

**Report No. K 3545 2025 T1**

**Residential solid fuel burning appliances:  
mechanically by wood pellets fed roomheaters, inset appliances and cookers**

**in accordance with  
DIN EN 16510-1:2023-02 and DIN EN 16510-2-6:2023-02**

Type:

**AP021B\_0\_06 EN**

**AP021B\_0\_07 EN**

**AP021B\_0\_08 EN**

**AP021B\_0\_09 EN**

**AP021B\_0\_10 EN**

Trademark:

**PALAZZETTI**

Company:

**PALAZZETTI LELIO S.p.A.**



Deutsche  
Akkreditierungsstelle  
D-PL-11120-04-00

This accreditation is valid only for the listed standards as stated in the accreditation annex of D-PL-11120-04-00

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### Test report

#### Residential solid fuel burning appliances:

mechanically by wood pellets fed roomheaters, inset appliances and cookers

**DIN EN 16510-1: 2023-02 and DIN EN 16510-2-6:2023-02**

Historical assessment data based on test report K23402018T1

Applicant/contractor:	<b>PALAZZETTI LELIO S.p.A.</b> Via Roveredo, 103 33080 Porcia (PN) - Italy
Trademark:	<b>PALAZZETTI</b>
Type designations:	<b>AP021B_0_06/07/08/09/10 EN</b>
Additional identical roomheaters	ECOFIRE MICHELLE 6 EN, ECOFIRE MICHELLE 8 EN, ECOFIRE MICHELLE 10 EN ECOFIRE TWIGGY 6 EN, ECOFIRE TWIGGY 8 EN, ECOFIRE TWIGGY 10 EN
Appliance description:	Mechanical by wood pellets fed roomheater
Test fuel:	Wood pellets Ø 6 mm, Lmax 30 mm, max humidity 5,5%, Firestixx, class A1 in accordance with EN 17225-2

#### Specified data by applicant

Type of appliance:	CC50
Total heat input [kW]:	See overview models designation table on page 3
Space heat output [kW]:	See overview models designation table on page 3
Water heat output:	Not applicable
Max. water pressure:	Not applicable
Max. water temperature:	Not applicable

**Remark:** Room sealed appliances

**Test basis:** DIN EN 16510-1:2023-02 and DIN EN 16510-2-6:2023-02.

**Test results:** The appliances conform with the requirements of DIN EN 16510-1:2023-02, except for clauses 5.8, 7 and 8, and DIN EN 16510-2-6:2023-02, except for clause 4.9, which are not part of this assessment.

Performance assessments regarding environmental sustainability is not subject of this report.

A possible NPD declaration by the manufacturer is also not included in the present report.

The appliances conform with the essential declared characteristics of table ZA.1 of DIN EN 16510-2-6:2023-02, documented with test report K 3545 2025 B2.

Dated in Cologne, 2025-08-13

TÜV Rheinland Energy & Environment GmbH  
Test Centre according to Construction  
Product Regulation 305/2011(CPR)  
Notified Body: 2456

Assessor:

Report released after review:

Dipl.-Ing. A. Pomp

Dipl.-Ing. R. Verbert

**Overview models designation table**

Type designations:	Total heat input:	Space heat output:
<b>AP021B_0_06 EN</b>	3,3 kW – 6,8 kW	3,1 kW – 6,3 kW
<b>AP021B_0_07 EN</b>	3,3 kW – 7,7 kW	3,1 kW – 7,0 kW
<b>AP021B_0_08 EN</b>	3,3 kW – 8,9 kW	3,1 kW – 8,0 kW
<b>AP021B_0_09 EN</b>	3,3 kW – 10,1 kW	3,1 kW – 9,0 kW
<b>AP021B_0_10 EN</b>	3,3 kW – 11,4 kW	3,1 kW – 10,0 kW

## 1 Task

The Test Centre for Energy Appliances was instructed to execute the measurements and calculations on the appliances AP021B\_0\_06 EN; AP021B\_0\_07 EN; AP021B\_0\_08 EN; AP021B\_0\_09 EN and AP021B\_0\_10 EN for the operation with wood pellets according to DIN EN 16510-1:2023-02 and to DIN EN 16510-2-6:2023-02. The clauses 5.8, 7 and 8 of DIN EN 16510-1:2023-02, and clause 4.9 of DIN EN 16510-2-6:2023-02 are not part of this assessment. The tests were carried out on the 13th until 18th April 2018 in the laboratory of TÜV Rheinland Energy GmbH / CMC Centro Misura Compatibilità in Thiene.

The data documented in this test report are based on historical data of the initial type testing report no.: K23402018T1 issued according to DIN EN 14785.

The manufacturer declares that the construction, functional- and safety-related components and design of models **AP021B\_0\_06/07/08/09/10 EN** are identical to the one documented in the initial type testing report no.: K23402018T1 (see also Appendix A01).

Type appliance	Latest report number	New type designations acc. DIN EN 16510-1 + DIN EN 16510-2-6 with report numbers K 3545 2025 T1 and K 3545 2025 B2
AP021B_0_06 AP021B_0_07 AP021B_0_08 AP021B_0_09 AP021B_0_10	K23402018T1	AP021B_0_06 EN AP021B_0_07 EN AP021B_0_08 EN AP021B_0_09 EN AP021B_0_10 EN
<b>Additional identical roomheaters</b>		
ECOFIRE MICHELLE 6 ECOFIRE MICHELLE 8 ECOFIRE MICHELLE 10	K23902018Z1	ECOFIRE MICHELLE 6 EN ECOFIRE MICHELLE 8 EN ECOFIRE MICHELLE 10 EN
ECOFIRE TWIGGY 6 ECOFIRE TWIGGY 8 ECOFIRE TWIGGY 10	K28192020Z1	ECOFIRE TWIGGY 6 EN ECOFIRE TWIGGY 8 EN ECOFIRE TWIGGY 10 EN

## **2 Description of the appliance**

### **2.1 Construction**

Residential space heating appliances fired by wood pellets without water heat exchanger.

The main features of the appliances are:

- Sealed appliances in accordance with DIN EN 16510-1:2023-02 and DIN EN 16510-2-6:2023-02, types CC and CC50.
- Fan assisted exhaust flue gas discharge. Optional automatic control of the flue gas fan speed, related to the inlet air flow
- Pellet automatic ignition.
- All the appliances can be fitted with an optional firebox lining (refractory material), positioned only on the backside of the combustion room

The type designation AP021B\_0\_07 EN, AP021B\_0\_08 EN and AP021B\_0\_09 EN are based on families of appliances and was not tested (see Annex G of EN16510-1)

More details in test report K 2340 2018 T1

## 2.2 General declared technical data of the pellet appliances

Type: AP021B_0_	06 EN	07 EN	08 EN	09 EN	10 EN
Nominal heat output:	6,3 kW	7,0 kW	8,0 kW	9,0 kW	10,0 kW
Test fuel:	wood pellets Ø 6 mm, L <sub>max</sub> 30 mm, max humidity 5,5%, Firestixx				
Total dimension [mm] High x Width x Depth	1131 x 885 x 322				
Flue spigot:	80 mm				
Weight:	140 kg				
Distance of adjacent combustible materials	20 mm (Backside) distance from test wall 200 mm (Side) distance from test wall 1000 mm (Front) distance from test wall				

