

**Report No. K 3538 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:  
**HP400S\_0\_10/15/16/20/26 EN**

Trademark:  
**PALAZZETTI**

Company:  
**PALAZZETTI LELIO S.p.A.**



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

**This report may only be published and forwarded to third parties in its complete, unabridged form. The publication or dissemination of extracts, summaries, appraisals or any other adaptation and alterations, in particular for advertising purposes, is only permissible with the prior written permission of TÜV Rheinland.**  
**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 report K32822022T1

Applicant/contractor:	<b>PALAZZETTI LELIO S.p.A.</b> Via Roveredo, 103 33080 Porcia (PN) - Italy
Trademark:	<b>PALAZZETTI</b>
Type designations:	<b>HP400S_0_10/15/16/20/26 EN</b>
Appliance description:	Mechanical by wood pellets fed roomheater
Test fuel:	Wood pellets Ø 6 mm, Lmax 30 mm, max humidity 6,71%, Norica, class A1 according to EN 17225-2

**Specified data by applicant**

Type of appliance:	CC50				
Type designations:	HP400S_0_10 EN	HP400S_0_15 EN	HP400S_0_16 EN	HP400S_0_20 EN	HP400S_0_26 EN
Total heat input [kW]:	4,8 - 10,8	4,8 - 15,8	4,8 - 17,4	4,8 - 21,2	4,8 - 27,7
Heat output [kW]	4,6 - 10,3	4,6 - 15,0	4,6 - 16,5	4,6 - 20,0	4,6 - 26,0
Space heat output [kW]:	0,7 - 0,8	0,7 - 0,9	0,7 - 0,9	0,7 - 1,1	0,7 - 1,4
Water heat output:	3,9 - 9,5	3,9 - 14,1	3,9 - 15,6	3,9 - 18,9	3,9 - 24,6
Max. water pressure:	2,5 bar				
Max. water temperature:	82°C				

**Remark:** Room sealed appliances. All the stoves are structurally identical. Only the setting of the fuel supply differs between the Types.

**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 4.4.2, 5.7, 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 3538 2025 B2.

Dated in Cologne, 2025-04-17

 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

## 1 Task

The Test Centre for Energy Appliances was instructed to execute the measurements and calculations on the appliances **HP400S\_0\_10 EN**, **HP400S\_0\_16 EN** and **HP400S\_0\_26 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 4.4.2, 5.7, 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 CMC Centro Misura Compatibilità S.r.l., via della Fisica 20, Thiene (VI) – Italy, on the 23<sup>th</sup> – 24<sup>th</sup> – 25<sup>th</sup> – 26<sup>th</sup> – 30<sup>th</sup> of August 2022.

The data documented in this test report are based on historical data of the initial type testing report no.: K32822022T1 issued according to DIN EN 14785.

The manufacturer declares that the construction, functional- and safety-related components and design of models **HP400S\_0\_10 EN**, **HP400S\_0\_16 EN** and **HP400S\_0\_26 EN** are identical to the one documented in the initial type testing report no.: K32822022T1 (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 3538 2025 T1 and K 3538 2025 B2
HP400S_0_10/15/16/20/26	K32822022T1	HP400S_0_10/15/16/20/26 EN
<b>Additional identical roomheaters from extension reports</b>		
ECOFIRE JACKIE IDRO S10 ECOFIRE JACKIE IDRO S10 N ECOFIRE JACKIE IDRO S15 ECOFIRE JACKIE IDRO S15 N ECOFIRE JACKIE IDRO S20 ECOFIRE JACKIE IDRO S20 ACS ECOFIRE JACKIE IDRO S20 N ECOFIRE JACKIE IDRO S20 N ACS ECOFIRE JACKIE IDRO S26 ECOFIRE JACKIE IDRO S26 ACS ECOFIRE JACKIE IDRO S26 N ECOFIRE JACKIE IDRO S26 N ACS	K33482022Z1	ECOFIRE JACKIE IDRO S10 EN ECOFIRE JACKIE IDRO S10 N EN ECOFIRE JACKIE IDRO S15 EN ECOFIRE JACKIE IDRO S15 N EN ECOFIRE JACKIE IDRO S20 EN ECOFIRE JACKIE IDRO S20 ACS EN ECOFIRE JACKIE IDRO S20 N EN ECOFIRE JACKIE IDRO S20 N ACS EN ECOFIRE JACKIE IDRO S26 EN ECOFIRE JACKIE IDRO S26 ACS EN ECOFIRE JACKIE IDRO S26 N EN ECOFIRE JACKIE IDRO S26 N ACS EN
ECOFIRE DADO IDRO 10 ECOFIRE DADO IDRO 15 ECOFIRE DADO IDRO 20 ECOFIRE DADO IDRO 20 N ECOFIRE DADO IDRO 26 ECOFIRE DADO IDRO 26 ACS	K34042023Z1	ECOFIRE DADO IDRO 10 EN ECOFIRE DADO IDRO 15 EN ECOFIRE DADO IDRO 20 EN ECOFIRE DADO IDRO 20 N EN ECOFIRE DADO IDRO 26 EN ECOFIRE DADO IDRO 26 ACS EN

