Design Case Study #1

Author: {{author}}

Date: {{date}}

Data Source: {{data\_source}}

# Abstract

My abstract

# Introduction

My Intro

{{ cad\_model }}

# Results

## Flow Rate Analysis

- Mean flow rate: {{computed.flow\_stats.flow\_rate\_mean}} L/min

- Standard deviation: {{computed.flow\_stats.flow\_rate\_std}} L/min

- Maximum: {{computed.flow\_stats.flow\_rate\_max}} L/min

## Efficiency Correlation

Correlation between flow rate and efficiency: {{computed.efficiency\_correlation.correlation}}

## Performance Metrics

- Power-Efficiency Ratio: {{computed.power\_efficiency\_ratio.value}}

- Performance Index: {{computed.performance\_index.value}}

{% if flow\_vs\_efficiency %} {{flow\_vs\_efficiency}} {% endif %}

{% if rhino\_view %} {{rhino\_view}} {% endif %}

# Results

{{ plot }}

{% if stats.efficiency\_chi\_square %}

Efficiency distribution: χ² = {{stats.efficiency\_chi\_square.chi2}}, p = {{stats.efficiency\_chi\_square.p\_value}}

{% endif %}

{% if stats.flow\_test %}

Flow rate t-test: t = {{stats.flow\_test.statistic}}, p = {{stats.flow\_test.p\_value}}

{% endif %}

## Performance Metrics

The key performance indicators are as follows:

\* Average Flow Rate: {{ avg\_flow\_rate | round(2) }} m³/s

\* Maximum Efficiency: {{ max\_efficiency | round(2) }}%

\* Calculated Power Output: {{ power\_output | round(2) }} kW

{{interpretation}}

# Discussion

{{discussion}}

Conclusion  
{{conclusion}}