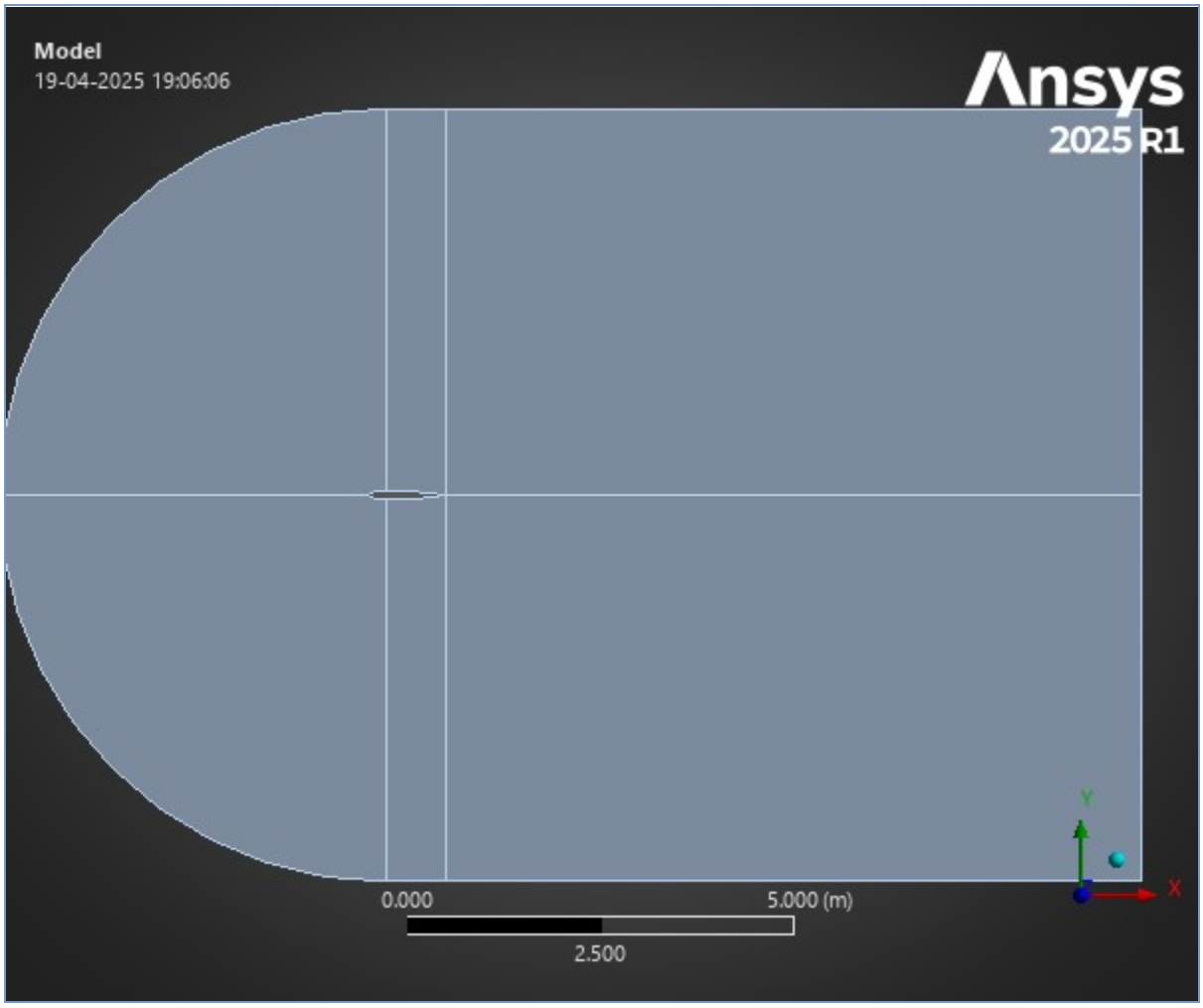
# Project

| | |
|---|---|
| First Saved | Friday, April 18, 2025 |
| Last Saved | Saturday, April 19, 2025 |
| Product Version | 2025 R1 |
| Save Project Before Solution | No |
| Save Project After Solution | No |



# Contents



# Report Not Finalized

**Not all objects described below are in a finalized state.** As a result, data may be incomplete, obsolete or in error. View first state problem. To finalize this report, edit objects as needed and solve the analyses.

