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FINAL DRAFT

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JULIA'S FORUM

Any of you that have been in manufacturing or support manufacturing with plant design have most likely lived through a recession; I was in Pittsburgh when the USX (US Steel) payroll bounced. Not a favorite memory of mine. But after that event, I began to watch people behave differently and slowly Pittsburgh has evolved to represent recovery from a structural recession. Most Mid-West cities have experienced similar recessions, and for the most part have recovered to become stronger than they originally were before the recession.

If you historically review the organizations that have not only survived a recession, but came out of it stronger, you see several common threads in their thinking. First is controlling cost. That does not mean locking up pens and paperclips, nor does it mean not investing in the tools and training that you need to get the product or machine designed, marketed, and sold. It means spending money to be more effective. During the growth phase that most of us experienced over the past few years, we didn't have time to examine processes, employee skill sets, and new technology. We were too busy making deadlines and shipping product.

The second common thread in organizations that thrive after a recession is product excellence. That can mean many different things to many people. Companies that spend "down time" on examining market trends and developing products or processes that will be ahead of their competition and desirable to their customers, will come out of recession in a better position to be a market leader. Today that means taking advantage of technology that spans across the organization and allows the reuse of engineering, design, manufacturing, and marketing information.

The third common thread is quality. That term is as over-used as paradigm shift, and Sarbainnes-Oxley. But the word itself and its implications are critical to a company's survival. No one wants to purchase a product and have it break, or not perform to expectations. Quality should be part of every stage of the development, manufacturing and operations of the organization. Making quality an integral thread of your organization is more than having a quality policy on your website or framed on a wall.

So why does Adraft care about these trends and best practices? Well, you are our customers and we truly want to see you succeed and grow your businesses. And a great deal of what we can provide you is the technology to capture data at its source and repurpose it to meet the needs of all stake-holders of that knowledge. At long last we have the technology to connect every piece of the product development cycle; from concept to detailed design, manufacturing, quality, field service and marketing and sales. This is the true meeting of Digital Prototyping.

Tying the three common threads together reminds me of a story that I heard from a customer last week. They told me that they were invited to an internal meeting to examine various products that their industrial design team dreamt up. These designs were physically prototyped for this review. Out of the 30+ new products, the internal team overwhelming decided that only three of them would be of any use to them or their consumers. The cost to design and physically prototype these concepts were astounding, only to have most of those products shelved. The remaining three products had to be completely redesigned in order to manufacture them cost-effectively, and pushed back product launch by over six months.

Imagine if all of the teams were brought together to review the concepts digitally, determine the products that might have a market and involve the manufacturing engineers to insure that the products could be produced within the time-frame and budget that was pre-determined?

I urge each of you to examine your organization's processes and technology to see what can help your company not only survive this recession, but thrive during the recovery.

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AUTODESK RECRUITED HEAVILY FOR THE 2010 RELEASE!

Just like the sports industry, businesses try to recruit talent so that their next season will be better than the one before. Autodesk is no different! Over the years, Autodesk has done a good job at acquiring existing or emerging technology to compliment the existing software in the Autodesk family. One of the milestones that I remember was the purchase of Softdesk in 1996. From that point in time, Autodesk started to develop specialty versions of AutoCAD. There have been many acquisitions since then, including Alias (2006) and Navisworks (2007) to name a couple. The year 2008 was big for Autodesk acquisitions of manufacturing-focused technology (not to mention the purchases they made in AEC and Enterainment markets). During the second half of last year, Autodesk acquired Moldflow, iLogic technology, and ALGOR, Inc.

Moldflow

Autodesk acquired Moldflow in the middle of 2008. Originally started in Australia, Moldflow is now headquartered in Massachusetts. You may have heard about what is now Autodesk Moldflow Insight and Autodesk Moldflow Advisor products for the design of plastic components. With this purchase Autodesk has the full suite of advanced plastics engineering tools for use on digital prototypes. You can simulate the filling and packing phases of the injection molding process to predict the flow behavior of plastic melts. You can optimize gate locations, balance runner systems, evaluate processing conditions and predict and correct molded part defects.

iLogic

Autodesk acquired iLogic Technology from Logimetrix, a software firm based in Canada. iLogic works with Inventor to allow the user to create desktop rules-based design automation. The idea is provide an easy way for the user to access design automation through a simple UI. One of the great things is that it is built for people with little or no programming experience. You can define product behavior based on true or false input or property values, such as material type, mass, or even custom properties. You can store design knowledge as a rule that is embedded into the Inventor Model. Inventor gives us parametric design, but iLogic adds the capability to capture design intelligence.

