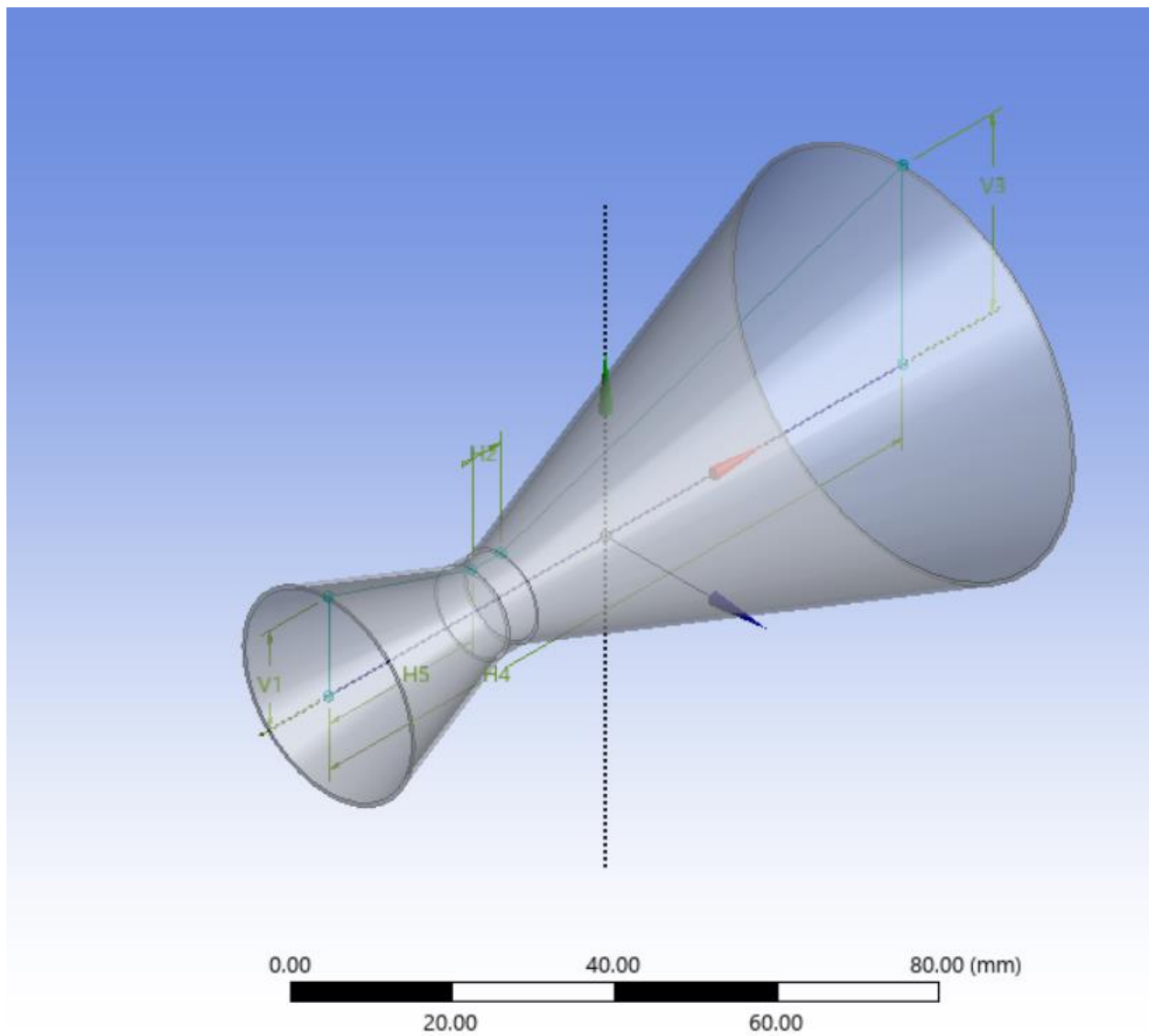


Project 18: ANSYS FLUENT: Fluid flow through a convergent-divergent nozzle

Problem Statement: Calculate the pressure contour inside a steel nozzle with air flowing inside ($v=365\text{m/s}$).

