COADE

CADWorx®

Plant Design Suite

CADWorx: The most complete plant design suite for the AutoCAD platform!

CADWorx is COADE's integrated series of AutoCAD®-based tools for plant design that provides intelligent drawing/database connectivity, advanced levels of automation, easy-to-use drafting tools and the industry's first link between CAD and engineering analysis programs. Since its introduction, CADWorx has revolutionized the plant design industry with its ease of use, flexibility, interconnectivity and scalability.

CADWorx supports and takes full advantage of the advanced performance and functionality features in AutoCAD. These capabilities give CADWorx the ability to let multiple users work more efficiently together on even larger models. This superior flexibility and performance is made possible by significant file size reductions, faster load and save times, superior management of cross references (XREF's) and highly refined user-interface features, all while maintaining AutoCAD functionality and ease.

The CADWorx suite fully supports and easily adapts to all industry sectors, including process, power, offshore, pulp and paper, shipbuilding, water treatment, commercial plant and hygienic industries such as food, pharmaceutical, semiconductor and biotechnology.

CADWorx: Easy, Open Scalable and Global

EASY

The CADWorx suite is quick and easy to set up, so you can start designing right away. And, if you know AutoCAD, you are further on your way to having your projects fast tracked from conception to delivery. CADWorx allows you to deliver on time and with ease!

OPEN

CADWorx conforms to the common standards of the AutoCAD platform. This means your deliverables will reach the largest possible market and will allow the greatest interoperability with other leading AutoCAD applications for integrated, error-free designs.

SCALABLE

CADWorx provides true economies of scale for projects with budgets ranging from the thousands to hundreds of millions of dollars. Workgroup size is never an issue with CADWorx.

GLOBAL

CADWorx is supplied with user-modifiable language files that can quickly adapt CADWorx to your regional standards. Dialog boxes, command prompts and user input can all be adjusted, allowing designers around the globe to work completely in their own languages.

CADWorx modules provide the following capabilities—right out of the box!

CADWorx Plant
- 3D Plant Design and 2D Layout
- Structural Steel
- Equipment
- Ducting/Cable Trays
- Automatic Isometrics
- Piping Specifications
- Bills of Material
- Export to External Database
- Bi-directional Links to Stress Analysis
- Automated Stress Isometrics
- CADWorx Design Review*
- CADWorx Steel Professional*
- CADWorx Equipment*
- Personal ISOGEN*
- Clash Detection*
- Live Database Links*
- CADWorx Sanitary (Hygienic)*
- Ductile Iron Pipe*

* Included with CADWorx Plant Professional

CADWorx Design Review
- Model Review and Markup
- Large Model Support and Animation

CADWorx Steel
- Comprehensive Steel Libraries
- Frame and View Creation
- User Shapes and Customization
- Editing and Modification
- Databases, Reports and Bills of Material
- Stairs, Ladders and Hand Railings*

* Included with CADWorx Steel Professional

CADWorx Equipment
- Parametric Equipment Modeling
- Bi-directional Links to Pressure Vessel Analysis

CADWorx Datasheets
- Instrument and Equipment Datasheets

CADWorx P&ID
- Intelligent Process Diagrams
- Industry-standard Symbols
- Specification Checking
- Legacy Drawing Conversion
- User-defined Project Databases*
- Bi-directional Database Links*
- Project Document Links*
- CADWorx Loops*
- CADWorx IP (Internet Publisher®)*

* Included with CADWorx P&ID Professional

CADWorx LOOPS
- Instrument Loop Table Creation
- Links to Third-party Packages

CADWorx IP (Internet Publisher)
- Project Publishing Wizard
- Browser Accessible Drawings and Linked Data

CADWorx Plant Design Suite
When you need to deliver your best!

CADWorx Plant and Plant Professional

CADWorx Plant supplies the most complete range of tools for hassle-free plant design. Piping, equipment, steel, HVAC and cable trays and database links are all included. CADWorx Plant Professional also features CADWorx Design Review, CADWorx Steel Professional, CADWorx Equipment, ISOGEN, clash detection and live database links.