ALGOR, Inc.

You have probably heard of ALGOR software being used for product design and development in the automotive, aerospace, medical, consumer products, and utilities industry. ALGOR, Inc. is headquartered in Pittsburgh, PA and adds significant new capabilities to virtually test and predict the impact of simultaneous real world conditions like heat and pressure on product designs. With this purchase, Autodesk will be incorporating new advanced simulation functionality, including multiphysics, mechanical event simulation and fluid flow. Autodesk plans to continue developing the ALGOR products with an open approach, allowing direct data exchange between ALGOR products and multiple CAD software offerings.

All three of these acquisitions fit the Digital Prototyping framework that Autodesk is building upon to support their client base. By purchasing strong talent during times when many companies are closing their doors, Autodesk is strengthening their software for releases to come.

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2010 PRODUCT TRAINING CLASSES COMING SOON!

Keep checking www.adraft.com
for the new class schedule!

AUTOCAD 2010

AutoCAD has made tremendous advances from its early releases. Each new version has brought us updated tools in which we can use to become more productive, or make our project just a little bit easier. The 2010 release is no exception. With the implementation of geometric constraints we can now define and maintain relationships between points, lines and the coordinate system. By applying these constraints we can change or modify our geometry and not lose design intent. These constraints can be hidden once the initial concept of your design is completed to reduce clutter, or even deleted down the road if your drawing requires a significant change.

This release also allows more creativity while conceptualizing your design. With the introduction of dimensional constraints and parameters, users can now benefit from variables and equations to define the size of their geometry. Using these dynamic dimensions will allow users to instantly update their drawing to suit their needs.

Based on the same placement process as traditional AutoCAD dimensions, the transition to dimensional constraints should be an easy one for day to day users.

Autodesk didn't stop at just adding new functionality; they have also updated older tools to ease the use of some redundant commands. For example, colors have been added to the selected sections of the area command. These colors will reflect which sections will be part of the area calculated, and which sections will be subtracted from it. The hatch command has also been improved to save time. Selecting the grips of a non-associative hatch boundary will allow users to dynamically change the shape of the boundary, rather than deleting and redefining it.

By updating previous commands and adding new functionality, AutoCAD 2010 allows users to quickly accomplish some of the more mundane tasks, and concentrate on what's most important, the design.

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AUTODESK GROWS THE DATA MANAGEMENT FAMILY

If you have been thinking about data management, until now you had two choices, Autodesk Vault and Autodesk Productstream. With the release of the 2010 family of products, Autodesk has introduced two new packages, Vault Workgroup and Vault Collaboration. You'll also note that Autodesk Productstream and been renamed to Vault Manufacturing.

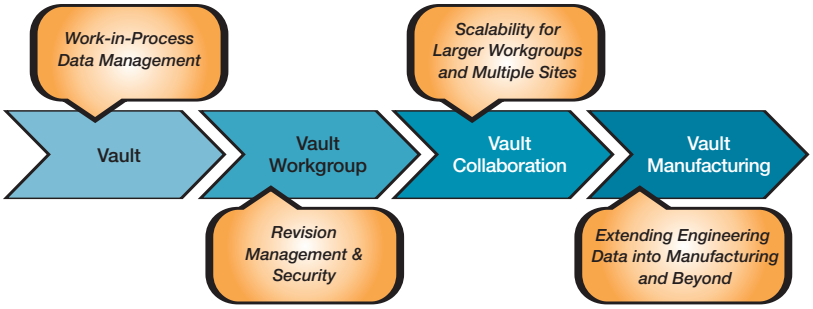
As your organizational needs grow, so can your data management tool.

Autodesk Vault

This is the core product in the data management family. It is included with all of the manufacturing CAD products.

Autodesk Vault Workgroup

Autodesk® Vault Workgroup, part of the Autodesk solution for Digital Prototyping, helps designs teams easily create and share digital prototyping information by securely organizing, managing, and tracking data from a central location. Design teams can administrate access and control, allowing team-based development across disciplines to quickly find and track the when, why, and who of design changes. Team-based collaboration helps users gain productivity without disruption to their natural design workflows. In addition, Vault Workgroup delivers revision and lifecycle control processes directly in the design application, which results in faster cycle times and better-quality engineering data.