### 2.3 Photos of the tested appliances



## 2.4 General technical specified data of the appliances

Model name:		AP021B_0_06 EN
Parameter	Explanation	Specified data by the applicant
$P_{nom}$	Nominal heat output or a range of outputs (dependent on fuel types), given with 1 decimal	6.3 kW
$P_{SHnom}$	Nominal space heat output or a range of outputs (dependent on fuel types), given with 1 decimal	6.3 kW
$P_{Wnom}$	Nominal water output (if an integral boiler is fitted) or a range of outputs (dependent on fuel types), given with 1 decimal	--
$P_{part}$	Part load heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	3.1 kW
$P_{SHpart}$	Part load space heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	3.1 kW
$P_{Wpart}$	Part load water output (if an integral boiler is fitted) or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	---
$P_{slow}$	Heat output at slow combustion or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	--
$P_{SHslow}$	Space heat output at slow combustion or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	--
$P_{Wslow}$	Water heat output at slow combustion (if an integral boiler is fitted) or a range of outputs (dependent on fuel types) if specified, with 1 decimal	--
$P_{acc\ in}$	Accumulator heat input, in kW or W for Kachelofen inset appliances only	--
$T_{acc\ in}$	Temperature at the separate heat exchanger inlet, for Kachelofen inset appliances only, given as an integer	--
$\zeta_{acc}$	Flow resistance of the separate heat exchanger as used in the test, for Kachelofen inset appliances only	--
$\eta_{nom}$	Appliance efficiency at nominal heat output, given as an integer	92 %
$\eta_{part}$	Appliance efficiency at part load heat output, given as an integer	93 %
$\eta_s$	Appliance seasonal space heating efficiency at nominal heat output, given as an integer	87 %
$EEI$	Energy efficiency index, given as an integer	129
$CO_{nom} (13\ \% O_2)$	CO emission at 13 % oxygen content at nominal heat output, given as an integer	100 mg/m <sup>3</sup>
$CO_{part} (13\ \% O_2)$	CO emission at 13 % oxygen content at part load heat output if specified, given as an integer	250 mg/m <sup>3</sup>
$CO_{slow} (13\ \% O_2)$	CO emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer	--
$NO_{xnom} (13\ \% O_2)$	NOx emission at 13 % oxygen content at nominal heat output, given as an integer	150 mg/m <sup>3</sup>



<b><math>NO_{xpart}</math> (13 % <math>O_2</math>)</b>	NOx emission at 13 % oxygen content at part load heat output if specified, given as an integer	150 mg/m <sup>3</sup>
<b><math>NO_{xslow}</math> (13 % <math>O_2</math>)</b>	NOx emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer	--
<b><math>OGC_{nom}</math> (13 % <math>O_2</math>)</b>	Hydrocarbon emission at 13 % oxygen content at nominal heat output, given as an integer	2 mg/m <sup>3</sup>
<b><math>OGC_{part}</math> (13 % <math>O_2</math>)</b>	Hydrocarbon emission at 13 % oxygen content at part load heat output if specified, given as an integer	3 mg/m <sup>3</sup>
<b><math>OGC_{slow}</math> (13 % <math>O_2</math>)</b>	Hydrocarbon emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer	--
<b><math>PM_{nom}</math> (13 % <math>O_2</math>)</b>	Particulate matter emission at 13 % oxygen content at nominal heat output, given as an integer	17 mg/m <sup>3</sup>
<b><math>PM_{part}</math> (13 % <math>O_2</math>)</b>	Particulate matter emission at 13 % oxygen content at part load heat output if specified, given as an integer	20 mg/m <sup>3</sup>
<b><math>PM_{slow}</math> (13 % <math>O_2</math>)</b>	Particulate matter emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer	--
<b><math>p_{nom}</math></b>	Minimum flue draught at nominal heat output, given as an integer	12 Pa
<b><math>p_{part}</math></b>	Minimum flue draught at part load heat output if specified, given as an integer	10 Pa
<b><math>p_{slow}</math></b>	Minimum flue draught at heat output at slow combustion if specified, given as an integer	--
<b><math>p_w</math></b>	Permissible maximum water operating pressure, if applicable, given with 1 decimal	--
<b><math>d_R</math></b>	Minimum distances from the rear to combustible material, given as an integer	20 mm
<b><math>d_S</math></b>	Minimum distances from the sides to combustible material, given as an integer	200 mm
<b><math>d_C</math></b>	Minimum distances from the top to combustible material in the ceiling, given as an integer	750 mm
<b><math>d_P</math></b>	Minimum distances from the front to combustible material	1000 mm
<b><math>d_F</math></b>	Minimum distances from the front to combustible material in bottom front radiation area, given as an integer	1500 mm
<b><math>d_L</math></b>	Minimum distances from the front to combustible material in side front radiation area, given as an integer	1500 mm
<b><math>d_B</math></b>	Minimum distances below the bottom (not regarding feet) to combustible material, given as an integer	0 mm
<b><math>d_{non}</math></b>	Minimum distances to non-combustible walls, given as an integer	0 mm
<b><math>s</math></b>	Protective insulation according to manufacturer's instructions	-
<b><math>el_{SB}</math></b>	Consumption of electrical auxiliary energy at standby, given with 3 decimals	0.002 kW
<b><math>el_{max}</math></b>	Consumption of electrical auxiliary energy at nominal heat output, given with 3 decimals	0.070 kW

<b><math>e_{l\min}</math></b>	Consumption of electrical auxiliary energy at part load heat output, given with 3 decimals	0.030 kW
<b><math>E, f</math></b>	Power supply voltage, frequency, given as an integer	230 V, 50 Hz
<b><math>W_{\max}</math></b>	Maximum electric power input, given as an integer	330 W
<b><math>T_{\text{snom}}</math></b>	Flue gas outlet temperature at nominal heat output, given as an integer	147 °C
<b><math>T_{\text{spart}}</math></b>	Flue gas outlet temperature at part load heat output, given as an integer (given for pellet operation only)	105 °C
<b><math>T_{\text{class}}</math></b>	Chimney designation according to the appropriate chimney standard	T400 G
<b><math>\phi_{f,g \text{ nom}}</math></b>	Flue gas mass flow at nominal heat output, given with 1 decimal	4.8 g/s
<b><math>\phi_{f,g \text{ part}}</math></b>	Flue gas mass flow at part load heat output, given with 1 decimal (given for pellet operation only)	3 g/s
<b><math>V_h</math></b>	Standing Air Loss, if specified, given with 1 decimal	---
<b>CON or INT</b>	whether the appliance is capable of continuous operation (CON), whether the appliance is capable of intermittent operation (INT)	CON
<b><math>d_{\text{out}}</math></b>	Diameter of the flue gas outlet, given as an integer	80 mm
<b><math>L, H, W</math></b>	Overall dimensions of the appliance (length, height, width), given as an integer	322 x 1131 x 885 mm
<b><math>m</math></b>	Mass of the appliance, given as an integer (in relation to the building's statics)	140.0 kg
<b><math>m_{\text{chim}}</math></b>	Maximum load of a chimney the appliance may carry, given as an integer	0 kg

Model name:		AP021B_0_07 EN
Parameter	Explanation	Specified data by the applicant
$P_{nom}$	Nominal heat output or a range of outputs (dependent on fuel types), given with 1 decimal	7 kW
$P_{SHnom}$	Nominal space heat output or a range of outputs (dependent on fuel types), given with 1 decimal	7 kW
$P_{Wnom}$	Nominal water output (if an integral boiler is fitted) or a range of outputs (dependent on fuel types), given with 1 decimal	--
$P_{part}$	Part load heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	3.1 kW
$P_{SHpart}$	Part load space heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	3.1 kW
$P_{Wpart}$	Part load water output (if an integral boiler is fitted) or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	---
$P_{slow}$	Heat output at slow combustion or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	--
$P_{SHslow}$	Space heat output at slow combustion or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	--
$P_{Wslow}$	Water heat output at slow combustion (if an integral boiler is fitted) or a range of outputs (dependent on fuel types) if specified, with 1 decimal	--
$P_{acc\ in}$	Accumulator heat input, in kW or W for Kachelofen inset appliances only	--
$T_{acc\ in}$	Temperature at the separate heat exchanger inlet, for Kachelofen inset appliances only, given as an integer	--
$\zeta_{acc}$	Flow resistance of the separate heat exchanger as used in the test, for Kachelofen inset appliances only	--
$\eta_{nom}$	Appliance efficiency at nominal heat output, given as an integer	88 %
$\eta_{part}$	Appliance efficiency at part load heat output, given as an integer	93 %
$\eta_s$	Appliance seasonal space heating efficiency at nominal heat output, given as an integer	84 %
$EEI$	Energy efficiency index, given as an integer	124
$CO_{nom} (13\ \% O_2)$	CO emission at 13 % oxygen content at nominal heat output, given as an integer	100 mg/m <sup>3</sup>
$CO_{part} (13\ \% O_2)$	CO emission at 13 % oxygen content at part load heat output if specified, given as an integer	250 mg/m <sup>3</sup>
$CO_{slow} (13\ \% O_2)$	CO emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer	--
$NO_{xnom} (13\ \% O_2)$	NOx emission at 13 % oxygen content at nominal heat output, given as an integer	150 mg/m <sup>3</sup>

