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POLITO WOOD FIRE OVENS



THERMAL CLEARANCE TESTING OF THE GIOTTO PIZZA OVEN FREE-STANDING APPLIANCE

Report Number: ASFT23039-1
Issue date: 4 July 2023

By:
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Revision Details

Revision	Date	Comments
0	02/06/2023	Preliminary report – awaiting payment and engineering drawings of appliance
1	04/07/2023	Issue of NATA endorsed test report

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QD-001R1

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THERMAL CLEARANCE TESTING OF THE GIOTTO PIZZA OVEN FREE-STANDING APPLIANCE

Report

The Giotto Pizza Oven Free-Standing appliance installed with a Flo-met SG-FLKIT 200-FS-B Flue Kit was tested in one position in a manner conforming to joint Australian/New Zealand Standard 2918:2018, Appendix B.

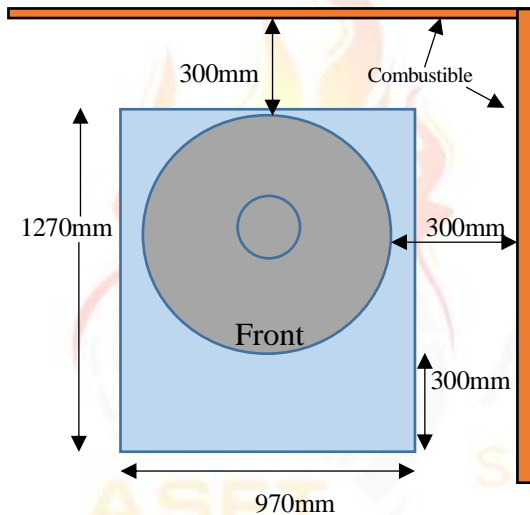
The appliance was installed on a 800mm high non-combustible stand above the floor protector. A minimum 1270mm deep x 970mm wide x 12mm thick floor protector (compressed board) should be used under and in front of the appliance base when installing the appliance (see joint AS/NZS 2918:2018 3.3.2). The floor protector should extend 300mm in front of the appliance door opening and be placed centrally in the 970mm width. The Thermal resistivity of the floor protector is 0.05m².K/W for 12mm thick compressed board sheets.

There must be a minimum clearance of 1200mm in front of the door opening to combustible materials at all times.

The Giotto Pizza Oven Free-Standing solid fuel appliance installed with a Flo-met SG-FLKIT 200-FS-B Flue Kit conforms to the requirements of the joint AS/NZS 2918:2018 Standard, Appendix B.



The appliance and flue system were tested at the following clearances:

Position A – Parallel position



There must be a minimum clearance of 1200mm in front the door opening to combustible materials at all times.

Figure 1 – Clearance Diagram

			
Signed		Approved	
Name	Garry W. Mooney	Name	Steve Marland
Title	<i>Technical Officer</i>	Title	<i>Managing Director – Australian Solid Fuel Testing</i>
Date	04/07/2023	Date	04/07/2023

1. INTRODUCTION

Thermal Clearance testing of the Appliance and flue system took place on 31 May 2023 at the Australian Solid Fuel Testing Laboratory located at 3 Garden Street, Morwell, Victoria. The testing was performed by Mr G.W. Mooney and Mr S. Marland.

2. PROCEDURE

Testing was conducted as per Appendix B of AS/NZS2918:2018, Hot sites were located with the aid of an infra-red thermometer. Thermocouple tips were stapled onto the test surfaces, with black tape over the first 100 mm to facilitate consistent and accurate recording of temperatures.

