Ansys 2024 R2

Report tunel

Analyst	Administrator
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System Information

Application	Fluent
Settings	3d, pressure-based, SST k-omega
Version	24.2.0-10192
Source Revision	149ed7492d
Build Time	May 13 2024 11:26:32 EST
CPU	Intel(R) Core(TM) i7-7700
OS	Windows

Geometry and Mesh

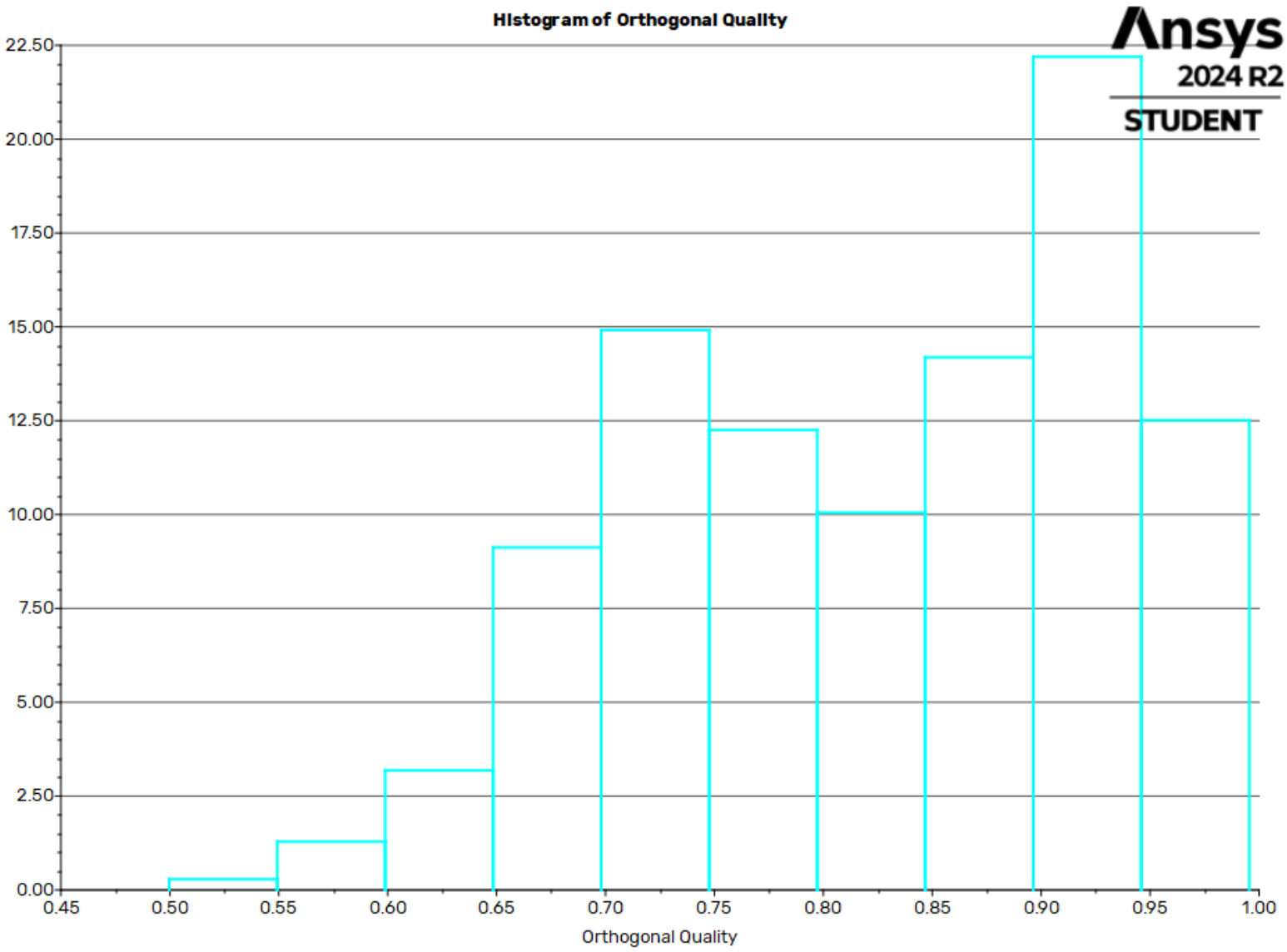
Mesh Size

Cells	Faces	Nodes
7153	31252	18154

Mesh Quality

Name	Type	Min Orthogonal Quality	Max Aspect Ratio
fluido	Poly Cell	0.4997212	13.349822

