

Report No. K 3536 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:

AP411B_0_06 EN, AP411N_0_06 EN, AP411S_0_06 EN,
AP411B_2_06 EN, AP411N_2_06 EN, AP411S_2_06 EN,
AP411N_4_06 EN, AP411N_6_06 EN, AP411B_0_07 EN,
AP411N_0_07 EN, AP411S_0_07 EN, AP411B_2_07 EN,
AP411N_2_07 EN, AP411S_2_07 EN, AP411N_4_07 EN,
AP411N_6_07 EN, AP411B_0_08 EN, AP411N_0_08 EN,
AP411S_0_08 EN, AP411B_2_08 EN, AP411N_2_08 EN,
AP411S_2_08 EN, AP411N_4_08 EN, AP411N_6_08 EN,
AP411B_0_09 EN, AP411N_0_09 EN, AP411S_0_09 EN,
AP411B_2_09 EN, AP411N_2_09 EN, AP411S_2_09 EN,
AP411N_4_09 EN, AP411N_6_09 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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Publication of page 2 is permitted.**

The test results presented in this report refer solely to the test object stated as described on page 2. The report does not represent a general statement about the serial production of the test object and gives not an authorization for use of a TÜV Rheinland test/certification mark..

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 reports K33942023T1 and K33942025E2

| | |
|------------------------|--|
| Applicant/contractor: | PALAZZETTI LELIO S.p.A. Via Roveredo, 103 33080 Porcia (PN) - Italy |
| Trademark: | PALAZZETTI |
| Type designations: | AP411...EN, see overview type designations table on page 3 |
| Appliance description: | Mechanical by wood pellets fed roomheater |
| Test fuel: | Wood pellets, Ø: 6 mm, Lmax: 30 mm, humidity: 7,1%, Pe.Pe, class A1 according to EN 17225-2. |

Specified data by applicant

| | |
|-------------------------|------------------------------|
| Type of appliance: | See page 6 |
| Type designations: | AP411...EN see pages 3 and 6 |
| Heat output: | see page 3 |
| Space heat output: | see page 3 |
| Water heat output: | Not applicable |
| Max. water pressure: | Not applicable |
| Max. water temperature: | Not applicable |

Remark: Room sealed

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 3536 2025 B2.

Dated in Cologne, 2025-04-28

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 types designation table

| Types designation | Heat input (kW) | Heat output (kW) |
|-------------------|-----------------|------------------|
| AP411B_0_06 EN | 2,7-6,6 | 2,5-6,0 |
| AP411N_0_06 EN | | |
| AP411S_0_06 EN | | |
| AP411B_2_06 EN | | |
| AP411N_2_06 EN | | |
| AP411S_2_06 EN | | |
| AP411N_4_06 EN | | |
| AP411N_6_06 EN | | |
| AP411B_0_07 EN | 2,7-7,8 | 2,5-7,0 |
| AP411N_0_07 EN | | |
| AP411S_0_07 EN | | |
| AP411B_2_07 EN | | |
| AP411N_2_07 EN | | |
| AP411S_2_07 EN | | |
| AP411N_4_07 EN | | |
| AP411N_6_07 EN | | |
| AP411B_0_08 EN | 2,7-9,0 | 2,5-8,0 |
| AP411N_0_08 EN | | |
| AP411S_0_08 EN | | |
| AP411B_2_08 EN | | |
| AP411N_2_08 EN | | |
| AP411S_2_08 EN | | |
| AP411N_4_08 EN | | |
| AP411N_6_08 EN | | |
| AP411B_0_09 EN | 2,7-10,2 | 2,5-9,0 |
| AP411N_0_09 EN | | |
| AP411S_0_09 EN | | |
| AP411B_2_09 EN | | |
| AP411N_2_09 EN | | |
| AP411S_2_09 EN | | |
| AP411N_4_09 EN | | |
| AP411N_6_09 EN | | |

1 Task

The Test Centre for Energy Appliances was instructed to execute the measurements and calculations on the appliances **AP411...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 practical tests were carried out by the laboratory DEKRA Testing and Certification S.r.l, via della Fisica 20, Thiene (VI) – Italy, on the 08th - 9th - 10th - 11th of May, 26th - 27th - 28th - 29th of June, on the 17th of July 2023, on the 25th – 26th of October 2023, 31th of March and on the 1th of April 2025.

The data documented in this test report are based on historical data of the initial type testing report no.: K33942023T1 and K33942025E2 issued according to DIN EN 14785.

The manufacturer declares that the construction, functional- and safety-related components and design of models **AP411...EN** is identical to the one documented in the initial type testing report no.: K33942023T1 and K33942025E2 (see also Annex A02).

