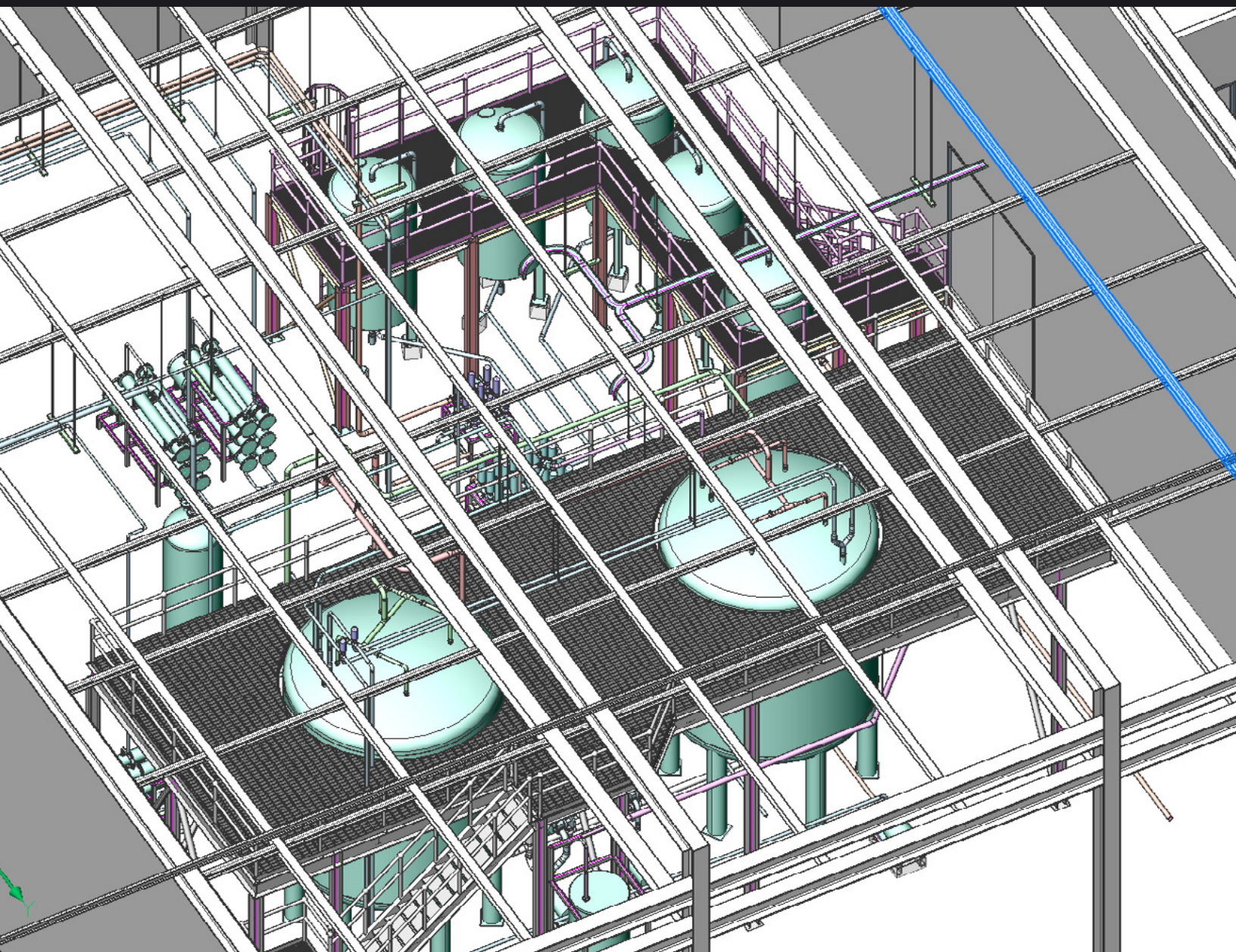
FREQUENTLY ASKED QUESTIONS

Forte 3DWorx Design Suite

Formerly CADWorx Plant Design Suite



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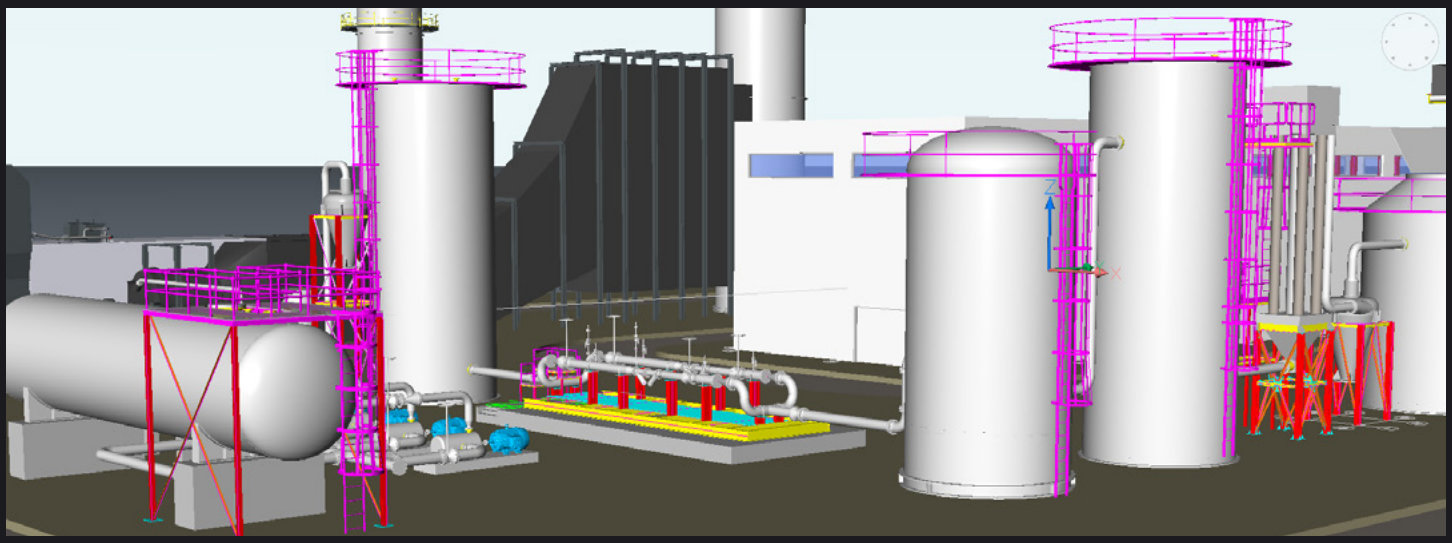


General information

What is Forte 3DWorx Plant Design Suite (formerly CADWorx Plant Design Suite)?

Forte 3DWorx Plant Design Suite is a family of products, including:

- **Forte 3DWorx** (formerly CADWorx Plant Professional)
- **Facets P&IDWorx** (formerly CADWorx P&ID Professional)
- **Forte StructureWorx** (formerly CADWorx Structure Professional)
- **Forte ReviewWorx** (formerly CADWorx Design Review Professional)

Forte 3DWorx Plant Design Suite includes tools for intelligent modeling, process schematics and automatic production of deliverables. All products listed above are included as part of Forte 3DWorx, but each product can also be purchased separately when additional licenses are required. Note: This document includes FAQs for all the products listed above.

Who uses Forte 3DWorx?

Since its introduction, Forte 3DWorx has revolutionized the plant design industry with its ease of use, flexibility, interconnectivity and scalability. Over 90 percent of the leading plant engineering companies and owner-operators worldwide trust this solution to deliver accurate and reliable project results.

What are the main benefits of using Forte 3DWorx?

The benefit of Forte 3DWorx is that the software is quick and easy to set up and use, so you can start designing right away. Thousands of companies are benefiting from the powerful yet scalable solution that Octave develops. For projects that require accuracy and need to adhere to timing and budget constraints, Forte 3DWorx provides unparalleled value.

Why is Forte 3DWorx easy to setup and use?

Forte 3DWorx is easy to use because the software is CAD based and utilizes the same command structure and methodology with which all BricsCAD/AutoCAD users are already familiar. This, along with the intuitive workflow of Forte 3DWorx, assures that the large base of trained BricsCAD/AutoCAD users can become productive within days of first encountering the software. Likewise, the included large set of template specifications and component catalogs, coupled with the product's smooth 2D to 3D transition, database flexibility, and easy on-the-fly customization (no programming