## **2 Description of the appliance**

### **2.1 Construction**

Residential space heating appliances fired by wood pellets with water heat exchanger for domestic central heating system. The flue discharge for pellet operation is fan assisted. The stoves are equipped with an automatic ignition.

Main features of “HP400S\_0\_xx EN” appliances:

- Star loading system.
- Automatic cleaning system of the burner.
- All appliances are equipped with an air inlet pressure sensor as control for exhaust flue gas fan speed.
- The stoves are optionally equipped with a frontal “ambient” hot air convection blower. The user can adjust the speed of the ambient hot air convection blower from power off to maximum speed.

All the stoves are structurally identical and have the same reduced heat output. Only the nominal load parameters are different.

The type designation HP400S\_0\_15 EN and HP400S\_0\_20 EN are based on families of appliances and was not tested (see Annex G of EN16510-1)

More details in test reports K 3282 2022 T1

## 2.2 General technical specified data of the appliances

Model name:		HP400S_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	10.3 kW
$P_{SHnom}$	Nominal space heat output or a range of outputs (dependent on fuel types), given with 1 decimal	0.8 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	9.5 kW
$P_{part}$	Part load heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	4,6 kW
$P_{SHpart}$	Part load space heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	0,7 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	3,9 kW
$P_{slow}$	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	96 %
$\eta_{part}$	Appliance efficiency at part load heat output, given as an integer	96 %
$\eta_s$	Appliance seasonal space heating efficiency at nominal heat output, given as an integer	92 %
$EEI$	Energy efficiency index, given as an integer	136
$CO_{nom} (13\ \% O_2)$	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	276 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	94 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	65 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	6 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	5 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	4 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	2,5 Bar
<b><math>d_R</math></b>	Minimum distances from the rear to combustible material, given as an integer	100 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	800 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	0.005 kW
<b><math>el_{max}</math></b>	Consumption of electrical auxiliary energy at nominal heat output, given with 3 decimals	0.045 kW

<b><math>e_{lmin}</math></b>	Consumption of electrical auxiliary energy at part load heat output, given with 3 decimals	0.015kW
<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	360 W
<b><math>T_{snom}</math></b>	Flue gas outlet temperature at nominal heat output, given as an integer	93 °C
<b><math>T_{spart}</math></b>	Flue gas outlet temperature at part load heat output, given as an integer (given for pellet operation only)	71 °C
<b><math>T_{class}</math></b>	Chimney designation according to the appropriate chimney standard	T400 G
<b><math>\phi_{f,g nom}</math></b>	Flue gas mass flow at nominal heat output, given with 1 decimal	7,1 g/s
<b><math>\phi_{f,g part}</math></b>	Flue gas mass flow at part load heat output, given with 1 decimal (given for pellet operation only)	4.6 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_{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	662 x 1216 x 626 mm
<b><math>m</math></b>	Mass of the appliance, given as an integer (in relation to the building's statics)	225 kg
<b><math>m_{chim}</math></b>	Maximum load of a chimney the appliance may carry, given as an integer	0 kg

