

FLUENT

Version: 2d, pbns, ske, transient (2d, pressure-based, standard k-epsilon, transient)

Release: 13.0.0

Title:

Models

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Model	Settings
Space	2D
Time	Unsteady, 1st-Order Implicit
Viscous	Standard k-epsilon turbulence model
Wall Treatment	Standard Wall Functions
Heat Transfer	Disabled
Solidification and Melting	Disabled
Species	Disabled
Coupled Dispersed Phase	Disabled
NOx Pollutants	Disabled
SOx Pollutants	Disabled
Soot	Disabled
Mercury Pollutants	Disabled

Material Properties

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Material: air (fluid)

Property	Units	Method	Value(s)
Density	kg/m3	constant	1.225
Cp (Specific Heat)	j/kg-k	constant	1006.43
Thermal Conductivity	w/m-k	constant	0.0242
Viscosity	kg/m-s	constant	1.7890001e-05
Molecular Weight	kg/kgmol	constant	28.966
Thermal Expansion Coefficient	1/k	constant	0
Speed of Sound	m/s	none	#f

Material: aluminum (solid)

Property	Units	Method	Value(s)
Density	kg/m3	constant	2719
Cp (Specific Heat)	j/kg-k	constant	871
Thermal Conductivity	w/m-k	constant	202.4

Solver Settings

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Equations

Equation	Solved
Flow	yes
Turbulence	yes

Numerics

Numeric	Enabled
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Absolute Velocity Formulation    yes

### Unsteady Calculation Parameters

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Time Step (s)                            0.001  
Max. Iterations Per Time Step    20

### Relaxation

Variable	Relaxation Factor
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Pressure	0.3
Density	1
Body Forces	1
Momentum	0.7
Turbulent Kinetic Energy	0.8
Turbulent Dissipation Rate	0.80000001
Turbulent Viscosity	1

### Linear Solver

Variable	Solver Type	Termination Criterion	Residual Reduction Tolerance
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Pressure	V-Cycle	0.1	
X-Momentum	Flexible	0.1	0.7
Y-Momentum	Flexible	0.1	0.7
Turbulent Kinetic Energy	Flexible	0.1	0.7
Turbulent Dissipation Rate	Flexible	0.1	0.7

### Pressure-Velocity Coupling

Parameter	Value
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Type	PISO
Skewness-Neighbour Coupling	yes
Skewness Correction	1
Neighbour Correction	1

### Discretization Scheme

Variable	Scheme
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Pressure	Second Order
Momentum	Second Order Upwind
Turbulent Kinetic Energy	Second Order Upwind
Turbulent Dissipation Rate	Second Order Upwind

### Solution Limits

Quantity	Limit
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Minimum Absolute Pressure	1
Maximum Absolute Pressure	5e+10
Minimum Temperature	1
Maximum Temperature	5000
Minimum Turb. Kinetic Energy	1e-14
Minimum Turb. Dissipation Rate	1e-20
Maximum Turb. Viscosity Ratio	1e+20