| Type appliance | Latest report number | New type designations acc. DIN EN 16510-1 + DIN EN 16510-2-6 with report numbers K 3536 2025 T1 and K 3536 2025 B2 |
|--|-----------------------------------|--|
| AP411B_0_06, AP411N_0_06 AP411S_0_06, AP411B_2_06 AP411N_2_06, AP411S_2_06 AP411N_4_06, AP411N_6_06 AP411B_0_07, AP411N_0_07 AP411S_0_07, AP411B_2_07 AP411N_2_07, AP411S_2_07 AP411N_4_07, AP411N_6_07 AP411B_0_08, AP411N_0_08 AP411S_0_08, AP411B_2_08 AP411N_2_08, AP411S_2_08 AP411N_4_08, AP411N_6_08 AP411B_0_09, AP411N_0_09 AP411S_0_09, AP411B_2_09 AP411N_2_09, AP411S_2_09 AP411N_4_09, AP411N_6_09 | K33942023T1 and K33942025E2 | AP411B_0_06 EN, AP411N_0_06 EN AP411S_0_06 EN, AP411B_2_06 EN AP411N_2_06 EN, AP411S_2_06 EN AP411N_4_06 EN, AP411N_6_06 EN AP411B_0_07 EN, AP411N_0_07 EN AP411S_0_07 EN, AP411B_2_07 EN AP411N_2_07 EN, AP411S_2_07 EN AP411N_4_07 EN, AP411N_6_07 EN AP411B_0_08 EN, AP411N_0_08 EN AP411S_0_08 EN, AP411B_2_08 EN AP411N_2_08 EN, AP411S_2_08 EN AP411N_4_08 EN, AP411N_6_08 EN AP411B_0_09 EN, AP411N_0_09 EN AP411S_0_09 EN, AP411B_2_09 EN AP411N_2_09 EN, AP411S_2_09 EN AP411N_4_09 EN, AP411N_6_09 EN |

2 Description of the appliance

2.1 Construction

Residential space heating appliances fired by wood pellets without water heat exchanger. The flue discharge for pellet operation is fan assisted. The stoves are equipped with an automatic ignition and are fitted with an automatic cleaning system of the burner.

- CC50 type appliance, except than for “AP411N_0_xx EN”, “AP411N_2_xx EN”
- “AP411N_4_xx EN” and “AP411N_6_xx EN” appliances, which are not sealed.
- Fan assisted exhaust flue gas discharge.
- Pellet automatic ignition.

All appliances are equipped with a frontal convection hot air fan. The user may adjust the speed of the frontal convection hot air fan in 8 different steps, from power off, to full speed (power off is not enabled at nominal heat output).

The appliances may be equipped with an optional canalization hot air blower (except than for cochlea – equipped appliances). The user may adjust the speed of the canalization hot air fan in 6 different steps, from power off, to full speed.

Other options include the possibility to have an automatic control of flue gas fan speed, and to have refractory materials for the internal walls of the combustion chamber (Magnofix).

The stoves have horizontal (rear) and vertical flue gas outlet options. Combustion tests were carried out with horizontal flue gas outlet (worst-case scenario for efficiency).

AP411X_X_06 EN and **AP411X_X_09 EN** are all identical each other, except than for nominal load power software settings.

The type designations AP411X_X_07 EN and AP411X_X_08 EN is based on families of appliances and was not tested (see Annex G of EN16510-1)

More details in test reports K33942023T1 and K33942025E2

A summary of all types with main characteristics is listed on the table below:

| Type | Nominal heat output (kW) | Flue gas outlet | | Fuel loading system | | Sealed appliance* |
|----------------|--------------------------------|-----------------|---------|---------------------|------|----------------------|
| | | Horizontal | Upright | Cochlea | Star | |
| AP411B_0_06 EN | 6,0 | - | X | - | X | Yes |
| AP411B_0_07 EN | 7,0 | - | X | - | X | Yes |
| AP411B_0_08 EN | 8,0 | - | X | - | X | Yes |
| AP411B_0_09 EN | 9,0 | - | X | - | X | Yes |
| AP411N_0_06 EN | 6,0 | X | - | - | X | No |
| AP411N_0_07 EN | 7,0 | X | - | - | X | No |
| AP411N_0_08 EN | 8,0 | X | - | - | X | No |
| AP411N_0_09 EN | 9,0 | X | - | - | X | No |
| AP411N_4_06 EN | 6,0 | - | X | - | X | No |
| AP411N_4_07 EN | 7,0 | - | X | - | X | No |
| AP411N_4_08 EN | 8,0 | - | X | - | X | No |
| AP411N_4_09 EN | 9,0 | - | X | - | X | No |
| AP411S_0_06 EN | 6,0 | X | - | - | X | Yes |
| AP411S_0_07 EN | 7,0 | X | - | - | X | Yes |
| AP411S_0_08 EN | 8,0 | X | - | - | X | Yes |
| AP411S_0_09 EN | 9,0 | X | - | - | X | Yes |
| AP411B_2_06 EN | 6,0 | - | X | X | - | Yes |
| AP411B_2_07 EN | 7,0 | - | X | X | - | Yes |
| AP411B_2_08 EN | 8,0 | - | X | X | - | Yes |
| AP411B_2_09 EN | 9,0 | - | X | X | - | Yes |
| AP411N_2_06 EN | 6,0 | X | - | X | - | No |
| AP411N_2_07 EN | 7,0 | X | - | X | - | No |
| AP411N_2_08 EN | 8,0 | X | - | X | - | No |
| AP411N_2_09 EN | 9,0 | X | - | X | - | No |
| AP411N_6_06 EN | 6,0 | - | X | X | - | No |
| AP411N_6_07 EN | 7,0 | - | X | X | - | No |
| AP411N_6_08 EN | 8,0 | - | X | X | - | No |
| AP411N_6_09 EN | 9,0 | - | X | X | - | No |
| AP411S_2_06 EN | 6,0 | X | - | X | - | Yes |
| AP411S_2_07 EN | 7,0 | X | - | X | - | Yes |
| AP411S_2_08 EN | 8,0 | X | - | X | - | Yes |
| AP411S_2_09 EN | 9,0 | X | - | X | - | Yes |

*Sealed appliance type of appliance CC50 / not sealed appliance type of appliance BE

