

COBALT[™] v8

The ultimate product design and development tool.[™]

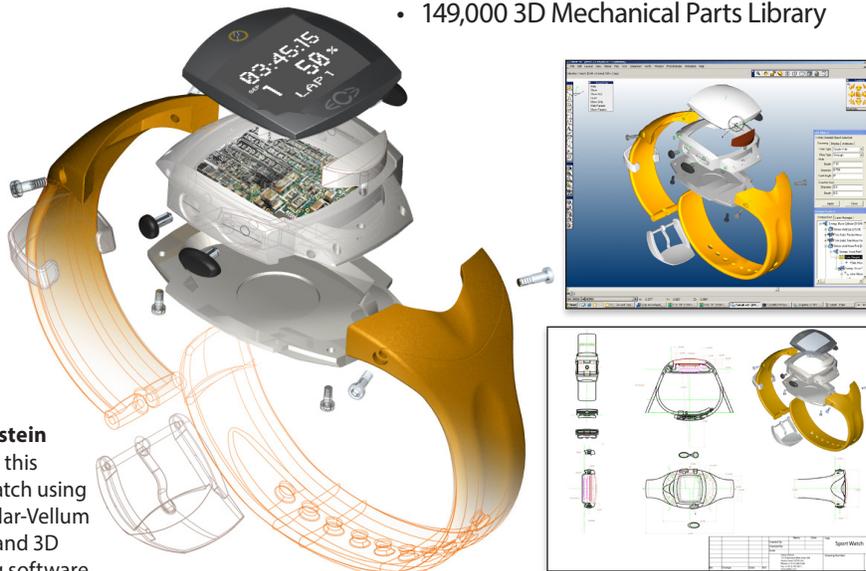
- Updated Interface
- Unified Associative, Dimensionally-constrained Parametric Drawing & Modeling Tools for Wireframe, Surfaces & Solids
- Vellum Drafting Assistant[™] for Intelligent Snaps and Alignments in X,Y, & Z
- Unique Hybrid Mac/Windows, Office/Home Licensing
- Complete Set of Precision Import/Export Translators Including ACIS SAT, Parasolid, IGES, STEP, DXF, DWG, EPS, AI, and more
- Class-A NURBS Surface Modeling
- True Solid Modeling
- Surface Analysis
- Full Photo-realistic Rendering & Camera-based Animation
- Design Explorer History Tree
- Associative 2D View Generation with Auxiliary, Section, and Detail Views
- True Associative Dimensioning
- Bill of Materials
- License includes Graphite[™] v8
- Dimensionally Constrained & Equation-driven Parametrics
- Associative Assembly Tools
- Object & Assembly Properties (CG, Volume, Weight, etc.)
- Mold Tools including Core, Cavity, Rib, and Lip
- Geometric Dimensioning & Tolerancing (GD&T)
- 149,000 3D Mechanical Parts Library

General Features

- Direct, Associative or Dimensionally Constrained 3D Modeling
- ACIS Modeling Kernel from Spatial
- 16 Place Floating Point Accuracy
- Hybrid Mac/Windows, Office/Home License
- 65,000 Hierarchical Layers
- Unlimited Colors
- Unlimited Number of Objects and Drawing Size
- Single File Holds Drawings, Models, Assemblies, etc.
- Direct Multi-sheet PDF Creation
- Universal Binary Support for Intel Mac

User Interface

- Updated Intuitive Vellum Interface
- Drafting Assistant[™] for Automatic Snaps and Alignments
- Smart Cursor Changes Shape Indicating Active Tool and Operations
- Strokes and Short Cuts Provide Instant Access to Commands
- Tear-off and Auto-hide Palettes
- Dockable Tools and Palettes
- Palettes can be Flipped Vertically or Horizontally
- Resizable Dialog Boxes
- Status Line to Specify Object Parameters
- Message Line Provides Tool Instructions and Options
- World and User-defined Coordinate Systems
- All Data Entry Fields can Perform Numeric Calculations
- TrackBall for View Selection and Dynamic or Step Rotation
- Show/Hide Palette
- Selection Mask for Easier Selection of Specific Entity Types, Layers, Colors
- Grid (User Definable)
- Object Editor
- Design Explorer[™] Layer Tree
- Design Explorer[™] History Tree
- History Manager
- Support for SpaceMouse Device on Mac and Windows
- Easy Update Installer



Luc Heiligenstein designed this sports watch using both Ashlar-Vellum drafting and 3D modeling software.