3D Plant Design and 2D Layout
Working in 3D with CADWorx Plant is easy, and, because CADWorx Plant uses standard AutoCAD solids, it delivers some of the best perfor-mance, tightest models and greatest compatibility in its class. No special enablers are required for viewing, plotting or even editing in native AutoCAD. Also, fully intelligent 2D plans can be converted into 3D models at any time. If ease of use, performance and collaboration are important to you, then CADWorx Plant delivers!

Structural Steel
Each seat of CADWorx Plant ships with CADWorx Steel, giving CADWorx Plant the steel modeling capabilities of one of the most powerful and intuitive steel packages on the market. See CADWorx Steel and Steel Professional section for more information.

Equipment
Equipment capabilities built into CADWorx Plant allow you to create any equipment shape. Vessels, pumps, tanks and exchangers can be quickly added for review and interference checking.
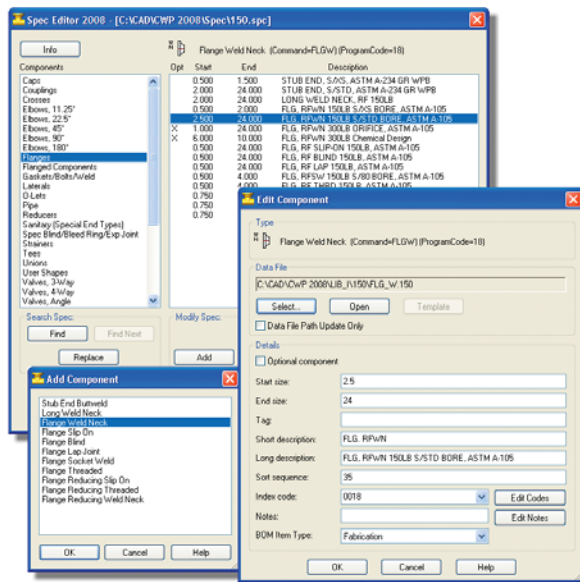
Ducting/Cable Trays
HVAC ducting and cable tray shapes are easily placed using routines built into CADWorx Plant. Select square, rectangular, round and oval shapes with transitions from a single intu-itive dialog box. Key dimensional information is retained to allow you to quickly and easily design duct and tray runs with the minimum of effort.

Automatic Isometrics
CADWorx Plant creates the industry's best looking automatic isometrics with ease. Isometrics can be gener-ated from the model or from project databases. Parameters for borders, automatic dimensioning, tagging, bills of material and intelligent stop marks are easily defined. CADWorx Plant makes automatic isometric generation a real cost saver by dramatically reducing errors and improving productivity.

Piping Specifications
CADWorx Plant includes ready-to-use specifications with access to over 60,000 parametric driven components. Specifications and data files are provided in imperial, metric and mixed metric formats. The powerful specification editor lets you easily create and modify specifications to ensure consistency and accuracy in your designs.

Bills of Material
Because CADWorx components are intelligent, you can create accurate user-configurable bills of material in the most popular database formats at any point in the design process.

Export to External Database
CADWorx Plant allows you to export design and component information to an external database in a variety of database formats for easy report-ing and global model updates.

Bi-directional Links to Stress Analysis
You can output your CADWorx Plant pipe models for stress analysis to CAESAR II in its native file format. Subsequent routing, pipe support and system modifications made in CAESAR II can be imported directly back into the model. CADWorx Plant's bi-directional link with CAESAR II reduces rework and ensures that designers and engineers work with the latest and most accurate information available.

Automated Stress Isometrics
CADWorx Plant can use CAESAR II output to automatically create stress isometrics with exactly the analysis results that you want shown.

The modules and capabilities that follow are included with CADWorx Plant Professional:

CADWorx Design Review
CADWorx Design Review allows real-time design review of even the largest 3D models. Intuitive tools allow the navigation, collaboration, presentation and coordination of your 3D models, making it easy to create animated walkthroughs and to share review comments with other CADWorx Plant users.