2.2 General technical specified data of the appliances

| Model name: | AP411S_0_06 EN; AP411B_0_06 EN, AP411N_0_06 EN, AP411B_2_06 EN AP411N_2_06 EN, AP411S_2_06 EN, AP411N_4_06 EN, AP411N_6_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 kW |
| P_{SHnom} | Nominal space heat output or a range of outputs (dependent on fuel types), given with 1 decimal | 6 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 | 2.5 kW |
| P_{SHpart} | Part load space heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal | 2.5 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 | -- |
| ζ_{acc} | Flow resistance of the separate heat exchanger as used in the test, for Kachelofen inset appliances only | -- |
| η_{nom} | Appliance efficiency at nominal heat output, given as an integer | 90 % |
| η_{part} | Appliance efficiency at part load heat output, given as an integer | 91 % |
| η_s | Appliance seasonal space heating efficiency at nominal heat output, given as an integer | 86 % |
| EEl | Energy efficiency index, given as an integer | 126 |
| CO_{nom} (13 % O ₂) | CO emission at 13 % oxygen content at nominal heat output, given as an integer | 50 mg/m ³ |
| CO_{part} (13 % O ₂) | CO emission at 13 % oxygen content at part load heat output if specified, given as an integer | 275 mg/m ³ |
| 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 | 99 mg/m ³ |

| | | |
|--|--|----------------------|
| NO_{xpart} (13 % O_2) | NOx emission at 13 % oxygen content at part load heat output if specified, given as an integer | 62 mg/m ³ |
| NO_{xslow} (13 % O_2) | NOx emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer | -- |
| OGC_{nom} (13 % O_2) | Hydrocarbon emission at 13 % oxygen content at nominal heat output, given as an integer | 2 mg/m ³ |
| OGC_{part} (13 % O_2) | Hydrocarbon emission at 13 % oxygen content at part load heat output if specified, given as an integer | 5 mg/m ³ |
| OGC_{slow} (13 % O_2) | Hydrocarbon emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer | -- |
| PM_{nom} (13 % O_2) | Particulate matter emission at 13 % oxygen content at nominal heat output, given as an integer | 7 mg/m ³ |
| PM_{part} (13 % O_2) | Particulate matter emission at 13 % oxygen content at part load heat output if specified, given as an integer | 8 mg/m ³ |
| PM_{slow} (13 % O_2) | Particulate matter emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer | -- |
| p_{nom} | Minimum flue draught at nominal heat output, given as an integer | 12 Pa |
| p_{part} | Minimum flue draught at part load heat output if specified, given as an integer | 10 Pa |
| p_{slow} | Minimum flue draught at heat output at slow combustion if specified, given as an integer | -- |
| p_w | Permissible maximum water operating pressure, if applicable, given with 1 decimal | -- |
| d_R | Minimum distances from the rear to combustible material, given as an integer | 100 mm |
| d_S | Minimum distances from the sides to combustible material, given as an integer | 200 mm |
| d_C | Minimum distances from the top to combustible material in the ceiling, given as an integer | 750 mm |
| d_P | Minimum distances from the front to combustible material | 1000 mm |
| d_F | Minimum distances from the front to combustible material in bottom front radiation area, given as an integer | 1500 mm |
| d_L | Minimum distances from the front to combustible material in side front radiation area, given as an integer | 1500 mm |
| d_B | Minimum distances below the bottom (not regarding feet) to combustible material, given as an integer | 0 mm |
| d_{non} | Minimum distances to non-combustible walls, given as an integer | 0 mm |
| s | Protective insulation according to manufacturer's instructions | - |
| e_{lSB} | Consumption of electrical auxiliary energy at standby, given with 3 decimals | 0.002 kW |
| e_{lmax} | Consumption of electrical auxiliary energy at nominal heat output, given with 3 decimals | 0.045 kW |
| e_{lmin} | Consumption of electrical auxiliary energy at part load heat output, given with 3 decimals | 0.020kW |

| | | |
|---|--|---------------------|
| E, f | Power supply voltage, frequency, given as an integer | 230 V, 50 Hz |
| W_{\max} | Maximum electric power input, given as an integer | 360 W |
| T_{snom} | Flue gas outlet temperature at nominal heat output, given as an integer | 197 °C |
| T_{spart} | Flue gas outlet temperature at part load heat output, given as an integer (given for pellet operation only) | 120 °C |
| T_{class} | Chimney designation according to the appropriate chimney standard | T400 G |
| $\phi_{f,g \text{ nom}}$ | Flue gas mass flow at nominal heat output, given with 1 decimal | 4.1 g/s |
| $\phi_{f,g \text{ part}}$ | Flue gas mass flow at part load heat output, given with 1 decimal (given for pellet operation only) | 3.1 g/s |
| V_h | Standing Air Loss, if specified, given with 1 decimal | --- |
| CON or INT | whether the appliance is capable of continuous operation (CON), whether the appliance is capable of intermittent operation (INT) | CON |
| d_{out} | Diameter of the flue gas outlet, given as an integer | 80 mm |
| L, H, W | Overall dimensions of the appliance (length, height, width), given as an integer | 530 x 1100 x 530 mm |
| m | Mass of the appliance, given as an integer (in relation to the building's statics) | 100 kg |
| m_{chim} | Maximum load of a chimney the appliance may carry, given as an integer | 0 kg |