<b><math>NO_{xpart}</math> (13 % <math>O_2</math>)</b>	NOx emission at 13 % oxygen content at part load heat output if specified, given as an integer	150 mg/m <sup>3</sup>
<b><math>NO_{xslow}</math> (13 % <math>O_2</math>)</b>	NOx emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer	--
<b><math>OGC_{nom}</math> (13 % <math>O_2</math>)</b>	Hydrocarbon emission at 13 % oxygen content at nominal heat output, given as an integer	4 mg/m <sup>3</sup>
<b><math>OGC_{part}</math> (13 % <math>O_2</math>)</b>	Hydrocarbon emission at 13 % oxygen content at part load heat output if specified, given as an integer	3 mg/m <sup>3</sup>
<b><math>OGC_{slow}</math> (13 % <math>O_2</math>)</b>	Hydrocarbon emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer	--
<b><math>PM_{nom}</math> (13 % <math>O_2</math>)</b>	Particulate matter emission at 13 % oxygen content at nominal heat output, given as an integer	19 mg/m <sup>3</sup>
<b><math>PM_{part}</math> (13 % <math>O_2</math>)</b>	Particulate matter emission at 13 % oxygen content at part load heat output if specified, given as an integer	20 mg/m <sup>3</sup>
<b><math>PM_{slow}</math> (13 % <math>O_2</math>)</b>	Particulate matter emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer	--
<b><math>p_{nom}</math></b>	Minimum flue draught at nominal heat output, given as an integer	12 Pa
<b><math>p_{part}</math></b>	Minimum flue draught at part load heat output if specified, given as an integer	10 Pa
<b><math>p_{slow}</math></b>	Minimum flue draught at heat output at slow combustion if specified, given as an integer	--
<b><math>p_w</math></b>	Permissible maximum water operating pressure, if applicable, given with 1 decimal	--
<b><math>d_R</math></b>	Minimum distances from the rear to combustible material, given as an integer	20 mm
<b><math>d_S</math></b>	Minimum distances from the sides to combustible material, given as an integer	200 mm
<b><math>d_C</math></b>	Minimum distances from the top to combustible material in the ceiling, given as an integer	750 mm
<b><math>d_P</math></b>	Minimum distances from the front to combustible material	1000 mm
<b><math>d_F</math></b>	Minimum distances from the front to combustible material in bottom front radiation area, given as an integer	1500 mm
<b><math>d_L</math></b>	Minimum distances from the front to combustible material in side front radiation area, given as an integer	1500 mm
<b><math>d_B</math></b>	Minimum distances below the bottom (not regarding feet) to combustible material, given as an integer	0 mm
<b><math>d_{non}</math></b>	Minimum distances to non-combustible walls, given as an integer	0 mm
<b><math>s</math></b>	Protective insulation according to manufacturer's instructions	-
<b><math>el_{SB}</math></b>	Consumption of electrical auxiliary energy at standby, given with 3 decimals	0.002 kW
<b><math>el_{max}</math></b>	Consumption of electrical auxiliary energy at nominal heat output, given with 3 decimals	0.070 kW

<b><math>e_{l\min}</math></b>	Consumption of electrical auxiliary energy at part load heat output, given with 3 decimals	0.030 kW
<b><math>E, f</math></b>	Power supply voltage, frequency, given as an integer	230 V, 50 Hz
<b><math>W_{\max}</math></b>	Maximum electric power input, given as an integer	330 W
<b><math>T_{\text{snom}}</math></b>	Flue gas outlet temperature at nominal heat output, given as an integer	163 °C
<b><math>T_{\text{spart}}</math></b>	Flue gas outlet temperature at part load heat output, given as an integer (given for pellet operation only)	105 °C
<b><math>T_{\text{class}}</math></b>	Chimney designation according to the appropriate chimney standard	T400 G
<b><math>\phi_{f,g \text{ nom}}</math></b>	Flue gas mass flow at nominal heat output, given with 1 decimal	5,2 g/s
<b><math>\phi_{f,g \text{ part}}</math></b>	Flue gas mass flow at part load heat output, given with 1 decimal (given for pellet operation only)	3 g/s
<b><math>V_h</math></b>	Standing Air Loss, if specified, given with 1 decimal	---
<b>CON or INT</b>	whether the appliance is capable of continuous operation (CON), whether the appliance is capable of intermittent operation (INT)	CON
<b><math>d_{\text{out}}</math></b>	Diameter of the flue gas outlet, given as an integer	80 mm
<b><math>L, H, W</math></b>	Overall dimensions of the appliance (length, height, width), given as an integer	322 x 1131 x 885 mm
<b><math>m</math></b>	Mass of the appliance, given as an integer (in relation to the building's statics)	140.0 kg
<b><math>m_{\text{chim}}</math></b>	Maximum load of a chimney the appliance may carry, given as an integer	0 kg

Model name:		AP021B_0_08 EN
Parameter	Explanation	Specified data by the applicant
$P_{nom}$	Nominal heat output or a range of outputs (dependent on fuel types), given with 1 decimal	8 kW
$P_{SHnom}$	Nominal space heat output or a range of outputs (dependent on fuel types), given with 1 decimal	8 kW
$P_{Wnom}$	Nominal water output (if an integral boiler is fitted) or a range of outputs (dependent on fuel types), given with 1 decimal	--
$P_{part}$	Part load heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	3.1 kW
$P_{SHpart}$	Part load space heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	3.1 kW
$P_{Wpart}$	Part load water output (if an integral boiler is fitted) or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	---
$P_{slow}$	Heat output at slow combustion or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	--
$P_{SHslow}$	Space heat output at slow combustion or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	--
$P_{Wslow}$	Water heat output at slow combustion (if an integral boiler is fitted) or a range of outputs (dependent on fuel types) if specified, with 1 decimal	--
$P_{acc\ in}$	Accumulator heat input, in kW or W for Kachelofen inset appliances only	--
$T_{acc\ in}$	Temperature at the separate heat exchanger inlet, for Kachelofen inset appliances only, given as an integer	--
$\zeta_{acc}$	Flow resistance of the separate heat exchanger as used in the test, for Kachelofen inset appliances only	--
$\eta_{nom}$	Appliance efficiency at nominal heat output, given as an integer	88 %
$\eta_{part}$	Appliance efficiency at part load heat output, given as an integer	93 %
$\eta_s$	Appliance seasonal space heating efficiency at nominal heat output, given as an integer	84 %
$EEI$	Energy efficiency index, given as an integer	124
$CO_{nom} (13\ \% O_2)$	CO emission at 13 % oxygen content at nominal heat output, given as an integer	100 mg/m <sup>3</sup>
$CO_{part} (13\ \% O_2)$	CO emission at 13 % oxygen content at part load heat output if specified, given as an integer	250 mg/m <sup>3</sup>
$CO_{slow} (13\ \% O_2)$	CO emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer	--
$NO_{xnom} (13\ \% O_2)$	NOx emission at 13 % oxygen content at nominal heat output, given as an integer	150 mg/m <sup>3</sup>
$NO_{xpart} (13\ \% O_2)$	NOx emission at 13 % oxygen content at part load heat output if specified, given as an integer	150 mg/m <sup>3</sup>