required), allows even the most casual users to easily and quickly ensure that Forte 3DWorx, works exactly the way that they do (or the way they have always really wanted to). The simplicity of Forte 3DWorx allows all projects to be fast-tracked, saving hundreds of training and engineering design hours, not to mention administrative overhead costs. On the typical Forte 3DWorx project, plant designers find that they can start laying pipe within hours of installing and familiarising themselves with the software.

Why is Forte 3DWorx open?

Forte 3DWorx is open because it can be adapted to the customer's existing work process, eliminating the requirement of following constrictive processes in other software products. This is done by ensuring that the product adheres to a non-proprietary, easily customized database structure and by conforming to de-facto commercial file standards to provide interoperability with other software. So, what does this mean to you? Forte 3DWorx's database can be quickly structured to match those used by your data warehouse or individual applications thus becoming a natural part of your company's ERP processes. Likewise, Forte 3DWorx strict adherence to such commercial standards as the standard DWG format and PCF format allows Forte 3DWorx to easily interface with the hundreds or thousands of other applications, which also use those standards.

Why is Forte 3DWorx scalable?

Forte 3DWorx is a scalable solution because it combines ease of use and quick start-up with full functionality and extensive integration and data sharing. This allows Forte 3DWorx's advantages to be focused according to the project's demands. Smaller, simpler projects can take advantage of Forte 3DWorx's rapid start-up, and small overhead needs to meet tight timelines and budgets. Larger, more complex projects can take advantage of Forte 3DWorx's automation and integration to reap downstream savings. Forte 3DWorx's additional capabilities can be implemented incrementally, as needed, to match the sophistication of your project or the skills of your staff – in contrast to the "all or nothing" approach that many competing applications impose. From small skids to large plants, multiple users can work together efficiently and produce superior results to tackle the most challenging and complex projects.

Which industries are supported by Forte 3DWorx?