Thermocouple positions are shown in the table below:

Position A – Parallel Position

Thermocouple No.	Position	Thermocouple No.	Position
1	Floor - 1300mm in front of centre	16	Floor – 150mm RHS of centre
2	Floor – 1200mm in front of centre	17	Floor – 300mm RHS of centre
3	Floor - 1050mm in front of centre	18	Floor – 450mm RHS of centre
4	Floor – 900mm in front of centre	19	Ceiling Ring – Inner front
5	Floor – 750mm in front of centre	20	Ceiling Ring – 25mm in front
6	Floor – 600mm in front of centre	21	Ceiling Ring – Inner side
7	Floor – 450mm in front of centre	22	Ceiling Ring – 25mm to side
8	Floor – 300mm in front of centre	23	Rear wall – 828mm from corner, 1943mm above the floor
9	Floor – 150mm in front of centre	24	Rear wall – 858mm from corner, 996mm above the floor
10	Floor – Centre of flue	25	Rear wall – 817mm from corner, 1371mm above the floor
11	Floor – 150mm behind centre	26	RHS wall, 1729mm from corner, 1104mm above the floor
12	Floor – 300mm behind centre	27	RHS wall, 1013mm from corner, 1294mm above the floor
13	Floor – 450mm LHS of centre	28	RHS wall, 892mm from corner, 1834mm above the floor
14	Floor – 300mm LHS of centre	29	Rear wall – 859mm from corner, 1170mm above the floor
15	Floor – 150mm LHS of centre	30	Ambient temperature

TABLE 1

3. TEST FUEL

Testing was conducted with Pinus Radiata as the test fuel which had a moisture content of 12.0% moisture. Each firewood piece was 300mm x 95mm x 40mm.

4. FLUE SYSTEM

The flue system used during testing was Flo-met SG-FLKIT 200-FS-B Flue Kit incorporating a 515mm ceiling ring with a 15mm air gap between the ceiling and the ceiling ring which was manufactured by Flo-met Pty Ltd. This flue system has not been tested to joint AS/NZS 2918:2018, Appendix F. The flue height was 4.6 ± 0.1 m from the floor protector. Appendix 1 shows details of the flue system.

5. RESULTS

5.1 High Fire Test

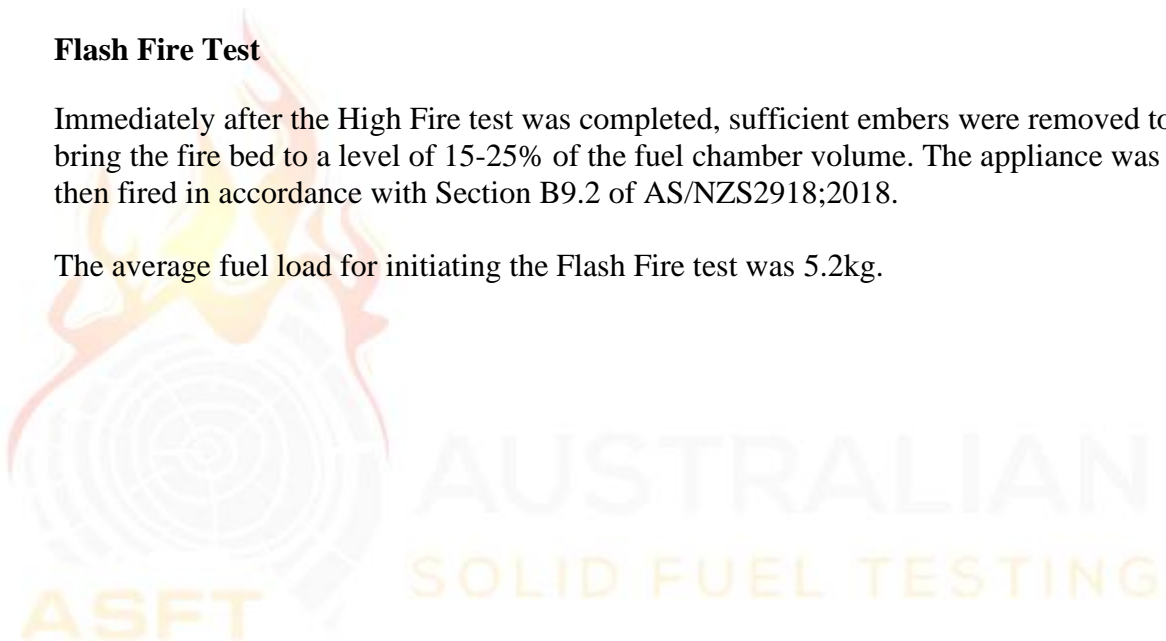
The appliance was fired in accordance with Section B9.1 of AS/NZS2918;2018. The level of fuel was maintained between 50-75% of the full volume level of the fuel chamber during the High Fire test.

