

D-Cubed components

Geometric software components for CAD, CAM and CAE software developers

Benefits

- Add D-Cubed components to your applications economically and quickly with flexible licensing arrangements and a simple integration process
- Ensure the productivity of your software developers and end users with our market-proven quality
- Minimize your development and testing requirements and the risk of in-house development overruns with our market-proven technology
- Benefit from the same solutions used by more than 4 million end users

Summary

D-Cubed™ components deliver key functionality in a wide range of applications in computer-aided design (CAD), simulation and manufacturing.

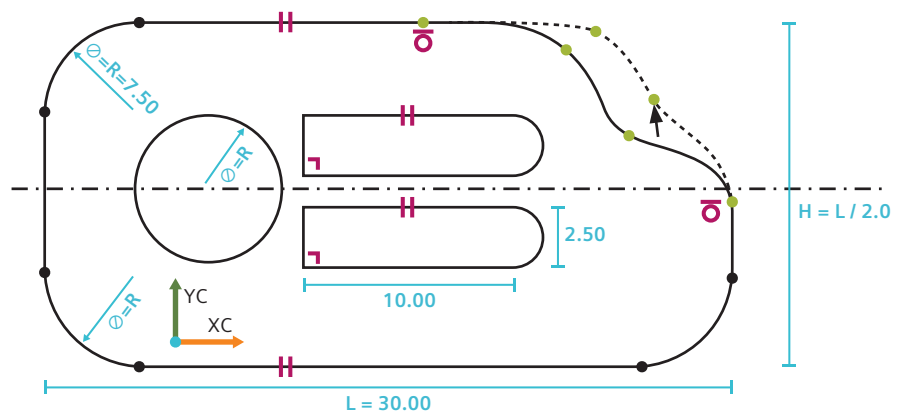
Software vendors rely on these components to accelerate time to market, solve complex modeling problems and enhance end-user productivity.

Six different components provide industry-proven solutions for parametric sketching, offset profiles, part and assembly design, motion simulation, collision/clearance analysis and hidden line visualization.

D-Cubed 2D DCM

Our 2D Dimensional Constraint Manager (DCM) solves geometric rules, enabling designers and engineers to work with sketches more efficiently. Dimensions and constraints specify the location of geometry in the sketch. Designs are modified easily by changing dimension values or dragging geometry, while 2D DCM maintains the design intent by ensuring all dimensions and constraints are satisfied.

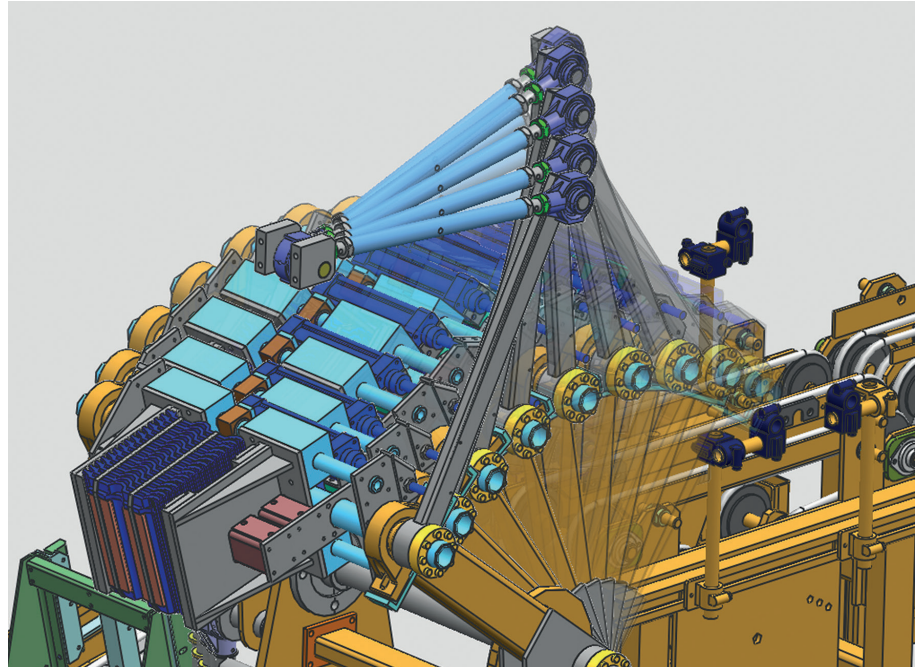
- Constrain points, lines, circles, ellipses, conics, splines and parametric curves
- Apply dimensions and constraints – distance, angle, radius, curve length, parallel, perpendicular, tangent, normal, concentric, midpoint, symmetry, pattern, equal distance/radius
- Couple dimensions with equations
- Automatically apply dimensions and constraints to legacy 2D sketches



D-Cubed components

Features

- D-Cubed components made openly available through our “level playing field” policy
- Supplied as C++ libraries that support C++, C, C# and other development environments
- D-Cubed components compatible with your current data structures for easy integration with existing products
- Integration assisted by an experienced support team in these areas of component functionality



D-Cubed 3D DCM

Our 3D geometric constraint solver enables the use of dimensions and constraints to position parts in assemblies and mechanisms, control the shape of parts and create 3D sketches. It supports a wide range of geometry, dimensions and constraints, enabling designers to build, modify and animate the most demanding models. The 3D DCM is the foundation of the latest interactive approaches to assembly part positioning and kinematic simulation, 3D sketching and direct (non-history based) part shape modification.