<b><math>NO_{xslow}</math> (13 % <math>O_2</math>)</b>	NOx emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer	--
<b><math>OGC_{nom}</math> (13 % <math>O_2</math>)</b>	Hydrocarbon emission at 13 % oxygen content at nominal heat output, given as an integer	4 mg/m <sup>3</sup>
<b><math>OGC_{part}</math> (13 % <math>O_2</math>)</b>	Hydrocarbon emission at 13 % oxygen content at part load heat output if specified, given as an integer	3 mg/m <sup>3</sup>
<b><math>OGC_{slow}</math> (13 % <math>O_2</math>)</b>	Hydrocarbon emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer	--
<b><math>PM_{nom}</math> (13 % <math>O_2</math>)</b>	Particulate matter emission at 13 % oxygen content at nominal heat output, given as an integer	19 mg/m <sup>3</sup>
<b><math>PM_{part}</math> (13 % <math>O_2</math>)</b>	Particulate matter emission at 13 % oxygen content at part load heat output if specified, given as an integer	20 mg/m <sup>3</sup>
<b><math>PM_{slow}</math> (13 % <math>O_2</math>)</b>	Particulate matter emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer	--
<b><math>p_{nom}</math></b>	Minimum flue draught at nominal heat output, given as an integer	12 Pa
<b><math>p_{part}</math></b>	Minimum flue draught at part load heat output if specified, given as an integer	10 Pa
<b><math>p_{slow}</math></b>	Minimum flue draught at heat output at slow combustion if specified, given as an integer	--
<b><math>p_w</math></b>	Permissible maximum water operating pressure, if applicable, given with 1 decimal	--
<b><math>d_R</math></b>	Minimum distances from the rear to combustible material, given as an integer	20 mm
<b><math>d_S</math></b>	Minimum distances from the sides to combustible material, given as an integer	200 mm
<b><math>d_C</math></b>	Minimum distances from the top to combustible material in the ceiling, given as an integer	750 mm
<b><math>d_P</math></b>	Minimum distances from the front to combustible material	1000 mm
<b><math>d_F</math></b>	Minimum distances from the front to combustible material in bottom front radiation area, given as an integer	1500 mm
<b><math>d_L</math></b>	Minimum distances from the front to combustible material in side front radiation area, given as an integer	1500 mm
<b><math>d_B</math></b>	Minimum distances below the bottom (not regarding feet) to combustible material, given as an integer	0 mm
<b><math>d_{non}</math></b>	Minimum distances to non-combustible walls, given as an integer	0 mm
<b><math>s</math></b>	Protective insulation according to manufacturer's instructions	-
<b><math>e_{lSB}</math></b>	Consumption of electrical auxiliary energy at standby, given with 3 decimals	0.002 kW
<b><math>e_{lmax}</math></b>	Consumption of electrical auxiliary energy at nominal heat output, given with 3 decimals	0.070 kW
<b><math>e_{lmin}</math></b>	Consumption of electrical auxiliary energy at part load heat output, given with 3 decimals	0.030 kW
<b><math>E, f</math></b>	Power supply voltage, frequency, given as an integer	230 V, 50 Hz



<b><math>W_{\max}</math></b>	Maximum electric power input, given as an integer	330 W
<b><math>T_{\text{snom}}</math></b>	Flue gas outlet temperature at nominal heat output, given as an integer	188 °C
<b><math>T_{\text{spart}}</math></b>	Flue gas outlet temperature at part load heat output, given as an integer (given for pellet operation only)	105 °C
<b><math>T_{\text{class}}</math></b>	Chimney designation according to the appropriate chimney standard	T400 G
<b><math>\phi_{\text{f,g nom}}</math></b>	Flue gas mass flow at nominal heat output, given with 1 decimal	5,9 g/s
<b><math>\phi_{\text{f,g part}}</math></b>	Flue gas mass flow at part load heat output, given with 1 decimal (given for pellet operation only)	3 g/s
<b><math>V_{\text{h}}</math></b>	Standing Air Loss, if specified, given with 1 decimal	---
<b>CON or INT</b>	whether the appliance is capable of continuous operation (CON), whether the appliance is capable of intermittent operation (INT)	CON
<b><math>d_{\text{out}}</math></b>	Diameter of the flue gas outlet, given as an integer	80 mm
<b><math>L, H, W</math></b>	Overall dimensions of the appliance (length, height, width), given as an integer	322 x 1131 x 885 mm
<b><math>m</math></b>	Mass of the appliance, given as an integer (in relation to the building's statics)	140.0 kg
<b><math>m_{\text{chim}}</math></b>	Maximum load of a chimney the appliance may carry, given as an integer	0 kg



Model name:		AP021B_0_09 EN
Parameter	Explanation	Specified data by the applicant
$P_{nom}$	Nominal heat output or a range of outputs (dependent on fuel types), given with 1 decimal	9 kW
$P_{SHnom}$	Nominal space heat output or a range of outputs (dependent on fuel types), given with 1 decimal	9 kW
$P_{Wnom}$	Nominal water output (if an integral boiler is fitted) or a range of outputs (dependent on fuel types), given with 1 decimal	--
$P_{part}$	Part load heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	3.1 kW
$P_{SHpart}$	Part load space heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	3.1 kW
$P_{Wpart}$	Part load water output (if an integral boiler is fitted) or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	---
$P_{slow}$	Heat output at slow combustion or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	--
$P_{SHslow}$	Space heat output at slow combustion or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	--
$P_{Wslow}$	Water heat output at slow combustion (if an integral boiler is fitted) or a range of outputs (dependent on fuel types) if specified, with 1 decimal	--
$P_{acc\ in}$	Accumulator heat input, in kW or W for Kachelofen inset appliances only	--
$T_{acc\ in}$	Temperature at the separate heat exchanger inlet, for Kachelofen inset appliances only, given as an integer	--
$\zeta_{acc}$	Flow resistance of the separate heat exchanger as used in the test, for Kachelofen inset appliances only	--
$\eta_{nom}$	Appliance efficiency at nominal heat output, given as an integer	88 %
$\eta_{part}$	Appliance efficiency at part load heat output, given as an integer	93 %
$\eta_s$	Appliance seasonal space heating efficiency at nominal heat output, given as an integer	84 %
$EEI$	Energy efficiency index, given as an integer	124
$CO_{nom} (13\ \% O_2)$	CO emission at 13 % oxygen content at nominal heat output, given as an integer	100 mg/m <sup>3</sup>
$CO_{part} (13\ \% O_2)$	CO emission at 13 % oxygen content at part load heat output if specified, given as an integer	250 mg/m <sup>3</sup>
$CO_{slow} (13\ \% O_2)$	CO emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer	--
$NO_{xnom} (13\ \% O_2)$	NOx emission at 13 % oxygen content at nominal heat output, given as an integer	150 mg/m <sup>3</sup>
$NO_{xpart} (13\ \% O_2)$	NOx emission at 13 % oxygen content at part load heat output if specified, given as an integer	150 mg/m <sup>3</sup>