Autodesk Vault Collaboration

Autodesk® Vault Collaboration, part of the Autodesk solution for Digital Prototyping, has all of the functionality in Autodesk Vault Workgroup and includes an advanced toolset providing administrators with the scalability needed to manage large workgroups. Share engineering design data with the shop floor with the included web client and expose design related information to the extended enterprise by publishing to Microsoft SharePoint.

Multi-Site functionality enables companies to synchronize design data among distributed workgroups, extending the reach of the digital prototype to the entire organization.

Autodesk Vault Manufacturing

Autodesk® Vault Manufacturing software, previously known as Autodesk Productstream®, securely stores and manages engineering information, design data, and documents – shortening the design-to manufacturing process. It helps design, engineering and manufacturing departments collaborate and share digital prototyping information with multisite tools to connect workgroups across discrete locations. Take full advantage of advanced functionality by giving design departments the tools they need to track engineering change orders, manage bills of materials (BOMs) and promote earlier collaboration through integration to manufacturing business systems.

Another change that is important to make note of it the use of FLEXnet® license management technology from Acresso Software. All of the Autodesk Vault products now utilize FLEXnet®, whether it is for a single user or multi-user networks. This is the same technology that has been used to distribute network based Autodesk CAD product licenses for years.

Data Management is not just for the big companies anymore. Individuals and small to medium business can reap the benefits of Autodesk's Vault products. Contact ADRAFT today to discuss how Autodesk Vault can help your business be more efficient and secure with your engineering and design data.

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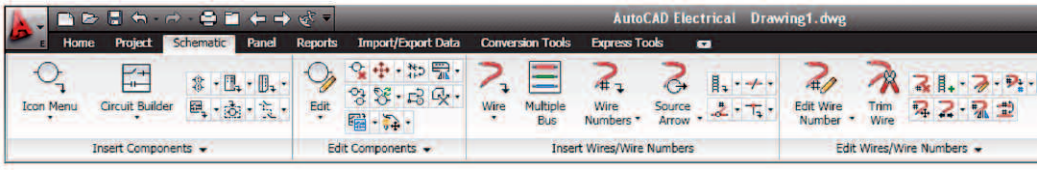
WHAT'S NEW IN AUTOCAD ELECTRICAL 2010

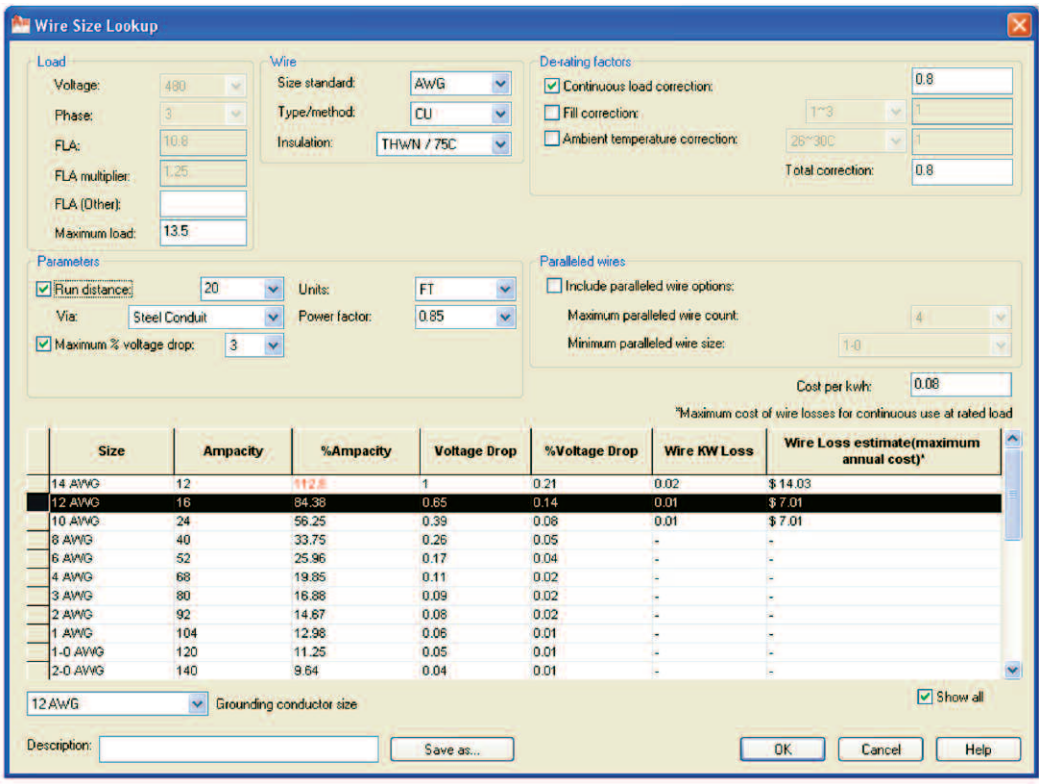
Autodesk focused on three areas of improvement for the AutoCAD Electrical 2010 release. The three areas of improvement are: Improved Ease of Use, Circuit Builder Enhancements and New Design and Drafting Productivity Tools.