Model name:		HP400S_0_15 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	15 kW
$P_{SHnom}$	Nominal space heat output or a range of outputs (dependent on fuel types), given with 1 decimal	0,9 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	14,1 kW
$P_{part}$	Part load heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	4,6 kW
$P_{SHpart}$	Part load space heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	0,7 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	3,9 kW
$P_{slow}$	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	94 %
$\eta_{part}$	Appliance efficiency at part load heat output, given as an integer	96 %
$\eta_s$	Appliance seasonal space heating efficiency at nominal heat output, given as an integer	91 %
$EEI$	Energy efficiency index, given as an integer	133
$CO_{nom} (13\ \% O_2)$	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	276 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	99 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	65 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	6 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	15 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	4 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	2,5 Bar
<b><math>d_R</math></b>	Minimum distances from the rear to combustible material, given as an integer	100 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	800 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	0.005 kW
<b><math>el_{max}</math></b>	Consumption of electrical auxiliary energy at nominal heat output, given with 3 decimals	0.045 kW

<b><math>e_{lmin}</math></b>	Consumption of electrical auxiliary energy at part load heat output, given with 3 decimals	0.015kW
<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	360 W
<b><math>T_{snom}</math></b>	Flue gas outlet temperature at nominal heat output, given as an integer	115 °C
<b><math>T_{spart}</math></b>	Flue gas outlet temperature at part load heat output, given as an integer (given for pellet operation only)	71 °C
<b><math>T_{class}</math></b>	Chimney designation according to the appropriate chimney standard	T400 G
<b><math>\phi_{f,g nom}</math></b>	Flue gas mass flow at nominal heat output, given with 1 decimal	9,4 g/s
<b><math>\phi_{f,g part}</math></b>	Flue gas mass flow at part load heat output, given with 1 decimal (given for pellet operation only)	4.6 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_{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	662 x 1216 x 626 mm
<b><math>m</math></b>	Mass of the appliance, given as an integer (in relation to the building's statics)	225 kg
<b><math>m_{chim}</math></b>	Maximum load of a chimney the appliance may carry, given as an integer	0 kg

Model name:		HP400S_0_16 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	16,5 kW
$P_{SHnom}$	Nominal space heat output or a range of outputs (dependent on fuel types), given with 1 decimal	0,9 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	15,6 kW
$P_{part}$	Part load heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	4,6 kW
$P_{SHpart}$	Part load space heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	0,7 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	3,9 kW
$P_{slow}$	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	94 %
$\eta_{part}$	Appliance efficiency at part load heat output, given as an integer	96 %
$\eta_s$	Appliance seasonal space heating efficiency at nominal heat output, given as an integer	91 %
$EEI$	Energy efficiency index, given as an integer	133
$CO_{nom} (13 \% O_2)$	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	276 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	99 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	65 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	6 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	15 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	4 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	2,5 Bar
<b><math>d_R</math></b>	Minimum distances from the rear to combustible material, given as an integer	100 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	800 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	0.005 kW
<b><math>e_{lmax}</math></b>	Consumption of electrical auxiliary energy at nominal heat output, given with 3 decimals	0.045 kW
<b><math>e_{lmin}</math></b>	Consumption of electrical auxiliary energy at part load heat output, given with 3 decimals	0.015kW
<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	360 W
<b><math>T_{\text{snom}}</math></b>	Flue gas outlet temperature at nominal heat output, given as an integer	123 °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)	71 °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	10,2 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)	4.6 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	662 x 1216 x 626 mm
<b><math>m</math></b>	Mass of the appliance, given as an integer (in relation to the building's statics)	225 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:		HP400S_0_20 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	20 kW
$P_{SHnom}$	Nominal space heat output or a range of outputs (dependent on fuel types), given with 1 decimal	1,1 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	18,9 kW
$P_{part}$	Part load heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	4,6 kW
$P_{SHpart}$	Part load space heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	0,7 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	3,9 kW
$P_{slow}$	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	94 %
$\eta_{part}$	Appliance efficiency at part load heat output, given as an integer	96 %
$\eta_s$	Appliance seasonal space heating efficiency at nominal heat output, given as an integer	91 %
$EEI$	Energy efficiency index, given as an integer	133
$CO_{nom} (13\ \% O_2)$	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	276 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	99 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	65 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	6 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	15 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	4 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	2,5 Bar
<b><math>d_R</math></b>	Minimum distances from the rear to combustible material, given as an integer	100 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	800 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	0.005 kW
<b><math>e_{lmax}</math></b>	Consumption of electrical auxiliary energy at nominal heat output, given with 3 decimals	0.045 kW
<b><math>e_{lmin}</math></b>	Consumption of electrical auxiliary energy at part load heat output, given with 3 decimals	0.015kW
<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	360 W
<b><math>T_{\text{snom}}</math></b>	Flue gas outlet temperature at nominal heat output, given as an integer	137 °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)	71 °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	11,3 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)	4.6 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	662 x 1216 x 626 mm
<b><math>m</math></b>	Mass of the appliance, given as an integer (in relation to the building's statics)	225 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:		HP400S_0_26 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	26 kW
$P_{SHnom}$	Nominal space heat output or a range of outputs (dependent on fuel types), given with 1 decimal	1,4 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	24,6 kW
$P_{part}$	Part load heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	4,6 kW
$P_{SHpart}$	Part load space heat output or a range of outputs (dependent on fuel types) if specified, given with 1 decimal	0,7 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	3,9 kW
$P_{slow}$	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	94 %
$\eta_{part}$	Appliance efficiency at part load heat output, given as an integer	96 %
$\eta_s$	Appliance seasonal space heating efficiency at nominal heat output, given as an integer	91 %
$EEI$	Energy efficiency index, given as an integer	133
$CO_{nom} (13\ \% O_2)$	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	276 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	99 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	65 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	6 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	15 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	4 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	2,5 Bar
<b><math>d_R</math></b>	Minimum distances from the rear to combustible material, given as an integer	100 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	800 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	0.005 kW
<b><math>e_{lmax}</math></b>	Consumption of electrical auxiliary energy at nominal heat output, given with 3 decimals	0.045 kW
<b><math>e_{lmin}</math></b>	Consumption of electrical auxiliary energy at part load heat output, given with 3 decimals	0.015kW
<b><math>E, f</math></b>	Power supply voltage, frequency, given as an integer	230 V, 50 Hz

