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| *[Company logo here]* | | | Description: Description: sw_vert_gray_short |
| [company name here] | [city, state here] | [company url here] | Fluid Flow Simulation Project Report |
| |  |  |  |  | | --- | --- | --- | --- | | [name] ∙ | [title] | ∙ ∙ [email address] ∙ | (###) ###-#### | | | | |
| **SOLIDWORKS Flow Simulation**  **Project Report**  April 22, 2025  *[Model Picture here]* | | | |
| [**Learn more about SOLIDWORKS Flow Simulation**](https://www.solidworks.com/sw/products/simulation/flow-simulation.htm) | | | |

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# General Information

Objective of the simulation: Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut a pulvinar lacus. Vivamus adipiscing adipiscing eleifend. Pellentesque eget ante in ante suscipit gravida in non lorem. Suspendisse hendrerit sagittis lacus non aliquam. Proin pellentesque, lorem quis consequat porta, lectus nunc vestibulum lectus, nec rhoncus libero dui ut felis. Vestibulum eu aliquet tellus. Curabitur suscipit ornare sem. Suspendisse pulvinar pharetra ultrices. Suspendisse a quam massa

## Analysis Environment

Software Product: Flow Simulation 2025 SP1.0. Build: 6588

CPU Type: AMD Ryzen 5 7600 6-Core Processor

CPU Speed: 3801 MHz

RAM: 15509 MB / 4973 MB

Operating System: Windows 11 (or higher) (Version 10.0.26100)

## Model Information

Model Name: montagemFoguete.SLDASM

Project Name: Tunel de Vento

## Project Comments:

Unit System: SI (m-kg-s)

Analysis Type: External (not exclude internal spaces)

## Size of Computational Domain

Size

|  |  |
| --- | --- |
| X min | 0.425 m |
| X max | 0.924 m |
| Y min | 0.595 m |
| Y max | 2.074 m |
| Z min | 1.143 m |
| Z max | 1.615 m |
| X size | 0.499 m |
| Y size | 1.479 m |
| Z size | 0.471 m |

## Simulation Parameters

### Mesh Settings

#### Basic Mesh

Basic Mesh Dimensions

|  |  |
| --- | --- |
| Number of cells in X | 24 |
| Number of cells in Y | 66 |
| Number of cells in Z | 25 |

#### Analysis Mesh

Total Cell count: 41955

Fluid Cells: 41955

Solid Cells: 1774

Partial Cells: 2442

Trimmed Cells: 0

#### Additional Physical Calculation Options

Heat Transfer Analysis: Fluid Flow: OnConduction: Off

Flow Type: Laminar and turbulent

Time-Dependent Analysis: Off

Gravity: On

Radiation:

Humidity: Off

Default Wall Roughness: 0 micrometer

### Material Settings

Material Settings

Fluids

[Air](#14D2A898C71948C1928ACF1BC34235D3)

### Initial Conditions

Ambient Conditions

|  |  |
| --- | --- |
| Thermodynamic parameters | Static Pressure: 101325.00 Pa  Temperature: 293.20 K |
| Velocity parameters | Velocity vector  Velocity in X direction: 0 m/s  Velocity in Y direction: 56.000 m/s  Velocity in Z direction: 0 m/s |
| Turbulence parameters | Turbulence intensity and length  Intensity: 0.10 %  Length: 0.001 m |

### Boundary Conditions

### Volumetric Heat Sources

### Engineering Goals

Goals

Global Goals

GG Maximum Total Pressure 1

|  |  |
| --- | --- |
| Type | Global Goal |
| Goal type | Total Pressure |
| Calculate | Maximum value |
| Coordinate system | Global Coordinate System |
| Use in convergence | On |

GG Maximum Total Temperature 2

|  |  |
| --- | --- |
| Type | Global Goal |
| Goal type | Total Temperature |
| Calculate | Maximum value |
| Coordinate system | Global Coordinate System |
| Use in convergence | On |

GG Maximum Velocity 3

|  |  |
| --- | --- |
| Type | Global Goal |
| Goal type | Velocity |
| Calculate | Maximum value |
| Coordinate system | Global Coordinate System |
| Use in convergence | On |

GG Maximum Turbulence Intensity 4

|  |  |
| --- | --- |
| Type | Global Goal |
| Goal type | Turbulence Intensity |
| Calculate | Maximum value |
| Coordinate system | Global Coordinate System |
| Use in convergence | On |

GG Normal Force 5

|  |  |
| --- | --- |
| Type | Global Goal |
| Goal type | Normal Force |
| Coordinate system | Global Coordinate System |
| Use in convergence | On |

GG Force 6

|  |  |
| --- | --- |
| Type | Global Goal |
| Goal type | Force |
| Coordinate system | Global Coordinate System |
| Use in convergence | On |

GG Force (X) 7

|  |  |
| --- | --- |
| Type | Global Goal |
| Goal type | Force (X) |
| Coordinate system | Global Coordinate System |
| Use in convergence | On |

GG Force (Y) 8

|  |  |
| --- | --- |
| Type | Global Goal |
| Goal type | Force (Y) |
| Coordinate system | Global Coordinate System |
| Use in convergence | On |

