



3 Garden Street, Morwell Vic 3840
ABN: 46 610 154 768

PREPARED FOR

JETMASTER (VIC) PTY LTD



THERMAL CLEARANCE TESTING OF THE VISIONLINE CIRCLE INSULATED BACK FREE STANDING APPLIANCE

Report Number: ASFT19035-1
Issue date: 13 June 2019

By:
Garry W Mooney



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Jetmaster (Vic) Pty Ltd
444 Swan Road
Richmond Vic 3121

Mr Ashley Stride

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Revision Details

Revision	Date	Comments
0	16/05/2019	Preliminary report – awaiting payment and engineering drawings of appliance
1	13/06/2019	Issue of NATA endorsed report

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QD-001

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THERMAL CLEARANCE TESTING OF THE VISIONLINE CIRCLE INSULATED BACK FREE-STANDING APPLIANCE

Report

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

A minimum 785mm deep x 700mm 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 700mm width. The Thermal resistivity of the floor protector is 0.08m².K/W for 6mm thick sheets.

The VisionLINE Circle Insulated Back Free-Standing solid fuel appliance installed with a Wildcat 6” triple flue kit with 8” decromesh casing or 8” painted solid 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

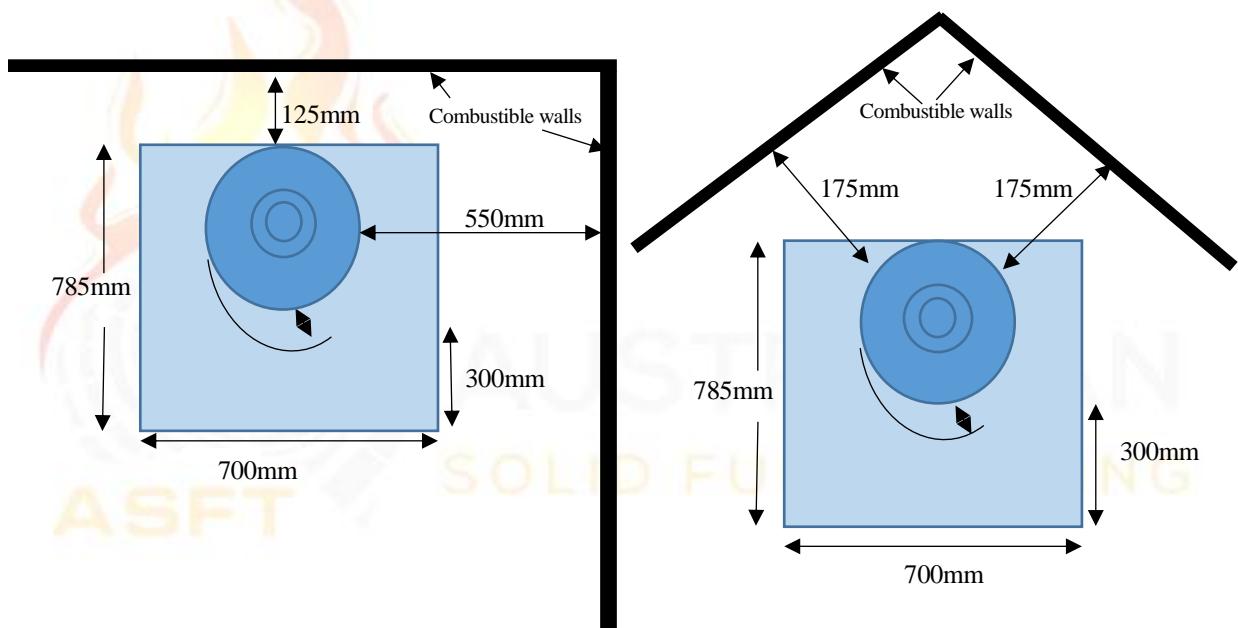


Figure 1 – Clearance Diagram

Signed		Approved	
Name	Garry W. Mooney	Name	Steve Marland
Title	Technical Officer	Title	Managing Director – Australian Solid Fuel Testing
Date	13/06/2019	Date	13/06/2019

1. INTRODUCTION

Thermal Clearance testing of the VisionLINE Circle Insulated Back Free-Standing appliance and flue system took place from May 13 to 14, 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 – 849mm from corner, 1489mm above the floor
9	Floor – 150mm in front of centre	24	Rear wall – 850mm from corner, 1314mm above the floor
10	Floor – Centre of flue	25	Rear wall – 738mm from corner, 1187mm above the floor
11	Floor – 150mm behind centre	26	RHS wall, 481mm from corner, 1489mm above the floor
12	Floor – 300mm behind centre	27	RHS wall, 547mm from corner, 866mm above the floor
13	Floor – 450mm LHS of centre	28	RHS wall, 649mm from corner, 971mm above the floor
14	Floor – 300mm LHS of centre	29	Rear wall – 721mm from corner, 1150mm 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 – 393mm from corner, 1071mm above the floor
20	Ceiling Ring – 25mm in front	26	RHS wall, 838mm from corner, 911mm above the floor
21	Ceiling Ring – Inner side	27	RHS wall, 363mm from corner, 1192mm above the floor
22	Ceiling Ring – 25mm to side	28	RHS wall, 646mm from corner, 971mm above the floor
23	LHS wall – 399mm from corner, 1404mm above the floor	29	LHS wall, 367mm from corner, 1187mm above the floor
24	LHS wall – 453mm from corner, 1357mm 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 10.1% 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 or 8” painted solid casing which was supplied by Wildcat Industries (Aust) Pty Ltd. This flue system has not been tested to joint AS/NZS 2918:2018, Appendix F. The flue height was 4.6 ± 0.1m 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 4.2kg with an average refuelling rate of 1.0kg/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 3.4kg.