$W_{\max}$	Maximum electric power input, given as an integer	360 W
$T_{\text{snom}}$	Flue gas outlet temperature at nominal heat output, given as an integer	165 °C
$T_{\text{spart}}$	Flue gas outlet temperature at part load heat output, given as an integer (given for pellet operation only)	71 °C
$T_{\text{class}}$	Chimney designation according to the appropriate chimney standard	T400 G
$\phi_{\text{f,g nom}}$	Flue gas mass flow at nominal heat output, given with 1 decimal	13,2 g/s
$\phi_{\text{f,g part}}$	Flue gas mass flow at part load heat output, given with 1 decimal (given for pellet operation only)	4.6 g/s
$V_h$	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
$d_{\text{out}}$	Diameter of the flue gas outlet, given as an integer	80 mm
<b>L, H, W</b>	Overall dimensions of the appliance (length, height, width), given as an integer	662 x 1216 x 626 mm
<b>m</b>	Mass of the appliance, given as an integer (in relation to the building's statics)	225 kg
$m_{\text{chim}}$	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
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
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

Requirement acc. to DIN EN 16510-1:2023-02	Clause	Tested Acc.	Requirement complies
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 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 <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		HP400S_0_10 EN			
Working condition	Description	Parameter	Result	Unit	
Nominal heat output	Auxiliary electrical energy consumption at nominal heat output *	el <sub>max</sub>	0.045	kW	
Part load heat output	Auxiliary electrical energy consumption at part load heat output *,**	el <sub>min</sub>	0.015	kW	
Standby	Auxiliary electrical energy consumption in standby mode	el <sub>SB</sub>	0.005	kW	
Type designation		HP400S_0_26 EN			
Working condition	Description	Parameter	Result	Unit	
Nominal heat output	Auxiliary electrical energy consumption at nominal heat output *	el <sub>max</sub>	0.045	kW	
Part load heat output	Auxiliary electrical energy consumption at part load heat output *,**	el <sub>min</sub>	0.015	kW	
Standby	Auxiliary electrical energy consumption in standby mode	el <sub>SB</sub>	0.005	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	HP400S_0_10 EN				
Definition	Parameter	Unit	Result	Requirement	
Seasonal space heating energy efficiency in active mode (%)	$\eta_{s,on}$	%	96		
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	$\eta_s$	%	<b>92</b>	$\geq 79$	
Energy efficiency index	EEI	---	<b>136</b>	-	
Energy efficiency classification	---	---	<b>A++</b>	-	