Orthogonal Quality



Simulation Setup

Physics

Models

Model	Settings
Space	3D
Time	Steady
Viscous	SST k-omega turbulence model

Material Properties

− Fluid	
− air	
Density	1.225 kg/m^3
Cp (Specific Heat)	1006.43 J/(kg K)
Thermal Conductivity	0.0242 W/(m K)
Viscosity	1.7894e-05 kg/(m s)
Molecular Weight	28.966 kg/kmol
− Solid	
− aluminum	
Density	2719 kg/m^3
Cp (Specific Heat)	871 J/(kg K)
Thermal Conductivity	202.4 W/(m K)

Cell Zone Conditions

− Fluid	
− fluido	
Material Name	air
Specify source terms?	no
Frame Motion?	no
Laminar zone?	no
Porous zone?	no

Boundary Conditions

− Inlet	
− failed-inlet-fluido	
Reference Frame	Absolute
Gauge Total Pressure [Pa]	0
Supersonic/Initial Gauge Pressure [Pa]	0
Direction Specification Method	Normal to Boundary

Build artificial walls to prevent reverse flow?	no
Turbulence Specification Method	Intensity and Viscosity Ratio
Turbulent Intensity [%]	5
Turbulent Viscosity Ratio	10
— Outlet	
— failed-outlet-fluido	
Reference Frame	Relative to Adjacent Cell Zone
Mass Flow Specification Method	Mass Flow Rate
Mass Flow Rate [kg/s]	0.1041667
Supersonic/Initial Gauge Pressure [Pa]	0
Turbulence Specification Method	Intensity and Viscosity Ratio
Turbulent Intensity [%]	5
Turbulent Viscosity Ratio	10
— Wall	
— failed	
Wall Motion	Stationary Wall
Shear Boundary Condition	No Slip
Wall Surface Roughness	Standard
Wall Roughness Height [m]	0
Wall Roughness Constant	0.5

Reference Values

Area	1 m^2
Density	1.225 kg/m^3
Enthalpy	0 J/kg
Length	1 m
Pressure	0 Pa
Temperature	288.16 K
Velocity	1 m/s
Viscosity	1.7894e-05 kg/(m s)
Ratio of Specific Heats	1.4
Yplus for Heat Tran. Coef.	300
Reference Zone	failed-outlet-fluido

Solver Settings

— Equations	
Flow	True
Turbulence	True
— Numerics	
Absolute Velocity Formulation	True
— Pseudo Time Explicit Relaxation Factors	
Density	1

Body Forces	1
Turbulent Kinetic Energy	0.75
Specific Dissipation Rate	0.75
Turbulent Viscosity	1
Explicit Momentum	0.5
Explicit Pressure	0.5
— Pressure-Velocity Coupling	
Type	Coupled
Pseudo Time Method (Global Time Step)	True
— Discretization Scheme	
Pressure	Second Order
Momentum	Second Order Upwind
Turbulent Kinetic Energy	Second Order Upwind
Specific Dissipation Rate	Second Order Upwind
— Solution Limits	
Minimum Absolute Pressure [Pa]	1
Maximum Absolute Pressure [Pa]	5e+10
Minimum Static Temperature [K]	1
Maximum Static Temperature [K]	5000
Minimum Turb. Kinetic Energy [m^2/s^2]	1e-14
Minimum Spec. Dissipation Rate [s^-1]	1e-20
Maximum Turb. Viscosity Ratio	100000

Run Information

Number of Machines	1
Number of Cores	1
Case Read	2.746 seconds
Iteration	243.856 seconds
AMG	165.586 seconds
Virtual Current Memory	0.49369 GB
Virtual Peak Memory	1.49084 GB
Memory Per M Cell	19.8388