Forte 3DWorx is highly configurable and so adaptable to the design needs of many different industries, including:

- Oil & gas
- Petrochemicals
- Chemicals
- Pharmaceuticals
- Food & beverage
- Water treatment
- Power incl. alternative power-generation
- Mining
- Semi-conductor
- Marine
- Utilities
- Infrastructure/AEC/BIM

Installation

What are the hardware and software requirements?

The hardware and software requirements are those of the CAD platform on which a Forte 3DWorx product is installed i.e., either BricsCAD or AutoCAD. See Forte 3DWorx software recommendations and, also:

- BricsCAD: Minimum system requirements and recommendations
- AutoCAD: System requirements for AutoCAD

Does Forte 3DWorx require a specific version of the Windows operating system?

Refer to the compatibility matrix to understand what version of Windows is required.

In what languages is Forte 3DWorx available?

Forte 3DWorx uses a dictionary file to control the language displayed in the user interface. In addition to English, dictionary files for French, Spanish, German and Italian, amongst others, are supplied with the product.

Does Forte 3DWorx work on Linux or Mac OS?

Although BricsCAD Pro can, Forte 3DWorx products don't (Windows only).

Does Forte 3DWorx work on 32 and 64-bit platforms?

64-bit Windows platforms only are supported.

Does Forte 3DWorx require a database product to work?

All information is stored in the .dwg, so using a database product with Forte 3DWorx products (Forte ReviewWorx excluded as it does not require a database) is optional. Compatible database products are Microsoft Access, SQL Server or ORACLE. The optional live database links provide real-time design status and information backup.

Is it possible to install Forte 3DWorx silently?

Yes, see the installation instructions for each Forte 3DWorx product available online.

Can the software be installed on several computers?

All Forte 3DWorx products can be installed on as many computers/workstations as required. Concurrent access and use of the software is controlled by Octave Licensing.

If only a single license of a Forte 3DWorx product is purchased, can this be used on more than one computer?

Yes, but only one license can be used at any one time.

Are Forte 3DWorx licenses named users?

No, Forte 3DWorx licenses can be used by any user, maximizing license use.

Can new and old versions of Forte 3DWorx be run in parallel on the same computer?

Yes. Forte 3DWorx (formerly CADWorx) is usually installed in a C:\CADWorx version' folder e.g., C:\CADWorx 25.

If you accept the default location, you can install and use multiple releases in parallel.

For example, you could have these installed in parallel:

- C:\CADWorx 24
- C:\CADWorx 23
- C:\CADWorx 22
- C:\CADWorx 2020 R2
- etc.

Is Forte 3DWorx backward compatible?

No, reference data and models can be opened only in the versions of Forte 3DWorx products originally used to create them and later versions of the software.

Can Forte 3DWorx be installed on a virtualized system?

Yes, providing the system offers the required resources and meets the minimum software and hardware requirements that Forte 3DWorx needs to work efficiently.

Note: *Octave does not officially support the use of Forte 3DWorx products on virtualized systems.*

Which version of AutoCAD is compatible with Forte 3DWorx?

Version/release	AutoCAD 2021	AutoCAD 2022	AutoCAD 2023	AutoCAD 2024
CADWorx v23 (P&ID, Plant, Structure and Design Review)	No	Yes	Yes	Yes
CADWorx v22 (P&ID, Plant, Structure and Design Review)	Yes	Yes	Yes	No
CADWorx 2020 R2 (P&ID, Plant and Structure) incl. SP1	Yes	No	No	No
CADWorx 2020 R1 (P&ID, Plant and Structure) incl. SP1	Yes	No	No	No

Which version of BricsCAD is compatible with Forte 3DWorx?

Version/release	BricsCAD V20.01	BricsCAD V20.02	BricsCAD V21.02	BricsCAD V22
CADWorx v23 (P&ID, Plant, Structure and Design Review)	No	Yes	Yes	Yes
CADWorx v22 (P&ID, Plant, Structure and Design Review)	Yes	Yes	Yes	No
CADWorx 2020 R2 (P&ID, Plant and Structure) incl. SP1	Yes	Yes	No	No
CADWorx 2020 R1 (P&ID, Plant and Structure) incl. SP1	Yes	No	No	No

Licensing

How is Forte 3DWorx licensed?

All Octave products, Forte 3DWorx products included, are licensed by Octave's cloud-based licensing solution - Octave Licensing.

Octave Licensing Client and a Configuration Connection Information (.CCI) file are installed on each workstation that needs to access licenses in the cloud. The Configuration Connection Information (.CCI) file provides a handshake between the software product, Octave Licensing Client, and the cloud licensing server, enabling software users to request and return licenses when they start or exit the software product(s) they are using.

The initial .CCI file issued to a new customer is usually named 'Site ID.CCI' e.g., 00123456.CCI. This file is generated for a site based Keystore i.e., a Keystore containing all licenses of all products purchased. Suppose product licenses need to be deployed differently, for example. In that case, some of the total licenses for various products held by the customer need to be allocated for use on a specific project. Then a project based configuration must be created in the Licensing Portal. Doing so results in additional keystores being created and 2 or more CCI files being used to access licenses in the cloud.

Consult online help for further information about Octave Licensing.