"With Cobalt you can just extrude in any direction to get a product shape very quickly. It's as flexible as modeling clay. Unlike other design software, you don't have to calculate everything using parametrics, create a detailed assembly and add all the dimensions just to get something to show the client for interim approval."

Read more about Luc's success at www.ashlar.com/success.



COBALT™ v8

Display and Visualization

- Scene Display Modes:
 - Flat Shaded
 - Gouraud
 - Gouraud w/Edges
 - Phong
 - Phong w/Edges
 - Hidden Line Dimmed
 - Hidden Line Removed
 - Photo-realistic
- Scene Display Options:
 - Anti-alias
 - ZBuffer Curves
 - Clip at Eye Point
 - Transparency
 - Reflected Environment
- Real-time Object Display Options:
 - Display Iso Lines
 - Silhouettes
 - Transparency
 - Direction
 - Curvature Comb
 - Surface Analysis Display (Gaussian, Mean, Min/Max, Zebra, Normals, Curvature, Draft)
 - Object Display Resolution (Coarse, Medium, Fine, Very Fine, Super Fine)
 - User Definable Object Colors
- Adjustable Perspective
- Infinite Pan and Zoom
- Section Profiles and Cutaway View in the Edit Window
- Real-time 3D Display:
 - Curves
 - Surfaces
 - Solids
 - Meshes
 - Text
 - Bitmaps
 - Dimensions

Object and Assembly Properties

- Material
- Center of Gravity
- Volume
- Weight
- Density
- Moments of Inertia
- Principal
- Axis

Dimensionally Constrained Parametric Sketches

- On-demand:
 - Automatic Inference
 - Manual Creation
- Can be Used to Create Wireframe, Surfaces & Solids
- Equation-driven:
 - Dimensional
 - Conditional
- Geometric Relationship-driven Including:
 - Parallel to Sketch X or Y Axis
 - Coincident (Endpoint, Midpoint, Vertex, Quadrant, Center)
 - Tangent
 - Parallel
 - Perpendicular
 - Concentric
 - Symmetric
 - Equal
 - Co-linear
 - Offset Distance
- Animation of Incremental Dimensional Variations

Associative Parametrics

- Parametric Sketch-driven:
 - Direct Input
 - Dimensional
 - Geometric
- Modify:
 - Wireframe Creation
 - Surface Creation
 - Solids Creation
 - Mesh Creation
 - Surface Edits
 - Solid Edits
 - Mesh Edits
 - Solid Features

Object Management Tools

- Design Explorer™
 - Layer Tree
 - History Tree
- Object Properties Dialog
- Show/Hide Palette

General Transform Tools

- Move
- Copy Along Path
- Rectangular Array Duplicate
- Feature Array
- Rotate
- Polar Array Duplicate
- Scale (Uniform or Differential)
- Mirror
- Align

Text Tools

- Normal
- Along a Path
- Keep Screen Horizontal
- At an Angle
- Set:
 - Font
 - Size
 - Style
 - Color
- Thicken
- Extrude
- Revolve
- Sweep

Wireframe Creation Tools

- Point
- Points on Curve
- Points on Surface
- Line
- Mid-point Line
- Connected Line
- Arc
- Circle
- Ellipse
- Conic
- Rectangle

- Polygon
- Arbitrary Polygon
- Star Polygon
- Sketch Spline
- Through-point Spline
- Vector Spline
- Bezier Spline
- Helix
- Spiral

Wireframe Editing Tools

- Fillet
- Chamfer
- Trim
- Relimit/Extend
- Break
- Offset
- Join
- Extrude
- Revolve
- Project to Plane
- Extract Edge of Surface or Solid
- Increase Order
- Fair Spline
- Add/Remove Spline Points
- Modify Spline Slope
- Curve by Intersection of Plane and a Curve, Surface, or Solid
- Project Curve onto Surface/Solid
- Intersect Two Curves
- Create Points by Intersecting Surfaces or Solids

Surface Creation Tools

- Surface Primitives:
 - Sphere
 - Block
 - Cylinder
 - Pyramid
- Infinite Plane
- Lathe
- Extruded Surface
- Sweep:
 - In Place
 - Perpendicular
 - Ridged
- Sweep Along One Rail:
 - Full Rail
 - To Entity
 - Between Rail Points
- Sweep Along Two Rails:
 - With Maintain Height
- Skin, Skin w/ Guide Curves
- Tangent Loft
- Cover Surface, Tangent Cover
- Net Surface
- Revolved Surface
- Tube Surface
- Offset Surface
- Drafted/Extended Surface
- Fillet Surface



"It is a real trick designing a high performance motorcycle exhaust system. This is where Cobalt really comes into its own. Cobalt makes me better than I am."