Type designation	HP400S_0_26 EN				
Definition	Parameter	Unit	Result	Requirement	
Seasonal space heating energy efficiency in active mode (%)	$\eta_{s,on}$	%	94		
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)	%	0,3	-	
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>91</b>	$\geq 79$	
Energy efficiency index	EEI	---	<b>133</b>	-	
Energy efficiency classification	---	---	<b>A++</b>	-	

## 6.2 Resume of combustion test results

Type designation		HP400S_0_10 EN			
Definition	Parameter	Unit	Nominal	Partial	Requirement
Fuel consumption	$M_h$	kg/h	2,23	1,00	-
Minimum refuelling intervals	-	min	180	360	2 x 180 / 360
Flue gas mass flow	$\Phi_{f,g}$	g/s	7,1	4,6	-
Flue gas temperature	$T_{fg}$	°C	78	59	-
Flue gas outlet temperature	$T_{snom}$	°C	93	71	-
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.-%	10,3	7,0	-
O <sub>2</sub> concentration	O <sub>2</sub>	Vol.-%	10,3	13,7	-
CO concentration	-	ppm	87	201	-
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>	82	276	$\leq 300 / -$
CO emission	-	mg/MJ	51	173	-
NO <sub>x</sub> concentration	-	ppm	61	29	-
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>	94	65	$\leq 200 / -$
NO <sub>x</sub> emission	-	mg/MJ	59	41	-
OGC concentration	-	ppm	1	4	-
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>	2	6	$\leq 60 / -$
OGC emission	-	mg/MJ	1	4	-
PM concentration*	-	mg	2	1	-
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>	5	4	$\leq 20 / -$
PM emission	-	mg/MJ	3	3	-
Heat input	-	kW	10,8	4,8	-
Heat output	$P_{nom} / P_{part}$	kW	10,3	4,6	-
Water heat output	$P_{Wnom} / P_{Wpart}$	kW	9,5	3,9	-
Space heat output	$P_{SHnom} / P_{SHpart}$	kW	0,8	0,7	-
Efficiency	$\eta_{nom} / \eta_{part}$	%	96	96	-

\*) Average of 3 samples

Type designation	HP400S_0_16 EN
------------------	----------------

Definition	Parameter	Unit	Nominal	Partial	Requirement
Fuel consumption	$M_h$	kg/h	3,61	1,00	-
Minimum refuelling intervals	-	min	180	360	2 x 180 / 360
Flue gas mass flow	$\Phi_{f,g}$	g/s	10,2	4,6	-
Flue gas temperature	$T_{fg}$	°C	101	59	-
Flue gas outlet temperature	$T_{snom}$	°C	122	71	-
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.-%	11,7	7,0	-
O <sub>2</sub> concentration	O <sub>2</sub>	Vol.-%	8,9	13,7	-
CO concentration	-	ppm	61	201	-
CO emission (13% O <sub>2</sub> )	$CO_{nom} (13\% O_2) / CO_{part} (13\% O_2)$	mg/m <sup>3</sup>	50	276	$\leq 300 / -$
CO emission	-	mg/MJ	113	173	-
NO <sub>x</sub> concentration	-	ppm	73	29	-
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>	98	65	$\leq 200 / -$
NO <sub>x</sub> emission	-	mg/MJ	62	41	-
OGC concentration	-	ppm	2	4	-
OGC emission (13% O <sub>2</sub> )	$OGC_{nom} (13\% O_2) / OGC_{part} (13\% O_2)$	mg/m <sup>3</sup>	2	6	$\leq 60 / -$
OGC emission	-	mg/MJ	1	4	-
PM concentration*	-	mg	2	1	-
PM emission (13% O <sub>2</sub> )	$PM_{nom} (13\% O_2) / PM_{part} (13\% O_2)$	mg/m <sup>3</sup>	5	4	$\leq 20 / -$
PM emission	-	mg/MJ	3	3	-
Heat input	-	kW	17,4	4,8	-
Heat output	$P_{nom} / P_{part}$	kW	16,5	4,6	-
Water heat output	$P_{Wnom} / P_{Wpart}$	kW	15,6	3,9	-
Space heat output	$P_{SHnom} / P_{SHpart}$	kW	0,9	0,7	-
Efficiency	$\eta_{nom} / \eta_{part}$	%	95	96	-

