

INITIAL TYPE TEST REPORT

30-17990/2/T

Revision 0

Product: Pellet stove

Type designation: HP51-R

Customer: **SCHENGER GmbH**
Ochsenweide 8
71543 Wüstenrot
GERMANY

Manufacturer: **SCHENGER GmbH**
Ochsenweide 8
71543 Wüstenrot
GERMANY

Issue date: 2025-11-07

Tested by: Ing. Radek Machara

Reviewed and approved by: Ing. Radek Machara

Test Report approved by: Milan Holomek
Manager

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I. Description of product tested

Tested product(s) (prototype) - type designation HP51-R is(are) intended for heating of living and social rooms, is for common environment. The steel combustion chamber is lined with heat-resistant fittings. The deflector is made of heat-resistant material. The regulation of the supply of combustion air is controlled by a lever under the stoking door and with front glass wall. The exhaust port is from above.

A detailed description is given in the operating and installation instructions.

Basic technical specifications of product(s):

Type	Main dimensions (mm)			Nominal heat output (kW)	Fuel consumption (kg/h) wood pellets	Diameter of flue gas connector (mm)	Operating draught (Pa)
	Height	Width	Depth				
HP51-R	1041	572	597	8.8	2.0	80	12

II. Sample tested

SZU reg. no.	Product name	Date of submission
-	HP51-R	-

The visual inspection, tests and verification were carried out at the test station of TÜV SÜD Industrie Service GmbH, Feuerungs- und Wärmetechnik-

The tests were performed using measuring and testing equipment with valid calibration.

The product has been selected in accordance with ČSN EN 16510-1 ed. 2:2024, supporting the choice of appliance(s) tested enabling it (them) to represent the family of appliances covered by the type test report with reference to the characteristics detailed in Table G.1

III. Measuring and test equipment:

No.	Name	Inventory number:
1.	Barometer	022435/P2
2.	Thermometer – ambient	022435/T2
3.	Hygrometer	022435/T2
4.	Draught gauge	118510
5.	Scale	022333
6.	THERM 2285.2	021763
7.	Analytical scale Sartorius	021458
8.	Calliper	ME 543
9.	Combustion product analyser	022317
10.	Elemental analyser	022305
11.	Gravimat	022380

Note: X ... Verified with the use of calibration standards prior to measurement
 + ... ± 5 % of measured values

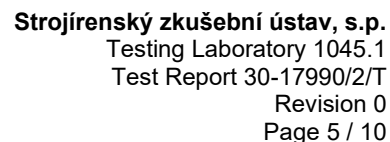
Measurement uncertainty:

Parameter measured	Uncertainty of measurement
Gas analysis	
CO	≤ 6 % of the limit values in Table 8
CO ₂	≤ 2 %
O ₂	≤ 2 %
Temperature	
Flue gas	≤ 5 K
Ambient room	≤ 1.5 K
Water	≤ 0.5 K
Surface	≤ 2 K
Touchable Area	≤ 2 K
Water flow	≤ 0.005 m ³ /h
Static pressure	≤ 2 Pa
Mass	
- fuel consumption	± 20 g
- residue	± 5 g
- fuel load ≤ 7.5 kg	± 5 g
> 7.5 kg	± 10 g

Note: The stated extended measurement uncertainties are calculated as a factor of the measurement uncertainty and the extension coefficient $k=2$, corresponding to the coverage certainty of 95% as regards standard classification.
 If a statement of conformity is provided, the decision rule pursuant to ILAC-G8:09/2019, Art. 4.2.1 - binary statement for the simple acceptance rule shall apply.

IV. Methods, results of tests and verifications

No.	Test objective	Requirement	Method of test	Test evaluation/ verification *
1.	Mechanical resistance and stability	ČSN EN 16510-2-6:2025, Art. 4.1	ČSN EN 16510-1 ed.2:2024, Art. A.4.10.2	+
2.	Safety in case of fire	ČSN EN 16510-2-6:2025, Art. 4.2 ČSN EN 16510-1 ed.2:2024, Art. 5.6	ČSN EN 16510-1 ed.2:2024, Art. A.2.2, A.4.10	+
3.	Hygiene, health and the environment	ČSN EN 16510-2-6:2025, Art. 4.3, 4.4, 4.5, 4.6	ČSN EN 16510-1 ed.2:2024, Art. A.4, A.4.1, A.4.2, A.4.3, A.4.4, A.4.6, A.4.7, A.4.8	+
4.	Safety and accessibility in use	ČSN EN 16510-2-6:2025, Art. 4.7.2, 4.7.4, 4.7.6, 4.7.3, 4.7.5, 4.7.7, 4.7.8 ČSN EN 16510-1 ed.2:2024, Art. 5.5	ČSN EN 16510-1 ed.2:2024, Art. A.4.7, A.4.8, A.4.10.4,	+
5.	Energy economy and heat retention	ČSN EN 16510-2-6:2025, Art. 4.8.1, 4.8.2, 4.8.3, 4.8.4, 4.8.5, 4.8.6, 4.8.7, 4.8.8, 4.8.9, 4.8.10, 4.8.11	ČSN EN 16510-1 ed.2:2024, Art. A.4.7, A.4.8, A.6.2.1	+
*) Evaluation / statement of conformity: + Requirement fulfilled - Requirement not fulfilled 0 Not applicable x Not evaluated				