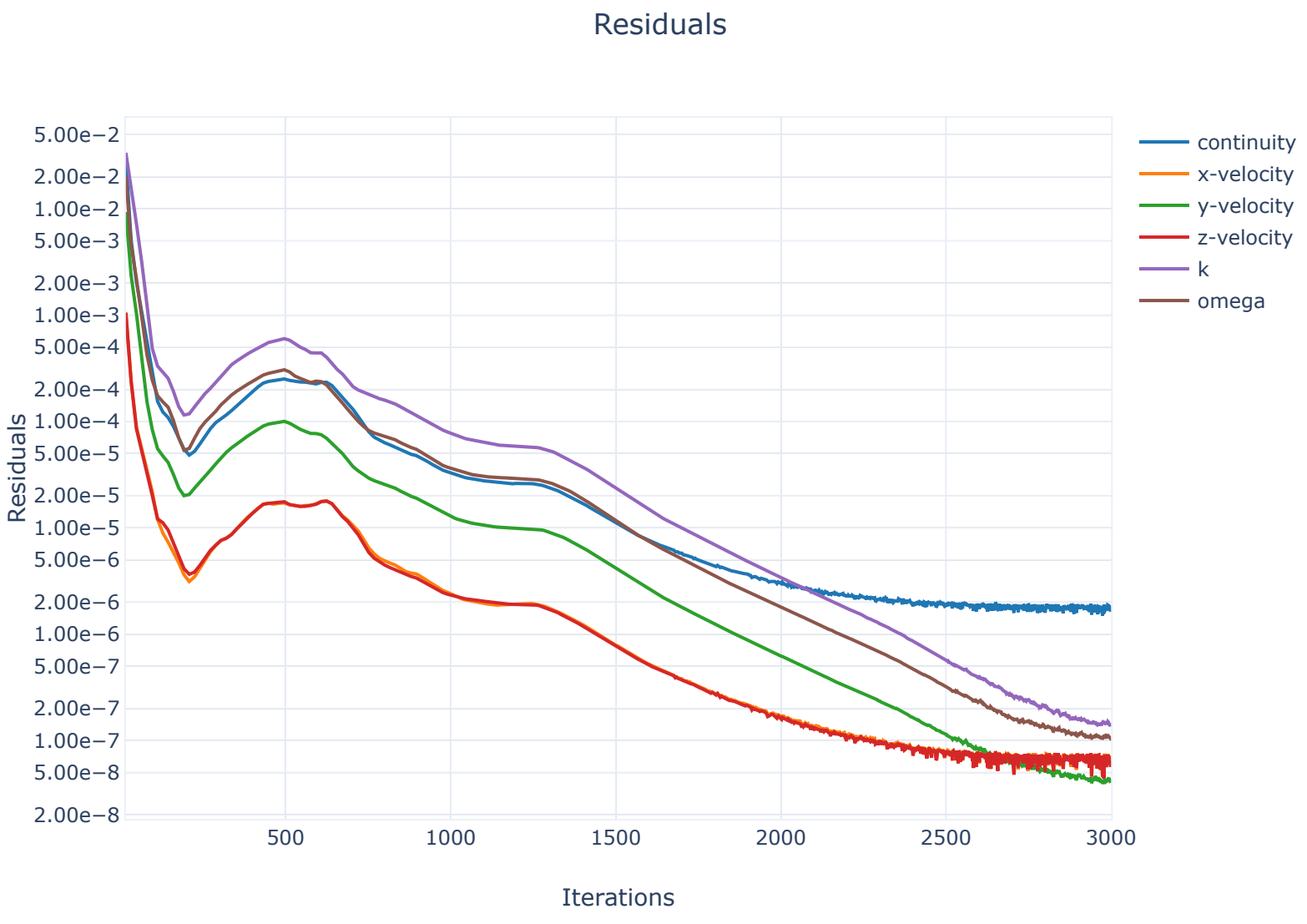
Solution Status

Iterations: 1000

	Value	Absolute Criteria	Convergence Status
continuity	1.699928e-06	1e-06	Not Converged
x-velocity	6.279398e-08	1e-06	Converged
y-velocity	4.263224e-08	1e-06	Converged
z-velocity	6.380795e-08	1e-06	Converged
k	1.376145e-07	1e-06	Converged
omega	1.055002e-07	1e-06	Converged