| Model name: | AP411S_0_07 EN; AP411B_0_07 EN, AP411N_0_07 EN, AP411B_2_07 EN AP411N_2_07 EN, AP411S_2_07 EN, AP411N_4_07 EN, AP411N_6_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 | 2.5 kW |
| P_{SHpart} | Part load space heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal | 2.5 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 | -- |
| ζ_{acc} | Flow resistance of the separate heat exchanger as used in the test, for Kachelofen inset appliances only | -- |
| η_{nom} | Appliance efficiency at nominal heat output, given as an integer | 88 % |
| η_{part} | Appliance efficiency at part load heat output, given as an integer | 91 % |
| η_s | Appliance seasonal space heating efficiency at nominal heat output, given as an integer | 84 % |
| EEl | 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 | 50 mg/m ³ |
| CO_{part} (13 % O ₂) | CO emission at 13 % oxygen content at part load heat output if specified, given as an integer | 275 mg/m ³ |
| 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 | 99 mg/m ³ |

| | | |
|--|--|----------------------|
| NO_{xpart} (13 % O_2) | NOx emission at 13 % oxygen content at part load heat output if specified, given as an integer | 62 mg/m ³ |
| NO_{xslow} (13 % O_2) | NOx emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer | -- |
| OGC_{nom} (13 % O_2) | Hydrocarbon emission at 13 % oxygen content at nominal heat output, given as an integer | 2 mg/m ³ |
| OGC_{part} (13 % O_2) | Hydrocarbon emission at 13 % oxygen content at part load heat output if specified, given as an integer | 5 mg/m ³ |
| OGC_{slow} (13 % O_2) | Hydrocarbon emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer | -- |
| PM_{nom} (13 % O_2) | Particulate matter emission at 13 % oxygen content at nominal heat output, given as an integer | 10 mg/m ³ |
| PM_{part} (13 % O_2) | Particulate matter emission at 13 % oxygen content at part load heat output if specified, given as an integer | 8 mg/m ³ |
| PM_{slow} (13 % O_2) | Particulate matter emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer | -- |
| p_{nom} | Minimum flue draught at nominal heat output, given as an integer | 12 Pa |
| p_{part} | Minimum flue draught at part load heat output if specified, given as an integer | 10 Pa |
| p_{slow} | Minimum flue draught at heat output at slow combustion if specified, given as an integer | -- |
| p_w | Permissible maximum water operating pressure, if applicable, given with 1 decimal | -- |
| d_R | Minimum distances from the rear to combustible material, given as an integer | 100 mm |
| d_S | Minimum distances from the sides to combustible material, given as an integer | 200 mm |
| d_C | Minimum distances from the top to combustible material in the ceiling, given as an integer | 750 mm |
| d_P | Minimum distances from the front to combustible material | 1000 mm |
| d_F | Minimum distances from the front to combustible material in bottom front radiation area, given as an integer | 1500 mm |
| d_L | Minimum distances from the front to combustible material in side front radiation area, given as an integer | 1500 mm |
| d_B | Minimum distances below the bottom (not regarding feet) to combustible material, given as an integer | 0 mm |
| d_{non} | Minimum distances to non-combustible walls, given as an integer | 0 mm |
| s | Protective insulation according to manufacturer's instructions | - |
| e_{lSB} | Consumption of electrical auxiliary energy at standby, given with 3 decimals | 0.002 kW |
| e_{lmax} | Consumption of electrical auxiliary energy at nominal heat output, given with 3 decimals | 0.045 kW |
| e_{lmin} | Consumption of electrical auxiliary energy at part load heat output, given with 3 decimals | 0.020kW |

| | | |
|---|--|---------------------|
| E, f | Power supply voltage, frequency, given as an integer | 230 V, 50 Hz |
| W_{\max} | Maximum electric power input, given as an integer | 360 W |
| T_{snom} | Flue gas outlet temperature at nominal heat output, given as an integer | 221 °C |
| T_{spart} | Flue gas outlet temperature at part load heat output, given as an integer (given for pellet operation only) | 120 °C |
| T_{class} | Chimney designation according to the appropriate chimney standard | T400 G |
| $\phi_{f,g \text{ nom}}$ | Flue gas mass flow at nominal heat output, given with 1 decimal | 4.5 g/s |
| $\phi_{f,g \text{ part}}$ | Flue gas mass flow at part load heat output, given with 1 decimal (given for pellet operation only) | 3.1 g/s |
| V_h | Standing Air Loss, if specified, given with 1 decimal | --- |
| CON or INT | whether the appliance is capable of continuous operation (CON), whether the appliance is capable of intermittent operation (INT) | CON |
| d_{out} | Diameter of the flue gas outlet, given as an integer | 80 mm |
| L, H, W | Overall dimensions of the appliance (length, height, width), given as an integer | 530 x 1100 x 530 mm |
| m | Mass of the appliance, given as an integer (in relation to the building's statics) | 100 kg |
| m_{chim} | Maximum load of a chimney the appliance may carry, given as an integer | 0 kg |

| | |
|--------------------|--|
| Model name: | AP411S_0_08 EN; AP411B_0_08 EN, AP411N_0_08 EN, AP411B_2_08 EN AP411N_2_08 EN, AP411S_2_08 EN, AP411N_4_08 EN, AP411N_6_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 | 2.5 kW |
| P_{SHpart} | Part load space heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal | 2.5 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 | -- |
| ζ_{acc} | Flow resistance of the separate heat exchanger as used in the test, for Kachelofen inset appliances only | -- |
| η_{nom} | Appliance efficiency at nominal heat output, given as an integer | 88 % |
| η_{part} | Appliance efficiency at part load heat output, given as an integer | 91 % |
| η_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 | 50 mg/m ³ |
| $CO_{part} (13\ \% O_2)$ | CO emission at 13 % oxygen content at part load heat output if specified, given as an integer | 275 mg/m ³ |
| $CO_{slow} (13\ \% O_2)$ | 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 | 99 mg/m ³ |