\*) Average of 3 samples

Type designation	HP400S_0_26 EN
------------------	----------------

Definition	Parameter	Unit	Nominal	Partial	Requirement
Fuel consumption	$M_h$	kg/h	3,75	1,00	-
Minimum refuelling intervals	-	min	180	360	2 x 180 / 360
Flue gas mass flow	$\Phi_{f,g}$	g/s	13,2	4,6	-
Flue gas temperature	$T_{fg}$	°C	137	59	-
Flue gas outlet temperature	$T_{snom}$	°C	164	71	-
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.-%	14,6	7,0	-
O <sub>2</sub> concentration	O <sub>2</sub>	Vol.-%	5,8	13,7	-
CO concentration	-	ppm	143	201	-
CO emission (13% O <sub>2</sub> )	$CO_{nom} (13\% O_2) / CO_{part} (13\% O_2)$	mg/m <sup>3</sup>	94	276	$\leq 300 / -$
CO emission	-	mg/MJ	59	173	-
NO <sub>x</sub> concentration	-	ppm	92	29	-
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>	99	65	$\leq 200 / -$
NO <sub>x</sub> emission	-	mg/MJ	62	41	-
OGC concentration	-	ppm	2	4	-
OGC emission (13% O <sub>2</sub> )	$OGC_{nom} (13\% O_2) / OGC_{part} (13\% O_2)$	mg/m <sup>3</sup>	2	6	$\leq 60 / -$
OGC emission	-	mg/MJ	1	4	-
PM concentration*	-	mg	8	1	-
PM emission (13% O <sub>2</sub> )	$PM_{nom} (13\% O_2) / PM_{part} (13\% O_2)$	mg/m <sup>3</sup>	15	4	$\leq 20 / -$
PM emission	-	mg/MJ	9	3	-
Heat input	-	kW	27,7	4,8	-
Heat output	$P_{nom} / P_{part}$	kW	26,0	4,6	-
Water heat output	$P_{Wnom} / P_{Wpart}$	kW	24,6	3,9	-
Space heat output	$P_{SHnom} / P_{SHpart}$	kW	1,4	0,7	-
Efficiency	$\eta_{nom} / \eta_{part}$	%	94	96	-

\*) Average of 3 samples



### 6.3 Temperatures

<b>Type designation</b>	<b>HP400S_0_10 EN, HP400S_0_16 EN, HP400S_0_26 EN</b>
-------------------------	---

<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	100
Sides distance - $d_S$	mm	200
Sides distance radiation area - $d_L$	mm	Historical data not available
Front distance - $d_p$	mm	800
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	5	≤ 65
Side - $d_S$	K	6	
Side radiation area - $d_L$	K	Historical data not available	
Front - $d_p$	K	10	
Floor in Front - $d_F$	K	4	
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	22	≤ 65
Operation components	K	14	≤ 35

#### 6.4 Leakage tests

<b>HP400S_0_10 EN, HP400S_0_16 EN, HP400S_0_26 EN</b>		<b>Before mechanical and thermal tests</b>	<b>After mechanical tests</b>	<b>After mechanical and thermal tests</b>	<b>Limit</b>
Leakage test of combustion room at 5 Pa	m <sup>3</sup> /h	< 0,4	< 0,4	< 0,4	-
Leakage test of combustion room at 10 Pa	m <sup>3</sup> /h	0,4	0,4	0,4	2
Leakage test of combustion room at 15 Pa	m <sup>3</sup> /h	0,6	0,6	0,6	-
Leakage test of combustion room at 50 Pa	m <sup>3</sup> /h	1,6	1,6	1,6	3



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

The appliance types

**HP400S\_0\_10 EN**

**HP400S\_0\_16 EN**

**HP400S\_0\_26 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 no.: K32822022T1 according to DIN EN 14785:2006-09 and Corr. 1 DIN EN 14785:2007-10.

## 8 Test documents

See test report K32822022T1 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	24.02.2025
A 02	Marking plates	
A 03	Declarations of equivalence	24.02.2025