These cam shafts and engine assembly were designed by **Kelley Robert**, Racing Engine Components.

Read more a www.ashlar.com/success.

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COBALTTM v8

Surface Editing Tools

- Freeform Deformation (Push/Pull Surface Points)
- Deform to a Point, Factor, or Curves
- Add/Subtract/Intersect Planar Surfaces
- Join Surfaces
- Trim/Untrim Surfaces
- Match G1 and G2 Tangency
- Insert Control Points
- Elevate Degree
- Rebuild Surfaces
- Add, Remove, & Replace
- Curves of Associative Surfaces
- Imprint Profile Sketches for Surface Subdivisions

Solid Creation Tools

- Solid Primitives:
 - Sphere
 - Slab
 - Block
 - Cylinder
 - Cone
 - Torus
 - Prism
 - Pyramid
 - Ellipsoid
- Lathe Profile:
 - With Draft
 - Non-planar Profile
- Extrude Profile:
 - Distance
 - Vector
 - To Entity
 - Mid Plane
 - Thin Wall
 - With Draft
 - Non-planar Profile
- Skin, Skin w/ Guide Curves
- Tangent Loft
- Sweep Profile Along One Rail:
 - In Place
 - Perpendicular
 - Ridged
 - Full Rail
 - To Entity
 - Between Rail Points
 - With Draft
- Sweep Profile Along Two Rails:
 - With Maintain Height
- Pipe Solid
- Thicken Surface into Solid
- Stitch Surfaces into Solid

Solid Editing Tools

- Boolean Add/Subtract/ Intersect Solids
- Constant Blends:
 - Radial
 - Elliptical
 - Vertex
- Variable Blends:
 - Linear
 - By Position
 - To Curve
 - To Fixed Width
 - To a Hold Line
- Constant Chamfers:
 - By Length
 - Two Lengths
 - Length and Angle
 - Vertex
- Variable Chamfers:
 - By Lengths
 - Four Lengths
 - Lengths and Angles
 - By Position
 - To Fixed Width
- Holes:
 - With Bore
 - With Sink
 - To Depth
 - Through
 - First Blind
 - To Face
 - With Draft
- Bosses:
 - With Specified Fillet
 - With Draft
- Profile Cutout:
 - With Draft
- Profile Protrude:
 - By Vector
 - To Face
 - With Draft
- Split:
 - With Surfaces or Solids
- Trim:
 - With Curves, Surfaces or Solids
- Shell:
 - With Independent Face Offsets
 - With Core/Cavity Options
- Parting Line:
 - With Draft
- Local Operations:
 - Taper/Draft Face
 - Move Face/Edge
 - Offset Face
 - Remove Face
 - Replace Face
 - Match Face
 - Deform Face (By Factor, To Point, To Curves)
- Bend Solids
- Twist Solids
- Stretch Solids
- Lip:
 - With Add/Remove
- Rib

3D Mechanical Parts Library

- 149,000 Mechanical Parts
- Standards included ANSI, BS, ISO, JIS, & NF
- Includes:
 - Bearings
 - Bolts
 - Nuts
 - Pins
 - Rivets
 - Washers
 - Clevis Pins
 - Locknuts
 - Parallel Keys
 - Retention Rings
 - Seals
 - Sections

Assembly Tools

- Associative Connect
- Associative Mate
- Associative Align
- Associative Insert

Independent 2D/3D Drawing Creation

- Predefined and Customizable Layouts
- Complete Professional Drafting Available
- Create 2D/3D Drawings w/o Building Models
- Stored in Same File as Model

2D/3D Drawing Creation from Models

- Associative 2D or 3D Views from 3D Wireframe, Surfaces, and Solids
- Photo-renderings Accommodated in Views:
 - As Underlay
 - As Interleave
- Associative Detail Views
- Associative Section Views:
 - With Auto Hatching
- Automatic Hidden Line
- Predefined and Customizable Layouts
- Automatic Labels:
 - View Name
 - Scale



Creation of organic shapes with precision manufacturing make Cobalt ideal for medical applications, including these carts designed by **Glenn Polinsky** for Modco, Inc.

“The great thing about Cobalt is that it lets us sketch out our ideas as easily as if we were working with a pencil, and then simply tighten them up when the time is right to produce a fully defined 3D model.”

Bob Parks, aeronautical engineering consultant.