| | | |
|--|--|----------------------|
| NO_{xpart} (13 % O_2) | NOx emission at 13 % oxygen content at part load heat output if specified, given as an integer | 62 mg/m ³ |
| NO_{xslow} (13 % O_2) | NOx emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer | -- |
| OGC_{nom} (13 % O_2) | Hydrocarbon emission at 13 % oxygen content at nominal heat output, given as an integer | 2 mg/m ³ |
| OGC_{part} (13 % O_2) | Hydrocarbon emission at 13 % oxygen content at part load heat output if specified, given as an integer | 5 mg/m ³ |
| OGC_{slow} (13 % O_2) | Hydrocarbon emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer | -- |
| PM_{nom} (13 % O_2) | Particulate matter emission at 13 % oxygen content at nominal heat output, given as an integer | 10 mg/m ³ |
| PM_{part} (13 % O_2) | Particulate matter emission at 13 % oxygen content at part load heat output if specified, given as an integer | 8 mg/m ³ |
| PM_{slow} (13 % O_2) | Particulate matter emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer | -- |
| p_{nom} | Minimum flue draught at nominal heat output, given as an integer | 12 Pa |
| p_{part} | Minimum flue draught at part load heat output if specified, given as an integer | 10 Pa |
| p_{slow} | Minimum flue draught at heat output at slow combustion if specified, given as an integer | -- |
| p_w | Permissible maximum water operating pressure, if applicable, given with 1 decimal | -- |
| d_R | Minimum distances from the rear to combustible material, given as an integer | 100 mm |
| d_S | Minimum distances from the sides to combustible material, given as an integer | 200 mm |
| d_C | Minimum distances from the top to combustible material in the ceiling, given as an integer | 750 mm |
| d_P | Minimum distances from the front to combustible material | 1000 mm |
| d_F | Minimum distances from the front to combustible material in bottom front radiation area, given as an integer | 1500 mm |
| d_L | Minimum distances from the front to combustible material in side front radiation area, given as an integer | 1500 mm |
| d_B | Minimum distances below the bottom (not regarding feet) to combustible material, given as an integer | 0 mm |
| d_{non} | Minimum distances to non-combustible walls, given as an integer | 0 mm |
| s | Protective insulation according to manufacturer's instructions | - |
| el_{SB} | Consumption of electrical auxiliary energy at standby, given with 3 decimals | 0.002 kW |
| el_{max} | Consumption of electrical auxiliary energy at nominal heat output, given with 3 decimals | 0.045 kW |

| | | |
|---|--|---------------------|
| $e_{l\min}$ | Consumption of electrical auxiliary energy at part load heat output, given with 3 decimals | 0.020kW |
| E, f | Power supply voltage, frequency, given as an integer | 230 V, 50 Hz |
| W_{\max} | Maximum electric power input, given as an integer | 360 W |
| T_{snom} | Flue gas outlet temperature at nominal heat output, given as an integer | 246 °C |
| T_{spart} | Flue gas outlet temperature at part load heat output, given as an integer (given for pellet operation only) | 120 °C |
| T_{class} | Chimney designation according to the appropriate chimney standard | T400 G |
| $\phi_{f,g \text{ nom}}$ | Flue gas mass flow at nominal heat output, given with 1 decimal | 5 g/s |
| $\phi_{f,g \text{ part}}$ | Flue gas mass flow at part load heat output, given with 1 decimal (given for pellet operation only) | 3.1 g/s |
| V_h | Standing Air Loss, if specified, given with 1 decimal | --- |
| CON or INT | whether the appliance is capable of continuous operation (CON), whether the appliance is capable of intermittent operation (INT) | CON |
| d_{out} | Diameter of the flue gas outlet, given as an integer | 80 mm |
| L, H, W | Overall dimensions of the appliance (length, height, width), given as an integer | 530 x 1100 x 530 mm |
| m | Mass of the appliance, given as an integer (in relation to the building's statics) | 100 kg |
| m_{chim} | Maximum load of a chimney the appliance may carry, given as an integer | 0 kg |

| | |
|--------------------|--|
| Model name: | AP411S_0_09 EN; AP411B_0_09 EN, AP411N_0_09 EN, AP411B_2_09 EN AP411N_2_09 EN, AP411S_2_09 EN, AP411N_4_09 EN, AP411N_6_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 | 2.5 kW |
| P_{SHpart} | Part load space heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal | 2.5 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 | -- |
| ζ_{acc} | Flow resistance of the separate heat exchanger as used in the test, for Kachelofen inset appliances only | -- |
| η_{nom} | Appliance efficiency at nominal heat output, given as an integer | 88 % |
| η_{part} | Appliance efficiency at part load heat output, given as an integer | 91 % |
| η_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 | 50 mg/m ³ |
| $CO_{part} (13\ \% O_2)$ | CO emission at 13 % oxygen content at part load heat output if specified, given as an integer | 275 mg/m ³ |
| $CO_{slow} (13\ \% O_2)$ | 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 | 99 mg/m ³ |

