



**Strojírenský zkušební ústav, s.p.**  
**(Engineering Test Institute, Public Enterprise)**  
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Testing Laboratory 1045.1 accredited by the CAI pursuant to ČSN EN ISO/IEC 17025:2018

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## TEST REPORT

### 30-17274/2/T

**Product:** Fireplace stove for wood

**Type designation:** RAYHA

**Customer:** MCZ GROUP SPA  
Via La Croce, 8  
33074 Vigonovo di Fontanafredda  
ITALY

**Manufacturer:** MCZ GROUP SPA  
Via La Croce, 8  
33074 Vigonovo di Fontanafredda  
ITALY

**Report issue date:** 2024-11-10

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

<b>Test objective:</b>	<b>Hygiene, health and the environment Safety and accessibility in use Energy economy and heat retention</b>		
<b>Exact name of the test procedure:</b>	1.4*, 1.5* - Tests of tightness, pressure resistance, thermal technical parameters, combustion efficiency, safety functions		
<b>Test method:</b>	ČSN EN 16510-1 ed. 2:2023, Art. A.4, A.4.1, A.4.2, A.4.3, A.4.4, A.4.6, A.4.7, A.4.10.4, A.6.2.1		
<b>Sample tested:</b>	RAYHA		
<b>Measuring equipment used:</b>	see Chapter III		
<b>Date of test:</b>	2018-02-06		
<b>Ambient conditions:</b>	24.0 °C	18.0 %	98.69 kPa
	Temperature	Relative humidity	Barometric pressure

Variables measured and calculated: Nominal heat output	Unit	Tests n.				Limit according to: ČSN EN 16510-2-1:2023
		1	2	3	Average	
Fuel used: Beech wood	mm	250				
Combustion air setting	%	50/100				
Fuel consumption	kg/hour	2.47	2.49	2.65	2.53	
Achieved input	kW	10.97	11.02	11.75	11.24	
Ambient temperature in the room and combustion air temperature	°C	24	24	24	24	
Chimney draught	Pa	13	13	12	13	
Combustion product average temperature	°C	340	352	353	349	
Flue gas outlet temperature	°C	419				
CO <sub>2</sub>	%	10.17	10.69	10.31	10.39	
CO – measured	%	0.0508	0.0325	0.0346	0.0393	
CO – at O <sub>2</sub> = 13 %	%	0.0393	0.0239	0.0262	0.0298	
CO – at O <sub>2</sub> = 13 %	mg/Nm <sup>3</sup>	492	299	327	373	≤ 1500
CO – at O <sub>2</sub> = 0 %	mg/MJ	320	194	213	242	
NO <sub>x</sub> – measured	ppm	88	92	91	90	
NO <sub>x</sub> – at O <sub>2</sub> = 13 %	mg/Nm <sup>3</sup>	140	138	141	140	≤ 200
NO <sub>x</sub> – at O <sub>2</sub> = 0 %	mg/MJ	91	90	92	91	
OGC – measured	ppm	15	19	15	17	
OGC – at O <sub>2</sub> = 13 %	mg/Nm <sup>3</sup>	22	26	21	23	≤ 120
OGC – at O <sub>2</sub> = 0 %	mg/MJ	14	17	14	15	
Chimney loss	%	23.47	23.41	24.22	23.70	
Loss of gas underburning	%	0.31	0.19	0.21	0.24	
Loss of solid underburning	%	0.50	0.50	0.50	0.50	
Efficiency	%	75.72	75.90	75.07	75.56	
Total heat capacity achieved	kW	8.31	8.37	8.82	8.50	
Uncertainty of total heat output	kW	0.35	0.35	0.37	0.36	
Nominal capacity	kW	7.8				
Mass flow rate of dry combustion products	g/s	7.1	6.8	7.5	7.1	

CO <sub>2</sub>	%	9.9	10.1	10.3	10.1	
Dust – measured	mg/Nm <sup>3</sup>	57.8	27.5	47.6	44.3	
Dust – at O <sub>2</sub> = 13 %	mg/Nm <sup>3</sup>	46.0	21.0	36.0	34.3	
Dust – at O <sub>2</sub> = 0 %	mg/MJ	29.1	13.2	23.4	21.9	