

Report No. K 1930 2024 E8
Residential space heating appliances fired by wood pellets
Supplement to type testing
DIN EN 14785

Model:
PF 912 S

Trademark:
Jøtul

Company:
Jøtul France SAS



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. 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.

Supplement to type testing reports
K 1930 2020 E4, K 3192 2021 Z1
Residential space heating appliances fired by wood pellets
DIN EN 14785: September 2006
Correction 1 DIN EN 14785: 10/2007

Applicant/contractor:	Jøtul France SAS Chemin du Jubin, 3 69574 Dardilly - France
Trademark:	Jøtul
Appliance description:	Residential space heating appliance fired by wood pellets without water heat exchanger, with fan assisted flue discharge and with internal fuel hopper.
Model designation:	PF 912 S
Total heat input:	3,5 kW – 8,9 kW
Total heat output:	3,2 kW – 8,0 kW
Water heat output:	Not applicable.
Test fuel:	Wood pellets Ø 6 mm, Lmax 30 mm, max humidity 6,92%, Norica, class A1 according to EN 17225-2.
Type of fuel charging:	Automatic load.
Flue spigot:	80 mm.

Remarks: -

Test result:

The technical requirements cl. 4-8 of the above-mentioned standard are fulfilled. The local applicable installation conditions have to be observed.

The presumption of conformity with the relevant European Directives could only be confirmed by full compliance with Annex ZA.

Additional details are documented on reports K 1930 2020 E4, K 3192 2021 Z1.

Dated in Cologne, 2024-02-22
667 / pom

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. M. Reibold

Residential space heating appliances fired by wood pellets, Initial Type Test in accordance with the regulation 305/2011 conformity certification system no. 3

1. Task definition

History of the initial type testing report K 1930 2016 T1

The Test Centre for Energy Appliances was instructed to execute the initial type testing on the appliance **Olimpia** for the operation with wood pellets according to DIN EN 14785:2006, clauses 4-8.

The electrical safety, cl. 5.9. of the standard, was not a part of this initial type testing.

The practical tests were carried out in the laboratory in Thiene (VI) - Italy from the 26th of September to the 28th of September 2016.

History of the 1st supplement testing report K 1930 2017 E3

The company Ravelli S.p.A. was renamed to the new company name Aico S.p.A. starting from 01.01.2017.

The manufacturer Aico S.p.A. maintains a permanent system of FPC (Factory Production Control) and identifies the responsibility areas to ensure that the products introduced in the market comply with the declared characteristics (see clause 9.3 of the EN14785) under his own responsibility.

Ravelli S.p.A. and Aico S.p.A. ensures that modifications on the above-mentioned product **Olimpia** have not been carried out.

All other test results of the initial type testing report K19302016T1 are still valid.

History of the 2nd supplement testing report K 1930 2020 E4

The manufacturer carried out the following modifications on the basic appliance **Olimpia**:

- different external cladding – see annexes A14 and A15.
- additional convection air fan, which can be enabled/disabled by the user – see annex A10.
- optional hot air canalization blower – see annex A11.
- new main control board – see annexes A08 and A13.
- new brushless auger motor – see annex A09.
- optional connection for concentric flue gas system (vertical outlet) – see annex A16.

This new modified model is placed in the market with the new name designation of **Elettra**. Furthermore, the manufacturer has also introduced the model **Olimpia 911 S**. This stove is identical to **Olimpia** appliance (see test report K19302016T1), except for:

- different external cladding – see annexes A23 and A24.
- addition of an hot air canalization blower – see annex A19.
- new main control board – see annex A20.
- different auger motor – see annex A18.
- optional connection for concentric flue gas system (vertical outlet) – see annex A25.

The practical tests were carried out in the laboratory in Thiene (VI) - Italy on the 30th of April, on the 5th of May, on the 27th and on the 28th of July 2020.

History of the renaming test report K 3192 2021 Z1

The Test Centre for Energy Appliances was instructed to execute a renaming of the following appliances:

Basic: Aico S.p.A. Via Kupfer, 31 25036 Palazzolo sull'Oglio (BS) - Italy New address: Aico S.p.A. Via Consorzio Agrario 3/D, 25032 Chiari (BS) – Italy Report: K19302020E4	Renaming: Jøtul France SAS Chemin du Jubin, 3 69574 Dardilly – France Report: K31922021Z1
Trademark: Ravelli	Trademark: Jøtul
Model: Olimpia 911 S	Model: PF 911 S

History of the 3rd supplement testing report K 1930 2024 E8

The manufacturer adds a new model to the K19302016T1, K19302017E3, K19302020E4 and K31922021Z1 reports family, named **PF 912 S**, with the following characteristics:

- _different external design;
- _different control board / display;
- _different fuel motor.