| | | |
|--|--|----------------------|
| NO_{xpart} (13 % O_2) | NOx emission at 13 % oxygen content at part load heat output if specified, given as an integer | 62 mg/m ³ |
| NO_{xslow} (13 % O_2) | NOx emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer | -- |
| OGC_{nom} (13 % O_2) | Hydrocarbon emission at 13 % oxygen content at nominal heat output, given as an integer | 2 mg/m ³ |
| OGC_{part} (13 % O_2) | Hydrocarbon emission at 13 % oxygen content at part load heat output if specified, given as an integer | 5 mg/m ³ |
| OGC_{slow} (13 % O_2) | Hydrocarbon emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer | -- |
| PM_{nom} (13 % O_2) | Particulate matter emission at 13 % oxygen content at nominal heat output, given as an integer | 10 mg/m ³ |
| PM_{part} (13 % O_2) | Particulate matter emission at 13 % oxygen content at part load heat output if specified, given as an integer | 8 mg/m ³ |
| PM_{slow} (13 % O_2) | Particulate matter emission at 13 % oxygen content at heat output at slow combustion if specified, given as an integer | -- |
| p_{nom} | Minimum flue draught at nominal heat output, given as an integer | 12 Pa |
| p_{part} | Minimum flue draught at part load heat output if specified, given as an integer | 10 Pa |
| p_{slow} | Minimum flue draught at heat output at slow combustion if specified, given as an integer | -- |
| p_w | Permissible maximum water operating pressure, if applicable, given with 1 decimal | -- |
| d_R | Minimum distances from the rear to combustible material, given as an integer | 100 mm |
| d_S | Minimum distances from the sides to combustible material, given as an integer | 200 mm |
| d_C | Minimum distances from the top to combustible material in the ceiling, given as an integer | 750 mm |
| d_P | Minimum distances from the front to combustible material | 1000 mm |
| d_F | Minimum distances from the front to combustible material in bottom front radiation area, given as an integer | 1500 mm |
| d_L | Minimum distances from the front to combustible material in side front radiation area, given as an integer | 1500 mm |
| d_B | Minimum distances below the bottom (not regarding feet) to combustible material, given as an integer | 0 mm |
| d_{non} | Minimum distances to non-combustible walls, given as an integer | 0 mm |
| s | Protective insulation according to manufacturer's instructions | - |
| el_{SB} | Consumption of electrical auxiliary energy at standby, given with 3 decimals | 0.002 kW |
| el_{max} | Consumption of electrical auxiliary energy at nominal heat output, given with 3 decimals | 0.045 kW |

| | | |
|-------------------|--|---------------------|
| e_{lmin} | Consumption of electrical auxiliary energy at part load heat output, given with 3 decimals | 0.020kW |
| E, f | Power supply voltage, frequency, given as an integer | 230 V, 50 Hz |
| W_{max} | Maximum electric power input, given as an integer | 360 W |
| T_{snom} | Flue gas outlet temperature at nominal heat output, given as an integer | 270 °C |
| T_{spart} | Flue gas outlet temperature at part load heat output, given as an integer (given for pellet operation only) | 120 °C |
| T_{class} | Chimney designation according to the appropriate chimney standard | T400 G |
| $\phi_{f,g nom}$ | Flue gas mass flow at nominal heat output, given with 1 decimal | 5.4 g/s |
| $\phi_{f,g part}$ | Flue gas mass flow at part load heat output, given with 1 decimal (given for pellet operation only) | 3.1 g/s |
| V_h | Standing Air Loss, if specified, given with 1 decimal | --- |
| CON or INT | whether the appliance is capable of continuous operation (CON), whether the appliance is capable of intermittent operation (INT) | CON |
| d_{out} | Diameter of the flue gas outlet, given as an integer | 80 mm |
| L, H, W | Overall dimensions of the appliance (length, height, width), given as an integer | 530 x 1100 x 530 mm |
| m | Mass of the appliance, given as an integer (in relation to the building's statics) | 100 kg |
| m_{chim} | 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).

2.3 Photos of the tested appliance



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 tappings | 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 | - | NA |
| Tightness related to CO-emission | 5.9.1 | - | NA |
| 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 _x 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_{class} 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_{class} 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 | | AP411S_0_06 EN; AP411B_0_06 EN, AP411N_0_06 EN, AP411B_2_06 EN AP411N_2_06 EN, AP411S_2_06 EN, AP411N_4_06 EN, AP411N_6_06 EN | | |
| Working condition | Description | Parameter | Result | Unit |
| Nominal heat output | Auxiliary electrical energy consumption at nominal heat output * | $e_{l_{max}}$ | 0.045 | kW |
| Part load heat output | Auxiliary electrical energy consumption at part load heat output **, | $e_{l_{min}}$ | 0.020 | kW |
| Standby | Auxiliary electrical energy consumption in standby mode | $e_{l_{SB}}$ | 0.002 | kW |
| Type designation | | AP411S_0_09 EN; AP411B_0_09 EN, AP411N_0_09 EN, AP411B_2_09 EN AP411N_2_09 EN, AP411S_2_09 EN, AP411N_4_09 EN, AP411N_6_09 EN | | |
| Working condition | Description | Parameter | Result | Unit |
| Nominal heat output | Auxiliary electrical energy consumption at nominal heat output * | $e_{l_{max}}$ | 0.045 | kW |
| Part load heat output | Auxiliary electrical energy consumption at part load heat output **, | $e_{l_{min}}$ | 0.020 | kW |
| Standby | Auxiliary electrical energy consumption in standby mode | $e_{l_{SB}}$ | 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 | AP411S_0_06 EN; AP411B_0_06 EN, AP411N_0_06 EN, AP411B_2_06 EN AP411N_2_06 EN, AP411S_2_06 EN, AP411N_4_06 EN, AP411N_6_06 EN | | | |
|--|--|------|------------|-------------|
| Definition | Parameter | Unit | Result | Requirement |
| Appliance efficiency at nominal heat output | η_{nom} | % | 90 | - |
| 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) | % | 1,1 | - |
| 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 | η_s | % | 86 | ≥ 79 |
| Energy efficiency index | EEI | --- | 126 | - |
| Energy efficiency classification | --- | --- | A+ | - |