<b><math>NO_{xslow}</math> (13 % <math>O_2</math>)</b>	NOx emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer	--
<b><math>OGC_{nom}</math> (13 % <math>O_2</math>)</b>	Hydrocarbon emission at 13 % oxygen content at nominal heat output, given as an integer	4 mg/m <sup>3</sup>
<b><math>OGC_{part}</math> (13 % <math>O_2</math>)</b>	Hydrocarbon emission at 13 % oxygen content at part load heat output if specified, given as an integer	3 mg/m <sup>3</sup>
<b><math>OGC_{slow}</math> (13 % <math>O_2</math>)</b>	Hydrocarbon emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer	--
<b><math>PM_{nom}</math> (13 % <math>O_2</math>)</b>	Particulate matter emission at 13 % oxygen content at nominal heat output, given as an integer	19 mg/m <sup>3</sup>
<b><math>PM_{part}</math> (13 % <math>O_2</math>)</b>	Particulate matter emission at 13 % oxygen content at part load heat output if specified, given as an integer	20 mg/m <sup>3</sup>
<b><math>PM_{slow}</math> (13 % <math>O_2</math>)</b>	Particulate matter emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer	--
<b><math>p_{nom}</math></b>	Minimum flue draught at nominal heat output, given as an integer	12 Pa
<b><math>p_{part}</math></b>	Minimum flue draught at part load heat output if specified, given as an integer	10 Pa
<b><math>p_{slow}</math></b>	Minimum flue draught at heat output at slow combustion if specified, given as an integer	--
<b><math>p_w</math></b>	Permissible maximum water operating pressure, if applicable, given with 1 decimal	--
<b><math>d_R</math></b>	Minimum distances from the rear to combustible material, given as an integer	20 mm
<b><math>d_S</math></b>	Minimum distances from the sides to combustible material, given as an integer	200 mm
<b><math>d_C</math></b>	Minimum distances from the top to combustible material in the ceiling, given as an integer	750 mm
<b><math>d_P</math></b>	Minimum distances from the front to combustible material	1000 mm
<b><math>d_F</math></b>	Minimum distances from the front to combustible material in bottom front radiation area, given as an integer	1500 mm
<b><math>d_L</math></b>	Minimum distances from the front to combustible material in side front radiation area, given as an integer	1500 mm
<b><math>d_B</math></b>	Minimum distances below the bottom (not regarding feet) to combustible material, given as an integer	0 mm
<b><math>d_{non}</math></b>	Minimum distances to non-combustible walls, given as an integer	0 mm
<b><math>s</math></b>	Protective insulation according to manufacturer's instructions	-
<b><math>e_{lSB}</math></b>	Consumption of electrical auxiliary energy at standby, given with 3 decimals	0.002 kW
<b><math>e_{lmax}</math></b>	Consumption of electrical auxiliary energy at nominal heat output, given with 3 decimals	0.070 kW
<b><math>e_{lmin}</math></b>	Consumption of electrical auxiliary energy at part load heat output, given with 3 decimals	0.030 kW
<b><math>E, f</math></b>	Power supply voltage, frequency, given as an integer	230 V, 50 Hz

<b><math>W_{\max}</math></b>	Maximum electric power input, given as an integer	330 W
<b><math>T_{\text{snom}}</math></b>	Flue gas outlet temperature at nominal heat output, given as an integer	211 °C
<b><math>T_{\text{spart}}</math></b>	Flue gas outlet temperature at part load heat output, given as an integer (given for pellet operation only)	105 °C
<b><math>T_{\text{class}}</math></b>	Chimney designation according to the appropriate chimney standard	T400 G
<b><math>\phi_{\text{f,g nom}}</math></b>	Flue gas mass flow at nominal heat output, given with 1 decimal	6,5 g/s
<b><math>\phi_{\text{f,g part}}</math></b>	Flue gas mass flow at part load heat output, given with 1 decimal (given for pellet operation only)	3 g/s
<b><math>V_{\text{h}}</math></b>	Standing Air Loss, if specified, given with 1 decimal	---
<b>CON or INT</b>	whether the appliance is capable of continuous operation (CON), whether the appliance is capable of intermittent operation (INT)	CON
<b><math>d_{\text{out}}</math></b>	Diameter of the flue gas outlet, given as an integer	80 mm
<b><math>L, H, W</math></b>	Overall dimensions of the appliance (length, height, width), given as an integer	322 x 1131 x 885 mm
<b><math>m</math></b>	Mass of the appliance, given as an integer (in relation to the building's statics)	140.0 kg
<b><math>m_{\text{chim}}</math></b>	Maximum load of a chimney the appliance may carry, given as an integer	0 kg

Model name:		AP021B_0_10 EN
Parameter	Explanation	Specified data by the applicant
$P_{nom}$	Nominal heat output or a range of outputs (dependent on fuel types), given with 1 decimal	10 kW
$P_{SHnom}$	Nominal space heat output or a range of outputs (dependent on fuel types), given with 1 decimal	10 kW
$P_{Wnom}$	Nominal water output (if an integral boiler is fitted) or a range of outputs (dependent on fuel types), given with 1 decimal	--
$P_{part}$	Part load heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	3.1 kW
$P_{SHpart}$	Part load space heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	3.1 kW
$P_{Wpart}$	Part load water output (if an integral boiler is fitted) or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	---
$P_{slow}$	Heat output at slow combustion or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	--
$P_{SHslow}$	Space heat output at slow combustion or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	--
$P_{Wslow}$	Water heat output at slow combustion (if an integral boiler is fitted) or a range of outputs (dependent on fuel types) if specified, with 1 decimal	--
$P_{acc\ in}$	Accumulator heat input, in kW or W for Kachelofen inset appliances only	--
$T_{acc\ in}$	Temperature at the separate heat exchanger inlet, for Kachelofen inset appliances only, given as an integer	--
$\zeta_{acc}$	Flow resistance of the separate heat exchanger as used in the test, for Kachelofen inset appliances only	--
$\eta_{nom}$	Appliance efficiency at nominal heat output, given as an integer	88 %
$\eta_{part}$	Appliance efficiency at part load heat output, given as an integer	93 %
$\eta_s$	Appliance seasonal space heating efficiency at nominal heat output, given as an integer	84 %
$EEI$	Energy efficiency index, given as an integer	124
$CO_{nom} (13\ \% O_2)$	CO emission at 13 % oxygen content at nominal heat output, given as an integer	100 mg/m <sup>3</sup>
$CO_{part} (13\ \% O_2)$	CO emission at 13 % oxygen content at part load heat output if specified, given as an integer	250 mg/m <sup>3</sup>
$CO_{slow} (13\ \% O_2)$	CO emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer	--
$NO_{xnom} (13\ \% O_2)$	NOx emission at 13 % oxygen content at nominal heat output, given as an integer	150 mg/m <sup>3</sup>
$NO_{xpart} (13\ \% O_2)$	NOx emission at 13 % oxygen content at part load heat output if specified, given as an integer	150 mg/m <sup>3</sup>

<b><math>NO_{xslow}</math> (13 % <math>O_2</math>)</b>	NOx emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer	--
<b><math>OGC_{nom}</math> (13 % <math>O_2</math>)</b>	Hydrocarbon emission at 13 % oxygen content at nominal heat output, given as an integer	4 mg/m <sup>3</sup>
<b><math>OGC_{part}</math> (13 % <math>O_2</math>)</b>	Hydrocarbon emission at 13 % oxygen content at part load heat output if specified, given as an integer	3 mg/m <sup>3</sup>
<b><math>OGC_{slow}</math> (13 % <math>O_2</math>)</b>	Hydrocarbon emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer	--
<b><math>PM_{nom}</math> (13 % <math>O_2</math>)</b>	Particulate matter emission at 13 % oxygen content at nominal heat output, given as an integer	19 mg/m <sup>3</sup>
<b><math>PM_{part}</math> (13 % <math>O_2</math>)</b>	Particulate matter emission at 13 % oxygen content at part load heat output if specified, given as an integer	20 mg/m <sup>3</sup>
<b><math>PM_{slow}</math> (13 % <math>O_2</math>)</b>	Particulate matter emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer	--
<b><math>p_{nom}</math></b>	Minimum flue draught at nominal heat output, given as an integer	12 Pa
<b><math>p_{part}</math></b>	Minimum flue draught at part load heat output if specified, given as an integer	10 Pa
<b><math>p_{slow}</math></b>	Minimum flue draught at heat output at slow combustion if specified, given as an integer	--
<b><math>p_w</math></b>	Permissible maximum water operating pressure, if applicable, given with 1 decimal	--
<b><math>d_R</math></b>	Minimum distances from the rear to combustible material, given as an integer	20 mm
<b><math>d_S</math></b>	Minimum distances from the sides to combustible material, given as an integer	200 mm
<b><math>d_C</math></b>	Minimum distances from the top to combustible material in the ceiling, given as an integer	750 mm
<b><math>d_P</math></b>	Minimum distances from the front to combustible material	1000 mm
<b><math>d_F</math></b>	Minimum distances from the front to combustible material in bottom front radiation area, given as an integer	1500 mm
<b><math>d_L</math></b>	Minimum distances from the front to combustible material in side front radiation area, given as an integer	1500 mm
<b><math>d_B</math></b>	Minimum distances below the bottom (not regarding feet) to combustible material, given as an integer	0 mm
<b><math>d_{non}</math></b>	Minimum distances to non-combustible walls, given as an integer	0 mm
<b><math>s</math></b>	Protective insulation according to manufacturer's instructions	-
<b><math>e_{lSB}</math></b>	Consumption of electrical auxiliary energy at standby, given with 3 decimals	0.002 kW
<b><math>e_{lmax}</math></b>	Consumption of electrical auxiliary energy at nominal heat output, given with 3 decimals	0.070 kW
<b><math>e_{lmin}</math></b>	Consumption of electrical auxiliary energy at part load heat output, given with 3 decimals	0.030 kW
<b><math>E, f</math></b>	Power supply voltage, frequency, given as an integer	230 V, 50 Hz

