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JETMASTER (VIC) PTY LTD



THERMAL CLEARANCE TESTING OF THE VISIONLINE SPIN FREE-STANDING APPLIANCE

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By:
Garry W. Mooney



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Revision Details

Revision	Date	Comments
0	12/06/2019	Preliminary report – awaiting payment and engineering drawings of appliance
1	13/11/2019	Issue of NATA endorsed test report

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THERMAL CLEARANCE TESTING OF THE VISIONLINE SPIN FREE-STANDING APPLIANCE

Report

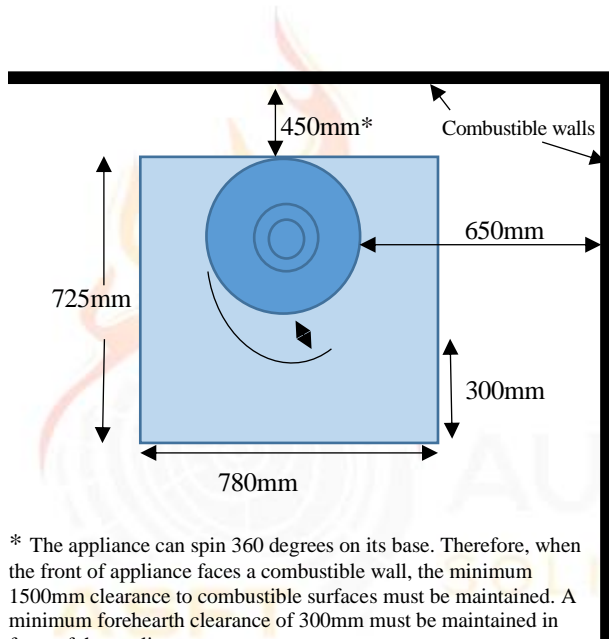
The VisionLINE Spin Free-standing appliance installed with a Wildcat 6” triple flue kit with 8” decromesh casing was tested in two positions in a manner conforming to joint Australian/New Zealand Standard 2918:2018, Appendix B.

A minimum 725mm deep x 780mm wide x 6mm 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 and be placed centrally in the 780mm width. The Thermal resistivity of the floor protector is 0.08m².K/W for 6mm thick sheets.

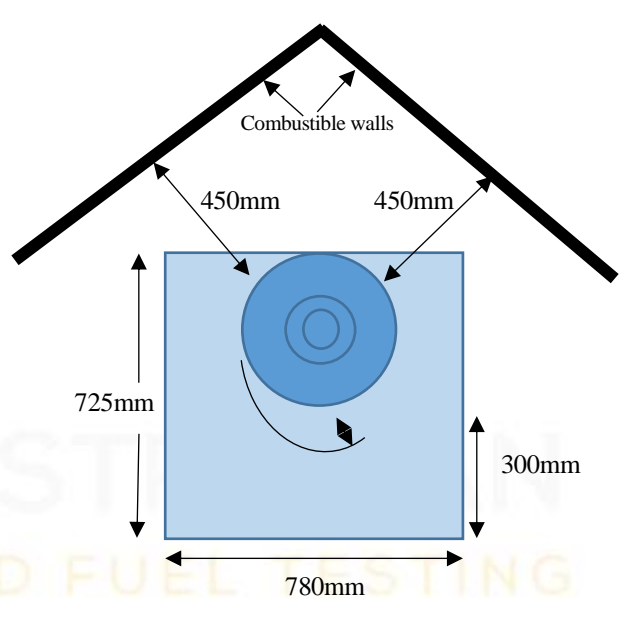
The VisionLINE Spin Free-Standing solid fuel appliance installed with a Wildcat 6” triple flue kit with 8” decromesh casing conforms to the requirements of the joint AS/NZS 2918:2018 Standard, Appendix B.

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

Position A – Parallel position



Position B – Corner position



* The appliance can spin 360 degrees on its base. Therefore, when the front of appliance faces a combustable wall, the minimum 1500mm clearance to combustable surfaces must be maintained. A minimum forehearth clearance of 300mm must be maintained in front of the appliance.