Variables measured and calculated: Rated capacity Nominal heat output	Unit	Tests n.			Limit according to: ČSN EN 16510-2-6:2025
		1	2	Average	
Fuel used: pellet	mm	6 mm			
Combustion air setting – primary/secondary	mm	Automat			
Fuel consumption	kg/hour	2.0	2.0	2.0	
Achieved input	kW	9.5	9:6	9.5	
Ambient temperature in the room and combustion air temperature	°C	21	23	22	
Chimney draught	Pa	12	12	12	
Combustion product average temperature	°C	142	145	144	
Flue gas outlet temperature	°C	173			
CO ₂	%	8.8	9.1	8.9	
CO – measured	%	-	-	-	
CO – at O ₂ = 13%	%	0.005	0.006	0.006	
CO – at O ₂ = 13%	mg/Nm ³	57	80	69	≤ 300
CO – at O ₂ = 0%	mg/MJ	38	54	46	
NO _x – measured	ppm	39	51	45	
NO _x – at O ₂ =13 %	mg/Nm ³	70	89	80	≤ 200
NO _x – at O ₂ = 0%	mg/MJ	47	60	54	
OGC– measured	ppm	1	1	1	
OGC– at O ₂ = 13 %	mg/Nm ³	2	2	2	≤ 60
OGC– at O ₂ = 0%	mg/MJ	1	1	1	
Chimney loss	%	8.3	8.2	8.3	
Loss of gas underburning	%	<0.1	<0.1	<0.1	
Loss of solid underburning	%	0.2	0.2	0.2	
Efficiency	%	91.5	91.5	91.5	
Total heat capacity achieved	kW	8.8	8.7	8.8	
Water heat output	kW	-	-	-	
Uncertainty of total heat output	kW	0.29	0.29	0.29	
Nominal capacity	kW	8.8			
Mass flow rate of dry combustion products	g/s	7.5	7.3	7.4	

CO ₂	%	8.8	9.1	8.9	
Dust– measured	mg/Nm ³	17	13	15	
Dust– at O ₂ = 13 %	mg/Nm ³	14	11	13	≤ 20
Dust– at O ₂ = 0%	mg/MJ	10	7	9	

Test objective:	Hygiene, health and the environment Safety and accessibility in use Energy economy and heat retention
Exact name of the test procedure:	1.4*, 1.5* - Tests of tightness, pressure resistance, thermal technical parameters, combustion efficiency, safety functions
Test method:	ČSN EN 16510-1 ed. 2:2024, čl. A.4, A.4.1, A.4.2, A.4.3, A.4.4, A.4.5, A.4.6, A.4.8, A.4.10.4, A.6.2.1
Sample tested:	HP51-R
Measuring equipment used:	see Chapter III
Date of test:	2022-02-23
Ambient conditions:	21 °C 30 % 98,1 kPa Temperature Relative humidity Barometric pressure

Variables measured and calculated: Rated capacity Part load heat output	Unit	Tests n.	Limit according to:
		1	ČSN EN 16510-2-6:2025
Fuel used: pellet	mm	6 mm	
Combustion air setting – primary/secondary	mm	Automat	
Fuel consumption	kg/hour	0.9	
Achieved input	kW	4.3	
Ambient temperature in the room and combustion air temperature	°C	21	
Chimney draught	Pa	10	
Combustion product average temperature	°C	67	
Flue gas outlet temperature	°C	80	
CO ₂	%	7.3	
CO – measured	%	-	
CO – at O ₂ = 13%	%	0.010	
CO – at O ₂ = 13%	mg/Nm ³	118	≤ 300
CO – at O ₂ = 0%	mg/MJ	80	
NO _x – measured	ppm	42	
NO _x – at O ₂ = 13 %	mg/Nm ³	91	≤ 200
NO _x – at O ₂ = 0%	mg/MJ	61	
OGC – measured	ppm	3	
OGC – at O ₂ = 13 %	mg/Nm ³	6	≤ 60
OGC – at O ₂ = 0%	mg/MJ	4	
Chimney loss	%	3.5	
Loss of gas underburning	%	0.1	
Loss of solid underburning	%	0.2	
Efficiency	%	96.2	
Total heat capacity achieved	kW	4.2	
Water heat output	kW	-	
Uncertainty of total heat output	kW	0.29	
Nominal capacity	kW	4.2	
Mass flow rate of dry combustion products	g/s	4.2	

CO ₂	%	7.3	
Dust – measured	mg/Nm ³	14	
Dust – at O ₂ = 13 %	mg/Nm ³	15	≤ 20
Dust – at O ₂ = 0%	mg/MJ	10	