Geometry:



Material Properties:

Name	Material Type	Order Materials by
steel	solid	<input checked="" type="radio"/> Name
Chemical Formula	Fluent Solid Materials	<input type="radio"/> Chemical Formula
	steel	Fluent Database...
	Mixture	GRANTA MDS Database...
	none	User-Defined Database...

Properties

Density [kg/m^3] constant Edit...
8030

Name	Material Type	Order Materials by
air	fluid	<input checked="" type="radio"/> Name
Chemical Formula	Fluent Fluid Materials	<input type="radio"/> Chemical Formula
	air	Fluent Database...
	Mixture	GRANTA MDS Database...
	none	User-Defined Database...

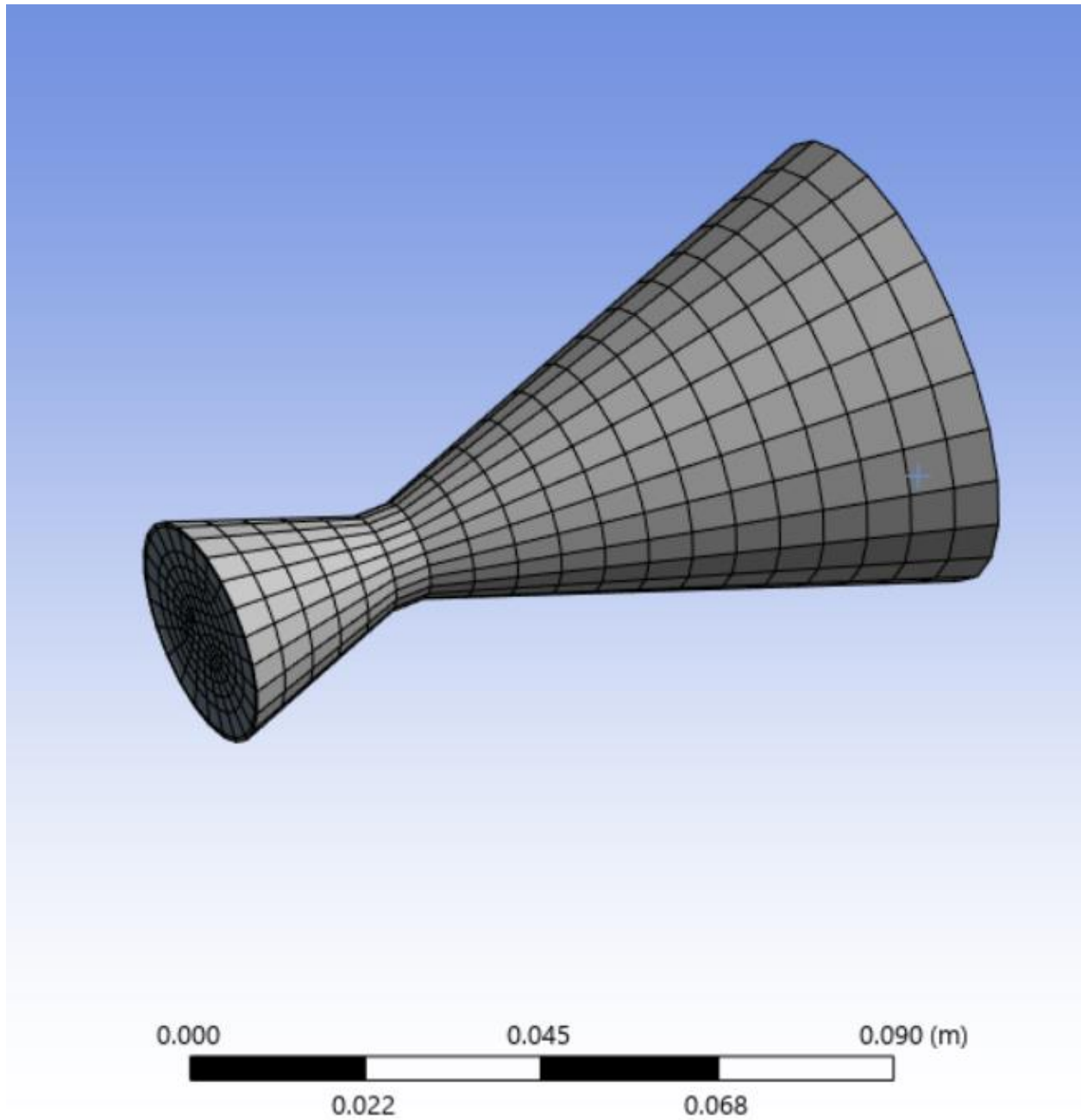
Properties

Density [kg/m^3] constant Edit...
1.225
Viscosity [kg/(m s)] constant Edit...
1.7894e-05

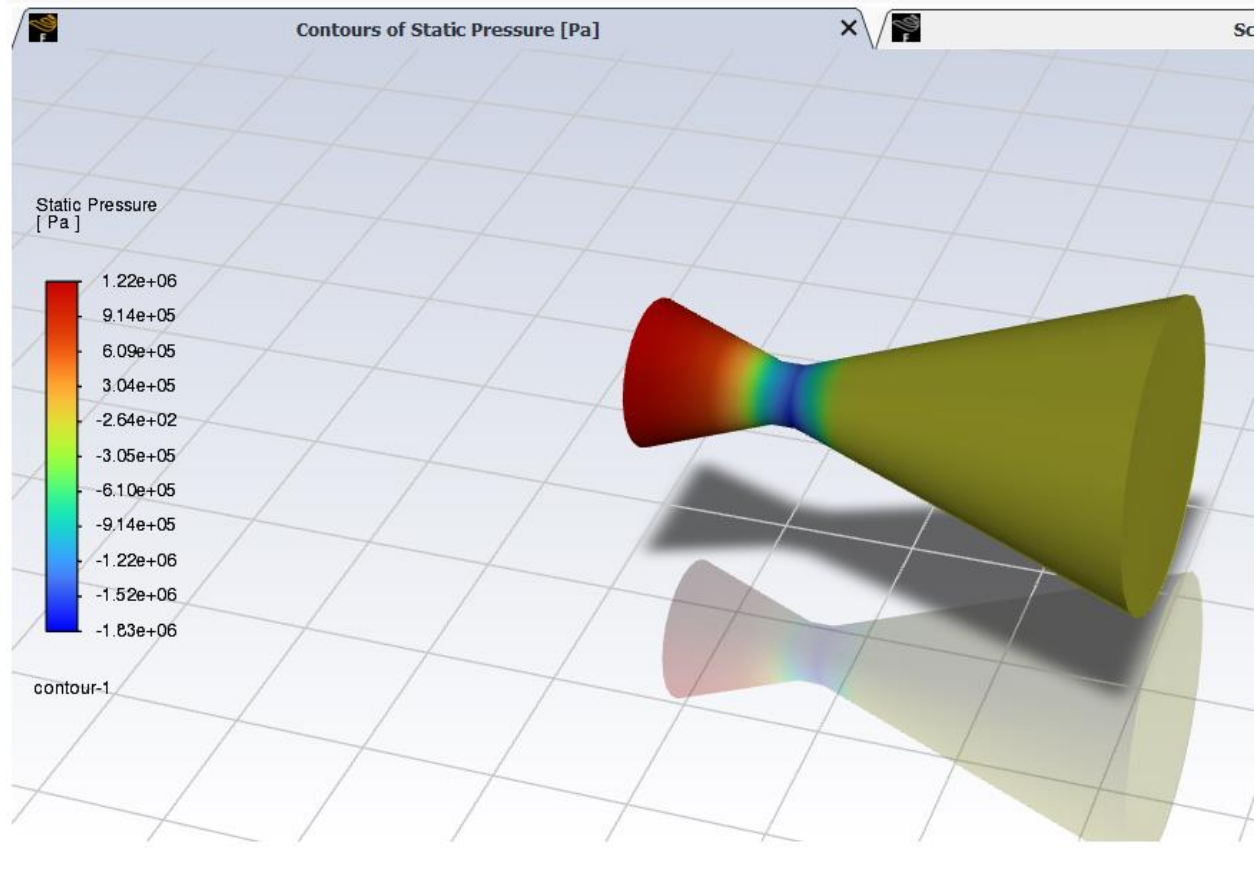
Boundary Conditions:

Inlet: $v=365\text{m/s}$. Outlet: $p=0\text{ Pa}$.