| Type designation | AP411S_0_09 EN; AP411B_0_09 EN, AP411N_0_09 EN, AP411B_2_09 EN AP411N_2_09 EN, AP411S_2_09 EN, AP411N_4_09 EN, AP411N_6_09 EN | | | |
|--|--|------|------------|-------------|
| Definition | Parameter | Unit | Result | Requirement |
| Appliance efficiency at nominal heat output | η_{nom} | % | 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) | % | 0,7 | - |
| 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 | η_s | % | 84 | ≥ 79 |
| Energy efficiency index | EEI | --- | 124 | - |
| Energy efficiency classification | --- | --- | A+ | - |

6.2 Resume of combustion test results

| | |
|------------------|--|
| Type designation | AP411S_0_06 EN; AP411B_0_06 EN, AP411N_0_06 EN, AP411B_2_06 EN AP411N_2_06 EN, AP411S_2_06 EN, AP411N_4_06 EN, AP411N_6_06 EN |
|------------------|--|

| Definition | Parameter | Unit | Nominal | Partial | Requirement |
|--|---|-------------------|---------|---------|---|
| Fuel consumption | M_h | kg/h | 1,38 | 0,57 | - |
| Minimum refuelling intervals | - | min | 180 | 360 | 2 x 180 / 360 |
| Flue gas mass flow | $\Phi_{f,g}$ | g/s | 4,1 | 3,1 | - |
| Flue gas temperature | T_{fg} | °C | 164 | 100 | - |
| Flue gas outlet temperature | T_{snom} | °C | 197 | 120 | - |
| Flue draught | p_{nom} / p_{part} | Pa | 12 | 12 | $\geq 12 / \geq 6$ or declared value |
| CO ₂ concentration | CO ₂ | Vol.-% | 11,0 | 5,9 | - |
| O ₂ concentration | O ₂ | Vol.-% | 9,5 | 14,8 | - |
| CO concentration | - | ppm | 45 | 170 | - |
| CO emission (13% O ₂) | CO _{nom} (13% O ₂) / CO _{part} (13% O ₂) | mg/m ³ | 39 | 275 | $\leq 300 / -$ |
| CO emission | - | mg/MJ | 25 | 173 | - |
| NO _x concentration | - | ppm | 69 | 23 | - |
| NO _x emission (13% O ₂) | NO _{xnom} (13% O ₂) / NO _{xpart} (13% O ₂) | mg/m ³ | 99 | 62 | $\leq 200 / -$ |
| NO _x emission | - | mg/MJ | 62 | 39 | - |
| OGC concentration | - | ppm | 2 | 2 | - |
| OGC emission (13% O ₂) | OGC _{nom} (13% O ₂) / OGC _{part} (13% O ₂) | mg/m ³ | 2 | 5 | $\leq 60 / -$ |
| OGC emission | - | mg/MJ | 1 | 3 | - |
| PM concentration* | - | mg | 3 | 2 | - |
| PM emission (13% O ₂) | PM _{nom} (13% O ₂) / PM _{part} (13% O ₂) | mg/m ³ | 7 | 8 | $\leq 20 / -$ |
| PM emission | - | mg/MJ | 5 | 5 | - |
| Heat input | - | kW | 6,6 | 2,7 | - |
| Heat output | P_{nom} / P_{part} | kW | 6,0 | 2,5 | - |
| Water heat output | P_{Wnom} / P_{Wpart} | kW | - | - | - |
| Space heat output | P_{SHnom} / P_{SHpart} | kW | 6,0 | 2,5 | - |
| Efficiency | η_{nom} / η_{part} | % | 90,5 | 91,0 | - |

*) Average of 3 samples

| | |
|------------------|--|
| Type designation | AP411S_0_09 EN; AP411B_0_09 EN, AP411N_0_09 EN, AP411B_2_09 EN AP411N_2_09 EN, AP411S_2_09 EN, AP411N_4_09 EN, AP411N_6_09 EN |
|------------------|--|