The highest temperature rises were achieved by leaving the main door resting against the door catch and 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	10.2 – 20.2	16.9 – 22.1
B	15.0 – 18.7	16.1 - 20.0

Maximum Surface Temperature Rise above Ambient - Position A

Position	Thermocouple Number	High Fire Test (°C)	Thermocouple Number	Flash Fire Test (°C)
Floor	5	40.0	5	39.9
Ceiling	20	32.3	20	32.7
Rear Wall	29	62.6	29	76.3
Side Wall	28	61.1	28	70.5

Maximum Surface Temperature Rise above Ambient - Position B

Position	Thermocouple Number	High Fire Test (°C)	Thermocouple Number	Flash Fire Test (°C)
Ceiling	20	29.8	20	28.7
RHS Wall	28	60.5	26	67.6
LHS Wall	29	62.3	29	77.1

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: VisionLINE Circle		Serial No: BT002C00150041B
Manufacturer: Jetmaster		
Overall Height: 1200mm	Overall Depth: 485mm	Overall Width: 485mm
Top Plate Width: 485mm	Top Plate Depth: 485mm	Top Plate Thickness: 8mm
Appliance Legs Height: 20mm	Depth: 20mm	Width: 20mm x4
Appliance pedestal Height: 402mm	Depth: 485mm	Width: 485mm
Usable Firebox Height: 320-440mm	Width: 200-304mm	Depth: 200-335mm
Usable Firebox Volume: 34.40 Litres		
Firebox Material Type/Seam Fully Welded: Fully welded 3.2mm steel		
Firebrick Type: Fully lined Ceramic		
Main Door Opening Height: 330mm	Width: 300mm	
Door Height: 768mm	Width: 465mm	Depth: 190mm
Door glass Height: 745mm	Width: 340mm	
Primary Air Location: Below firebox		
Dimension of Primary Air: 2 slots @ 64mm x 13.5mm		
Area of Primary (mm ²): 1728mm²		
Secondary/Tertiary Air Location: Rear of firebox fed by 2 slots under firebox		
Dimension of Secondary/Tertiary Air: 4 x 8mm holes fed by 2 slots @ 64mm x 22mm		
Area of Secondary/Tertiary Air (mm ²): 804.35 mm²		
Baffle Plate size: 300×185×25mm		
Flue Dimensions: 152mm		
Spigot Dimensions:	OD: 145mm	ID: 135mm
Spigot to Rear of Appliance: 170mm		
Rear Internal to External Heat Shield: 75mm		
Side Internal to External Heat Shield: 60mm		
Heat Shield Material Type: 2mm 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 Circle Insulated Back Free-Standing appliance installed with a Wildcat 6” triple flue kit with 8” decromesh casing or 8” painted solid 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:

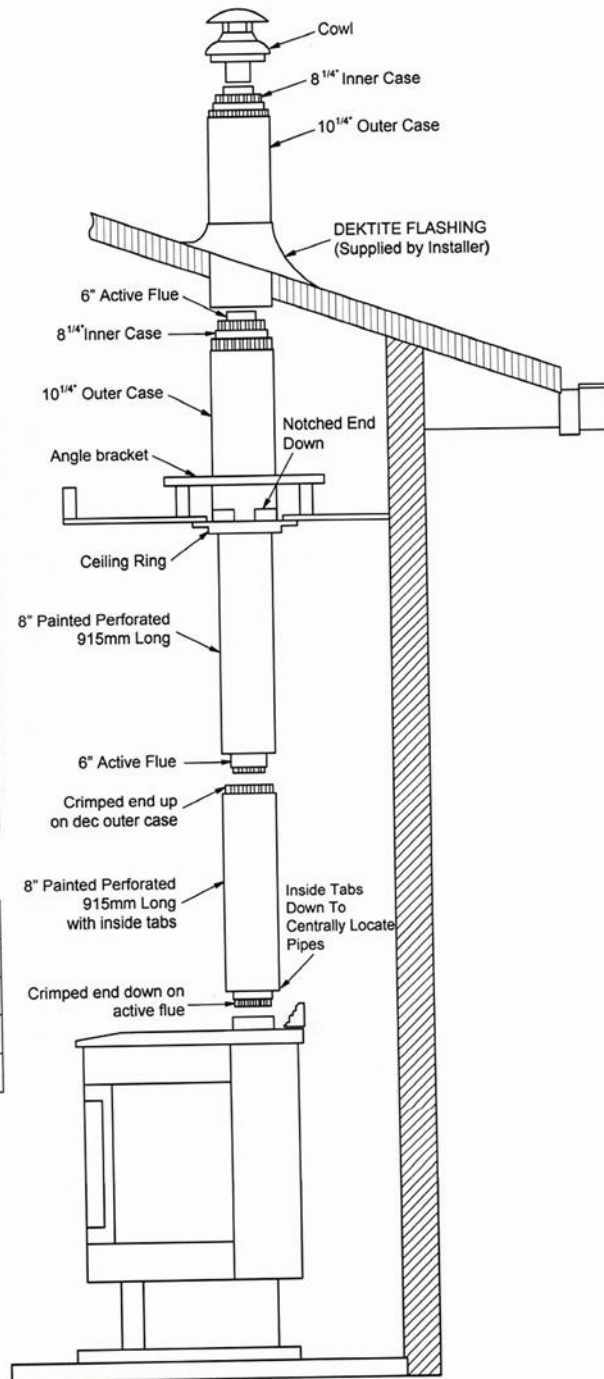


**Freestanding Triple Skin
 Flue Kit Perforated
 6" - 8" - 10" System**

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

WILDCAT INDUSTRIES
 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