GG Force (Z) 9

|  |  |
| --- | --- |
| Type | Global Goal |
| Goal type | Force (Z) |
| Coordinate system | Global Coordinate System |
| Use in convergence | On |

GG Torque (X) 10

|  |  |
| --- | --- |
| Type | Global Goal |
| Goal type | Torque (X) |
| Coordinate system | Global Coordinate System |
| Use in convergence | On |

GG Torque (Y) 11

|  |  |
| --- | --- |
| Type | Global Goal |
| Goal type | Torque (Y) |
| Coordinate system | Global Coordinate System |
| Use in convergence | On |

GG Torque (Z) 12

|  |  |
| --- | --- |
| Type | Global Goal |
| Goal type | Torque (Z) |
| Coordinate system | Global Coordinate System |
| Use in convergence | On |

## Analysis Time

Calculation Time: 58 s

Number of Iterations: 278

Warnings:

# Results

## Analysis Goals

Goals

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Name | Unit | Value | Progress | Criteria | Delta | Use in convergence |
| GG Maximum Total Pressure 1 | Pa | 104301.23 | 100 | 597.067018 | 0.0921285607 | On |
| GG Maximum Total Temperature 2 | K | 294.77 | 100 | 0.00287333159 | 0.0020580346 | On |
| GG Maximum Velocity 3 | m/s | 61.985 | 100 | 0.0628752382 | 0.00143148044 | On |
| GG Maximum Turbulence Intensity 4 | % | 1000.00 | 100 | 1e-05 | 0 | On |
| GG Normal Force 5 | N | 1.742 | 100 | 0.571939642 | 0.0134211125 | On |
| GG Force 6 | N | 2.468 | 100 | 0.596910425 | 0.0056407232 | On |
| GG Force (X) 7 | N | 0.052 | 19 | 0.0203358795 | 0.108957282 | On |
| GG Force (Y) 8 | N | 2.467 | 100 | 0.5976084 | 0.00636874272 | On |
| GG Force (Z) 9 | N | 0.076 | 10 | 0.0119390065 | 0.11564002 | On |
| GG Torque (X) 10 | N\*m | -3.253 | 100 | 0.820670445 | 0.163655475 | On |
| GG Torque (Y) 11 | N\*m | 0.016 | 39 | 0.0297136458 | 0.0763773064 | On |
| GG Torque (Z) 12 | N\*m | 1.568 | 100 | 0.398280818 | 0.15536657 | On |

## Global Min-Max-Table

Min/Max Table

|  |  |  |
| --- | --- | --- |
| Name | Minimum | Maximum |
| Density (Fluid) [kg/m^3] | 1.19 | 1.23 |
| Pressure [Pa] | 100119.29 | 104048.30 |
| Temperature [K] | 292.85 | 294.76 |
| Temperature (Fluid) [K] | 292.85 | 294.76 |
| Velocity [m/s] | 0 | 61.825 |
| Velocity (X) [m/s] | -19.809 | 19.102 |
| Velocity (Y) [m/s] | -6.771 | 61.094 |
| Velocity (Z) [m/s] | -20.722 | 20.681 |
| Mach Number [ ] | 0 | 0.18 |
| Velocity RRF [m/s] | 0 | 61.825 |
| Velocity RRF (X) [m/s] | -19.809 | 19.102 |
| Velocity RRF (Y) [m/s] | -6.771 | 61.094 |
| Velocity RRF (Z) [m/s] | -20.722 | 20.681 |
| Vorticity [1/s] | 0.03 | 5570.95 |
| Relative Pressure [Pa] | -1205.71 | 2723.30 |
| Shear Stress [Pa] | 0 | 44.66 |
| Bottleneck Number [ ] | 3.9990545e-12 | 1.0000000 |
| Heat Transfer Coefficient [W/m^2/K] | 0 | 0 |
| ShortCut Number [ ] | 2.4778754e-11 | 1.0000000 |
| Surface Heat Flux [W/m^2] | 0 | 0 |
| Surface Heat Flux (Convective) [W/m^2] | 0 | 0 |
| Total Enthalpy Flux [W/m^2] | -2.032e+07 | 2.019e+07 |
| Acoustic Power [W/m^3] | 0 | 3.566e-06 |
| Acoustic Power Level [dB] | 0 | 65.52 |

## Results

## Conclusion

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut a pulvinar lacus. Vivamus adipiscing adipiscing eleifend. Pellentesque eget ante in ante suscipit gravida in non lorem. Suspendisse hendrerit sagittis lacus non aliquam. Proin pellentesque, lorem quis consequat porta, lectus nunc vestibulum lectus, nec rhoncus libero dui ut felis. Vestibulum eu aliquet tellus. Curabitur suscipit ornare sem. Suspendisse pulvinar pharetra ultrices. Suspendisse a quam massa

# Appendix

## Material Data

Engineering Database

Gases

Air

Path: Gases Pre-Defined

Specific heat ratio (Cp/Cv): 1.399

Molecular mass: 0.0290 kg/mol

Dynamic viscosity

Specific heat (Cp)

Thermal conductivity