The Test Centre for Energy Appliances was instructed to execute a comparison test at nominal load power to verify that combustion results of the new appliance are similar to the appliances listed on the above – mentioned test reports.

The comparison measurements showed that no significant differences can be observed on PF 912 S model (see par. “3.1 Comparison test at nominal load power”). As result of the comparison, all the combustion data measured or calculated on K19302016T1, K19302017E3, K19302020E4 and K31922021Z reports, are assigned also to the new model PF 912 S of the present report.

The practical tests were carried out by the laboratory DEKRA Testing and Certification S.r.l, via della Fisica 20, Thiene (VI) – Italy on 22th of January 2024.

2. Description of the appliance

2.1 Construction

Residential room sealed heating appliance fired by wood pellets without water heat exchanger for domestic central heating system. The flue discharge for pellet operation is fan assisted. The stove is equipped with an automatic ignition and with a system for the automatic cleaning of the burner. The stove is suitable for both horizontal/rear and upright flue gas connection. The appliance is fitted with a convection air fan, which may be enabled/disabled by the user. Additionally, an optional hot air canalization blower may be installed on the stove. Room sealed appliance for Germany (typ FC62x) and for France requirements (acc. to EN613, cl. 6.2.2.2 and to prEN 16510-2-6:2016).

2.2 General declared technical data of the pellet appliance

Model name:	PF 912 S
Nominal power:	NominalPower kW
Fuel:	Wood pellets Ø 6 mm, Lmax 30 mm, class A1 according to EN 17225-2
Total dimension: Height x Width x Depth	1091 x 966 x 435 mm
Distance from adjacent combustible materials:	Backside distance: 100 mm Side distance: 150 mm Front distance: 800 mm
Max water pressure:	Not applicable.
Max water temperature:	Not applicable.

2.3 Photos of the tested appliance



3. Testing

3.1 Comparison test at nominal load power

The Test Centre for Energy Appliances was instructed to execute a nominal load comparison test between PF 911 S and PF 912 S appliances. between the two options; as listed in the following table:

Model	Input (kW)	Output (kW)	Efficiency (%)	CO* (mg/m ³)	NOx* (mg/m ³)	CnHm* (mg/m ³)
PF 911 S	8,9	8,0	90,0	51	159	2
PF 912 S	8,9	8,1	91,3	54	130	1

*) Concentration at 13% O₂

As result of the comparison, all data measured or calculated for PF 911 S appliance are assigned also to PF 912 S appliance.

3.2 Resume of test results

PF 912 S		Nominal*	Partial*	Requirement
Mass of the test fuel fired hourly	kg/h	1,84	0,72	-
Flue gas mass flow	g/s	5,48	3,23	-
Flue gas temperature	°C	174,5	98,3	-
Flue draught	mbar	0,10	0,10	0,12/0,10 +/-0,02 or declared value
CO ₂ -concentration	Vol.-%	11,7	7,5	-
O ₂ -concentration	Vol.-%	8,9	13,2	-
CO-concentration	ppm	62	278	-
CO-emission (at 13%-O ₂)	mg/m ³	51	355	≤ 500/750
CO-emission	mg/kWh	122	850	-
CO-emission	mg/MJ	34	236	-
NO _x -concentration	ppm	118	80	-
NO _x -emission (at 13%-O ₂)	mg/m ³	159	169	-
NO _x -emission	mg/kWh	382	404	-
NO _x -emission	mg/MJ	106	112	-
CnHm-concentration measured acc. CEN/TS 15883	ppm	2	3	-
CnHm-emission (at 13%-O ₂)	mg/m ³	2	5	-
CnHm-emission	mg/kWh	6	11	-
CnHm-emission	mg/MJ	2	3	-
Dust concentration** measured acc. to CEN/TS 15883	mg	8	5	-
Dust emission (at 13%-O ₂)	mg/m ³	19	17	-
Dust emission	mg/kWh	45	42	-
Dust emission	mg/MJ	12	12	-
Heat input	kW	8,9	3,5	-
Nominal heat output	kW	8,0	3,2	-
Water heat output	kW	-	-	-
Space heat output	kW	8,0	3,2	-
Efficiency	%	90,0	92,6	≥ 75/70

*) Values are taken from the supplement report n. K19302020E4.

**) Average of 3 samples, based on separate calculation.

4. Statement of the test results

The appliance

PF 912 S

of the company

Jøtul France SAS

with trademark

Jøtul

fulfils the requirements acc. to
EN 14785:2006, clauses 4-8.