CADWorx Steel Professional
CADWorx Plant Professional comes with the steel design capabilities of CADWorx Steel Professional. See CADWorx Steel Professional section for more information.
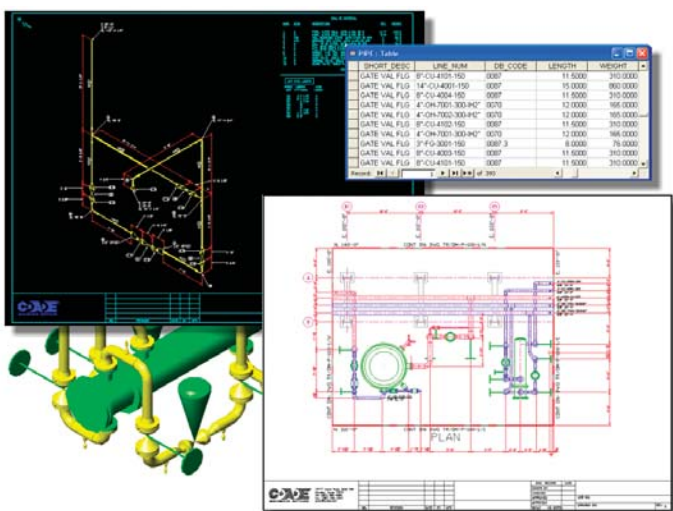
CADWorx Equipment
COADE's parametric equipment modeler includes all the features needed to easily model 3D equipment for plant design. The package lets you quickly and effortlessly build vessels, exchangers, tanks, pumps and other components. See CADWorx Equipment section for more information.

Personal ISOGEN
ISOGEN provides completely automated isometric creation in the world's most popular isometric format.

Clash Detection
CADWorx Plant Professional features powerful clash detection capabilities that can be configured to check clashes as soon as the model is opened and with 'on-the-fly' or 'on-demand' checking available at any time. Clash checks are even conducted across cross-referenced (XREFed) files. All clashes are instantly marked for review, allowing for money saving adjustments to the design before construction.

Live Database Links
Live database links allow any number of users to connect to a common external project database. Model additions and deletions from any designer are constantly monitored to ensure that the model and external project database are always in sync.

CADWorx Sanitary (Hygienic)
The CADWorx Sanitary package provides additional sanitary components, data files and specifications. CADWorx Sanitary gives those in the hygienic industries such as food and beverage, pharmaceutical, bio-gen and semiconductor access to the specialized components that their industries require.

Ductile Iron Pipe
The CADWorx Ductile Iron Pipe module gives CADWorx Plant and Plant Professional additional components and data files for ductile iron pipe capabilities, widely used in the waste water and water treatment industries.

CADWorx
Design Review

CADWorx Design Review has been specially developed for the evaluation of CADWorx Plant and ancillary models by designers, managers, owners and other design stakeholders. All of the information normally accessed in CADWorx is available.

Model Review and Markup
The package lets users collaborate and review the design quickly and intuitively. With the 3D model, users are able to reduce the need to interpret the design via paper printouts and other non-interactive tools.

It provides ease of collaboration and intuitive methods for producing review deliverables such as markups, comments, red-lining and animations.

Large Model Support and Animation
CADWorx Design Review creates highly compressed review models, making it possible for even the largest designs to be navigated smoothly. Its flexible tools also enable animations to be developed with unsurpassed freedom, allowing the view direction of the animated path to be defined independent of the direction of travel.

CADWorx Steel and
Steel Professional

CADWorx Steel is a full-featured 3D steel modeling package that comes complete with powerful design tools and international steel shapes.

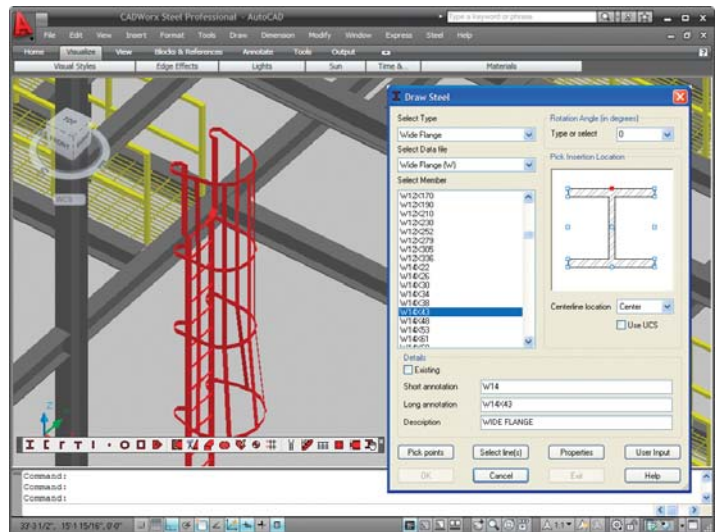### Comprehensive Steel Libraries
CADWorx Steel includes a full library of international steel shapes in both imperial and metric units. Metric or imperial shapes can be placed in either environment without modification.