What license options exist for Forte 3DWorx?

Forte 3DWorx product licenses are 'CX' type, meaning they can be used 24hrs per day / 7 days per week / 365 days per year. For further information about this and other license types supplied by Octave, refer to the End User License Agreement (EULA) included with the software installation media.

How are Forte 3DWorx licenses administered?

Octave Licensing works in parallel with the Licensing Portal. It is an online self-service system that IT personnel/license administrators can use to manage the configuration and deployment of their Octave product licenses. Customers are encouraged to use the Licensing Portal to self-manage their licenses. Online help covering license administration is provided inside the portal.

Is an internet connection required to use Forte 3DWorx?

Octave Licensing is cloud-based, so an Internet connection is always needed to access licenses in the cloud when using a computer in the office connected to the company's network. The exception is when licenses are to be used remotely, away from the office. Licenses temporarily checked-out to a mobile computer will work without an Internet connection.

Can Forte 3DWorx products be used outside the office on a mobile computer?

Yes, providing Offline Availability has been set on the licenses in the Licensing Portal. Offline Availability is what controls license check-out via the Octave Licensing Client. This Octave Licensing feature is configured inside the Licensing Portal.

When Octave Licensing Client is installed, if Offline Availability has been configured, it's possible to use the Check-out option to check-out one or more product licenses so that they can be used on a mobile computer. The licenses (product tags) available to check out are displayed on the 'Check-out' tab.

Note: *Offline Availability is not set by default on site-based configurations, your IT administrator/license administrator must enable this before licenses can be checked-out and used on mobile computers.*

Check-in is used to return licenses to the cloud license server when the mobile computer is returned to the office and connected to the network when it has internet access.

While checked out, licenses active on a roaming computer are unavailable for office-based users to use. They become available again when the licenses are checked in.

Can license usage be reported?

Yes, license usage reporting is available inside the Licensing Portal. Reporting enables IT administrators/license administrators to understand how your organization uses licenses. Having this visibility of how licenses are used allows IT administrators/license administrators to determine who is using the licenses, check peak license usage, understand how to optimize the use of licenses, identify if additional licenses are required, etc.

Purchasing

What purchasing options are available?

Perpetual licenses with or without maintenance, or lease licenses (minimum 3-month term) including maintenance, can be purchased.

How is the software purchased?

Forte 3DWorx products may be purchased through our reseller network and direct from Octave. To find your local Octave sales office or reseller, visit octave.com/general-inquiry.

For a complete list of Octave office locations, please visit: octave.com/about/office-locations

What are Octave Global Network Dealers? (OGND)?

OGNDs are the Octave Standard-bearer(s) around the world. They are the local face of Octave. They provide product sales and support in your local time zone and language. OGNDs have certified instructors and consultation specialists to help clients define and meet their requirements at all levels. The worldwide OGNDs work together to ensure that Octave multinational clients have access to the right products, training and consultation anywhere around the globe.

What is an Octave Authorized Reseller?

Authorized Resellers are the local Octave software experts who provide local sales and support to clients in their respective regions.

Are free evaluations of Forte 3DWorx Design Suite products available?

Yes, free evaluation versions are available. Use this form to request yours.

Can an online web demo be provided?

Yes, online web demonstrations can be arranged. Contact Octave or your local reseller for more information.

Is a CAD platform necessary to use Forte 3DWorx?

Yes. Customers can choose to use either BricsCAD or AutoCAD as the CAD platform for Forte 3DWorx. However, Octave recommends BricsCAD is used as it offers unique features not available in AutoCAD, more flexible licensing, and is less expensive than the cost of an AutoCAD subscription.

Does the software work with every BricsCAD variant?

Forte 3DWorx is compatible with BricsCAD Pro, BricsCAD BIM, and BricsCAD Mechanical, but not BricsCAD Lite due to the latter being 2D only.

