy to the Engineering Test Institute

This report may be copied in its entirety without written consent of the Engineering Test Institute.
The results of tests and verifications only apply to the products tested.



The Engineering Test Institute, Public Enterprise, (hereinafter referred to as SZU in Brno) performed the activity based on these documents:

- Order B-62208 of 2018-06-07
- Contract : B-62208/39 of 2018-06-13
- Amendment No 1 to Contract B-62208/39 of 2018-07-26
- Test report TD N°4719 (CTIF)

I. Product description

The wood stoves ALLEGRO Ecodesign (another acceptable version of ARPEGE Ecodesign, CHOPIN Ecodesign, PANORAMIC Ecodesign) are made of steel sheets. Wood is recommended as fuel. They are designed to heat living rooms in houses, cottages, country houses or cottages. The stoves are equipped with primary and secondary combustion air control, glazed door, cast iron grill, pit with ashtray.

A detailed description is provided in the Installation and Operation Instructions, which form an integral part of the source materials.

Basic technical specifications of the wood stove

(Table 1)

Type	Main dimensions (mm)			Heat output (kW)	Fuel consumption (kg/h)	Diameter of flue gas connector (mm)	Operating draught (Pa)
	Height	Width	Depth				
ALLEGRO Ecodesign	971	968	406	8.6	3.0	150	13

II. Sample tested

Visual inspection and tests were performed on the sample mentioned in the table below:

(Table 2)

Typ	Date	Sample Reg. No.
ALLEGRO Ecodesign	2018-06-21	215.18.18027.002

The visual inspection, testing and evaluation of the product and technical documentation were conducted at the test station of the Engineering Test Institute in Brno in 2018-06-21 by Ing Radek Machara.

The tests were conducted using measuring and test equipment with valid calibration.



III. Measuring and test equipment:

(Table 3)

No.	Description	Inventory number:	Calibration valid until:
1.	Barometer	112541	01.2019
2.	Thermometer – ambient	117044	02.2022
3.	Hygrometer	117044	02.2022
4.	Draught gauge	MaR08_Tah	06.2019
5.	Scale	022151	02.2019
6.	THERM 5500-3	021990	02.2019
7.	Analytical scale	021458	04.2019
8.	Calliper	115884	10.2019
9.	Combustion product analyser, HORIBA ENDA – 680P	022305	x
10.	Elemental analyser, PE 2400 CHNS	022107	
11.	Gravimat SHC 5 - TU	022328	
12.	Kit of temperature measurement	022399-A_T	11.2020

Note:

x ... Verified with use of calibration standards prior to measurement

+ ... ± 5 % of the measured values

Measurement uncertainty:

(Table 4)

Parameter measured	Uncertainty of measurement
Gas analysis	
CO	≤ 6% of the measured value
CO ₂	≤ 2% of the measured value
Temperature	
Flue gas	≤ 5 K
Ambient room	≤ 1.5 K
Surface	≤ 2 K
Touchable areas	≤ 2 K
Mass	
Fuel consumption	± 20 g
Residue	± 5 g
Fuel load ≤ 7.5 kg	± 5 g
Fuel load > 7.5 kg	± 10 g

"The stated extended measurement uncertainties are calculated as a factor of the measurement uncertainty and the extension coefficient, k=2, corresponding to the coverage certainty of 95% as regards standard classification. The uncertainties do not reflect the impact of sample taking and lack of homogeneity. The standard uncertainty was determined in accordance with Document EA 4/02."



Accredited test number and title: T 004 **Test of residential solid fuel burning appliances – Roomheaters**
T 005 **Test of heat output**
Test of flue gas composition (OGC, dust, NO_x)

Test method: ČSN EN 13240/A2:2005 Art. A1-A6, FprEN 16510-1 Annexes A-I, FprEN 16510-2-1 Annexes A-I

Sample tested: ALLEGRO Ecodesign

Measuring equipment used: Nos. 1 + 12 – Measuring and test equipment

Test results: ALLEGRO Ecodesign

Date of testing:	2018-06-21	t _{ok} = 29 °C	r.v. = 26 %	p _a = 98 kPa
Place of testing:	At SZU <input checked="" type="checkbox"/>	At Manufacturer's <input type="checkbox"/>	At Customer's <input type="checkbox"/>	Other:

Variables measured and calculated: Rated capacity	Unit	Tests				Limit according to:			
		1	2	3	Average	EN 13240	15a B-VG	DIN plus	I.BImSc hV Stufe 2
Fuel used: beech wood	mm	330							
Combustion air setting – total	%	60/-/-							
Fuel consumption	kg/hour	3,0	2,8	3,1	3,0				
Achieved input	kW	12,6	11,8	13,0	12,5				
Ambient temperature in the room and combustion air temperature	°C	28	29	29	29				
Chimney draught	Pa	13	13	13	13				
CO ₂	%	9,98	8,78	8,52	9,09				
NO _x – measured	ppm	66	56	52	58				
NO _x – at O ₂ = 13 %	mg/Nm ³	109	105	100	105			≤ 200	
NO _x – at O ₂ = 0%	mg/MJ	77	74	70	74		≤ 150		
OGC– measured	ppm	35	15	71	40				
OGC– at O ₂ = 13 %	mg/Nm ³	50	24	118	64			≤ 120	
OGC– at O ₂ = 0%	mg/MJ	35	17	83	45		≤ 50		
Chimney loss	%	20,3	23,3	19,9	21,2				
Loss of gas underburning	%	1,1	0,8	1,5	1,1				
Loss of solid underburning	%	0,5	0,5	0,5	0,5				
Total heat capacity attained	kW	9,9	8,9	10,2	9,6				
Uncertainty of total heat		0,3	0,3	0,3	0,3				
Nominal capacity	kW	8,6							
Mass flow rate of dry combustion products	g/s	8,7	9,3	10,5	9,5				

CO ₂	%	9,19	8,27	7,94	8,47				
Dust– measured	mg/Nm ³	27	36	17	27				
Dust– at O ₂ = 13 %	mg/Nm ³	23	35	17	25			≤ 75	≤ 40
Dust– at O ₂ = 0%	mg/MJ	15	23	11	17		≤ 35		



Fuel analysis: ALLEGRO Ecodesign

Type of fuel	Beech wood			
Analytical indicator	Symbol	Unit	Value	Uncertainty
Net calorific value	Q_j	[MJ/kg]	15,18	0,14
Total water in original state	W_t^r	[% of mass]	12,13	0,02
Ash	A	[% of mass]	0,23	0,04
Carbon	C	[% of mass]	43,32	0,25
Hydrogen	H	[% of mass]	5,91	0,1

Note: Sample in original condition

Tested by: Ing. Radek Machara

Date: 2018-06-21

Signed:

Machara

Reviewed by: Ing. Jiří Dvořák

Date: 2018-06-21

Signed:

J. Dvořák



IV. List of referenced documentation

- Order B-62208 of 2018-06-07
- Contract : B-62208/39 of 2018-06-13
- Amendment No 1 to Contract B-62208/39 of 2018-07-26
- Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC
- ČSN EN 13240:2002/A2:2005 – Roomheaters fired by solid fuel – Requirements and test methods
- Test report TD N°4719 (CTIF)

Report compiled by: Ing. Radek Machara

Person accountable for correctness of the Report:

Milan Holomek
Head of Heat and Environment-Friendly
Equipment Test Station



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