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COBALT™ v8

2D/3D Drafting & Detailing

- Available for Independent and Model-driven Drawings
- Smart Dimension Tool Automatically Creates the Appropriate Dimensions
- Dimensions:
 - Linear
 - Angular
 - Diametric
 - Radial
 - Spline Length
- Standard and User-definable Tolerances and Settings:
 - ANSI
 - DIN
 - ISO
 - JIS
 - Dual
 - Architecture
 - Stacked Fraction
- Geometric Dimensioning and Tolerancing (GD&T)
- Balloon and Callout Dimensions
- Predefined and User Created Hatch and Fill Patterns
- Predefined and User Created Line Weights, Colors, and Styles
- Associative Bill of Materials
- All Dimensions can be Associative, Dynamic, or Static

Photo-realistic Rendering

- Drag and Drop Materials
- Drag and Drop Decals (with Alpha Channel)
- 3D Wireframe Interleave
- Realistic Texture Maps and Procedural Textures:
 - Wood
 - Marble
 - Granite
 - Leather
 - Plastic
 - Glass
 - Metal
 - Brushed Metal
 - Automotive Paint
 - and more

- Advanced Material Editor:
 - Color
 - Reflectance
 - Specular
 - Diffuse
 - Ambient
 - Roughness
 - Bump
 - Transparency
 - Refraction
 - Texture Orientation
 - and more
- Interactive Materials Display
- Environment Maps
- Customizable Scene Presets
- Editable Light Sources:
 - Spot
 - Bulb
 - Distant
- Photo-realistic Sunlight (Location/Date/Time)
- Photo-realistic Tube and Area Lights
- Adjustable Hard and Soft Shadows
- Visible Volumetric Light Effects
- Sketch Effects (SP1)
- Fog Effects
- Backgrounds
- Raytracing with Anti-aliasing
- Production Quality Resolution & Output (bmp, tga, tif, lwi, eps)
- Multiprocessor Photo-realistic Rendering (Mac SP1)
- User-defined Presets

Camera-based Animation

- Fly-by
- Walk-through
- Sunlight Timeline
- QuickTime Object VR
- QuickTime Panoramic VR
- Direct Event Journal Recording and Playback
- QuickTime Event Recording and Playback

Import/Export

- ACIS SAT
- PDF (Export Only)
- DWG/DXF
- IGES
- STEP
- Pro/E (via SAT)
- Parasolid X_T (Windows Only)
- SolidWorks (via SAT)
- Catia v4
- 3D Studio (Import Only)
- Rhino 3DM (Import Only)
- Facet
- STL
- Adobe Illustrator
- EPS (Export Only)
- CGM
- VRML
- ShockWave 3D (Export Only)
- Bitmap:
 - BMP (with Alpha Channel)
 - JPEG
 - PNG (with Alpha Channel)
 - PPM
 - XPM
 - XBM
 - GIF
- PICT (Mac Only)
- Spline (Import Only)
- RAW Triangle (Export Only)
- ASCII Text
- Grid Surface (Import Only)
- Other Ashlar-Vellum Products

Localized User Interface

- English US
- English UK
- French
- German
- Italian
- Portuguese
- Russian (Windows only)
- Swedish

PDF Integration

- Directly Generates Non-tessellated Arcs and Splines (SP1)
- Multi-sheet (SP1)
- Imbedded Exports Optional

Available Accessories

- Graphite v8 (included)
- Cobalt Share™ for Viewing, Printing and Exporting at Client or Manufacturing Site (Free)
- Vellum:environments™
- Vellum:tracks™
- Vellum:materials™
- Vellum:decals™
- Tutorials (Free)

Recommended System

- Windows / Macintosh
- Windows XP/Vista/7
- Mac OS X 10.4 (PPC), 10.5 (PPC or Intel), 10.6, 10.7, 10.8 (Intel Only)
- Pentium 4, Xeon, Athlon / G4 or G5
- 32 MB Accelerated Video Card w/ Open GL (Standard on all business-class systems since 2005. Additional RAM will not improve performance.)
- Medium- to High-performance Workstation-class Graphics Subsystem Recommend for Real-time Environment Mapping on Complex Files
- 512 MB RAM
- 250 MB Free Hard DriveSpace / 1 GB Allocated Virtual Memory
- DVD Drive or High Speed Internet Connection

“Cobalt was able to handle both the mechanical and ID aspects of our project in one integrated package. I can't think of another product that has such a nice combo of industrial and mechanical design.”

Dave Kindlon, motion picture product engineer for XTD Research.



Product designer **Francois Charron** uses Cobalt to design products with consumer appeal such as this irrigation system and remote control key fob.

Creative Intuition
Powered by **Vellum**TM