Figure 1 – Clearance Diagram

Signed	Approved
Name Garry W. Mooney	Name Steve Marland
Title Technical Officer	Title Managing Director – Australian Solid Fuel Testing
Date 13/11/2019	Date 13/11/2019

1. INTRODUCTION

Thermal Clearance testing of the VisionLINE Spin appliance and flue system took place on 5 & 6, June 2019 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 – 853mm from corner, 1485mm above the floor
9	Floor – 150mm in front of centre	24	Rear wall – 860mm from corner, 1322mm above the floor
10	Floor – Centre of flue	25	Rear wall – 864mm from corner, 1223mm above the floor
11	Floor – 150mm behind centre	26	RHS wall, 722mm from corner, 983mm above the floor
12	Floor – 300mm behind centre	27	RHS wall, 802mm from corner, 1150mm above the floor
13	Floor – 450mm LHS of centre	28	RHS wall, 1077mm from corner, 921mm above the floor
14	Floor – 300mm LHS of centre	29	Rear wall – 848mm from corner, 1154mm above the floor
15	Floor – 150mm LHS of centre	30	Ambient temperature

Position B – Corner Position

Thermocouple No.	Position	Thermocouple No.	Position
19	Ceiling Ring – Inner front	25	LHS wall – 508mm from corner, 1285mm above the floor
20	Ceiling Ring – 25mm in front	26	RHS wall, 521mm from corner, 1142mm above the floor
21	Ceiling Ring – Inner side	27	RHS wall, 678mm from corner, 1209mm above the floor
22	Ceiling Ring – 25mm to side	28	RHS wall, 867mm from corner, 1109mm above the floor
23	LHS wall – 983mm from corner, 981mm above the floor	29	LHS wall, 848mm from corner, 1154mm above the floor
24	LHS wall – 430mm from corner, 1199mm above the floor	30	Ambient temperature

TABLE 1

3. TEST FUEL

Testing was conducted with Pinus Radiata as the test fuel which had a moisture content of 10.8% moisture. Each firewood piece was 300mm x 100mm x 40mm.

4. FLUE SYSTEM

The flue system used during testing was a Wildcat 6" triple flue kit with 8" decromesh casing was supplied by Jetmaster (Vic) 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 tests was 5.7kg with an average refuelling rate of 1.2kg/10 minutes.

During High Fire testing it was found that the highest surface temperatures occurred when the primary air control of the appliance was fully open.

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 tests was 4.5kg.

The highest temperature rises were achieved by leaving the main door resting against the door catch with the primary air fully open.

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	10.1 – 25.3	17.5 – 23.2
B	13.2 – 17.2	16.8 – 24.4

Maximum Surface Temperature Rise above Ambient - Position A

Position	Thermocouple Number	High Fire Test (°C)	Thermocouple Number	Flash Fire Test (°C)
Floor	5	47.4	4	44.5
Ceiling	20	36.3	20	38.8
Rear Wall	29	61.7	29	63.6
Side Wall	28	61.7	28	63.1

Maximum Surface Temperature Rise above Ambient - Position B

Position	Thermocouple Number	High Fire Test (°C)	Thermocouple Number	Flash Fire Test (°C)
Ceiling	20	42.2	20	42.1
RHS Wall	26	63.0	28	67.9
LHS Wall	29	57.8	29	53.3

5.4 Uncertainty of Measurement Statement

5.5.1 The uncertainty of distance measurement for determining clearance distances was not greater than $\pm 3\text{mm}$.

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: VisionLINE Spin		Serial No: BT004A00142B	
Manufacturer: Jetmaster			
Overall Height: 1195mm	Overall Depth: 425mm	Overall Width: 580mm	
Top Plate Width: 580mm	Top Plate Depth: 425mm	Top Plate Thickness: 8mm	
Appliance base Height: 8mm	Depth: 425mm	Width: 560mm	
Appliance pedestal Height: 375mm	Depth: 185mm	Width: 233mm	
Usable Firebox Height: mm	Width: mm	Depth: mm	
Usable Firebox Volume: 43.50 Litres			
Firebox Material Type/Seam Fully Welded: Fully welded 3mm steel			
Firebrick Type: 25mm Ceramic			
Main Door Opening Height: 388mm		Width: 380mm	
Door Height: 785mm	Width: 580mm	Depth: 35mm	
Door glass Height: 765mm	Width: 575mm		
Primary Air Location: Below grate			
Dimension of Primary Air: 2 slots @ 12mm x 77.5mm			
Area of Primary (mm ²): 1860mm²			
Secondary/Tertiary Air Location: 3 holes at Rear of firebox 160mm below baffle			
Dimension of Secondary/Tertiary Air: 3 × 8.5mm holes			
Area of Secondary/Tertiary Air (mm ²): 170.26mm²			
Baffle Plate size: 380×200×25mm Ceramic			
Flue Dimensions: 152mm			
Spigot Dimensions:		OD: 145mm	ID: 135mm
Spigot to Rear of Appliance: 137mm			
Rear Internal to External Heat Shield: 37mm			
Side Internal to External Heat Shield: 25-50mm			
Heat Shield Material Type: 3mm steel			
Water Heater Fitted: No			
Fan Location/Speeds: No			
Catalytic Combustor fitted: No			
Grate: Yes			
NOTE: Accuracy of measurement is ±5% of the measured value			

7. CONCLUSION

The VisionLINE Spin Free-standing appliance installed with a Wildcat 6" triple flue kit with 8" decromesh casing, 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 positions shown in Figure 1 of this report in accordance with Appendix B of AS/NZS2918;2018.



