



# Z SERIES DATA SHEET

Airocle Z Series Vent' Louvre was tested in CFD in 2D to obtain its aerodynamics performance.

2D Simulation:

2D Simulation CFD by Autodesk was used to perform a steady state Computational Fluid Dynamic Analysis in order to obtain credible data on this louvre.

Five equally spaced test velocities, with the fifth test velocity being at least 3 times greater than the first, were used to obtain pressure drops at each instance. These pressure drops were then used to calculate the  $C_i$  value for each instance and averaged out to a  $C_d$  value for the product.

These were all done according to AS4740 and AS2428.5.

A percentage of error of 5% in the determination of the pressure drop was also included in the calculations in order to provide a more reliable result.

SST k-omega SAS turbulence model was used.

- Depth of Blade = 220mm
- Blade pitch = 122mm
- Approximate Weight = 10.5kg/m<sup>2</sup>
- Pressure drop no greater than 7 Pascal at 3m/s
- Available with all hardware
- Fire tested to AS2428.4

## PERFORMANCE SPECIFICATIONS:

- Free Open Area, FOA = 87%
- Coefficient of Discharge,  $C_d$  = 0.83
- Effective Aerodynamic Area, EAA = 0.72
- Mass/m<sup>2</sup> = 10.5kg (Aluminium)

## PERFORMANCE LEVEL:

According to AS 4740: 2000

(Natural Ventilators— Classification and performance)

- Airflow Performance: Class 1

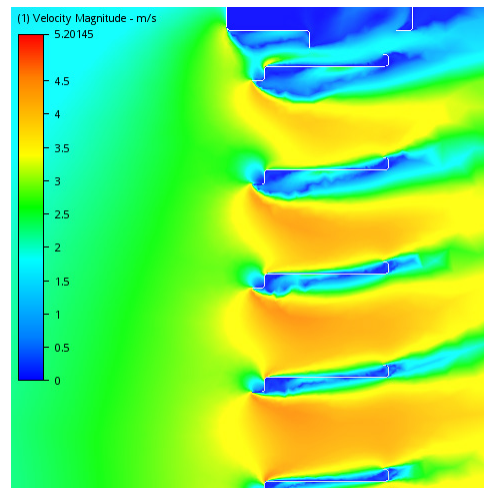


Figure 1: Z Series CFD Testing, Velocity Vector

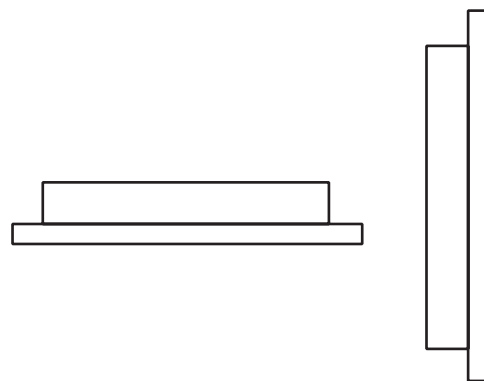


Figure 2: Z Series Roof and Wall Graphic

### IMPORTANT NOTES

It is important that the wind velocity through the free open area (FOA) of a louvre is identified. This will then determine the pressure drop of the louvre and will govern the degree of possible water penetration due to rain. No external louvre can carry a guarantee that water penetration will be prevented in all weather conditions involving wind and/or rain. When there is no control over the wind velocity passing through the louvre, the louvres' performance in relation to water penetration cannot be guaranteed. Airocle can assist in selecting a louvre with the right performance class, and understanding the circumstances around the louvre to minimize water ingress. Contact Airocle if you require assistance in choosing the most suitable louvre for your needs.

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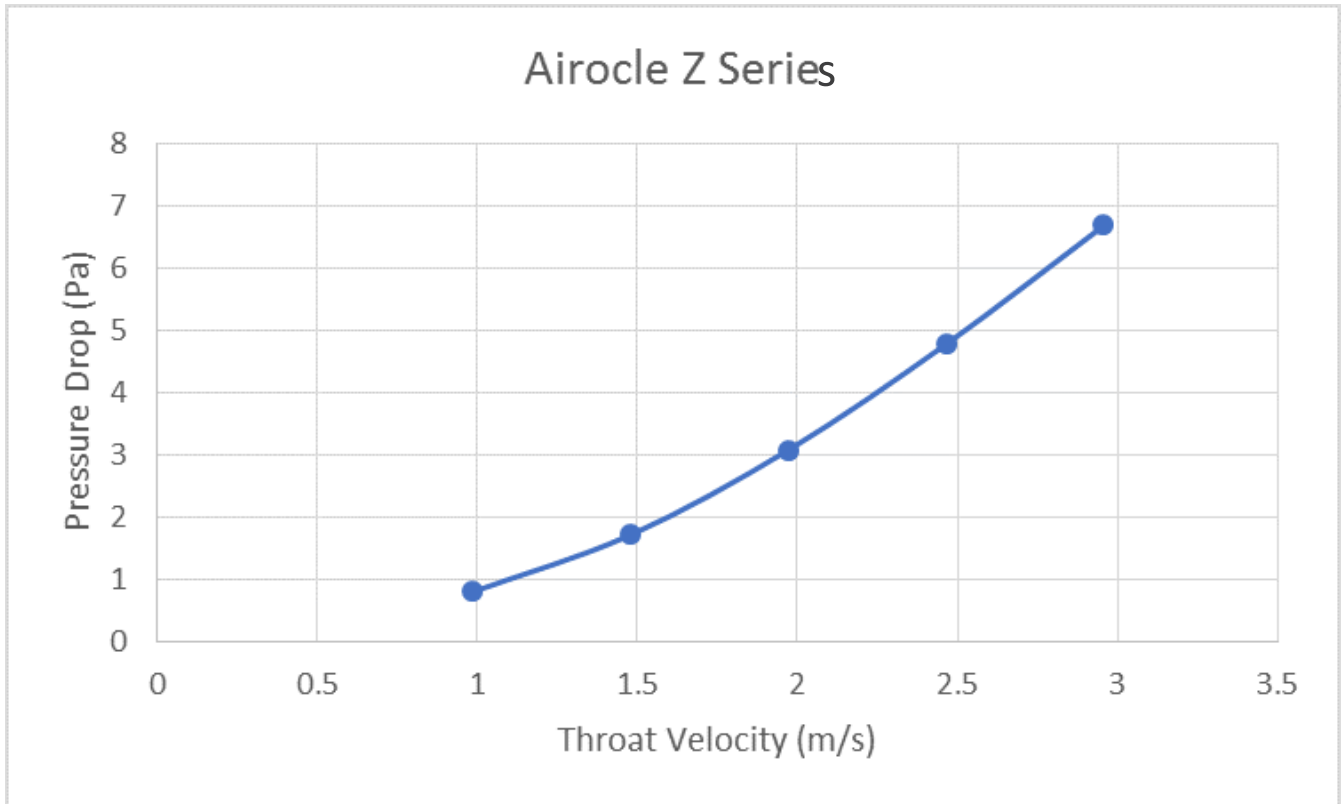


Figure 3: Z Series Louvre Pressure Drop Graph for a 1m H x 1m W Louvre Panel

## Quality



**RAIN**  
AS2428.1



**WIND**  
AS2428.2



**FIRE**  
AS2428.4



**COEFFICIENT  
OF DISCHARGE**  
AS2428.5

CSIRO tested, the Z Series is designed for the most demanding of environments including Category C and D Cyclone Regions. The ability to operate with the highest levels of reliability and safety while achieving complete weather performance provides peace-of-mind for designers, builders and most of all occupants.

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