The ease of use has been incorporated by the implementation of the **Ribbon User Interface**.

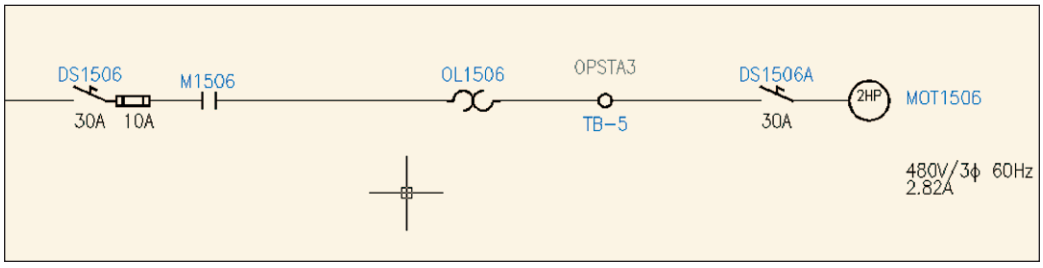
AutoCAD Electrical 2010 features a streamlined user interface. The Ribbon interface allows the user to find their favorite tools and commands faster. It also will aid the user in locating lesser-used tools and discover relevant new features more easily. The result is less time searching through menus and toolbars, and more time concentrating on the task at hand, which is the completion of the electrical drawings.



Ribbon User Interface



Circuit Builder



Productivity Tools

The **Circuit Builder** has been enhanced by the implementation of Green Design. With Green Design the Circuit Builder tool in AutoCAD Electrical 2010 lets you use calculations to analyze energy efficiency, meet code requirements, and make "green" engineering decisions. Circuit Builder displays parallel energy loss calculations for a range of conductor sizes against various installation and ambient factors. To create a green design, for example, you might choose to oversize a motor's conductors to reduce heating losses; Circuit Builder can tell you whether the resulting reduced energy loss over the life of the motor will recover or surpass initial materials and labor costs.

The **Productivity Tools** has been enhanced by the implementation of One-Line Circuits. One-Line Circuit capability has long been requested by the user community and is now part of the software. You can use the new one-line symbol library to create intelligent motor control one-line diagrams that link back to other drawing types in a project drawing set. The One-Line symbol library can be accessed from the icon menu to build one-line circuits with component values and wire sizes that conform to a specific electrical code.

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INVENTOR 2010 "WHAT'S NEW"

If you don't think that Autodesk listens to its user community, take a look at what they have implemented into the Inventor 2010. With this release they have really focused on providing more usability and productivity enhancements for the users to easily create their "digital prototypes." Some of the areas of focus were plastic parts, sheet metal, and large assembly productivity.

Multibody Parts

This release introduces the concept of multibody part files. This has made the top-down design process easier than ever. With multibody parts the user can create new solid bodies in a file, import solid bodies using the derive workflow, and use one or more of the bodies as a tool bodies with the new "Combine" command to define, cut, join, or intersect operations on a selected model. The new "Move Bodies" command allows users to free drag or accurately move bodies within a multibody part. Each of these moves appears in the browser and can be edited, suppressed, or deleted like any other features.