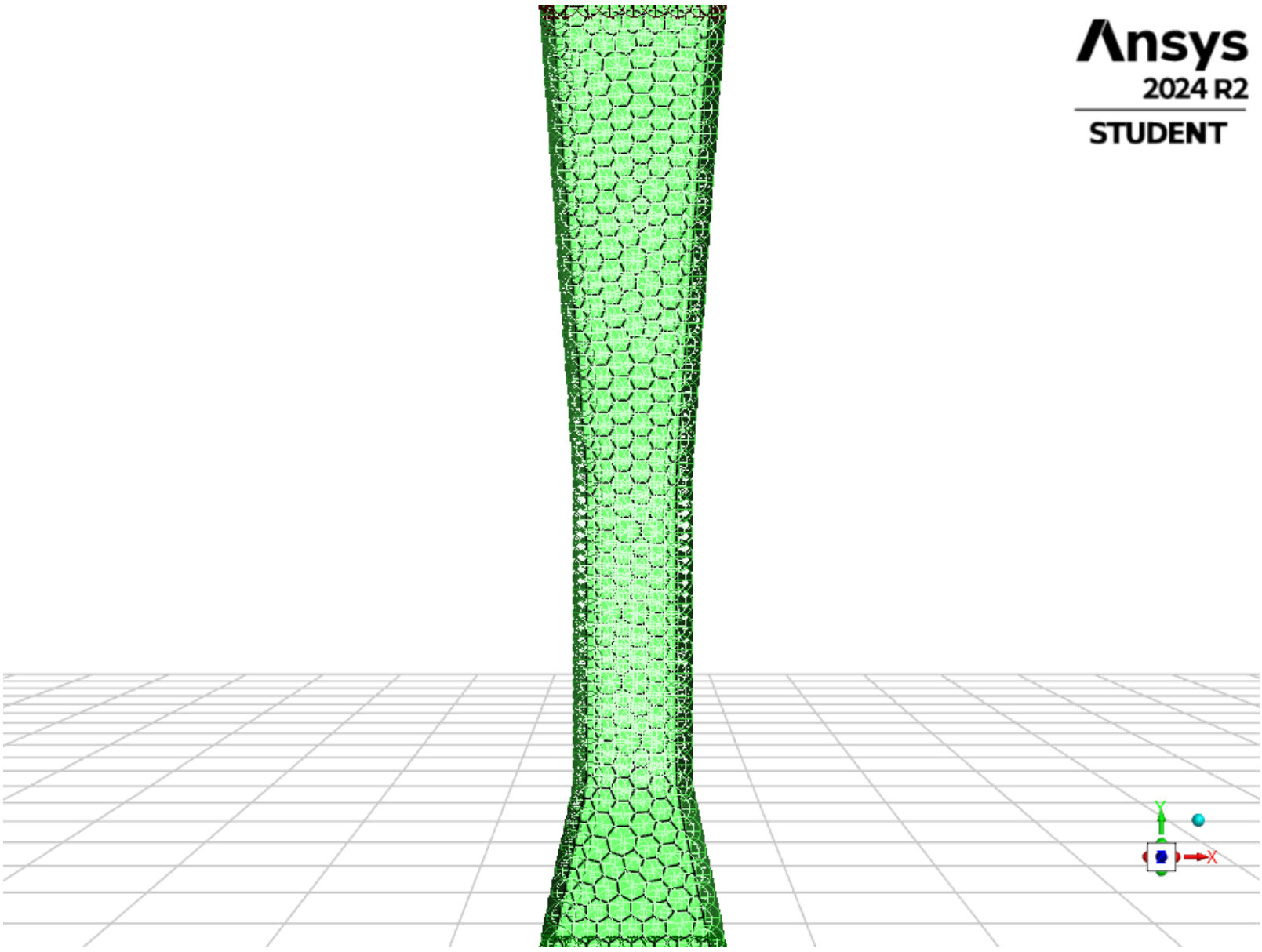
Plots

Residuals



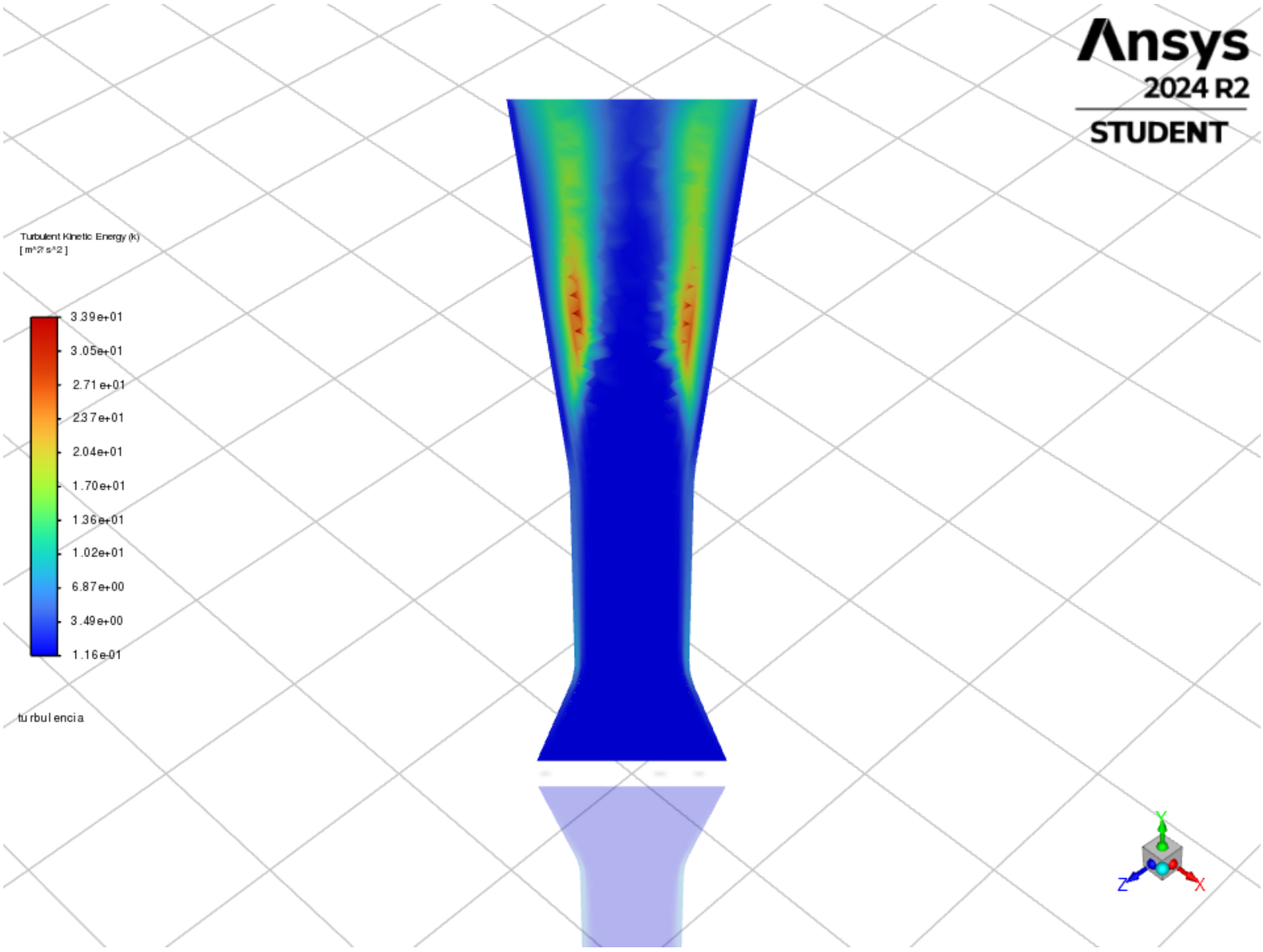