The average fuel load for initiating the High Fire test was 7.0kg with an average refuelling rate of 1.3kg/10 minutes.

5.2 Flash Fire Test

Immediately after the High Fire test was completed, sufficient embers were removed to bring the fire bed to a level of 15-25% of the fuel chamber volume. The appliance was then fired in accordance with Section B9.2 of AS/NZS2918;2018.

The average fuel load for initiating the Flash Fire test was 5.2kg.



5.3 Ambient and Test Surface Temperatures

The Tables below show the Ambient temperatures and test surfaces temperatures during testing of the appliance and flue combination:

Ambient Temperature Range °C

Position	High Fire	Flash Fire
A	10.0 – 30.4	23.8 – 28.9

Maximum Surface Temperature Rise above Ambient - Position A

Position	Thermocouple Number	High Fire Test (°C)	Thermocouple Number	Flash Fire Test (°C)
Floor	1	25.0	1	8.1
Ceiling	20	48.4	19	52.5
Rear Wall	23	35.9	23	23.1
Side Wall	26	55.5	26	41.2

5.4 Uncertainty of Measurement Statement

5.5.1 The uncertainty of distance measurement for determining clearance distances was not greater than ± 3 mm.

5.5.2 The uncertainty of temperature measurement during the entire test period was a maximum of $\pm 2^\circ\text{C}$ at a 95% confidence level.

6. APPLIANCE CONSTRUCTION DETAILS

The test results reported directly relate to the appliance/flue system tested. The details of the appliance given in this section include features which may affect safety clearances. Any change in the design/construction of this appliance or flue may invalidate this report. Below are the constructions details of the appliance:

Appliance Model Name: Giotto Pizza Oven	Serial No: N/A	
Manufacturer: Polito Wood Fire Ovens		
Overall Height: 710mm	Overall Depth: 970mm	Overall Width: 970mm
Usable Firebox Height: 190mm	Width: 720mm diameter	Radius: 360mm
Usable Firebox Volume: 77.37 Litres		
Firebox Material Type/Seam Fully Welded: Fully sealed 2.5mm steel		
Firebrick Type: Ceramic		
Main Door Opening Height: 170mm	Width: 550mm	
Primary Air Location: Main door opening		
Baffle Plate size: 460mm×265×50mm ceramic		
Flue Dimensions: 200mm		
Spigot Dimensions:	OD: 204mm	ID: 200mm
Spigot to Rear of Appliance: Centre of appliance		
Rear Internal to External Heat Shield: N/A		
Side Internal to External Heat Shield: N/A		
Heat Shield Material Type: N/A		
Water Heater Fitted: No		
Fan Location/Speeds: No fan fitted		
Catalytic Combustor fitted: No		
Grate: No		
NOTE: Accuracy of measurement is ±5% of the measured value		

7. CONCLUSION

The Giotto Pizza Oven Free-Standing appliance installed with a Flo-met SG-FLKIT 200-FS-B Flue Kit, conforms to the requirements of Australian/New Zealand Standard 2918:2018, with respect to floor, ceiling, side wall and rear wall surface temperatures, when tested in the test position shown in Figure 1 of this report in accordance with Appendix B of AS/NZS2918;2018.

APPENDIX 1:

Flue kit – 8" stainless steel active with 10" painted casing below ceiling. 10 & 12" galvanized casings above the ceiling

