

Advanced Cable Simulation

with Vortex Studio

overview /

Vortex Studio allows you to add cables, tethers, winches and pulleys to virtual equipment. It provides accurate and stable simulation of short and long cables under slack conditions and tension.

benefits /

Simulating the behavior of cable systems is instrumental to replicating the performance of lifting and towing equipment. Whether you use simulation for lift planning, operator training or virtual prototyping, Vortex Studio provides you with a complete toolset to model complex cable systems easily.

KEY FEATURES /

1. Simulate cables and wires based on mechanical engineering specifications
2. Add winches, pulleys, rings and attachment points to virtual equipment using a graphical user interface
3. Efficiently model long cables and tethers using Adaptive Cable simulation
4. Support high mass ratios to accurately replicate heavy lift scenarios

Accurately Simulate Heavy Lifts.

While many solutions struggle with the high mass ratios involved in heavy lift scenarios, Vortex Studio provides stable simulation of extreme loads.

Create Long Cables and Tethers.

Vortex Studio's unique Adaptive Cable method enables efficient simulation of long cables and tethers by assigning variable refresh rates to sections based on their motion characteristics

Part of a Complete Simulation Platform.

Vortex Studio provides a complete simulation and visualisation environment that combines cable simulation with deformable soil, vehicle modelling and maritime environments.



Key features

1

State-of-the-Art Cable Simulation

Vortex Studio simulates flexible cables and complex hoisting systems with a high level of fidelity, providing stable simulation regardless of cable length and mass ratio.

- Simulate standard cables and wires, as well as specialized cables, such as catenaries and pipelines
- Model cable characteristics, such as stiffness, bending, elongation, mass and drag using mechanical properties such as wire density, radius, Young's modulus and the number of wire strands
- Scale to extreme mass ratios found in heavy lift scenarios
- Automatically define cable breaking point based on maximum tension

2

Easily Add Cables to Scenes and Equipment

Vortex Studio allows you to add lifting and towing capabilities to your virtual equipment rapidly by defining attachment points and separating cables into segments.

- Transform mechanism parts into winches, pulleys, rings, spoolers, attachments points, and cable holding and cutting equipment
- Customize segment length and flexibility
- Define cable buoyancy for realistic interactions of cables with water and currents
- Add pipelines and catenary cables, such as risers and moorings, to virtual environments
- Activate or deactivate cables at runtime

3

Create a Wide Range of Scenarios

Vortex Studio simplifies the creation of exercises involving lifting, vehicle towing, or the operation of tethered equipment with its integrated cable simulation and visualisation capabilities.

- Ground- and ship-based crane hoisting systems
- Winches on vehicles for vehicle recovery and towing operations
- Tethers for remotely-operated robots such as explosive ordnance disposal
- Subsea cables, risers, and ROV tether management, including buoyancy and ocean-current effects
- Marine mooring, anchoring lines and ship-to-ship transfer cables
- Environmental objects, such as powerlines and pipelines