<b><math>W_{\max}</math></b>	Maximum electric power input, given as an integer	330 W
<b><math>T_{\text{snom}}</math></b>	Flue gas outlet temperature at nominal heat output, given as an integer	236 °C
<b><math>T_{\text{spart}}</math></b>	Flue gas outlet temperature at part load heat output, given as an integer (given for pellet operation only)	105 °C
<b><math>T_{\text{class}}</math></b>	Chimney designation according to the appropriate chimney standard	T400 G
<b><math>\phi_{\text{f,g nom}}</math></b>	Flue gas mass flow at nominal heat output, given with 1 decimal	7,2 g/s
<b><math>\phi_{\text{f,g part}}</math></b>	Flue gas mass flow at part load heat output, given with 1 decimal (given for pellet operation only)	3 g/s
<b><math>V_h</math></b>	Standing Air Loss, if specified, given with 1 decimal	---
<b>CON or INT</b>	whether the appliance is capable of continuous operation (CON), whether the appliance is capable of intermittent operation (INT)	CON
<b><math>d_{\text{out}}</math></b>	Diameter of the flue gas outlet, given as an integer	80 mm
<b><math>L, H, W</math></b>	Overall dimensions of the appliance (length, height, width), given as an integer	322 x 1131 x 885 mm
<b><math>m</math></b>	Mass of the appliance, given as an integer (in relation to the building's statics)	140.0 kg
<b><math>m_{\text{chim}}</math></b>	Maximum load of a chimney the appliance may carry, given as an integer	0 kg

The specified (declared) heat output, efficiency and emission values are in line with the measured values considering rounding rules of DIN EN 16510-1:2023-02, clause A.5 (see chapter 6.2 of the present report for the resume of the main combustion results).

### 3 Requirements

- P (pass)
- NA (not applicable)
- F (fail)

#### 3.1 Descriptive features

Requirement acc. to DIN EN 16510-1:2023-02	Clause	Tested Acc.	Requirement complies
Designation of appliances	4.1	-	P
System boundary	4.2	-	NA
Production documentation	4.3	-	P
Construction and materials	4.4	-	P
General construction	4.4.1	-	P
Design, manufacture and assembly	4.4.1.1	-	P
Durability	4.4.1.2	-	P
Integral boiler or heat exchanger	4.4.2	-	NA
General	4.4.2.1	-	NA
Integral boilers constructed of steel	4.4.2.2	-	NA
Integral boilers constructed of cast iron	4.4.2.3	-	NA
Cast iron parts subject to water pressure	4.4.2.3.1	-	NA
Minimum wall thicknesses (cast iron)	4.4.2.3.2	-	NA
Integral Boiler shell tapplings	4.4.2.4	-	NA
Introduction	4.4.2.4.1	-	NA
General	4.4.2.4.2	-	NA
Design of all integral boiler waterways	4.4.2.4.3	-	NA
Venting of the water sections	4.4.2.4.4	-	NA
Water tightness	4.4.2.4.5	-	NA
Heat exchangers that are not directly in contact with fire or flue gases	4.4.2.5	-	NA
Cleaning of heating surfaces	4.4.3	-	P
Flue gas outlet	4.4.4	-	P
Flueways	4.4.5	-	P
Components built-in the flue ways	4.4.6	-	NA
Ashpan and ash removal	4.4.7	-	P
Bottomgrate	4.4.8	-	P
Combustion air supply	4.4.9	-	P

Requirement acc. to DIN EN 16510-1:2023-02	Clause	Tested Acc.	Requirement complies
Primary combustion air control device	4.4.9.1	-	P
Secondary combustion air control device	4.4.9.2	-	NA
Damper	4.4.10	-	NA
Charging doors and ash-pit doors	4.4.11	-	NA
Flue bypass device	4.4.12	-	NA
Internal flue gas diverter	4.4.13	-	NA
Front firebars	4.4.14	-	NA
Fossil solid fuel and peat briquettes burning appliances	4.4.15	-	NA
Draught regulator	4.4.16	-	NA
Cut-off device for inset appliances without doors	4.4.17	-	NA
Convection air outlet for inserts for Kachelofen/ Putzofen	4.4.18	-	NA
Oven door of cookers	4.4.19	-	NA
Hotplate and top plate of cookers	4.4.20	-	NA
Main/additional ovens of cookers	4.4.21	-	NA
Ashpit and ashpit cover/door of cookers	4.4.22	-	NA
Oven temperature indicators for cookers	4.4.23	-	NA
Air inlet for pellet appliances according to EN 16510-2-6	4.4.24	-	P
Retort for pellet appliances according to EN 16510-2-6	4.4.25	-	P
Heat output control device for pellet appliances according to EN 16510-2-6	4.4.26	-	P
Hopper for pellet appliances according to EN 16510-2-6	4.4.27	-	P
Sound level	4.5	-	P
Load bearing capacity	4.6	A.4.10.2	P



### 3.2 Safety requirements

Requirement acc. to DIN EN 16510-1	Clause	Tested Acc.	Requirement complies
Natural draught	5.1	A.4.10.5 A.6.2.8	NA
Open operation of an appliance	5.2	A.4.10.3	NA
Strength and leak tightness of integral boiler shells	5.3	A.4.10.6	P
Temperature rise in the fuel storage (other than the fuel hopper)	5.4	A.4.7 A.4.10	P
Temperature rise of the operating components	5.5	A.4.7	P
Protection of combustible materials	5.6	A.4.10 A.2.2	P
Safety devices for appliances fitted with an integral boiler	5.7	-	NA
General	5.7.1	-	NA
Appliances intended for sealed water systems	5.7.2	-	NA
General	5.7.2.1	-	NA
Thermal discharge control	5.7.2.2	A.4.10.7	NA
Safety heat exchanger	5.7.2.3	A.4.10.7	NA
Safety devices for appliances fitted with a heat exchanger that are not directly in contact with fire	5.7.3	A.4.10.7	NA
Safety requirements of roomsealed appliances	5.9	-	P
Tightness related to CO-emission	5.9.1	-	P
Overall leakage rate	5.9.2	-	NA
Minimum distances from non-combustible walls	5.10	A.4.7	P
Requirements for appliances suitable for a shared flue system	5.11	-	NA

### 3.3 Operation requirements

Requirement acc. to DIN EN 16510-1	Clause	Tested Acc.	Requirement complies
General	6.1	-	P
Flue gas temperature and flue gas outlet temperature	6.2	-	P
General	6.2.1	A.4.7 A.4.8	P
Flue gas temperature at safety test	6.2.2	A.4.10.4	P*
Emissions	6.3	-	P
General	6.3.1	A.4.7 A.4.8	P
Carbon monoxide emission	6.3.2	-	P
NO <sub>x</sub> emissions	6.3.3	-	P
Emission of organic gaseous carbon (OGC)	6.3.4	-	P
Particulate matter (PM) emissions	6.3.5	-	P
Threshold levels for emissions according to appliance types	6.3.6	-	P
Efficiency	6.4	-	P
General	6.4.1		P
Seasonal space heating efficiency	6.4.2	A.4.8	P
Energy efficiency index (EEI)	6.4.3	A.6.2.1.6	P
Energy efficiency class	6.4.4	-	P
Flue draught	6.5	A.4.7 / A.4.8 / A.4.10	P
Recovery test	6.6	A.4.9	NA
Refuelling intervals	6.7	-	P
Space heat output	6.8	A.4.7 A.4.8	P
Water heat output	6.9	A.4.7 A.4.8	P
User operations	6.10	-	P
Auxiliary electrical energy consumption	6.11	A.4.7 A.4.8	P
Flue gas mass flow	6.12	A.4.7 A.4.8	P

\*) Temperature during safety test historically not recorded. Specified chimney T<sub>class</sub> designation as the highest among commercially available chimney flue gas pipes (see also manufacturer declaration Annex A02).