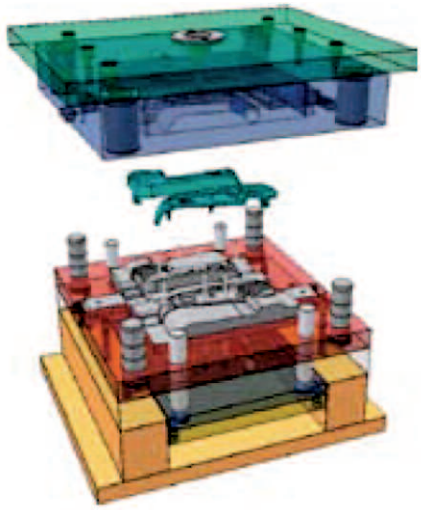
Technical Plastic Features

The new plastic part commands are very powerful rule-based tools that allow users to easily create complex plastic part features. The following feature types are supported in Inventor 2010.

- Multi-element grill for use as vents or openings on a body
- Bosses for threaded fasteners with support for head and thread sides in the same feature
- Rests to form a flat area on a curved body
- Hook and loop style Snap Fits to physically join bodies
- Rule Fillets that work by telling the feature how to discover the edges. The Rule Fillet command is not exclusively for plastic parts. It can create fillets on any type of feature based on the specified design rules.

Mold Design

This release includes easy-to-use mold design features that work directly from Inventor 3D models of plastic parts to simplify part preparation, patch and parting surface creation, automated core and cavity design, runner and gate design, and cooling channel design. Full associativity to the Inventor digital model helps ensure that any changes to the model are automatically reflected in the mold design.



Mold Analysis

The Inventor 2010 software includes Moldflow plastic flow analysis tools. Use them to determine material flow rates, gate locations, shrinkage, and process parameters. Mold analysis enables you to optimize your design and minimize the number of mold iterations, helping to save time and money.

Sketch Layouts

Create a layout using 2D sketch geometry to represent your design components and configurations. Use the layout to position your components and evaluate design feasibility. When component representations in the layout are derived into part and assembly models, associativity is maintained between the layout and the components. Therefore, when changes are made to the layout or component representations, the 3D models are updated.

Sketch Blocks

Use sketch blocks to group 2D geometric configurations that repeat in your models. After you define a block, you place instances of the block to represent component instances. Sketch block instances are associated with their definitions so geometric modifications to the definitions apply to all instances. Use sketch blocks in your layouts to facilitate a top-down design workflow. Define nested sketch blocks and place flexible instances of these blocks to study assembly kinematics. These flexible instances retain specified degrees of freedom that allow them to simulate the kinematics of the components under design.

Sheet Metal Design Contour Role

Similar to the Contour Flange feature, the Contour Roll requires an open profile sketch as input. Additionally, the Contour Roll feature also requires the identification of a sketched axis of revolution as well as an angle. Offset direction options allow both the material thickness and angle to be offset to one side or the other of the selected profile or to use the selected profile as the midplane of the material thickness or swept angle. Contour Roll features may be unrolled using the Unfold feature. The resulting straight section may be further unfolded, allowing the addition of features to the model in a flattened state. This flat model can then be refolded

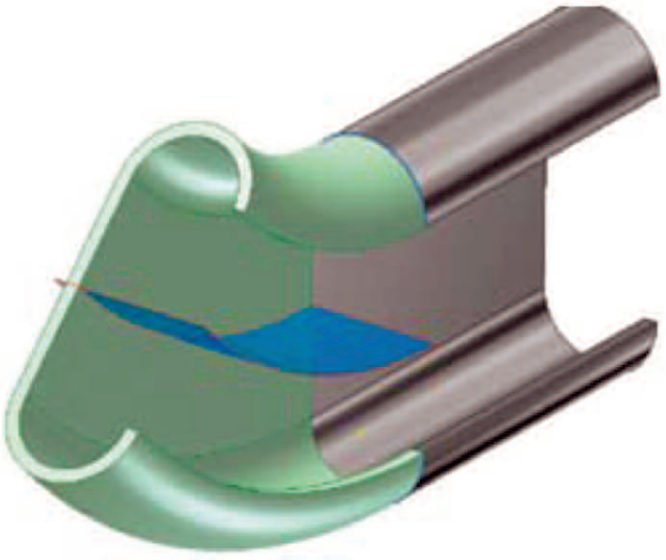
Assembly Management User-defined assembly folders

With browser folders, you can organize the browser to more readily communicate design intent through logical groupings of parts and drawing resources. Use folders to organize your assembly browser and improve workflow. Define folders, based on your chosen convention, to group browser nodes.