Frame and View Creation
CADWorx Steel makes the creation of complex 3D steel structures as simple as drawing in 2D. Multilevel frames with vertical or sloped sides can be combined to create intricate layouts. You can easily place steel members by picking single or multiple frame lines on which to place members. Automatic annotation and dimensioning of the frames are also included.

User Shapes and Customization
CADWorx Steel allows structural designers and engineers to create

user shapes that can be derived from any extruded profile. Now you can build on CADWorx Steel's capabilities and deliver what you need intelligently!

Editing and Modification
Because CADWorx Steel members are intelligent, they are easily modified by just selecting them and changing their properties. You can automatically cope steel members against each other plus cut, trim and join any members, therefore allowing modifications to the design without time consuming remodeling.

Databases, Reports and Bills of Material
CADWorx Steel outputs to popular database formats and its full auditing capabilities make sure model and database are kept in sync. Center-of-gravity calculations and markers can be automatically created and placed in the model or in a detailed report. User-configurable bills of material are also available directly from the plant model or from the external database.

The modules and capabilities that follow are included with CADWorx Steel Professional:

Stair, Ladders and Hand Railings
CADWorx Steel Professional has time and money saving routines to parametrically create intricate stairs, ladders (with or without cages) and hand rails. All attributes used to create these items can be modified at any time in the process.

CADWorx Equipment

CADWorx Equipment is a parametric equipment modeler with all the features needed to easily model 3D equipment for plant design. The package lets you accurately build units such as vessels, exchangers, tanks and pumps quickly and effortlessly. Also, vessels and exchangers can be bi-directionally linked to COADE's PV Elite package for engineering analysis.
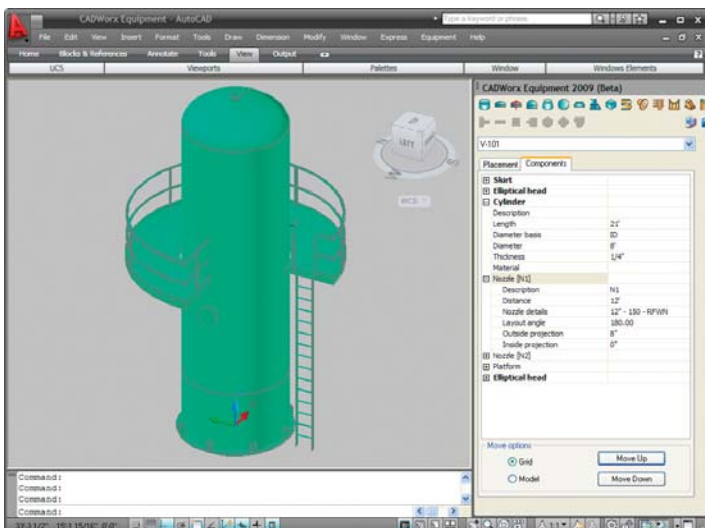
Parametric Equipment Modeling
CADWorx Equipment is a hierarchical parametric modeler that makes the complexities of building equipment as simple as entering values in an easy-to-use build tree.