Energy efficiency			Limit according to: ČSN EN 16510-2-6:2025
At nominal heat output (e_{lmax})	kW	0.05	
At minimum heat output (e_{lmin})	kW	0.04	
In standby mode ($e_{l_{sb}}$)	kW	0.003	
Permanent pilot flame power requirement (P_{pilot})	kW	0	
correction factor F2	%	7	
correction factor F3	%	2	
correction factor F4	%	1.3	
correction factor F5	%	0	
Seasonal space heating energy efficiency η_s	%	89.2	≥ 79
Energy Efficiency Index (EEI)	-	130.37	
Energy Efficiency Class	-	A++	

Fuel analysis

Type of fuel	Wood pellets		
Analytical indicator	Symbol	Unit	Value
Gross calorific value	q_{gr}	kJ.kg^{-1}	-
Net calorific value	q_{net}	kJ.kg^{-1}	17200
All water in original state	W	% of mass	6.2
Ash	A	% of mass	0.3
Carbon	C	% of mass	48.0
Hydrogen	H	% of mass	5.8
Nitrogen	N	% of mass	0.2
Sulphur	S	% of mass	0.1
Chlorine	Cl	% of mass	-
Oxygen – calculation for 100%	O	% of mass	39.6
CO _{2max}	CO _{2max}	% of mass	-

Note: Sample in the original condition

Temperature rise of the operating components

Measured point	Material	Temperature rise (K)	
		Measured	Limit
Door handle	Metal	➤ 100 *)	35
Handle of hopper	metal	54	35

Note: *) A suitable glove is regarded as a tool.

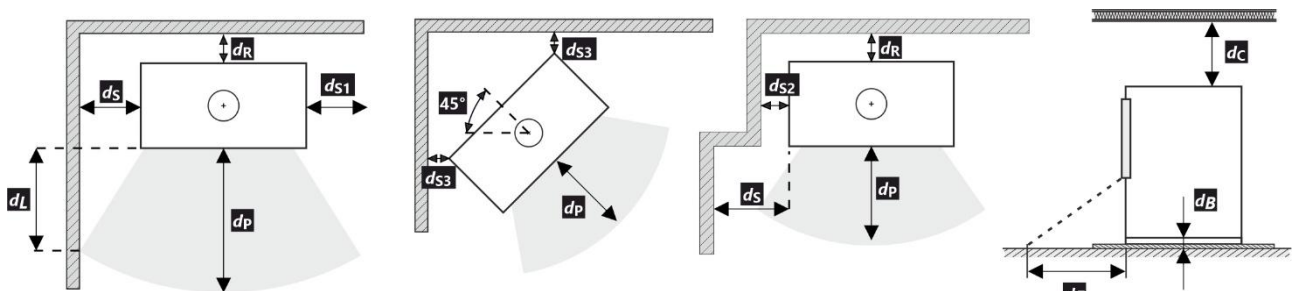
Test objective:	Safety in case of fire Mechanical resistance and stability
Exact name of the test procedure:	1.4*, 1.5* - Tests of tightness, pressure resistance, thermal technical parameters, combustion efficiency, safety functions
Test method:	ČSN EN 16510-1 ed. 2:2024, Art. A.2.2, A.4.10; (ČSN EN 16510-2-6:2025, Art. A.4.10.4)
Sample tested:	HP51-R
Measuring equipment used:	see Chapter III
Date of test:	2022-02-8

Ambient conditions:	22 °C	30 %	99.8 kPa
	Temperature	Relative humidity	Barometric pressure

Flue draught (Pa) 12 Pa
Maximum temperature rise in the pellet hopper 54 °C.
Load bearing capacity during thermal overload test 0 kg
Maximum reached flue gas temperature 144 °C

Protection of combustible materials	Minimum distances to combustible materials, in mm		Maximum temperature rise, in K
	bottom (d_B)	20	30
	floor in front (d_F)	1000	53
	ceiling (d_C)	-	-
	rear (d_R)	150	50
	side (d_S)	180	50
	side radiation area (d_L)	-	-
	adjacent combustible materials (e.g. furniture) (d_P)	-	-
	material type and thickness of protective insulation material (s), (if any)	-	-

Note: The tables show the highest values measured.
Limit is 65 K above room temperature at the hottest point of any adjacent walls.
After the overload tests, there was no permanent deformation or damage to the appliance.



Reviewed and approved by: Ing. Radek Machara

V. A list of referenced documents

- Order of 2025-06-25 (Order reg. no. B-85506, received on 2025-07-03)
- Contract B-85506/30
- Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC
- ČSN EN 16510-1 ed. 2:2024 - Residential solid fuel burning appliances - Part 1: General requirements and test methods
- ČSN EN 16510-2-6:2025 - Residential solid fuel burning appliances - Part 2-6: Mechanically by wood pellets fed roomheaters, inset appliances and cookers
- Technical documentation (drawings, manual)

– End of Test Report –