### 3.4 Environmental sustainability, clause 8

Performance assessments regarding environmental sustainability is not considered in the present test procedure. A possible NDP declaration by the manufacturer is also not included in the present procedure.

### 3.5 Appliance marking

Requirement acc. to DIN EN 16510-1	Clause	Tested Acc.	Requirement complies
Marking and technical datasheet	10	-	P

## 4 Characteristics

Requirement acc. to DIN EN 16510-2-6	Clause	Tested Acc.	Requirement complies
Load bearing capacity	4.1	-	P
Protection of combustible materials	4.2	-	P
Carbon monoxide emission (CO)	4.3	-	P
Nitrogen oxides (NOx) emissions	4.4	-	P
Emission of organic gaseous compounds (OGC) emissions	4.5	-	P
Particulate matter (PM) emissions	4.6	-	P
Safety and accessibility in use	4.7	-	P
General	4.7.1	-	P
Flue gas outlet temperature at nominal heat output	4.7.2	-	P
Flue gas outlet temperature at part load heat output	4.7.3	-	P
Minimum flue draught at nominal heat output	4.7.4	-	P
Minimum flue draught at part load heat output	4.7.5	-	P
Flue gas mass flow at nominal heat output	4.7.6	-	P
Flue gas mass flow at part load heat output	4.7.7	-	P
Fire safety of installation to the chimney	4.7.8	-	P*
Energy economy and heat retention	4.8	-	P
Space heat output at nominal heat output	4.8.1	-	P
Water heat output, if existing at nominal heat output	4.8.2	-	NA
Efficiency at nominal heat output	4.8.3	-	P
Space heat output at part load heat output	4.8.4	-	P
Water heat output, if existing at part load heat output	4.8.5	-	NA
Efficiency at part load heat output	4.8.6	-	P
Seasonal space heating efficiency at appliance's nominal heat output	4.8.7	-	P
Energy efficiency	4.8.8	-	P
Electric power consumption at nominal heat output, if existing	4.8.9	-	P
Electric power consumption at part load heat output, if existing	4.8.10	-	P
Standby mode power consumption, if existing	4.8.11	-	P

\*) Temperature during safety test historically not recorded. Specified chimney T<sub>class</sub> designation as the highest among commercially available chimney flue gas pipes (see also manufacturer declaration Annex A03).

## 5 Descriptive features

Requirement acc. to DIN EN 16510-2-6	Clause	Requirement complies
Data for potential use with room ventilation system: type of appliance (in relation to its tightness to the room)	5.1	P
General	5.1.1	P
Tightness related to CO-emissions	5.1.2	P
Overall tightness	5.1.3	P
Data for the building's statics: appliance's mass	5.2	P
Materials and construction elements	5.3	P
General	5.3.1	P
General stresses	5.3.2	P
Integral boiler or heat exchanger	5.3.3	NA
Risk of burning fuel falling out	5.4	P
Temperature rise in the fuel storage	5.5	-
Temperature rise in the fuel hopper	5.5.1	P
Safety against back burning through the fuel conveyor system	5.5.2	P
Temperature rise of the operating components	5.6	P
Spillage of the flue gases into the room	5.7	-
Possible spillage of CO, if relevant for the fuel type	5.7.1	NA
Safety test for spillage of combustion gas and discharge of embers	5.7.2	P
Open operation	5.7.3	NA
Ashpan	5.8.3	NA
Bottomgrate	5.8.4	NA
Damper	5.8.5	NA
Fan-cut-out device	5.8.6	NA
Strength and leak tightness of boiler shells	5.9	P

## 6 Test results

### 6.1 Energy efficiency

#### 6.1.1 Energy efficiency control features and test data

Type designation		AP021B_0_06 EN			
Working condition	Description	Parameter	Result	Unit	
Nominal heat output	Auxiliary electrical energy consumption at nominal heat output *	el <sub>max</sub>	0.070	kW	
Part load heat output	Auxiliary electrical energy consumption at part load heat output *,**	el <sub>min</sub>	0.030	kW	
Standby	Auxiliary electrical energy consumption in standby mode	el <sub>SB</sub>	0.002	kW	
Type designation		AP021B_0_10 EN			
Working condition	Description	Parameter	Result	Unit	
Nominal heat output	Auxiliary electrical energy consumption at nominal heat output *	el <sub>max</sub>	0.070	kW	
Part load heat output	Auxiliary electrical energy consumption at part load heat output *,**	el <sub>min</sub>	0.030	kW	
Standby	Auxiliary electrical energy consumption in standby mode	el <sub>SB</sub>	0.002	kW	
Room temperature control					
With electronic room temperature control plus week timer					
Controls for indoor heating comfort					
Room temperature control with presence detection			No		
Room temperature control with open window detection			No		
Distance control option			No		

**6.1.2 Energy efficiency calculation**

Type designation	AP021B_0_06 EN				
Definition	Parameter	Unit	Result	Requirement	
Seasonal space heating energy efficiency in active mode (%)	$\eta_{s,on}$	%	92		
Contributions of controls of indoor heating comfort (mutually exclusive temperature controls)	F(2)	%	7	-	
Contributions of controls of indoor heating comfort	F(3)	%	0	-	
Negative contribution to the seasonal space heating energy efficiency by auxiliary electricity consumption	F(4)	%	1,6	-	
Negative contribution to the energy efficiency index by energy consumption of a permanent pilot flame	F(5)	%	0	-	
Biomass label factor	BLF	---	1.45	-	
Seasonal space heating energy efficiency	$\eta_s$	%	<b>87</b>	$\geq 79$	
Energy efficiency index	EEI	---	<b>129</b>	-	
Energy efficiency classification	---	---	<b>A+</b>	-	

Type designation	AP021B_0_10 EN				
Definition	Parameter	Unit	Result	Requirement	
Seasonal space heating energy efficiency in active mode (%)	$\eta_{s,on}$	%	88		
Contributions of controls of indoor heating comfort (mutually exclusive temperature controls)	F(2)	%	7	-	
Contributions of controls of indoor heating comfort	F(3)	%	0	-	
Negative contribution to the seasonal space heating energy efficiency by auxiliary electricity consumption	F(4)	%	1,0	-	
Negative contribution to the energy efficiency index by energy consumption of a permanent pilot flame	F(5)	%	0	-	
Biomass label factor	BLF	---	1.45	-	
Seasonal space heating energy efficiency	$\eta_s$	%	<b>84</b>	$\geq 79$	
Energy efficiency index	EEI	---	<b>124</b>	-	
Energy efficiency classification	---	---	<b>A+</b>	-	