For vessels, tanks and exchangers, items such as skirts, shells, reducing cones, heads, body flanges, nozzles, platforms, ladders and supports are just some of the choices that are available. For pumps, you can choose suction and discharge nozzles, impellers, motors, base plates and other items to ensure your equipment is created exactly as it should be.
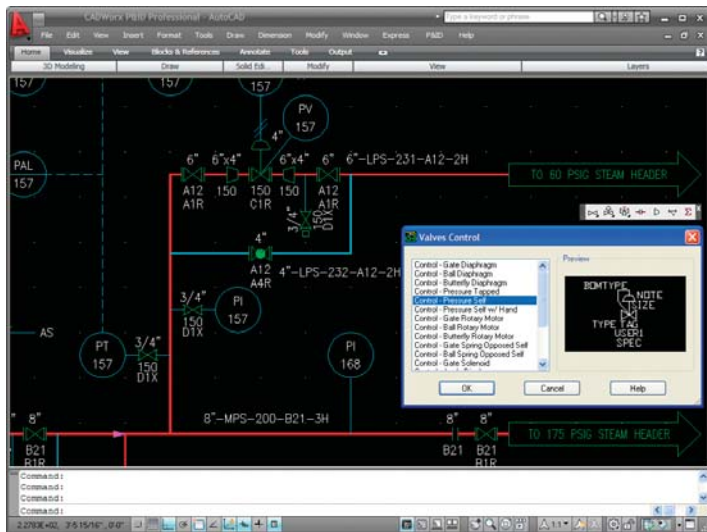
Bi-directional Links to Pressure Vessel Analysis
It has never been easier for your vessel engineers and plant designers to collaborate. Vessels, tanks or exchangers created in either CADWorx Equipment or COADE's PV Elite pressure vessel analysis package can be passed from one to the other without information loss.

Structural Steel Modeling
Create intelligent 3D steel models with tools for framing, coping, and creating views, user shapes and bills of material.

Parametric Equipment Modeler
The parametric equipment modeler instantly updates the equipment graphics and provides bi-directional links to pressure vessel analysis.

CADWorx Datasheets

Instrument and Equipment Datasheets

The CADWorx Datasheets module is a customizable utility for the generation of intelligent instrument and equipment datasheets. The module can be used standalone or in conjunction with external databases, such as those linked to CADWorx P&ID Professional projects, to provide bi-directional links to instrumentation and equipment tables.

CADWorx P&ID and P&ID Professional

CADWorx P&ID gives users the flexibility to easily create process diagrams with varying levels of information. CADWorx P&ID Professional also features CADWorx Loops, CADWorx IP (Internet Publisher) and live database links.

Intelligent Process Diagrams

You can create smart P&ID's without changing the way your drawings look or the symbols that you use. Powerful drafting and editing tools make it easy to incorporate drawing intelligence. With P&ID Professional you can add component information that links to external databases for further design and engineering collaboration.

Industry-standard Symbols

CADWorx P&ID comes with an extensive symbols library. You can easily add user symbols and assemblies that are automatically made intelligent with the same functionality as those supplied with the program. These tools also automatically add these symbols to the menus.

Specification Checking

CADWorx P&ID has optional piping specification checking capabilities built in, allowing designers to create process diagrams that access the same specifications used in CADWorx Plant. Shared specification checks make sure your designs are correct from conception to delivery.

Legacy Drawing Conversion

Your old drawings and the information they contain can still be useful! CADWorx P&ID includes powerful mapping routines that make linking valves, vessels, mechanical, instruments and process lines to your project databases easy.

The modules and capabilities that follow are included with CADWorx P&ID Professional:

User-defined Project Databases

CADWorx P&ID provides a dynamic solution for defining and maintaining the structure of project databases. This capability requires no database knowledge, and open database connectivity (ODBC) links ensure the best performance while maintaining data integrity and synchronization. Because you choose your ODBC database, you can create exactly the reports you want in the form that suits your needs.

Bi-directional Database Links

Your data is never compromised regardless of how many drawings are linked to your project databases. Whether common information is changed in the drawing or from within the database, all relevant drawings are current. CADWorx P&ID makes sure that drawings and database are always in sync.

Project Document Links

CADWorx P&ID allows users to link an unlimited number of documents to their P&ID components and store this information in project databases. Once linked, you can click on any component to access or view the documents pertaining to it. Now, maintaining and accessing your project documents just got easier!

CADWorx Loops

When hundreds or thousands of instrument loop diagrams need to be created, CADWorx Loops makes it easy to produce them automatically and quickly, taking seconds for what would normally take hours to produce. See CADWorx Loops section for more information.