# Units

**TABLE 1**

| | |
|---|---|
| Unit System | Metric (m, kg, N, s, V, A) Degrees rad/s Celsius |
| Angle | Degrees |
| Rotational Velocity | rad/s |
| Temperature | Celsius |

# Model (A3)

**TABLE 2**
**Model (A3) > Geometry Imports**

| Object Name | *Geometry Imports* |
|---|---|
| State | Solved |

**TABLE 3**
**Model (A3) > Geometry Imports > Geometry Import (A2)**

| | |
|---|---|
| Object Name | *Geometry Import (A2)* |
| State | Solved |
| **Definition** | |
| Source | C:\Deep_Backup\Ansys_CFD\Final_CFD_NACA-0012\NACA-0012_files\dp0 \FFF\DM\FFF.agdb |
| Type | DesignModeler |
| **Basic Geometry Options** | |
| Parameters | Independent |
| Parameter Key | |
| **Advanced Geometry Options** | |
| Compare Parts On Update | No |
| | |

| | |
|---|---|
| Analysis Type | 3-D |

## Geometry

**TABLE 4**
**Model (A3) > Geometry**

| | |
|---|---|
| Object Name | *Geometry* |
| State | Fully Defined |
| **Definition** | |
| Source | C:\Deep_Backup\Ansys_CFD\Final_CFD_NACA-0012\NACA-0012_files\dp0 \FFF\DM\FFF.agdb |
| Type | DesignModeler |
| Length Unit | Meters |
| **Bounding Box** | |
| Length X | 14.782 m |
| Length Y | 10. m |
| Length Z | 0. m |
| **Properties** | |
| Volume | 0. m³ |
| Scale Factor Value | 1. |
| 2D Tolerance | Default (1.e-005) |
| **Statistics** | |
| Bodies | 2 |
| Active Bodies | 1 |
| Nodes | 526550 |
| Elements | 525000 |
| Mesh Metric | None |
| **Update Options** | |
| Assign Default Material | No |
| **Basic Geometry Options** | |
| Parameters | Independent |
| Parameter Key | |
| Attributes | Yes |
| Attribute Key | |
| Named Selections | Yes |
| Named Selection Key | |
| Material Properties | Yes |
| **Advanced Geometry Options** | |
| Use Associativity | Yes |
| Coordinate Systems | Yes |
| Coordinate System Key | |
| Reader Mode Saves Updated File | No |
| Use Instances | Yes |
| Smart CAD Update | Yes |
| Compare Parts On Update | No |
| Analysis Type | 3-D |
| Import Facet Quality | Source |
| Clean Bodies On Import | No |
| Stitch Surfaces On Import | None |
| Decompose Disjoint Geometry | Yes |
| Enclosure and Symmetry | |

| | |
|---|---|
| Processing | No |

**TABLE 5**
**Model (A3) > Geometry > Parts**

| Object Name | *Line Body* | *Surface Body* |
|---|---|---|
| State | Suppressed | Meshed |
| **Graphics Properties** | | |
| Visible | No | Yes |
| Transparency | 1 | |
| **Definition** | | |
| Suppressed | Yes | No |
| Model Type | Beam | Shell |
| Coordinate System | Default Coordinate System | |
| Cross Section | | |
| Offset Mode | Refresh on Update | |
| Offset Type | Centroid | Middle |
| Treatment | None | |
| Dimension | | 3D |
| Stiffness Option | | Membrane and Bending |
| Thickness | | 0. m |
| Thickness Mode | | Refresh on Update |
| **Material** | | |
| Assignment | | |
| Fluid/Solid | Defined By Geometry (Solid) | |
| **Bounding Box** | | |
| Length X | 14.782 m | |
| Length Y | 10. m | |
| Length Z | 0. m | |
| **Properties** | | |
| Volume | 0. m³ | |
| Length | 36.821 m | |
| Cross Section Area | | |
| Cross Section IYY | | |
| Cross Section IZZ | | |
| Centroid X | | 3.1089 m |
| Centroid Y | | -1.1231e-009 m |
| Centroid Z | | 0. m |
| Surface Area(approx.) | | 137.01 m² |
| **Statistics** | | |
| Nodes | 0 | 526550 |
| Elements | 0 | 525000 |
| Mesh Metric | None | |
| **CAD Attributes** | | |
| DMSheetThickness | | 0 |

**TABLE 6**
**Model (A3) > Materials**

| Object Name | *Materials* |
|---|---|
| State | Fully Defined |
| **Statistics** | |
| Materials | 0 |
| Material Assignments | 0 |

## Coordinate Systems

**TABLE 7**
**Model (A3) > Coordinate Systems > Coordinate System**

| | |
|---|---|
| Object Name | *Global Coordinate System* |
| State | Fully Defined |
| **Definition** | |
| Type | Cartesian |
| Coordinate System ID | 0. |
| **Origin** | |
| Origin X | 0. m |
| Origin Y | 0. m |
| Origin Z | 0. m |
| **Directional Vectors** | |
| X Axis Data | [ 1. 0. 0. ] |
| Y Axis Data | [ 0. 1. 0. ] |
| Z Axis Data | [ 0. 0. 1. ] |
| **Transfer Properties** | |
| Source | |
| Read Only | No |