APPENDIX 1:

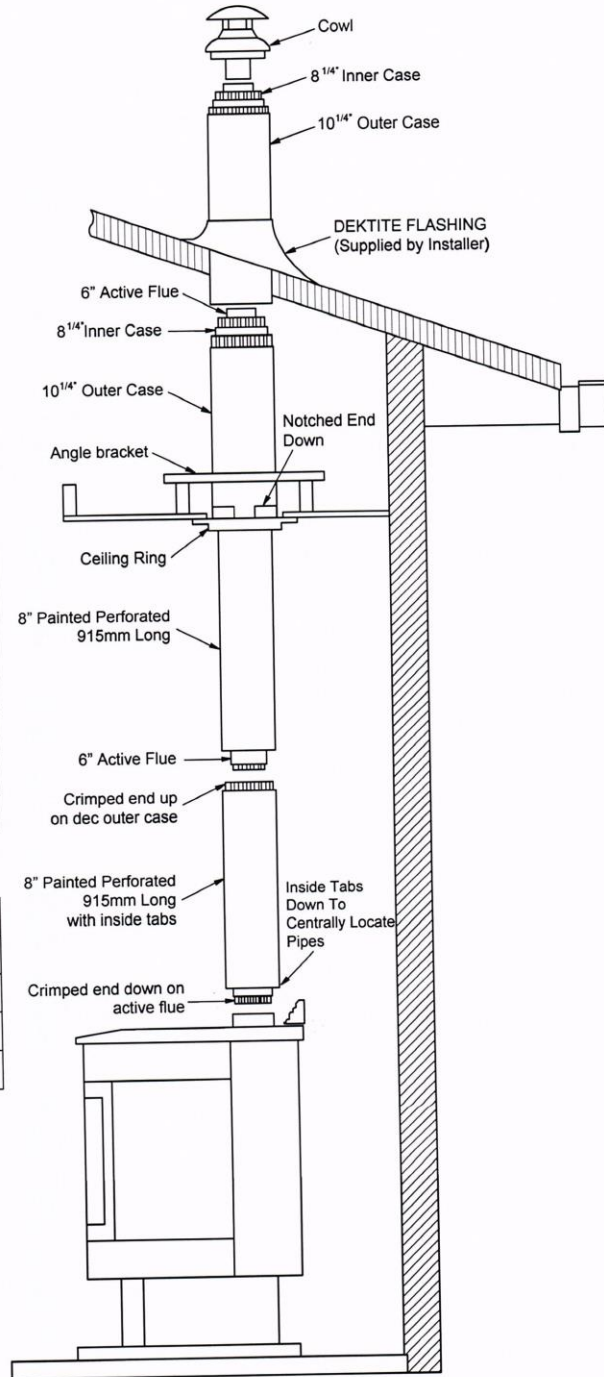


**Freestanding Triple Skin
 Flue Kit Perforated
 6" - 8" - 10" System**

QTY	DESCRIPTION
4	6" Stainless Steel Inner Flue 915mm Long
1	7 3/4" Painted Perforated 915mm Long
1	7 3/4" Painted Perforated 915mm Long with in-tabs
2	8" Galvanized Inner Flue Casing 915mm Long
1	10" Galvanized Notched Outer Flue Casing 915mm Long
1	10" Galvanized Outer Flue Casing 915mm Long
1	Cowl
1	Ceiling Ring
2	75 x 25 Angles 915mm Long
1	Installation Guide

CARTON SPECIFICATIONS	
Height	460mm
Width	460mm
Length	1150mm
Weight	32kg

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 35 Marconi Drive, Dandenong South VIC 3175
 PH: 03 9706 5544
 ABN 84 112 862 718
www.wildcatindustries.com.au



MUST ONLY BE INSTALLED BY AN AUTHORISED PERSON IN COMPLIANCE WITH AS 2918

Freestanding 10 Triple Skin Instruction page