| Definition | Parameter | Unit | Nominal | Partial | Requirement |
|--|---|-------------------|---------|---------|---|
| Fuel consumption | M_h | kg/h | 2,11 | 0,57 | - |
| Minimum refuelling intervals | - | min | 180 | 360 | 2 x 180 / 360 |
| Flue gas mass flow | $\Phi_{f,g}$ | g/s | 5,4 | 3,1 | - |
| Flue gas temperature | T_{fg} | °C | 225 | 100 | - |
| Flue gas outlet temperature | T_{snom} | °C | 270 | 120 | - |
| Flue draught | p_{nom} / p_{part} | Pa | 12 | 12 | $\geq 12 / \geq 6$ or declared value |
| CO ₂ concentration | CO ₂ | Vol.-% | 13,5 | 5,9 | - |
| O ₂ concentration | O ₂ | Vol.-% | 6,8 | 14,8 | - |
| CO concentration | - | ppm | 14 | 170 | - |
| CO emission (13% O ₂) | CO _{nom} (13% O ₂) / CO _{part} (13% O ₂) | mg/m ³ | 10 | 275 | $\leq 300 / -$ |
| CO emission | - | mg/MJ | 6 | 173 | - |
| NO _x concentration | - | ppm | 75 | 23 | - |
| NO _x emission (13% O ₂) | NO _{xnom} (13% O ₂) / NO _{xpart} (13% O ₂) | mg/m ³ | 87 | 62 | $\leq 200 / -$ |
| NO _x emission | - | mg/MJ | 57 | 39 | - |
| OGC concentration | - | ppm | 2 | 2 | - |
| OGC emission (13% O ₂) | OGC _{nom} (13% O ₂) / OGC _{part} (13% O ₂) | mg/m ³ | 1 | 5 | $\leq 60 / -$ |
| OGC emission | - | mg/MJ | 1 | 3 | - |
| PM concentration* | - | mg | 5 | 2 | - |
| PM emission (13% O ₂) | PM _{nom} (13% O ₂) / PM _{part} (13% O ₂) | mg/m ³ | 10 | 8 | $\leq 20 / -$ |
| PM emission | - | mg/MJ | 7 | 5 | - |
| Heat input | - | kW | 10,2 | 2,7 | - |
| Heat output | P_{nom} / P_{part} | kW | 9,0 | 2,5 | - |
| Water heat output | P_{Wnom} / P_{Wpart} | kW | - | - | - |
| Space heat output | P_{SHnom} / P_{SHpart} | kW | 9,0 | 2,5 | - |
| Efficiency | η_{nom} / η_{part} | % | 88,1 | 91,0 | - |

*) Average of 3 samples

6.3 Temperatures**

| | |
|-------------------------|--|
| Type designation | AP411S_0_09 EN; AP411B_0_09 EN, AP411N_0_09 EN, AP411B_2_09 EN AP411N_2_09 EN, AP411S_2_09 EN, AP411N_4_09 EN, AP411N_6_09 EN |
|-------------------------|--|

| Minimum distances from combustible walls | Unit | Distances at nominal heat output and during temperature safety tests |
|--|------|--|
| Backside distance - d_R | mm | 100 |
| 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 |

| Position | Unit | Maximum temperature reached. Performance test at nominal heat output and temperature safety tests | Requirement delta ambient |
|-----------------------------|------|---|---------------------------|
| Rear - d_R | K | 10 | ≤ 65 |
| Side - d_S | K | 26 | |
| Side radiation area - d_L | K | Historical data not available | |
| Front - d_p | K | 22 | |
| Floor in Front - d_F | K | 13 | |
| Bottom - d_B | K | Historical data not available | |

| Position | Unit | Maximum temperature reached. Performance test at nominal heat output | Requirement delta ambient |
|---|------|--|---------------------------|
| Max- Temperature-rise in fuel hopper | K | 63 | ≤ 65 |
| Max. temperature of operating tools (handle of fuel hopper) | K | 40* | ≤ 35 |
| Max. temperature of operating tools (control panel) | K | 27 | ≤ 35 |

*) tool provided by the manufacturer

**) worst data of horizontal (backside) and upright exhaust flue gas outlet options

6.4 Leakage tests

| AP411B_0_06 EN, AP411S_0_06 EN, AP411B_2_06 EN, AP411S_2_06 EN, AP411B_0_07 EN, AP411S_0_07 EN, AP411B_2_07 EN, AP411S_2_07 EN, AP411B_0_08 EN, AP411S_0_08 EN, AP411B_2_08 EN, AP411S_2_08 EN, AP411B_0_09 EN, AP411S_0_09 EN, AP411B_2_09 EN, AP411S_2_09 EN | | Before mechanical and thermal tests | After mechanical tests | After mechanical and thermal tests | Limit |
|---|------|---|------------------------------|--|-------|
| Leakage test of combustion room at 5 Pa | m³/h | 0,3 | 0,3 | 0,3 | - |
| Leakage test of combustion room at 10 Pa | m³/h | 0,5 | 0,5 | 0,5 | 2 |
| Leakage test of combustion room at 15 Pa | m³/h | 0,7 | 0,7 | 0,7 | - |
| Leakage test of combustion room at 50 Pa | m³/h | 1,5 | 1,6 | 1,6 | 3 |

7 Statement of the test results

The appliance types

AP411B_0_06 EN, AP411N_0_06 EN, AP411S_0_06 EN,
AP411B_2_06 EN, AP411N_2_06 EN, AP411S_2_06 EN,
AP411N_4_06 EN, AP411N_6_06 EN, AP411B_0_07 EN,
AP411N_0_07 EN, AP411S_0_07 EN, AP411B_2_07 EN
AP411N_2_07 EN, AP411S_2_07 EN, AP411N_4_07 EN,
AP411N_6_07 EN, AP411B_0_08 EN, AP411N_0_08 EN,
AP411S_0_08 EN, AP411B_2_08 EN, AP411N_2_08 EN,
AP411S_2_08 EN, AP411N_4_08 EN, AP411N_6_08 EN
AP411B_0_09 EN, AP411N_0_09 EN, AP411S_0_09 EN,
AP411B_2_09 EN, AP411N_2_09 EN, AP411S_2_09 EN,
AP411N_4_09 EN, AP411N_6_09 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 reports no.: K33942023T1 and K33942025E2 according to DIN EN 14785:2006-09 and Corr. 1 DIN EN 14785:2007-10.

8 Test documents

See test reports K33942023T1 and K33942025E2 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 | 14.04.2025 |
| A 02 | Marking plates | |
| A 03 | Declarations of equivalence | 14.04.2025 |