## Connections

**TABLE 8**
**Model (A3) > Connections**

| | |
|---|---|
| Object Name | *Connections* |
| State | Fully Defined |
| **Auto Detection** | |
| Generate Automatic Connection On Refresh | Yes |
| **Transparency** | |
| Enabled | Yes |
| **Statistics** | |
| Contacts | 0 |
| Active Contacts | 0 |
| Joints | 0 |
| Active Joints | 0 |
| Beams | 0 |
| Active Beams | 0 |
| Bearings | 0 |
| Active Bearings | 0 |
| Springs | 0 |
| Active Springs | 0 |
| Body Interactions | 0 |
| Active Body Interactions | 0 |

## Mesh

**TABLE 9**
**Model (A3) > Mesh**

| | |
|---|---|
| Object Name | *Mesh* |
| State | Solved |
| **Display** | |
| | |

| | |
|---|---|
| Display Style | Use Geometry Setting |
| **Defaults** | |
| Physics Preference | CFD |
| Solver Preference | Fluent |
| Element Size | Default (0.89233 m) |
| Export Format | Standard |
| Export Preview Surface Mesh | No |
| **Sizing** | |
| Use Adaptive Sizing | No |
| Growth Rate | Default (1.2) |
| Mesh Defeaturing | Yes |
| Defeature Size | Default (4.4616e-003 m) |
| Capture Curvature | Yes |
| Curvature Min Size | Default (8.9233e-003 m) |
| Curvature Normal Angle | Default (18.0°) |
| Capture Proximity | No |
| Bounding Box Diagonal | 17.847 m |
| Average Surface Area | 22.808 m² |
| Minimum Edge Length | 5.8307e-002 m |
| **Quality** | |
| Check Mesh Quality | Yes, Errors |
| Target Skewness | Default (0.9) |
| Smoothing | Medium |
| Mesh Metric | None |
| **Inflation** | |
| Use Automatic Inflation | None |
| Inflation Option | Smooth Transition |
| Transition Ratio | 0.272 |
| Maximum Layers | 2 |
| Growth Rate | 1.2 |
| Inflation Algorithm | Pre |
| View Advanced Options | No |
| **Advanced** | |
| Number of CPUs for Parallel Part Meshing | Program Controlled |
| Straight Sided Elements | |
| Rigid Body Behavior | Dimensionally Reduced |
| Triangle Surface Mesher | Program Controlled |
| Topology Checking | Yes |
| Use Sheet Thickness for Pinch | No |
| Pinch Tolerance | Default (8.031e-003 m) |
| Generate Pinch on Refresh | No |
| Sheet Loop Removal | No |
| **Automatic Methods** | |
| Sheet Body Method | Quad Dominant |
| Sweepable Body Method | Sweep |
| **Statistics** | |
| Nodes | 526550 |
| Elements | 525000 |
| Show Detailed Statistics | No |

**TABLE 10**
**Model (A3) > Mesh > Mesh Controls**

| | | | | | |
|---|---|---|---|---|---|

| Object Name | *Edge Sizing* | *Edge Sizing 2* | *Edge Sizing 3* | *Edge Sizing 4* | *Face Meshing* |
|---|---|---|---|---|---|
| State | Fully Defined | | | | Ignored |
| **Scope** | | | | | |
| Scoping Method | Geometry Selection | | | | Geometry Selection |
| Geometry | 7 Edges | 3 Edges | 4 Edges | | 6 Faces |
| **Definition** | | | | | |
| Suppressed | No | | | | No |
| Type | Number of Divisions | | | | |
| Number of Divisions | 350 | 300 | 250 | 200 | |
| Mapped Mesh | | | | | Yes |
| Method | | | | | Quadrilaterals |
| Constrain Boundary | | | | | No |
| **Advanced** | | | | | |
| Behavior | Soft | Hard | | | |
| Growth Rate | Default (1.2) | | | | |
| Capture Curvature | No | | | | |
| Capture Proximity | No | | | | |
| Bias Type | _ _ ___ _____ | | No Bias | | |
| Bias Option | Bias Factor | | | | |
| Bias Factor | 50000 | 300.0 | | | |
| Reverse Bias | 1 Edge | | | | |
| Specified Sides | | | | | No Selection |
| Specified Corners | | | | | No Selection |
| Specified Ends | | | | | No Selection |
| MultiZone Semi-Structured | | | | | No |

## *Named Selections*

**TABLE 11**
**Model (A3) > Named Selections > Named Selections**

| Object Name | *airfoil* | *outlet* | *inlet* |
|---|---|---|---|
| State | Fully Defined | | |
| **Scope** | | | |
| Scoping Method | Geometry Selection | | |
| Geometry | 4 Edges | 2 Edges | 6 Edges |
| **Definition** | | | |
| Send to Solver | Yes | | |
| Protected | Program Controlled | | |
| Visible | Yes | | |
| Program Controlled Inflation | Exclude | | |
| **Statistics** | | | |
| Type | Manual | | |
| Total Selection | 4 Edges | 2 Edges | 6 Edges |
| Length | 2.0396 m | 10. m | 35.271 m |
| Suppressed | 0 | | |
| Used by Mesh Worksheet | No | | |