Enhanced Assembly Restructure

Using Autodesk Inventor software, you can place or create a component in an assembly without worrying where it will reside in the final assembly

Inventor 2010 continues on page 5



"Inventor 2010" from page 5

structure. You can restructure an assembly by moving parts, groups of parts, component patterns, or entire subassemblies within the browser hierarchy without changing the physical position of previously placed parts. Inventor will maintain constraints between components when the assembly is restructured wherever possible.

Drawing Manager Arrange Dimensions Tool

A new command in the Annotate panel enables you to arrange groups of selected dimensions (linear, angular, coordinate, true isometric dimensions). You can select dimensions in the drawing first, and then execute the Arrange Dimensions command.

Alternatively, you can click the Arrange Dimensions command first, and then select the dimensions in the drawings. You can select dimensions that lie along one axis or dimensions arranged along multiple axes. You can arrange dimensions in one or multiple views.

Aligned Section Views

Generate align section views on views where the section line consist of two or more line segments. Aligned or Projected methods of aligned section views are controlled in the Section View dialog box.

Autodesk seemed to really hit a home run with this release of Inventor. They have listened to "you" the users to provide a quality release with the functionality that you have asked for. With these new tools, engineers and designers will be able to be highly productive which in turn will make their companies as a whole more productive.

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WHAT'S NEW IN AUTOCAD MECHANICAL 2010?

Ribbon

Use the new ribbon to access commands. It is the section at the top of the application window.

The ribbon organizes commands in a set of tabs and groups commands into panels.

Different workspaces – Mechanical, Structure, and Mechanical Classic cater to different workflows and environments.

You can customize the ribbon, panels and commands through the CUIx editor and save it in your workspace. You can also modify the default workspaces or add commands you commonly use to the user interface.

The menu browser contains file input/output operations, such as New, Open, Save, which are independent of the task-based tools used in the ribbon.

In addition, the Search functionality in the menu browser now returns the location in the ribbon to help you get accustomed to the new user interface

Tooltips

We now provide tooltips for commands on the ribbon. The tooltip contains a short description of the command. It expands, when you pause the cursor over the tooltip, to provide additional information about the command.

The expanded tooltip shows an illustration, where applicable, of how the command works. Press F1 to display a Help page that provides detailed information about the command.

Symbol Libraries

In addition to Welding and Surface Texture symbols, AutoCAD Mechanical 2010 supports symbol libraries for Dead Joint, Edge, and Feature Control Frame symbols.

The symbol library is readily accessible from the ribbon. You can create frequently used symbols directly from the ribbon. It is much quicker than displaying the symbol dialog box and loading the symbols from the library.

Taper and Slope Symbol

The taper and slope symbol can now automatically calculate the slope of the line it is attached to. It can also automatically detect if the object is a slope or a taper.

The calculated value can be expressed as a ratio or percentage, depending on your preference. If required (as in the case of specifying the taper as a Morse number), you can override the default calculated value.

GOST Dead Joint Symbols

The GOST standard now supports Dead Joint Symbols. You can specify the requirements for dead joint seams that use soldering, gluing, stitching, or stitching with stapling. The symbol supports two types of stitching with stapling: overlapping joints and corner joints.

Frequently used symbol configurations can be saved to the symbol library and reused on demand. It is not necessary to specify the requirements every time you create a symbol. This feature can save you much time, especially in the light of the many types of joints the dead joint symbol supports.

Common Symbol Palette

It is common to add special characters to represent geometric characteristics in an annotation. We have a new symbol palette that works consistently across all annotations that require these symbols.

You no longer have to remember complex control character sequences. Just click the Insert Symbol command and the palette shows a list of symbols, including the frequently used symbols on a quick access section within the palette.

Symbol Mirroring

When adding symbols to symmetrical designs, they now react intelligently to the AutoCAD Mirror.

The new enhancements in AutoCAD Mechanical 2010 ensure that the symbol resulting from the MIRROR command continues to honor the drafting standard the symbol is based on.

General Enhancements

BOM, Parts List, Balloon, and Part Reference dialog boxes are redesigned with usability in mind.

Enhancements include the followings to indicate cells with value overrides and ability to restore default values quickly by removing overrides.