## 6.2 Resume of combustion test results

Type designation		AP021B_0_06 EN			
Definition	Parameter	Unit	Nominal	Partial	Requirement
Fuel consumption	$M_h$	kg/h	1,37	0,66	-
Minimum refuelling intervals	-	min	180	360	2 x 180 / 360
Flue gas mass flow	$\Phi_{f,g}$	g/s	4,8	3,0	-
Flue gas temperature	$T_{fg}$	°C	123	88	-
Flue gas outlet temperature	$T_{snom}$	°C	147	105	-
Flue draught	$p_{nom} / p_{part}$	Pa	12	10	$\geq 12 / \geq 6$ or declared value
CO <sub>2</sub> concentration	CO <sub>2</sub>	Vol.-%	9,7	7,4	-
O <sub>2</sub> concentration	O <sub>2</sub>	Vol.-%	10,8	13,3	-
CO concentration	-	ppm	62	189	-
CO emission (13% O <sub>2</sub> )	$CO_{nom} (13\% O_2) / CO_{part} (13\% O_2)$	mg/m <sup>3</sup>	61	244	$\leq 300 / -$
CO emission	-	mg/MJ	39	157	-
NO <sub>x</sub> concentration	-	ppm	91	69	-
NO <sub>x</sub> emission (13% O <sub>2</sub> )	$NO_{xnom} (13\% O_2) / NO_{xpart} (13\% O_2)$	mg/m <sup>3</sup>	147	146	$\leq 200 / -$
NO <sub>x</sub> emission	-	mg/MJ	94	94	-
OGC concentration	-	ppm	1	2	-
OGC emission (13% O <sub>2</sub> )	$OGC_{nom} (13\% O_2) / OGC_{part} (13\% O_2)$	mg/m <sup>3</sup>	2	3	$\leq 60 / -$
OGC emission	-	mg/MJ	1	2	-
PM concentration*	-	mg	7	6	-
PM emission (13% O <sub>2</sub> )	$PM_{nom} (13\% O_2) / PM_{part} (13\% O_2)$	mg/m <sup>3</sup>	17	20	$\leq 20 / -$
PM emission	-	mg/MJ	11	13	-
Heat input	-	kW	6,8	3,3	-
Heat output	$P_{nom} / P_{part}$	kW	6,3	3,1	-
Water heat output	$P_{Wnom} / P_{Wpart}$	kW	-	-	-
Space heat output	$P_{SHnom} / P_{SHpart}$	kW	6,3	3,1	-
Efficiency	$\eta_{nom} / \eta_{part}$	%	92	94	-

\*) Average of 3 samples



<b>Type designation</b>	<b>AP021B_0_10 EN</b>
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Definition	Parameter	Unit	Nominal	Partial	Requirement
Fuel consumption	$M_h$	kg/h	2,29	0,66	-
Minimum refuelling intervals	-	min	180	360	2 x 180 / 360
Flue gas mass flow	$\Phi_{f,g}$	g/s	7,2	3,0	-
Flue gas temperature	$T_{fg}$	°C	197	88	-
Flue gas outlet temperature	$T_{snom}$	°C	236	105	-
Flue draught	$p_{nom} / p_{part}$	Pa	12	10	$\geq 12 / \geq 6$ or declared value
CO <sub>2</sub> concentration	CO <sub>2</sub>	Vol.-%	11,0	7,4	-
O <sub>2</sub> concentration	O <sub>2</sub>	Vol.-%	9,5	13,3	-
CO concentration	-	ppm	45	189	-
CO emission (13% O <sub>2</sub> )	CO <sub>nom</sub> (13% O <sub>2</sub> ) / CO <sub>part</sub> (13% O <sub>2</sub> )	mg/m <sup>3</sup>	39	244	$\leq 300 / -$
CO emission	-	mg/MJ	25	157	-
NO <sub>x</sub> concentration	-	ppm	103	69	-
NO <sub>x</sub> emission (13% O <sub>2</sub> )	NO <sub>xnom</sub> (13% O <sub>2</sub> ) / NO <sub>xpart</sub> (13% O <sub>2</sub> )	mg/m <sup>3</sup>	148	146	$\leq 200 / -$
NO <sub>x</sub> emission	-	mg/MJ	95	94	-
OGC concentration	-	ppm	3	2	-
OGC emission (13% O <sub>2</sub> )	OGC <sub>nom</sub> (13% O <sub>2</sub> ) / OGC <sub>part</sub> (13% O <sub>2</sub> )	mg/m <sup>3</sup>	4	3	$\leq 60 / -$
OGC emission	-	mg/MJ	2	2	-
PM concentration*	-	mg	8	6	-
PM emission (13% O <sub>2</sub> )	PM <sub>nom</sub> (13% O <sub>2</sub> ) / PM <sub>part</sub> (13% O <sub>2</sub> )	mg/m <sup>3</sup>	19	20	$\leq 20 / -$
PM emission	-	mg/MJ	12	13	-
Heat input	-	kW	11,4	3,3	-
Heat output	$P_{nom} / P_{part}$	kW	10,0	3,1	-
Water heat output	$P_{Wnom} / P_{Wpart}$	kW	-	-	-
Space heat output	$P_{SHnom} / P_{SHpart}$	kW	10,0	3,1	-
Efficiency	$\eta_{nom} / \eta_{part}$	%	88	94	-

\*) Average of 3 samples

### 6.3 Temperatures

<b>Type designation</b>	<b>AP021B_0_10 EN</b>
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<b>Minimum distances from combustible walls</b>	<b>Unit</b>	<b>Distances at nominal heat output and during temperature safety tests</b>
Backside distance - $d_R$	mm	20
Sides distance - $d_S$	mm	200
Sides distance radiation area - $d_L$	mm	Historical data not available
Front distance - $d_p$	mm	1000
Front distance radiation area - $d_F$	mm	Historical data not available
Ceiling distance - $d_C$	mm	750
Bottom distance - $d_B$	mm	Historical data not available

<b>Position</b>	<b>Unit</b>	<b>Maximum temperature reached. Performance test at nominal heat output and temperature safety tests</b>	<b>Requirement delta ambient</b>
Rear - $d_R$	K	26	≤ 65
Side - $d_S$	K	30	
Side radiation area - $d_L$	K	Historical data not available	
Front - $d_p$	K	26	
Floor in Front - $d_F$	K	26	
Bottom - $d_B$	K	Historical data not available	

<b>Position</b>	<b>Unit</b>	<b>Maximum temperature reached. Performance test at nominal heat output</b>	<b>Requirement delta ambient</b>
Max- Temperature-rise in fuel hopper	K	45	≤ 65
Operation components	K	30	≤ 35

#### 6.4 Leakage tests

<b>AP021B_0_06 EN</b>		<b>Before mechanical and thermal tests</b>	<b>After mechanical tests</b>	<b>After mechanical and thermal tests</b>
Leakage test of combustion room at 5 Pa	m <sup>3</sup> /h	0,39	0,4	0,42
Leakage test of combustion room at 10 Pa	m <sup>3</sup> /h	0,54	0,6	0,65
Leakage test of combustion room at 15 Pa	m <sup>3</sup> /h	0,7	0,83	0,85
Leakage test of combustion room at 50 Pa	m <sup>3</sup> /h	1,46	-	-

<b>AP021B_0_10 EN</b>		<b>Before mechanical and thermal tests</b>	<b>After mechanical tests</b>	<b>After mechanical and thermal tests</b>
Leakage test of combustion room at 5 Pa	m <sup>3</sup> /h	0,39	0,4	0,42
Leakage test of combustion room at 10 Pa	m <sup>3</sup> /h	0,54	0,6	0,65
Leakage test of combustion room at 15 Pa	m <sup>3</sup> /h	0,7	0,83	0,85
Leakage test of combustion room at 50 Pa	m <sup>3</sup> /h	1,46	-	-

Leakage test has been carried out without additional flue gas exhaust pipes / air inlet combustion pipes.

## **7 Statement of the test results**

The appliance types

**AP021B\_0\_06 EN**  
**AP021B\_0\_07 EN**  
**AP021B\_0\_08 EN**  
**AP021B\_0\_09 EN**  
**AP021B\_0\_10 EN**

with trademark:

**PALAZZETTI**

of the company:

**PALAZZETTI LELIO S.p.A.**

conforms with the requirements of DIN EN 16510-1:2023-02, except for clauses 5.8, 7 and 8, and DIN EN 16510-2-6:2023-02, except for clause 4.9, which are not part of this assessment. Performance assessments regarding environmental sustainability is not considered in the present order and is not the subject of this report. A possible NPD declaration by the manufacturer is also not included in the present report.

Test data documented in this report are based on historical data of the initial type testing report noK23402018T1 according to DIN EN 14785:2006-09 and Corr. 1 DIN EN 14785:2007-10.

## 8 Test documents

See test report K23402018 T1 for further information.

TÜV Rheinland Energy & Environment GmbH declines any responsibility derived from missing or wrong information in the documents provided by the applicant.

Appendix	Subject	Reference
A 01	Manufacturer declaration	20.03.2025
A 02	Marking plates	
A 03	Declarations of equivalence	20.03.2025