Mesh

mesh-1

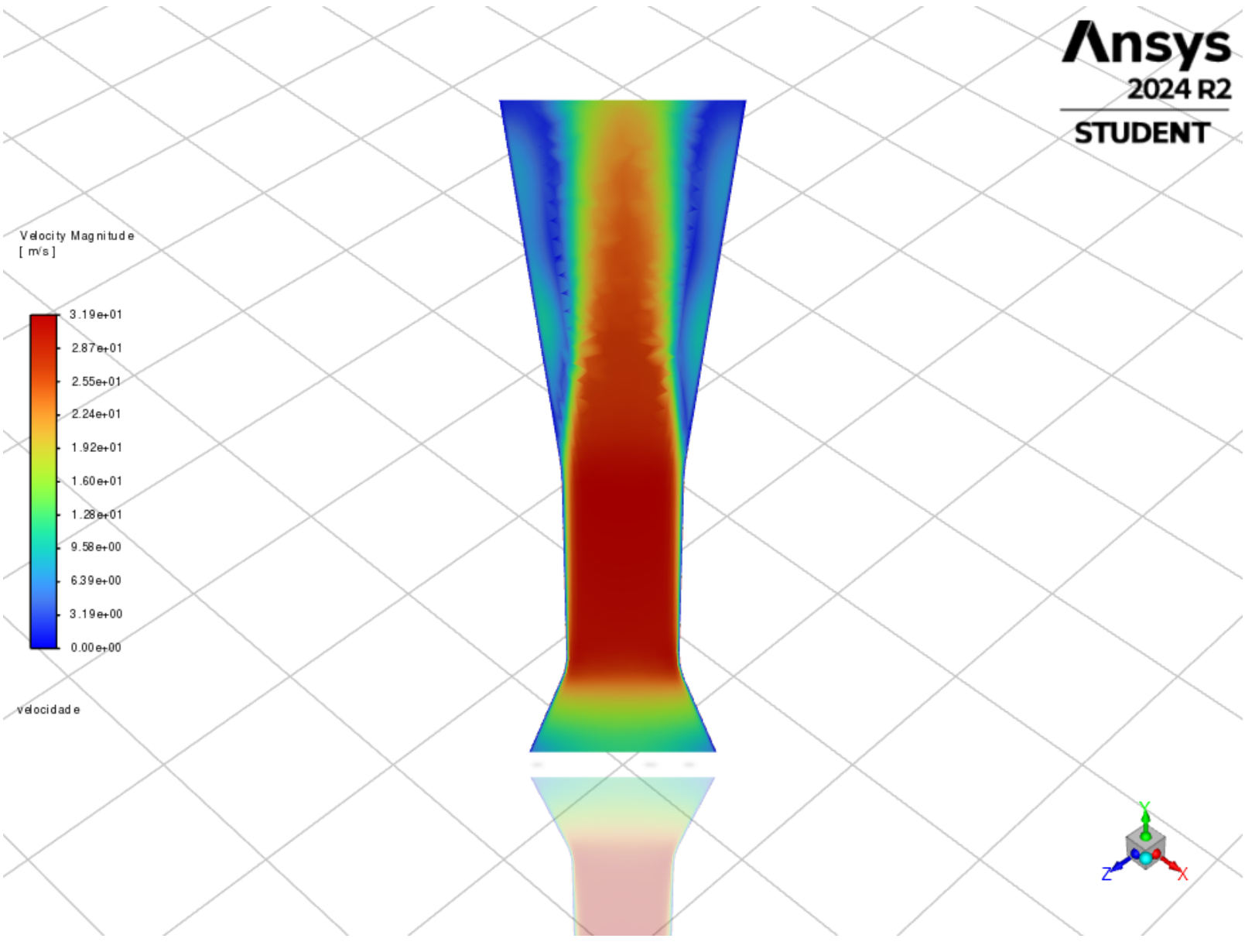


Contours

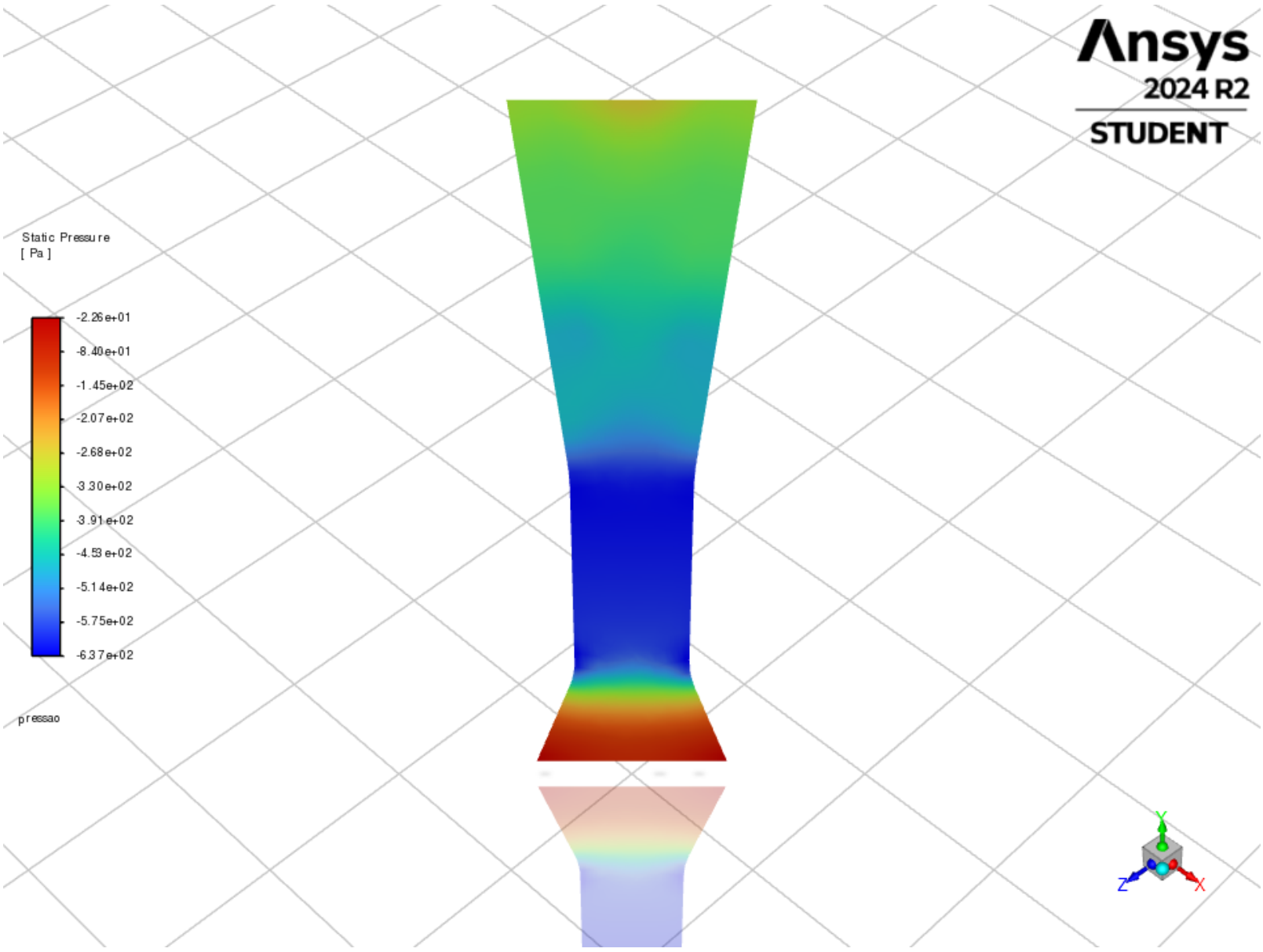
