

Vectorworks Machine Design 2010 - Features List

A vast suite of 2D precision drafting tools provide you intelligent ways to design.

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|--------------------------|-------------------------|---------------------|---------------------|
| • Parametric Constraints | • Free Hand Tool | • Smart Cursor | • Mirror |
| • Rectangle | • Tangents | • Flyover | • Split |
| • Rounded Rectangle | • Lines | • Spiral | • Attribute Mapping |
| • Rotated Rectangle | • Double Line | • Eye Dropper | • Trim |
| • Circle | • Arc | • Attribute Mapping | • Fillet |
| • Circle by Points | • Polyline | • 2D Reshape | • Chamfer |
| • Oval | • Polygon | • Rotate | • Offset |
| • Clip | • Move by Point | • Chamfer tool | • Double Polygon |
| • Connect/Combine | • Create Similar Object | • Plan Rotate | • Select Similar |

Machine Components Tool Set

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|--------------------------|-----------------------------|---------------------------|----------------------------------|
| • Bevel Gears- 2D and 3D | • Key- 2D and 3D | • Pulley- 2D and 3D | • Roller Chain- Circular, Linear |
| • Hub- 3D | • Offset Link- 2D and 3D | • Shaft- 2D and 3D | • Sprocket- 2D and 3D |
| • Spur Gear- 2D and 3D | • Spur Gear Rack- 2D and 3D | • Woodruff Key- 2D and 3D | • Worm Gear- 2D and 3D |

Bearings Tool Set

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|---------------------------|-------------------------------|------------------------------|-----------------------------|
| • Ball Bearing- 2D and 3D | • Bearing Lock Nut- 2D and 3D | • Flanged Bearing- 2D and 3D | • Needle Bearing- 2D and 3D |
| • Pillow Block- 2D and 3D | • Roller Bearing- 2D and 3D | • Tapered Roller Bearing | • Thrust Bearing- 2D and 3D |

Hardware ISO/DIN Tool Set

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|-----------------------------|----------------------------|-----------------------------|------------------------------|
| • Clevis Pin- 2D and 3D | • Fastener Tool- 2D and 3D | • Screw- 2D and 3D | • Hex Cap Nut- 2D and 3D |
| • Knurled Thumb Nut- 2D, 3D | • Paralell Pin- 2D and 3D | • Retaining Ring- 2D and 3D | • Retaining Washer-2D and 3D |
| • Rivet- 2D and 3D | • Taper Pin- 2D and 3D | • Tubular Rivet- 2D and 3D | • Wing Nut (DIN)- 2D and 3D |

Hardware Inch/Metric Tool Set

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|-----------------------------|----------------------------------|-------------------------|-----------------------------|
| • Acorn Nut- 2D and 3D | • Clevis Pin- 2D and 3D | • Cotter Pin- 2D and 3D | • Dowel Pin- 2D and 3D |
| • Eye Bolt- 2D and 3D | • Fastener Tool- 2D and 3D | • J-Bolt- 2D and 3D | • Knurled Thumb Nut- 2D, 3D |
| • Retaining Ring- 2D and 3D | • Rivet-- Small, Large 2D and 3D | • Swing Bolt- 2D and 3D | • Swing Eye Bolt- 2D and 3D |
| • T-bolt- 2D and 3D | • Thumb Screw- 2D and 3D | • U-Bolt- 2D and 3D | • Wing Nut- Type A, B, C, D |

Springs Tool Set

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|--------------------------------|---------------------------|------------------------------|---------------------|
| • Belleville Spring- 2D and 3D | • Compression Spring 1, 2 | • Conical Compression Spring | • Die Spring |
| • Extension Spring- Front, End | • Extension Spring- 3D | • Torsion Spring- Front, End | • Torsion Spring 3D |

Welding Symbols Tool Set

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|---------------|--------------------------|-------------------------------|--------------------------------------|
| • Leader Line | • Surface Texture Symbol | • Welding Sym- Fillet, Flange | • Groove, Misc, Slot-Plug (AWS, ISO) |
| • Gradients | • Image fills | • Hatches | • Hand Sketch Styling |

Vectorworks Machine Design 2010 - Features List *continued*

Annotate and detail your drawings using the detailing suite in Vectorworks Machine Design. Options include:

- Constrained Dimensions
- General Notes
- ID labels
- Dimensional Constraints Manager
- Angular Dimensions
- Scale Bar
- Slope Dimensions
- Z-Sections
- Radial Dimensions
- Sheet Metal and Lag Screws
- Grid Bubble Tool
- Tolerancing Note
- Chain Dimensions
- Section Markers
- Carriage Bolts
- Drawing Borders and Title Blocks

Sharing your drawings is very simple with a broad array of export options.

- DXF/DWG
- Worksheet
- PDF Batch
- SAT
- Vectorworks 10 File
- Database
- Image File
- 3DS
- Parasolid X_T
- Vectorworks 11 File
- VectorScript
- Meta File
- IGES
- Simple VectorScript
- Vectorworks 12 File
- EPSF
- PDF
- KML
- STL
- Vectorworks 2008 File

Sharing your drawings is very simple with a broad array of import options.

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|---|--|---|--|
| <ul style="list-style-type: none"> • DXF/DWG • Meta File • VectorScript • Parasolid X_T | <ul style="list-style-type: none"> • Part Spec • Meta File as picture • 3DS • SketchUp | <ul style="list-style-type: none"> • EPSF • PDF • IGES | <ul style="list-style-type: none"> • Image File • Worksheet • SAT |
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Visualizing designs in is a breeze using a series of commands and rendering options available with the add on, Renderworks.

- Atmospheric effects
- Volumetric lighting
- Create accurate renderings with Radiosity or Final Gather Rendering
- Thousands of textures
- Artistic Rendering Styles
- QuickTime VR models
- Render physical light with .ies light distribution files
- High Dynamic Range Images (HDRI)
- Solar Animations