The presumption of conformity with the relevant European Directives respectively Regulations could only be confirmed by full compliance with Annex ZA.

Additional details are documented on the Type Test reports n. K19302016T1, K19302017E3, K19302020E4 and K31922021Z1.

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5. Test documents

Appendix 1 Fuel Data

Appendix 2 Test results

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 03	Type label	-
A 04	Extension declaration	18/01/2024
A 05	Instruction and installation manual	JØTUL PF 912 S
A 06	List of electrical components	18/01/2024
A 07	Gear motor Mellor	FB1439
A 08	Safety electrical circuit	M31
A 09	Setup parameters	-
A 10	Overview drawings	90037DJ01

Appendix 1

Fuel data for the comparison test

Test at nominal load											
Verbrennungsrechnung aus der Elementaranalyse											
nach DIN EN 304 Teil 2, Ausgabe 01/2004											
nach DIN 4702 Teil 2, Ausgabe 3/1990											
Analysis from:			25/07/2023			Analysis No.			Fuel sampling date:		
Fuel:			wood pellets			2311641-002			04/07/23		
Bestandteil im Brennstoff	Stoffanteil	Sauerstoffbedarf		Abgasbestandteile aus Brennstoff in Nm ³ /kg Brennstoff							
		in Nm ³ je kg Bestandteil	in Nm ³ je kg Brennstoff	CO ₂		SO ₂		H ₂ O		N ₂	
	Gew. %		Stoffanteil x Sauerstoff- Bedarf	in Nm ³ je kg Bestandteil	in Nm ³ je kg Brennstoff	in Nm ³ je kg Bestandteil	in Nm ³ je kg Brennstoff	in Nm ³ je kg Bestandteil	in Nm ³ je kg Brennstoff	in Nm ³ je kg Bestandteil	in Nm ³ je kg Brennstoff
c	44,700	1,860	0,831	1,850	0,8270	-	-	-	-	-	-
s	0,007	0,700	0,000	-	-	0,680	0,0000	-	-	-	-
h	5,460	5,550	0,303	-	-	-	-	11,100	0,6061	-	-
n	0,100	-	-	-	-	-	-	-	-	0,80	0,0008
o	42,600	-0,700	-0,298	-	-	-	-	-	-	-	-
wasser	6,920	-	-	-	-	-	-	1,240	0,0858	-	-
asche	0,213	-	-	-	-	-	-	-	-	-	-
summe	100,000	O min=	0,836	V CO ₂ =	0,8270	V SO ₂ =	0,0000	V W =	0,6919	V N ₂ =	0,0008
Luftbedarf				L min =		3,9824 Nm ³ /kg Brennstoff					
trockene stöchiometrische Abgasmenge				V A tr min =		3,9731 Nm ³ /kg Brennstoff					
Max. Kohlenstoffdioxid-Anteil				CO ₂ max =		20,8139 Vol.-%					
Wasserdampfmenge				V w =		0,6919 Nm ³ /kg Brennstoff					
				V A tr min/ L min =		0,9977					
Heizwert, wf				Hu =		18875 kJ/kg 5,243 kWh/kg					
Berechnungen zum Versuchszeitpunkt											
wasser	zum Versuchszeitpunkt			w =		6,920 Gew. %					
Heizwert, roh	zum Versuchszeitpunkt			Hu		17400 kJ/kg					

Appendix 2

The requirements of the measuring instruments are fulfilled.
Before each qualified measuring analysers were calibrated with zero gas and calibration gas.