turbulencia

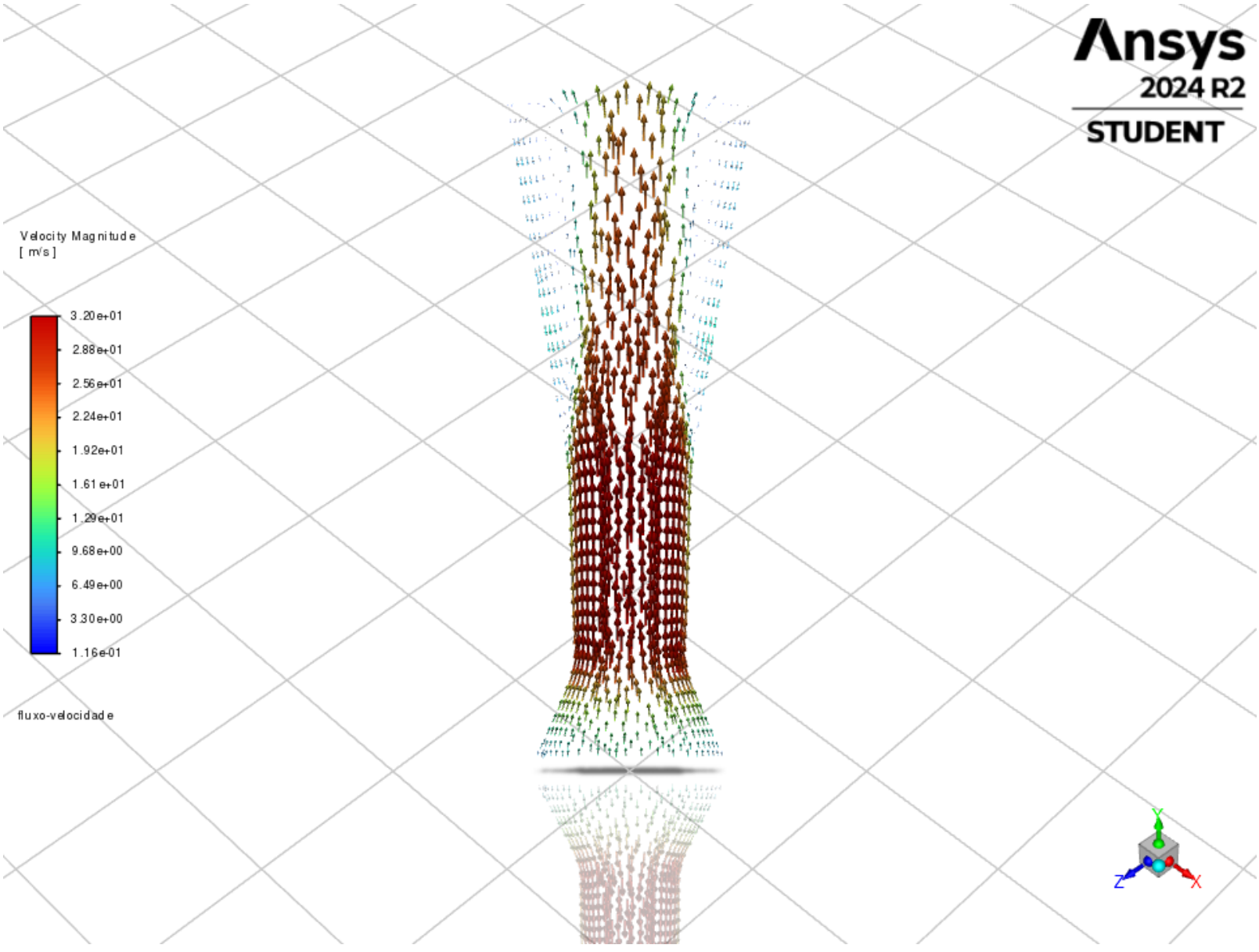


velocidade



pressao


Ansys
2024 R2
STUDENT
Static Pressure
[Pa]
-2.26e+01
-8.40e+01
-1.45e+02
-2.07e+02
-2.68e+02
-3.30e+02
-3.91e+02
-4.53e+02
-5.14e+02
-5.75e+02
-6.37e+02
pressao
Y
Z
X

Vectors

fluxo-velocidade