Item type indicators

BOM type

Current BOM indicators

Collapsible BOM Panels

New toolbars

Visual cues

You can build relationships between multiple parts and assembly drawings without leaving the BOM dialog box.

When you attach a part to an assembly drawing, the BOM automatically picks up the component properties from the part drawing and updates the parts list.

You can create custom parts, store them in the content library, and use them like you use standard parts and features.

By sharing your content library, standard and custom parts can be reused across the company.

Migrate drawing and automatically build BOMs

You can now migrate non-AutoCAD Mechanical part and assembly drawings to AutoCAD Mechanical. It automatically replaces title blocks and parts lists with the corresponding AutoCAD Mechanical entity. It also builds the hierarchy relationship between parts and assemblies in the BOM.

Rectangle

The rectangle command is enhanced to improve usability and productivity.

You can quickly change the start point for drawing a rectangle and the command accepts dimensional input.

You can also choose to chamfer the edges or draw centerlines as you create the rectangle.

Move Copy Rotate

Often, you must copy, rotate and move operations on the same object, in sequence.

Rather than issue three separate commands, you can now perform these operations within the same command session with the new AMCOPYRM command.

Content Management

The Content Manager dialog box is a one-stop location to manage content in AutoCAD Mechanical. With this dialog box you can:

Load/unload an entire library or activate/deactivate selected folders in a library.

Manage file paths for standard and custom content or even select a different ContentLib.XML file that load a new set of libraries.

Create, delete, or attach custom libraries.

Define selection filters for Standard Content.

Content Editor

Using the AutoCAD constraint solver, the Content Editor draws geometry and creates a “recipe” to define how a part resizes when you select different sizes of the part family for insertion.

A family is content with a table associated to it. Each row in the back represents one member (content) in the family. For example, ISO 4762 socket head cap screw is a family in ISO library. ISO 4762 – M10x60 is a part in the family of ISO 4762 socket head cap screws.

You can use the Content Editor environment to create and edit family tables and part or feature templates.

While authoring, you can test content to see how view dimensions, hatch, array, and visibility of entities work before saving the change to the library.

Content Insertion

With the enhanced Content Library palette, you can select custom parts for insertion and create favorites for custom content.

Click the lookup grip to display a drop-down list to edit geometry. Selecting a new diameter changes the size of the standard part on the drawing using the existing base point information.

Updated Content

The Content Library contains standard parts and features based on more recent revisions of the ISO, DIN, and GOST standards. Some updates are as recent as 2007 (DIN 7969: 2007).

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AUTODESK INDUSTRIAL DESIGN OVERVIEW 2010

So what's new with the Autodesk Industrial Design products for 2010? First let's start with what are the products Autodesk offers for Industrial Design and visualization. The products are Showcase, Alias and Sketchbook Professional.

Autodesk® Showcase® design visualization software facilitates informed decision making on digital prototypes. With integrated raytracing, state of the art materials and an easy to use interface, Showcase simplifies and accelerates the task of creating accurate, highly realistic imagery from 3D CAD data to convey form and create environmental context to communicate brand character. New to Showcase for 2010 are integrated raytracing, enhancements in materials, material libraries and library management, simplified environment creation tools, PSD file support and many more enhancements.

The Alias family of products has moved from four products to three. They are Alias Design, Alias Surface, and Alias Automotive. Autodesk® Alias® Design software, part of the Autodesk Solution for Digital Prototyping, is for consumer product designers who control the entire design process—from ideation to the final surfaces that are passed to engineering. It enables designers to rapidly develop and communicate product design concepts using sketches, illustrations, photorealistic renderings, and animations.

Autodesk® Alias® Surface software, part of the Autodesk solution for Digital Prototyping, offers a full set of dynamic 3D modeling capabilities that enable virtual modelers to evolve concept models and scan data into high-quality production surfaces for consumer product design and Class-A surfaces for automotive design and styling.

Autodesk® Alias® Automotive software, is an industry-leading application for automotive design and styling and the choice of leading automotive styling studios throughout the world. The software provides a comprehensive set of visualization and analysis tools for the entire shape-definition process, from concept sketches through Class-A surfacing.

And finally SketchBook Professional, Autodesk SketchBook Pro software is a paint and drawing application designed specifically for use with digitizing pen tablets and Tablet PCs. SketchBook Pro offers industry-leading sketching tools and delivers them through a streamlined user interface that is so fast and intuitive that even new users can be productive in minutes.

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