ROCKY
Chute Simulation with
Non-Round Particles

v. 1.0.0 - C
ROCKY
DEM PARTICLE SIMULATOR FOR CONVEYOR CHUTE DESIGN

ROCKY is a Discrete Element Method (DEM) program from that quickly and accurately simulates particle behavior within a conveyor chute system. With a wide range of particle shapes, wet and dry contact rheologies, and streamlined calculations, **ROCKY** is the smart choice for evaluating your conveyor chute performance.

Key Benefits*:

- Increases belt life and capacity
- Eliminates blockages and belt punctures
- Decreases spillage and product degradation
- Reduces dust, noise, and belt power
- Defines ore trajectories
- Optimizes belt tracking
- Lessens lining wear and maintenance

* Using optimized geometries

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Simulates Air Turbulence, Dust Flows, and Control using Gas Dynamics
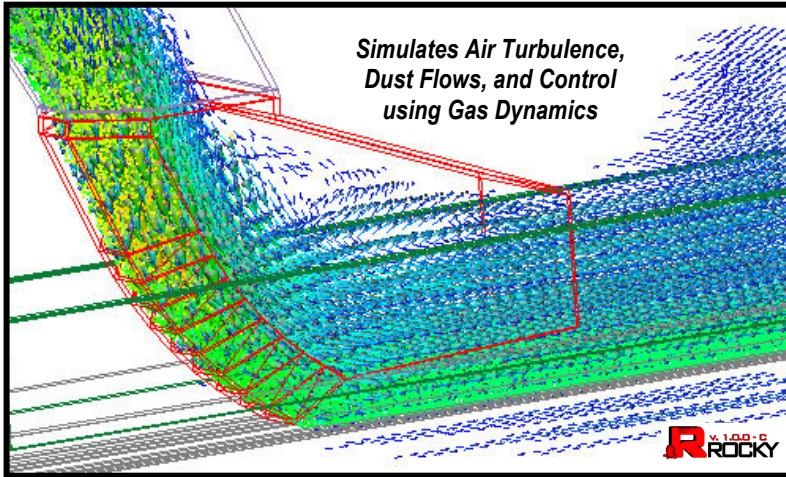
Why "Chute" with ROCKY

⬤ **Replicates dry, wet, and dust-like particles.**
ROCKY uses adjustable contact rheologies to simulate how moist particles—such as clay—behave differently than dry particles in a conveyor chute environment. In addition, coupled gas dynamic properties aid in dust control design.

⬤ **Simulates 2×10^6 particles in various shapes and sizes with realistic stiffness.**
ROCKY enables you to choose from a nearly limitless array of particle shapes, sizes, and ranges (>25:1) including faceted polyhedrons, rods, pellets, and briquettes.

⬤ **Supports the use of custom particle shapes.**
Use a variety of CAD programs to create custom particle shapes, import them into ROCKY, and then use them in your simulations.

⬤ **Enables geometry import from a variety of CAD programs**.
ROCKY enables you to import STL and XGL geometry files directly into the software and automatically triangulates the boundaries. This allows you to see how particles act upon your *exact* design while still enabling you to iterate using the tools you are already familiar with.

⬤ **Facilitates animated boundary components.**
ROCKY enables you to create moving boundaries, such as gates that lift and turn, adding another level of realism to your simulations.

⬤ **Simplifies simulation setup.**
User-friendly menus and dialogs help you quickly input your parameters.

⬤ **Processes simulations faster and with double precision.**
Parallel scaling features enables ROCKY to process your simulations up to 25 times faster using up to 32 multi-core processors. Compared to single precision, this provides superior contact mechanic accuracy.

⬤ **Displays results in easy-to-understand formats**.
ROCKY uses different colors to represent how certain parameters and calculations—such as power draw, shear intensities, and belt and liner wear—act upon the particles and boundaries in your design. This enables you to see at-a-glance how your chute performs even before you review the metrics and graphs.
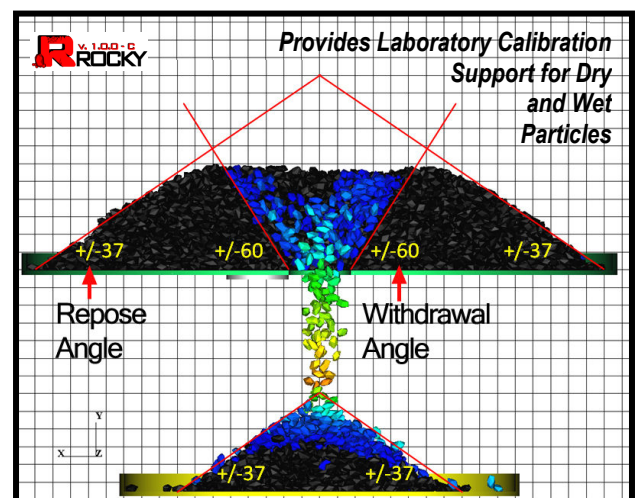
System Requirements

⬤ 64-bit Windows Operating System (Windows Server, Windows XP, Windows Vista, or Windows 7)
⬤ A video card that supports OpenGL graphics
⬤ 4 GB of free disk space (8 GB recommended)
⬤ 4 GB of RAM (8 GB recommended)
⬤ (Recommended) Quad-core to 32-core processor
⬤ Two-button mouse with center wheel
⬤ Screen resolution of 1280 x 1024 or higher
⬤ (Optional) Autodesk Inventor

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Provides Laboratory Calibration Support for Dry and Wet Particles

Repose Angle

Withdrawal Angle

+/-37   +/-60   +/-60   +/-37

+/-37   +/-37

How can **ROCKY** help your organization? Contact Commination Technology at **360-671-2200**, or visit our website at **www.conveyor-dynamics.com**.   Design services are available.