Training

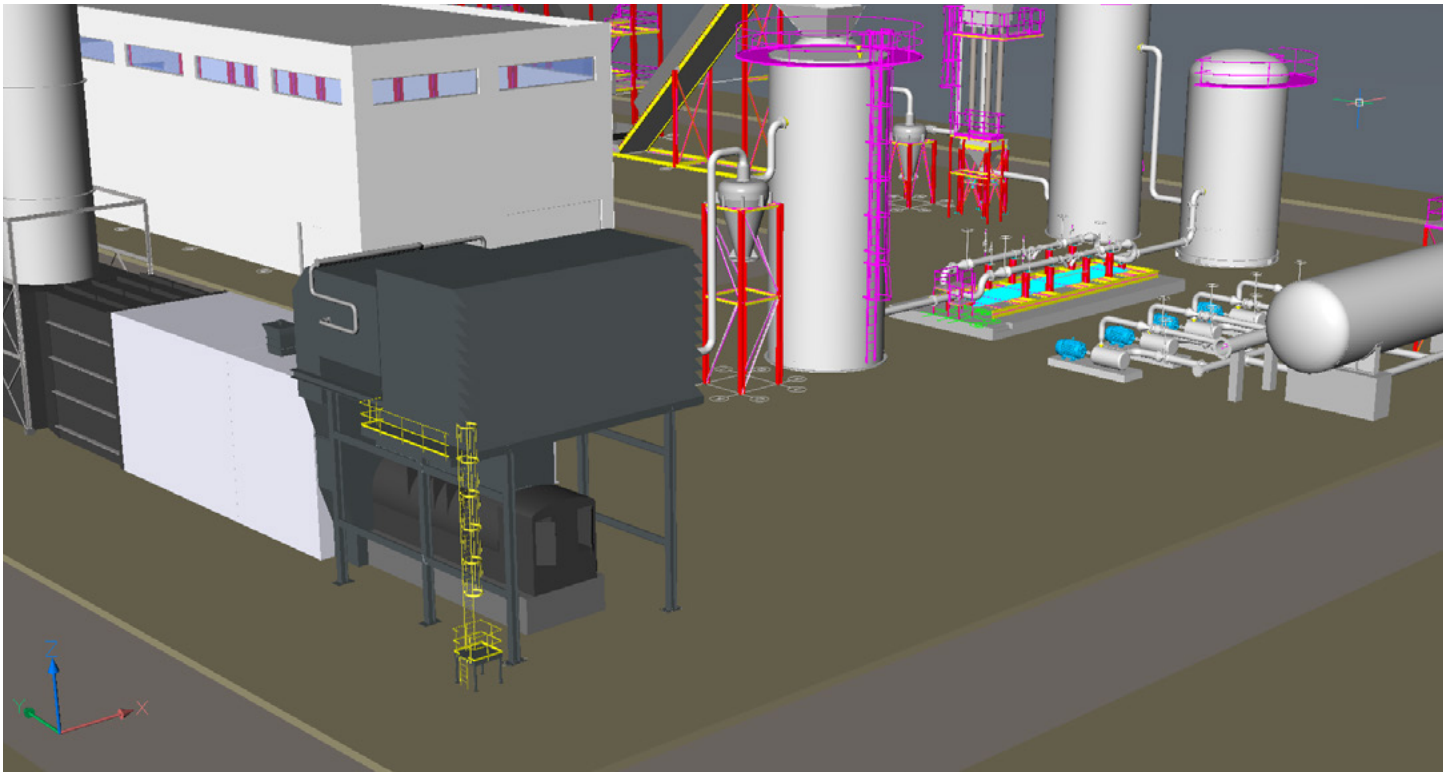
What is the best way to learn how to use and get started with Forte 3DWorx?

Find free e-Learning and instructor-led content available on Octave Institute.

Is training available?

Customers receive free access to Forte 3DWorx training content via Octave Institute.

Customers also have the option to purchase instructor-led training, which can either be provided at their site, delivered at a Octave training center, or online over the web.



Maintenance & Support

What does software maintenance provide?

Annual software maintenance covers the provision of technical support and software upgrades.

Does maintenance include training?

No, training is not part of maintenance.

How do users request technical support?

Maintenance customers receive technical support via Octave's support system.

How do users get access to Octave Community?

Users can request access here.

What documentation is provided with Forte 3DWorx?

Comprehensive product documentation for all Octave products, including Forte 3DWorx products, is provided online here.

Can users request enhancements be made to Forte 3DWorx?

Yes, everyone may submit product enhancement requests. Octave interacts with and listens to customers, then responds by developing novel solutions and enhancing current products to address customers' needs and improve their work processes. This customer-centric focus helps us grow our product line to serve an ever-broader base of users and applications, which further increases opportunities for our clients to enjoy the benefits of interdisciplinary collaboration with other departments and organizations.

To submit a new feature/function/capability request – login to Octave Community, click on the IDEAS tile, then submit your idea.

How are the enhancement requests prioritized?

Enhancement requests are evaluated and prioritized based on a given industry and market. Octave prioritizes requests based on the benefit delivered to the highest number of our users.

Configuration

Is Forte 3DWorx a file-based or database-centric solution?

Forte 3DWorx products are file-based, but can optionally be connected to a database to store 2D and 3D information for data recovery purposes and report on any property/attribute data added to P&IDs and 3D models by the user.

Does Forte 3DWorx include a way to create a project based on a plant or work-breakdown structure?

No dedicated project management tool is provided with the software currently, but this is under consideration for introduction in a future version of the software.

Forte 3DWorx projects can be configured however the customer needs them to be. Projects are a collection of folders and sub-folders containing design (.dwg) files. The plant or work-breakdown structure typically names folders, and the design files for individual equipment and structures are usually named in accordance with the discipline and tag or, in the case of piping, a line number from the P&ID.

Is it possible to use mixed units in Forte 3DWorx?

No, only one set of units can be used - either

- **M/I** – Metric bores and Imperial lengths, or
- **M/M** – Metric bores and Metric lengths, or
- **I/I** – Imperial bores and Imperial lengths

Being file-based, what should users do to ensure Forte 3DWorx performs efficiently?