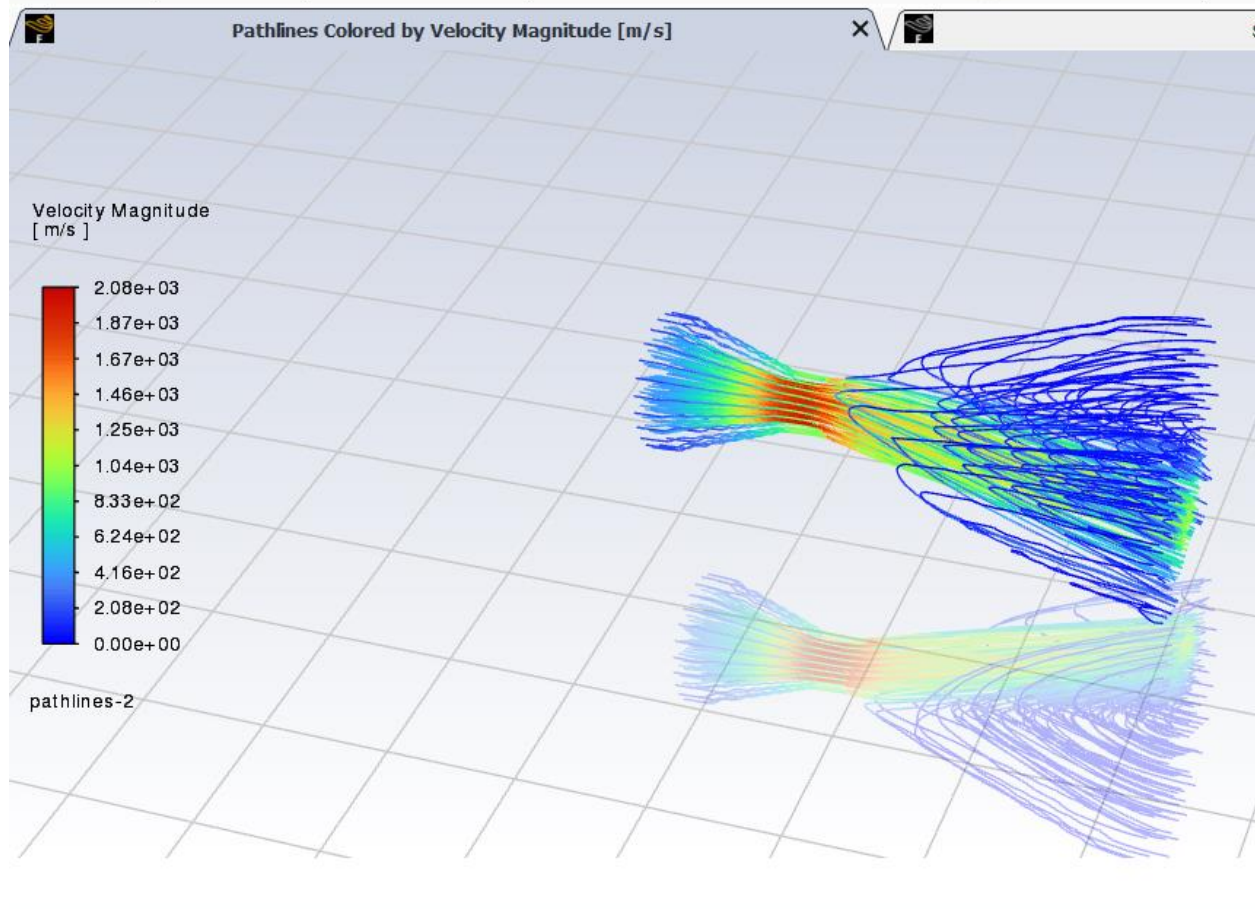
Mesh:



Results: Pressure Contour inside the nozzle.



Velocity Pathline:



Dynamic Pressure Pathline:

