

ANSYS 12.0 Capabilities Chart

ANSYS Solver Product Solutions

	ANSYS® Multiphysics™	ANSYS® Mechanical™	ANSYS® Structural™	ANSYS® Professional™ NLS	ANSYS® Professional NLT	ANSYS® DesignSpace®	ANSYS® CFD™		ANSYS® CFD-Flo™	HFSS™	Maxwell®	ANSYS® Emag™	ANSYS® Explicit STR™	ANSYS® AUTODYN®	ANSYS® LS-DYNA®
	ANSYS® FLUENT®	ANSYS® CFX®													
Solver Options															
Pressure-based coupled solver	•						•	•	•						
Density-based coupled solver							•	•							
Pressure-based segregated solver							•								
Parallel solving on local PC option	•						•	•	•						
Parallel solving over network option	•						•	•	•						
Customizable, scripting and user functions (capabilities vary)	•						•	•	•						
Electromagnetics – Low Frequency															
Electrostatics	•										•	•			
Magnetostatics	•										•	•			
Low-frequency electromagnetics	•										•	•			
Current conduction	•										•	•			
Circuit analysis & coupling	•										•	•			
Ion optics – charged particles	•										•	•			
Low-frequency electric	•										•	•			
Low-frequency magnetic	•										•	•			
Steady state	•										•	•			
Harmonic	•										•	•			
Transient	•										•	•			
Electromagnetics – High Frequency															
Modal	•									•					
Harmonic	•									•					
Scattering	•									•					
Perfect electric & magnetic conductors	•									•					
Impedence boundaries	•									•					
Perfectly matched absorber boundaries	•									•					
Near & far field extension	•									•					
Periodic structures	•									•					
Frequency selective surface (FSS)	•									•					
Antenna radiation patterns	•									•					
Radar cross section (RCS)	•									•					
Specific absorption rate (SAR)	•									•					
Coupled Physics															
Acoustics	•	•					•	Δ	Δ						
Acoustics-structural	•	•													
Electric-magnetic	•											•			
Fluid-structural	•	[C-1]					[C-1]	[C-1]	[C-1]					•	
Fluid-thermal	•						•	•	•						
Electromagnetic-fluid	•						+								
Magnetic-structural	•	[C-2]										[C-2]			
Electromagnetic-thermal	•	[C-2]										[C-2]			
Piezoelectric	•	•													
Piezoresistive	•	•													
Thermal-electric	•	•			•										
Thermal-structural	•	•		•	•	•									
Thermal-electric-structural	•	•													
Electromagnetic-thermal-structural	•	[C-2]										[C-2]			
Electrostatic-structural	•														
Reduced-order modeling (ROM)	•	[C-2]										[C-2]			
Multi-field general purpose solver	•	[C-1]					[C-1]	[C-1]	[C-1]			[C-2]			

ANSYS 12.0 Capabilities Chart

ANSYS Solver Product Solutions

	ANSYS® Multiphysics™	ANSYS® Mechanical™	ANSYS® Structural™	ANSYS® Professional™ NLS	ANSYS® Professional NLT	ANSYS® DesignSpace®	ANSYS® CFD™		ANSYS® CFD-Flo™	HFSS™	Maxwell®	ANSYS® Emag™	ANSYS® Explicit STR™	ANSYS® AUTODYN®	ANSYS® LS-DYNA®
							ANSYS® FLUENT®	ANSYS® CFX®							
Pre-Processing															
Modeling Capabilities															
IGES/STEP geometry reader	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Geometry repair (ANSYS® DesignModeler™ required)	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Beam modeling	•	•	•	•	•										
Faceted data handling															
Meshing Capabilities															
Defeaturing	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Automatic surface meshing	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Automatic tetrahedral meshing	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Automatic prism inflation layers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Automatic hexa-core meshing	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Automatic swept hex meshing	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Automatic hexa-dominant meshing	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Thin-sweep meshing	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Mesh editing										•	•				
Mesh repair (remeshing, etc.)										•	•				
Boundary Conditions															
Solid model loads & boundary conditions	•	•	•	•	•	•	•	•	•			•	•	•	•
Tabular loads & boundary conditions	•	•	•	•	•	•	•	•	•			•	•	•	•
Function loads & boundary conditions	•	•	•	•	•	•	•	•	•			•	•	•	•
Apply temperature loads	•	•	•	•	•	•	•	•	•						
Post-Processing															
Report generator	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Contour displays	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Vector displays	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Isosurface displays	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Slicing planes	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Quantitative calculations	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Particle tracking	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Animation	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Output (images, Excel® data)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CFD turbomachinery post-processing	•						•	•	•						
General															
ANSYS® Engineering Knowledge Manager™ data management ready	+	+	+	+	+	+	+	+	+			+	+	+	
Parallel solvers (HPC licenses required)	+	+	+	+	+		+	+	+	+	+	+	+	+	+
Solver scripting language	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Parameter manager	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Optimization (ANSYS® DesignXplorer™ license required)	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

△ = Limited set of feature capabilities

+ = Additional product required

[C-1] ANSYS Mechanical, ANSYS CFX, ANSYS CFD-Flo and ANSYS FLUENT can be used together for FSI analysis

[C-2] ANSYS Mechanical with ANSYS Emag license required

www.ansys.com



GSA Contract Holder

ANSYS, Inc.
Southpointe
275 Technology Drive
Canonsburg, PA 15317
U.S.A.
724.746.3304
ansysinfo@ansys.com

Toll Free U.S.A./Canada:
1.866.267.9724
Toll Free Mexico:
001.866.267.9724
Europe:
44.870.010.4456
eu.sales@ansys.com

ANSYS, ANSYS Workbench, HPSS, AUTODYN, CFX, FLUENT and any and all ANSYS, Inc. brand, product, service and feature names, logos and slogans are registered trademarks or trademarks of ANSYS, Inc. or its subsidiaries in the United States or other countries. ICFM CFD is a trademark used under license. All other brand, product, service and feature names or trademarks are the property of their respective owners.

Image Credits: Some images courtesy FluidDA nv, Forschungszentrum Jülich GmbH, Heat Transfer Research, Inc., Riello SPA and iStockphoto.com

© 2009 ANSYS, Inc. All Rights Reserved. Printed in U.S.A.

MKT0000282 04-09