CADWorx IP (Internet Publisher)

CADWorx IP lets you publish P&ID projects in a web-based format, allowing users access to drawings, reports, linked documents and underlying database information from a browser. See CADWorx IP section for more information.

CADWorx Loops

CADWorx Loops allows you to automatically produce instrument loop diagrams from project databases via user-defined templates.

Instrument Loop Table Creation

CADWorx Loops uses template drawings to automatically add loop tables in the project database. Further information can be added to individually created loop diagrams without any CAD or database knowledge required.

Links to Third-party Packages

The CADWorx Loops open architecture allows you to create templates that may include any attribute data desired. This means that templates can be created using information that third-party instrumentation or electrical modules need for intelligent post processing of CADWorx Loops diagrams.

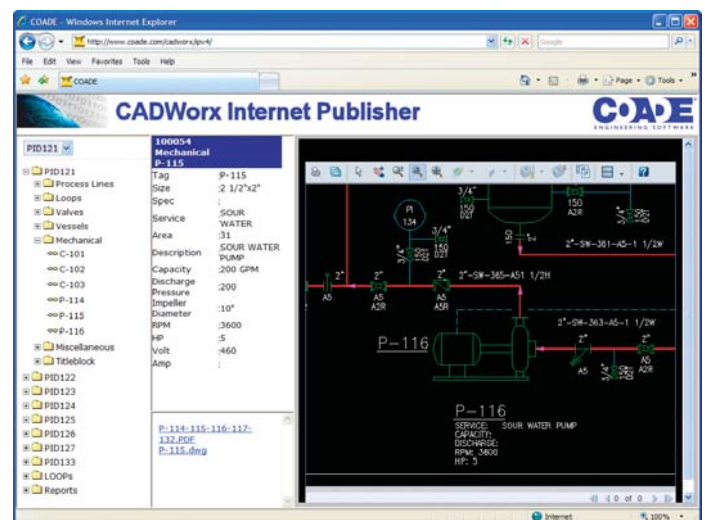# CADWorx IP (Internet Publisher)

CADWorx IP is the first product on the market that lets you automatically publish your P&ID and their associated data in a format that can be viewed and accessed via any browser. Distributive design and information sharing has finally come of age in the plant design world!

Project Publishing Wizard

CADWorx IP uses intuitive capabilities and wizards to allow you to publish your CADWorx P&ID Professional projects to a web-based format, allowing users access to drawings, reports and underlying database information from any browser. Users can also mark up drawings and send comments to colleagues about any component that is in a viewed drawing.

Browser Accessible Drawings and Linked Data

If you want to make sure that all have the latest design information at their fingertips, then CADWorx IP is the tool that replaces uncoordinated pieces of information and centralizes it in the easiest and most accessible form to date.

CADWorx is full featured yet easy to use, which makes it an ideal tool for a wide range of jobs, from simple modifications to complex and sophisticated plants.

System Requirements:

The minimum system requirements to run the COADE CADWorx Plant Design Suite are those recommended for the version of AutoCAD (or AutoCAD vertical) product that you have chosen to use as your platform.

CADWorx Plant Design Suite recommended system requirements:
- AutoCAD 2006, 2007, 2008 or 2009
- Microsoft Windows XP Pro or later
- Microsoft Internet Explorer 6.0 or later
- 100 MB installation disk space
- 1600 x 1200 monitor with True Color

Recommended for CADWorx Plant Professional:
- 3.0 GHz Intel Pentium IV processor or greater
- 2 GB RAM
- 1600 x 1200 monitor with True Color
- 128 MB or greater OpenGL-capable graphics card

Recommended for CADWorx P&ID Professional:
- Intel Pentium IV processor
- 1 GB RAM

CADWorx Licenses:

All CADWorx software licenses provide the following as standard:

- Perpetual single license with no limit on the amount or duration of use
- Complete program (each CADWorx program is licensed separately)
- One complete set of program manuals
- One full year of extended maintenance and support that includes:
  - Build updates and product upgrades
  - Telephone, e-mail, fax, user group and web-based technical support
  - Technical newsletter subscription

AutoCAD 2009 Compatible

Autodesk

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