

Ansys Rocky

Capabilities Chart (Version 4.4.0)

- – Full Support
- – Requires More than 1 Product

General Features

Simulate more than 1,000,000 particles	●
Modify Material Compositions	●
Modify Materials Interactions	●
Extend Simulation	●
Restart Capabilities	●
Resume Capabilities	●
Solver Scheduler Tool	●
Periodic Domains (Cartesian or Cylindrical)	●
(API) Python Macro & Scripting (Pre & Post)	●
Software Development Kit (SDK) API Support (for Creating Custom External Modules) *separate SDK download required	●*
Parametric Support (Pre & Post)	●
Unit System Management	●
Project Archive & Restore	●
Windows OS Support	●
Linux OS Support	●
Command Line & Headless System Support	●

Parallel Processes

Parallel Shared Memory CPU Solver, up to 4 Cores	●
Single GPU Solver	●
Parallel Shared Memory CPU Solver, more than 4 Cores (HPC licenses required)	■
MultiGPU Solver (HPC licenses required)	■

Contact and Physical Models

Rolling Resistance Model: Type A: Constant Moment (Type 1)	●
Rolling Resistance Model: Type C: Linear Spring Rolling Limit (Type 3)	●
Contact Model (Normal Forces): Hysteretic Linear Spring, Linear Spring Dashpot, and Hertzian Spring Dashpot	●
Contact Model (Tangential Forces): Linear Spring Coulomb Limit, Coulomb Limit, and Mindlin-Deresiewicz	●
Contact Model (Adhesive Forces): Constant, Linear, and JKR	●
Shear Wear Contour Plots	●
Wear (Surface Modification)	●
Particle Breakage Models: Ab-T10, Tavares, and TBM	●
Joint Breakage Models: Griffith Surface Energy and Shear Stress Criterion	●
Thermal Model	●
Lattice Boltzmann Air Flow	●
CFD Coupling: Constant One Way	●

Coarse Grain Models	•
Liquid Bridge Model	•
Joint Models: Linear Elastic and Bilinear Elastoplastic	•
Geometry Types	
Imported Geometries (import *.xgl, *.stl, and *.dxf Files)	•
Rocky Feed Conveyor Parametric	•
Rocky Receiving Conveyor Parametric	•
Custom Inlets	•
Imported Geometries from ANSYS Fluent (import *.cas and *.msh Files)	•
Geometry Motions	
Rotation Motion	•
Translation Motion	•
Rotation Motion Without Displacement	•
Translation Motion Without Displacement	•
Periodic Translation (Vibration) Motion	•
Periodic Rotation (Pendulum) Motion	•
Additional Force/Moment Motion	•
Spring-Dashpot Force/Moment Motion	•
Linear Time Variable Force/Moment Motion	•
Cone Crusher Motion	•
Periodic Motion	•
6-DoF (Degrees of Freedom) Motion	•
Imported Motions from Ansys Fluent	•
Replicate Geometry	•
Nested Motion Frames	•
Particle Types	
(See also Rocky Particle Shapes and Capabilities)	•
Rounded Particle Types including Sphere, Sphero-Cylinder, Sphero Polygon, and Sphero-Polyhedron	•
Non-Round Particle Types including Polyhedron, Briquette, and Faceted Cylinder	•
Custom Imported Convex Particles	•
Custom Imported Concave Particles	•
Flexible Particle Type (Fiber, Shell, and Polyhedron)	•
Fiber Particle Type (Rigid, Flexible, Frozen, Joint Breakage, and/or CFD Coupled)	•
Shell Particle Type (Rigid, Flexible, Joint Breakage, and/or CFD Coupled)	•
Particle Size Distribution	•
Adhesive Materials (Wet/Dry/Sticky Contact Rheologies)	•
Particle Input Types	
Continuous Injection Particle Input	•
Volume Fill Particle Input	•
Custom Particle Input	•
Export Options	
Image Export	•
Property and Curves Table Data Export	•

Geometry Export, including Modified Wear Boundaries	•
Particle Shape Export	•
Project Context Export	•
Quantitative Post-Processing	
Cube Selection	•
Cylinder Selection	•
Plane Selection	•
Custom (Polyhedron Envelope) Region Selection	•
Property Filter	•
Particle Residence Time Property	•
Particle Tagging	•
Eulerian Statistics	•
Particles Time Selection	•
Particles Trajectory	•
Particle to Contact and Contact to Particle Selections	•
Particle Flip Count Property	•
Limit Calculations to Particle Selection	•
Default Properties and Curves	•
Time Statistics Properties	•
Custom Properties and Curves	•
Intra-particle Collision Statistics	•
Particles and Contacts Energy Spectra	•
Boundary Collision Statistics	•
Inter-particle Collision Statistics	•
Contacts Analysis	•
Inter-group Collision Statistics	•
Particle Instantaneous Energies	•
Visualization Tools	
3D View	•
Time Plot	•
Space Plot	•
Histogram	•
Cross Plot	•
Video Animation	•
Motion Preview	•
Multi-Time Plot	•
Particle and Cell Inspector	•
Particles Details 3D View	•
Custom Preset Camera Views	•
Ansys Coupling	
Parametric Integration through Ansys Workbench	•
Ansys Mechanical Coupling	•
1-Way Static Coupling (DEM-to-FEA)	•

1-Way Transient Coupling (DEM-to-FEA)	•
Ansys Fluent Coupling	•
1- Way Coupling (CFD-to-DEM)	•
Single Phase 2-Way Coupling (CFD-DEM)	•
Multiphase 2-Way Coupling (CFD-DEM)	•
Additional (Non-Default) Features	
Advanced Features	•
Experimental (Beta) Features	•
User Manual (this document)	•
Scripting API Manual	•
DEM Technical Manual	•
CFD Coupling Technical Manual	•
Rocky SDK Manual *Separate SDK download required	•*