- Constrain points, lines, circles, ellipses, splines, parametric curves, planes, cylinders, spheres, cones, tori, spline surfaces, swept surfaces and general parametric surfaces
- Apply driving dimensions and assembly constraints – distance, angle, radius, bounded dimension, curve length, equal radius, parallel, perpendicular, tangent, concentric and symmetry
- Couple dimensions with equations

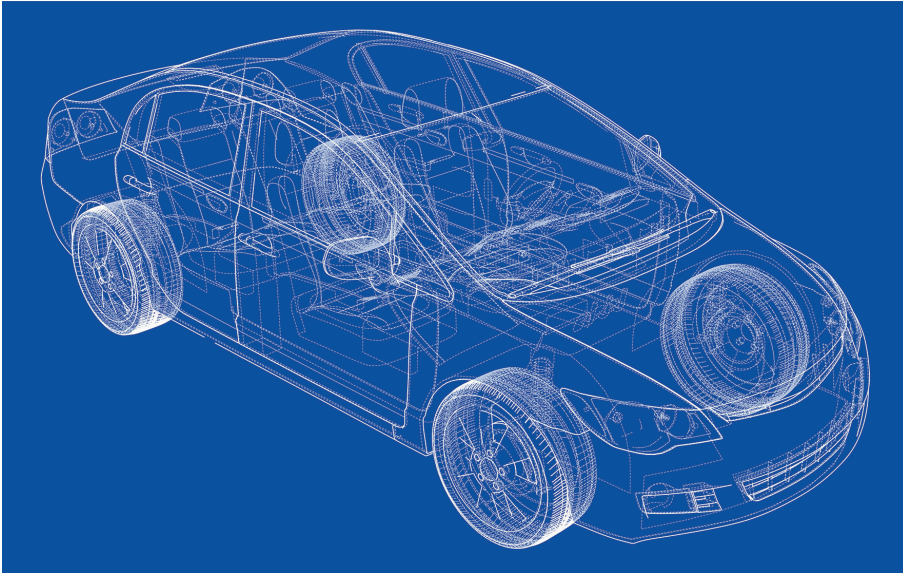
D-Cubed AEM

Assembly Engineering Manager (AEM) brings realistic motion simulation on accurate solid models to the core of a CAD system.

AEM models the physical behavior of an assembly or mechanism based on the mass properties of its parts and the forces acting on them. It simulates a wide range of forces and mechanical devices, including torques, springs, gravity, motors, conveyors and ropes.

Requiring no special preparation by the end user, AEM automatically adds and removes 3D contact constraints between geometries as parts come into contact.

- Simulate genuine 3D contact behavior between all geometry types, including complex freeform geometry
- Receive immediate feedback of simulation results through interactive performance
- Simulate mechanisms, study force interactions, or interactively verify assembly/disassembly processes



D-Cubed PGM

Profile Geometry Manager (PGM) is used to manage high-level sketching operations on 2D profiles. Used alone, it provides a comprehensive suite of offsetting tools for enhancing CAD capabilities or generating 2D toolpaths. It can also be integrated with 2D DCM to enable profile constraints, such as distance-to-profile and profile area.

- Create 2D offset profiles on points, lines, circles, ellipses, splines, parametric curves and offset curves
- Detect closed loops in a sketch to identify hatching regions
- Measure/constrain loop length and area, solve geometric constraints between loops and other sketch geometry

D-Cubed CDM

Collision Detection Manager (CDM) accurately and rapidly detects collisions and clearances in assembly and motion simulation environments.

It is compatible with any surface or solid modeler operating on exact or faceted models. Its distinctive strength is high performance on exact models with efficient memory usage.

- Work with exact, faceted, solid, surface, wireframe, manifold and non-manifold parts
- Identify collisions, measure part clearance
- Determine the next collision along a given path
- Reposition colliding parts to touch

D-Cubed HLM

Hidden Line Manager (HLM) computes hidden line views for enhanced on-screen visualization, engineering drawings and technical illustrations of parts and assemblies.

Distinguished by a combination of excellent performance and reliability, HLM is compatible with virtually every geometric modeler.

- Work with exact, faceted, solid, surface, wireframe, manifold and non-manifold parts
- Compute visible, hidden, occluded, silhouette and outline edge segments in parallel or perspective views
- Identify visible and invisible regions of a face to support hatching or shading operations

Conclusion

By selecting D-Cubed components, you can rapidly deliver superior capabilities to your customers while freeing resources to focus on your own areas of expertise, thereby enhancing your market position. You can also be confident that you are maximizing the value of your software development investment while minimizing your business risk.

Siemens PLM Software
www.siemens.com/plm

Americas +1 314 264 8499
 Europe +44 (0) 1276 413200
 Asia-Pacific +852 2230 3333

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