- Observe the following best practice:
- Ensure workstations have the minimum hardware and software specification for the CAD platform; use a higher-spec'd workstation if using point clouds inside CAD.
- Don't model the entire facility in a single DWG file; instead, model individual plant items – pipelines, equipment, steel structures etc. – within their own DWG files, then reference files together to see areas, units, etc. within the plant.
- Use Forte ReviewWorx to visualize the whole plant model.
- Perform regular maintenance on models (DWGs) as they evolve by using AUDIT, PURGE, -PURGE, RCOVER etc.
- Limit individual discipline models (single DWGs) to the maximum 20MB per file.
- Avoid using nested XREFs.
- Only reference models are needed for the task at hand as you work.
- Don't include highly detailed 3D models from vendors, e.g., pumps having intricate details like motors with fins. Always simplify models when they are first received from vendors before including them in Forte 3DWorx models.
- Only include graphics overlays in the final handover model when a detailed view of the component needs to be present to provide the final visualization of the model or to check for potential clash situations, or to check access for maintenance personnel, etc.

Reference data

What is reference data included with Forte 3DWorx?

Based on ANSI/ASME and DIN engineering design standards, hundreds of ready-to-use specifications in metric and imperial formats are included that reference data files of over 60,000 parametrically driven components.

Octave is committed to developing and supplying additional vendor content - for example, hygienic components – for food & beverage, dairy, pharmaceutical, and high-purity applications from leading manufacturers - such as GEA Tuchenhagen, Alfa Laval, Sudmo, amongst others, used in combination with ASME BPE and WPE piping and fittings.

Additional sanitary and hygienic content is available to download from Octave Community.

Is it possible to create non-standard piping components?

Yes. Usually, a simplistic view of piping components is all that's needed to complete a plant design and produce deliverables. Sometimes, however, a more realistic view of the component is required – for example, to ensure the top works (head gear) of a valve don't clash with equipment, piping, or steelwork or would prevent access by personnel when maintenance is required.

Using 3D CAD files/blocks supplied by manufacturers, it is possible to link these to the Forte 3DWorx catalog using User Shapes.

As well as avoiding the problems already mentioned, these enable realistic designs to be produced, which help improve communications between the project team and the other stakeholders.

What types of piping connections are supported?

Piping connections used across all industries can be modelled – including butt-weld, socket-weld, threaded, flanged, compression, glued, ball & socket, clamped, etc.

Can users create their piping reference data for use in Forte 3DWorx?

Yes. The Forte 3DWorx Specification Editor is an integral part of the Forte 3DWorx software. It provides powerful tools to create and maintain data-rich catalogs and specifications in Forte 3DWorx efficiently and quickly. The Forte 3DWorx Specification Editor is easy to use and learn, requiring only one training day.

In accordance with applicable design codes and engineering standards, new reference data can be created based on vendor catalog data provided by piping, fitting, and valve manufacturers.

Specific settings – such as the Branch table - when configured, drive pipe routing automation and modeling behavior, increasing efficiency and productivity and helping to reduce potential design errors.

You can also import and convert catalog and specification data from other plant design systems.

Additionally, Octave offers services to create piping catalogs and specifications.

Can cats and specs. developed for Autodesk AutoCAD Plant 3D be imported and reused?

Yes, Autodesk Plant 3D cats in .pcat and specs. in .pspec format can be imported to create corresponding Forte 3DWorx .cat and .prj (spec.) files.

Can cats and specs. developed in Smart Reference Data be imported and reused?

Yes, specifications

Is it possible to check the content of a Forte 3DWorx specification without having to place every component individually into a drawing?

Yes, the AUTOTESTSPEC command will place all components in a single spec at all sizes. within a .prj into a grid in an empty DWG file, enabling a materials specialist/ admin. to check the accuracy and completeness of the catalogue and spec. they are creating in Forte 3DWorx Specification Editor.

Modeling

What design disciplines are included in the software?

Forte 3DWorx is a full-featured DWG-based 3D plant design solution. It includes the complete range of tools for efficient 3D plant design, enabling the modeling of:

- **Piping** – intuitive and automated routines to place piping, fittings, and inline components, quickly, easily, and intuitively.
- **Equipment** – rapid definition of all types of vessels, tanks and heat exchangers, including nozzles, platforms, ladders etc.
- **Structure** – powerful and intuitive structural steel capabilities for building complex steel structures, ladders, stairways, grating, plates, and handrail.
- **HVAC & Cable Trays** – HVAC ducting and cable tray routines are also built-in. Square, rectangular, round, and oval shapes, with transitions, are all available.

What automation is available in Forte 3DWorx?

Forte 3DWorx provides several configurable piping rules that help speed up design by allowing you to work faster and smarter.

The behavior of some of the rules is controlled by settings in the Forte 3DWorx Specification Editor - for example:

- Apply Branch Table Rule
- Apply Pipe Length Rule

Rules help prevent errors and ensure higher quality designs are produced more easily and with less effort.

Forte 3DWorx also provides a series of productivity tools that speed up design by helping you make design revisions more easily, avoiding model rework and wasted effort, for example:

- **Change Size** – change the Size of a pipe on-the-fly.
- **Change Spec**. – change the spec. of a pipe on-the-fly; again, the design change is made quickly and easily without having to delete or remodel the pipe.
- **Using "Drag-Lock"** – enables you to slide a valve around an elbow or bend and even across a branch; you save time and maintain design intent by re-positioning the valve without having to delete and place it again.
- **Change Elbow to Tee to Cross** – if a design change requires it, change an elbow to a tee, and then to a cross. The change is made quickly and easily without deleting or remodeling the intersection.
- **Self-Aware Components** – components inherit the property of attached pipe; components rotate around an axis; move entire pipelines and all connections.