Index	Measure	Principle	Company	Range	Instrument specification	Reference
B030	Water pressure	Manometer	Cewal DN 150	0 – 25 bar	± 0,6%	Reference manometer
B062	Temperature	PT 100 K-type thermocouples	Agilent 34970 A	0 – 300 °C	Up to 0,5 °C	Reference thermometer
B066	Gas pressure	Manometer	Testo 510	0 – 100 hPa	± 3% related to final value	Reference manometer
B068	Temperature	IR emission	Fluke Ti20	-10 – 350 °C	---	---
B070	Fuel consumption	Gravimetric	Dini Angeo DFWK	0 – 600 kg	± 10 g	External calibration
B079	Water flow	Magnetic	ABB Copa-XE DE43FI	0 – 2000 kg/h	± 1% related to the range	Reference flow meter
B084	Temperature	PT 100 K-type thermocouples	Agilent 34970 A	0 – 300 °C	Up to 0,5 °C	Reference thermometer
B090	Dust content	Gravimetric	Sartorius CPA 224 S	0,1 mg – 220 g	± 0,1 mg	External calibration
B092	Fuel consumption	Gravimetric	Dini Angeo DFWK	0 – 1200 kg	± 10 g	External calibration
B095	CO	Infrared-absorption	Siemens Ultramat 23	0 – 1 % 0 – 5 %	± 1% related to the range	Reference gas
B096	CO ₂	Infrared-absorption	Siemens Ultramat 23	0 – 5 % 0 – 25 %	± 1% related to the range	Reference gas
	CO	Infrared-absorption	Siemens Ultramat 23	0 – 1000 ppm 0 – 5000 ppm	± 1% related to the range	Reference gas
	NO _x	Infrared-absorption	Siemens Ultramat 23	0 – 1000 ppm 0 – 5000 ppm	± 1% related to the range	Reference gas
B097	OGC	FID	Siemens Fidamat 6	0 – 3,33 ppm C3 0 – 33,3 ppm C3 0 – 333 ppm C3 0 – 3333 ppm C3	± 1% related to the range	Reference gas
B098	Temperature	K-type thermocouple	Testo 925	0 – 200 °C	± 2 °C	Reference thermometer
B109	Air flow	Flow measurement	CMC / ASA 132826 P13-2800	400 - 4000 l/h	± (2 % FS)	Reference flow meter
B116	Air flow	Flow measurement	Bronkhorst F-111AC-50K-AAD-33-V	0 – 50 l/min	± 0,5 % RD plus ±0,1% FS	External calibration
B118	Gas volume	Diaphragm	CMC	0,016 – 2,5 m ³ /h	± 5 %	Air flow
B121	OGC	FID	Siemens Fidamat 6	0 – 3,33 ppm C3 0 – 33,3 ppm C3 0 – 333 ppm C3 0 – 3333 ppm C3	± 1% related to the range	Reference gas
B122	CO ₂	Infrared-absorption	Siemens Ultramat 23	0 – 5 % 0 – 25 %	± 1% related to the range	Reference gas
	CO	Infrared-absorption	Siemens Ultramat 23	0 – 1000 ppm 0 – 5000 ppm	± 1% related to the range	Reference gas
	NO	Infrared-absorption	Siemens Ultramat 23	0 – 1000 ppm 0 – 5000 ppm	± 1% related to the range	Reference gas
B149	Mass	Gravimetric	Kern FKB 15K0.5A	0 – 15 kg	± 0,5 g (reproducibility)	External calibration
B154	Gas volume	Diaphragm	Elster BK-G4M	---	Class 1,5	Air flow

Index	Measure	Principle	Company	Range	Instrument specification	Reference
B169	Electrical power	---	Yokogawa WT310E	0 – 2000 W	± 0,5 %	External calibration
B179	Stopwatch	---	RS 8111814	0 – 99 h	0,01 s	---
B180	Absolute pressure meter	Absolute pressure meter	Testo 511	0 – 999,0 hPa	±3,0 hPa	External calibration
B183	Water flow	Magnetic	ISOIL Industria MS501-T10-1A1A1A + ML210-B0A1B3A0	0 – 2000 kg/h	Accuracy: ± 0,2% r.v.	Reference flow meter
B201 + B123	CO	Infrared-absorption	Siemens Ultramat 6	0 – 100 ppm 0 – 1000 ppm	± 1% related to the range	Reference gas
	CO	Infrared-absorption	Siemens Ultramat 6	0 – 1 % 0 – 10 %	± 1% related to the range	Reference gas
	NO	Infrared-absorption	Siemens Ultramat 6 + Bühler Bünox MV	0 – 100 ppm 0 – 1000 ppm	± 1% related to the range	Reference gas
B203	Dust content	Gravimetric	Ohaus PX125D	0,01/0,1mg – 52/120g	± 0,02 mg	External calibration
B205	Pressure meter	Air flow	Sensirion SDP816-125Pa	-12,5 – 125 Pa	0,5 Pa	Reference pressure meter
B206	Pressure meter	Air flow	Sensirion SDP816-125Pa	-12,5 – 125 Pa	0,5 Pa	Reference pressure meter
B207	CO ₂	Infrared-absorption	Siemens Ultramat 6E	0 – 3 % 0 – 30 %	± 1% related to the range	Reference gas
	CO	Infrared-absorption	Siemens Ultramat 6E	0 – 300 ppm 0 – 3000 ppm	± 1% related to the range	Reference gas

The values are continuously recorded. The scan interval is 10s. All related certificates are stored.