

Capabilities Chart

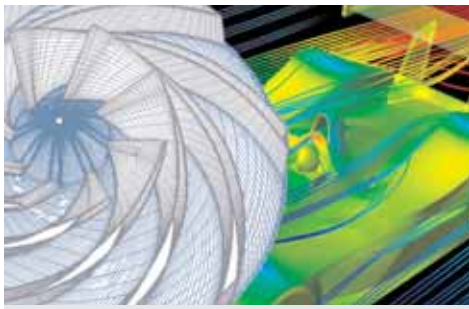
A comprehensive checklist of ANSYS capabilities

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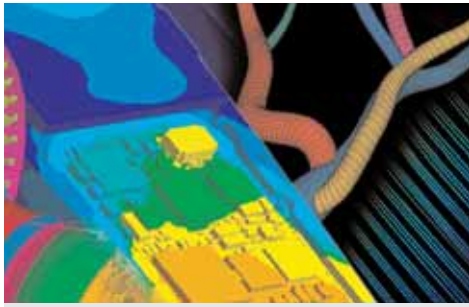
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Complete Simulation Solutions

Meshing Solutions

	Multiphysics™	Mechanical™	Structural™	Professional™	DesignSpace®	Emag™	CFX®	ED™ [C-12]	LS-DYNA™	Advanced Meshing	CFX® PrepPost™	ANSYS® PrepPost™
Capability												
Structural Linear												
Static	•	•	•	•	•			•				
Transient	•	•	•	•				•	•			
Substructuring	•	•	•					•				
Structural Nonlinear												
Static	•	•	•	•				•				
Transient	•	•	•	•				•	•			
Geometric	•	•	•	[C-11]				•	•			
Material	•	•	•	•				•	•			
Element	•	•	•	•				•	•			
Structural Contact/Common Boundaries												
Surface-to-Surface	•	•	•	•	•			•	•			
Node-to-Surface	•	•	•	•				•	•			
Node-to-Node	•	•	•	•				•	•			
Beam-to-Beam	•	•	•	•				•	•			
Pretension (bolts, etc.)	•	•	•	•				•	•			
Interface (gaskets)	•	•	•	•				•	•			
Spot Welds	•	•	•	•				•	•			
Structural Dynamics												
Modal	•	•	•	•	•			•				
Spectrum	•	•	•	•	•			•				
Harmonic	•	•	•	•	•			•				
Random Vibration	•	•	•	•	•			•				
Structural Buckling												
Linear	•	•	•	•	•			•				
Nonlinear	•	•	•	•	•			•	•			
Thermal												
Steady-State	•	•	•	•	•		•	•				
Transient	•	•	•	•	•		•	•				
Conduction	•	•	•	•	•		•	•				
Convection	•	[C-1]	•	[C-1]	[C-1]		•	•				
Radiation	•	•	•	•	•		•	•				
Phase Change	•	•	•	•	•		•	•				
Fluid Dynamics												
Steady-State/Transient Flow	•						•	•				
Incompressible/Compressible Flow	•						•	•				
Laminar/Turbulent Flow	•						•	•				
Forced & Natural Convection	•						•	•				
Conjugate and Radiation Heat Transfer	•						•	•				
Multiple Species Transport	•						•	•				
Newton and Non-Newtonian Viscosities	•						•	•				
Rotating Frames of Reference	•						•	•				
Distributed Resistances and Sources	•						•	•				
Free Surfaces by VOF Method	2-D						3-D	2-D				
Deformable Meshes (ALE formulation)	•						•	•				
Porous Media Model	•						•	•				
Solution Based Mesh Adaption	•						•	•				
Generalized Grid Interfaces	•						•	•				
Equilibrium Real Gas Thermodynamics	•						•	•				
Multiple Frames of Reference							[C-8]					
Lagrangian Particle Tracking							[C-8]					
Multiphase Flows							[C-8]					
Reacting and Combusting Species							[C-8]					
Predictive Laminar to Turbulent Transition Model							[C-8]					



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	Multiphysics™	Mechanical™	Structural™	Professional™	DesignSpace®	Emag™	CFX®	ED™[C-12]	LS-DYNA™	Advanced Meshing	CFX® PrepPost™	ANSYS® PrepPost™
Pre-Processing												
Solid Modeling
Defeaturing
IGES Geometry Transfer
Geometry Repair
Topology Diagnosis
Faceted Data Handling
Mid-Surfacing
Variable Thickness Mid-Surfacing
Tetra/Prism Meshing
Structured Hex Meshing
Automatic Free-Meshing
Automatic Hex-Meshing
Automatic Hex-Dominant Meshing	.	.	.	[C-5]	[C-5]	.	.	.	[C-5]	.	.	.
Solid Model Loads & Boundary Conditions
Tabular Loads & Boundary Conditions
Function Loads & Boundary Conditions
CFX Command Expression Language
CFD Turbo-Machinery Pre-Processing	[C-7]	.	.	.	[C-7]	.
Parameterization of an Existing Mesh	[C-6]	[C-6]	[C-6]	[C-6]	.	[C-6]	[C-6]	[C-6]	[C-6]	.	.	.
Mesh Morphing	.	[C-6]	[C-6]	[C-6]	.	[C-6]	[C-6]	[C-6]	[C-6]	.	.	.
Mesh Editing
Mesh Repair (remeshing, etc)
Post-Processing												
Contour Displays
Vector Displays
Isosurface Displays
Slicing Planes
Quantitative Calculations
Particle Tracing
Animations
Annotated Graphs
Results Listings
Output (VMRL, Postscript, TIFF, etc.)
CFD Turbo-Machinery Post-Processing
General												
Parametric Simulation
CAD Parameter Access	[C-9]	[C-9]	[C-9]	[C-9]	[C-9]	[C-9]	[C-9]	[C-9]
ANSYS® Parametric Design Language™
CFX Command Language
Design Optimization	[C-4]	[C-4]	[C-4]	[C-4]	[C-4]	[C-4]	.	.	[C-4]	.	.	.
Robust Design	[C-4]	[C-4]	[C-4]	[C-4]	[C-4]	[C-4]	.	.	[C-4]	.	.	.
Submodeling
HTML Report Generator

[C-1] Limited to user-specified heat transfer film coefficients.

[C-2] Limited to radiation to a constant temperature ambient surroundings boundary condition.

[C-3] Available through Parallel Performance for ANSYS Add-on module.

[C-4] Available through the ANSYS DesignXplorer VT Add-on module.

[C-5] Available through the Advanced Structural Meshing Add-on module.

[C-6] Available with the ParaMesh product.

[C-7] In addition, ANSYS BladeModeler and ANSYS TurboGrid complete our specialized Turbo-Machinery solution.

[C-8] Available through an Add-on module.

[C-9] Available through either the DesignModeler Add-on or with Workbench when used with a geometry interface and a parametrically supported CAD program.

[C-10] ANSYS Mechanical includes the MFX Multi-field solver for FSI analysis with a separate licensed task of Full Capability CFX.

[C-11] Not available for 2-D Plane and 3-D Solid elements.

[C-12] Node and feature limited version of ANSYS Multiphysics with LS-DYNA.



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