Changes are made quickly and easily without having to delete or remodel the pipe, leading to more efficient design and increased productivity.

Is it possible to auto-route piping?

Yes, pipes can be routed automatically between two connection points. This automation routes pipes in 3 planes/directions.

The software shows you the possible routes to select the best one. Auto-routing saves time and optimizes designs. Auto-routed piping layouts can be edited and modified.

Is it possible to insert components into existing piping?

Yes, and due to self-awareness of Forte 3DWorx piping, inserted components will react to and adopt the properties of the pipeline they are inserted into.

Is it possible to change the piping layout without deleting and remodeling it?

Yes, due to self-awareness of Forte 3DWorx piping, inline valves can be inline valves can be re-positioned in the same pipe or moved around elbows or across tees to position them on another section of pipe.

Additionally, vertical or horizontal pipe lengths can be re-positioned by clicking on the grips and moving them. All connected piping and components move simultaneously while maintaining connections between pipe and fittings.

Is it possible to change the elevation of a horizontal pipe and all connected components without breaking or deleting parts of the pipe?

Yes, the Change Elevation feature enables the elevation of a horizontal pipeline and all connected piping and components to be moved up or down.

Is it possible to change piping specification without closing the 3D model?

Yes, changes made in Forte 3DWorx Specification Editor can be applied to the current Forte 3DWorx modeling session by simply reloading the updated .prj file. New components just introduced to specifications are immediately available to the designer to place in the 3D model.

Does Forte 3DWorx support modeling of sloped/skewed piping?

Yes, slopes can be applied to the piping as it is routed or after it is routed. The Compass tool provides a visual aid to help with the routing of skewed piping in 2D or 3D.

Is it possible to change the line number of a pipeline incorrectly specified?

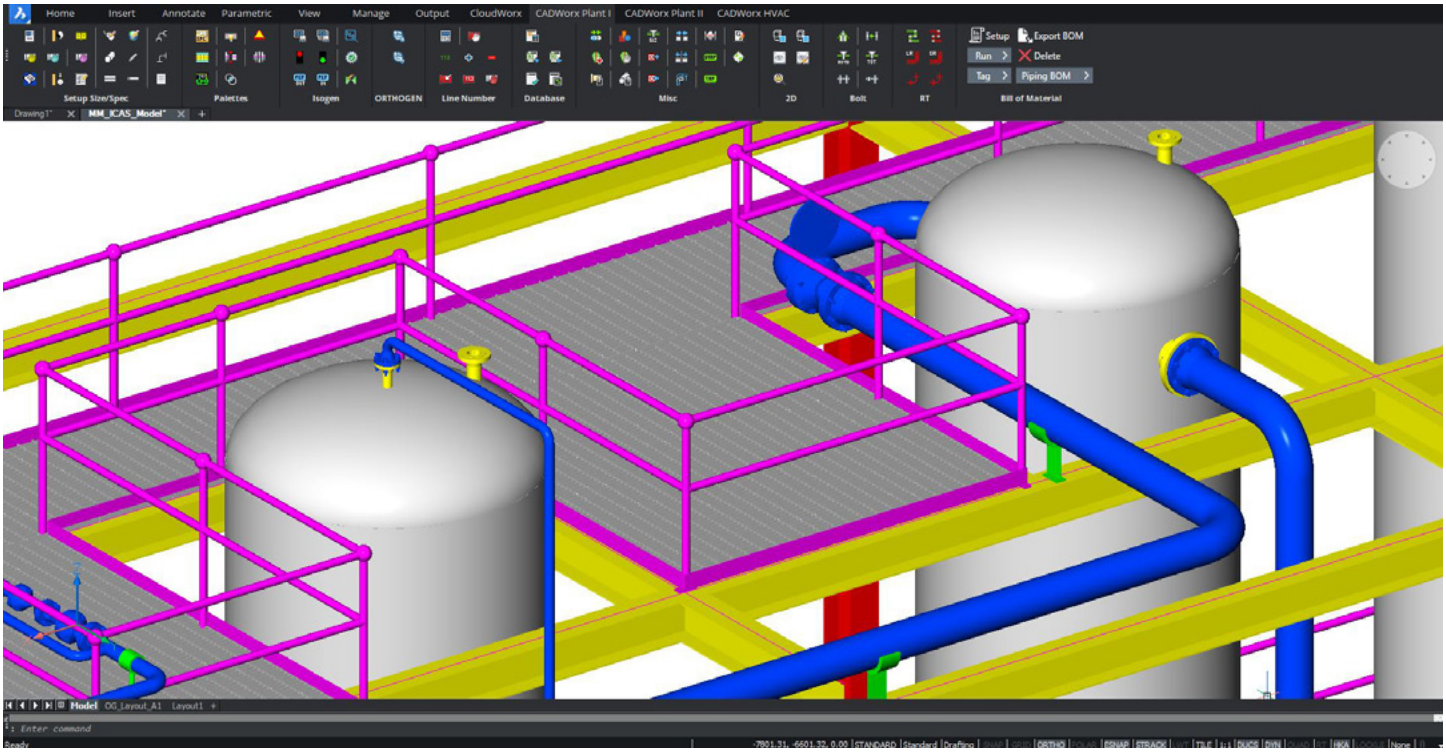
Yes, just select all components within the pipeline, and performing a global edit enables the same line number to be applied to all selected components, overwriting any previous line number.

Does the software prevent the user from modeling something that is physically impossible?

To a degree, yes, the piping rules, disconnection checking (in Forte 3DWorx and Forte Isogen), collision checking, and auto-placement tools (gaskets, bolts) help prevent physically impossible models from being produced. However, the software will not prevent a user who intentionally models something wrong from doing so.

Can a user create a custom pipe support library?

Yes, users can create their own custom pipe support library. Pipe supports are defined in the .prj file. Various sample supports, ranging from a simple U' bolt type to a multi-component hanger, are provided out of the box.



Integration and interoperability

Does Forte 3DWorx integrate with pipe stress analysis software?

Yes, 3D piping models can be exported to pipe stress analysis systems, for example, Aspect Pipe Stress (formerly CAESAR II), via the Piping Component File (PCF). Piping models analyzed in Aspect Pipe Stress, which originated in Forte 3DWorx, can be exported back to 3D to raise the 'as-designed' pipe to reflect the 'as-analyzed' status of the pipe. This is particularly important if the physical characteristics of the piping model change to overcome a stress problem e.g., an expansion loop is introduced, or the length of a pipe is altered to improve the piping system's flexibility. This exchange is termed bi-directional integration and is a key advantage of using Forte 3DWorx in conjunction with Aspect Pipe Stress.

Does Forte 3DWorx integrate with vessel stress analysis software?

Yes, 3D pressure vessel or heat exchanger models can be exported to vessel stress analysis systems, for example, Aspect Pressure Vessel (formerly PV Elite). Equipment models analyzed in Aspect Pressure Vessel, which originated in Forte 3DWorx, can be exported back to 3D to raise the 'as-designed' equipment to reflect the 'as-analyzed' status of the equipment. It is essential if the physical characteristics of the equipment model are changed to overcome a stress problem e.g., stiffening rings are introduced, or a repad is added to one or more nozzles. This exchange is termed bi-directional integration and is a key advantage of using Forte 3DWorx in conjunction with Aspect Pressure Vessel.

Does Forte 3DWorx integrate with Forte 3D?

Yes, multi-discipline Forte 3DWorx 3D models in .dwg or .vue format (latter produced by Forte ReviewWorx) can be processed through Smart Interop Publisher (ISIP) to produce a reference 3D (R3D) model for viewing in the conjunction with a Forte 3D (formerly Intergraph Smart 3D) model. Integration like this makes it possible to check interferences at model interfaces, to determine how piping routes must be completed, support project collaboration between EPCs (using Forte 3D) and contractors (using Forte 3DWorx) etc.

What other Octave solutions does Forte 3DWorx integrate with?

Forte Reference Data & Smart Materials

Forte Reference Data (formerly Intergraph Smart Reference Data) can export to .CSPX format, which Forte 3DWorx Specification Editor can read, enabling smaller contractors, who are using Forte 3DWorx to develop part of a larger model developed by the EPC in Forte 3D, to use the same reference data, enabling Forte 3DWorx BOM integration with Intergaph Smart Materials if needed, and the Forte 3DWorx model to be integrated eventually (via Forte Interop, formerly Smart Interop Publisher) to become part of the final Forte 3D model provided to the EPC's client.

Octave Facets: Electrical and Instrumentation

Facets P&IDWorx can integrate with Facets Electrical (formerly Intergraph Smart Electrical) and Facets Instrumentation (formerly Intergraph Smart Instrumentation) though a simple P2P integration achieved via the Import Tool in each product, enabling econsumer and instrumentation data to be imported into these solutions, where it can be further developed and included in calculations and schematic deliverables.

OnSite Production

Forte 3DWorx piping can be interfaced with OnSite Production (formerly Intergraph Smart Production) (i.e., OnSite Spool Design, formerly Integraph SpoolGen - pipe spool solution included in this) via PCF file format, supporting a seamless digital handover between design and pipe pre-fabrication. A key advantage to the EPC is that they are not paying the fabricator to re-draft the piping design to produce spool documentation for inclusion in fabrication work packages.

Facets P&ID & Facets P&ID Design Validation

Forte 3DWorx users who use Facets P&ID (formerly Intergraph Smart P&ID) can correlate the 2D process design with a Forte 3DWorx 3D design model via Facets P&ID Design Validation (formerly Intergraph Smart P&ID Design Validation). This integration ensures design consistency between the 2D and 3D, avoiding any nasty surprises during procurement, fabrication, and construction project phases.

Forte Isometrics

Forte 3DWorx piping, exported in PCF format, can be imported into Forte Isometrics (formerly Intergraph Smart Isometrics). This integration is useful if an owner/ operator uses Forte Isometrics to maintain digital piping data in support of their Risk-based piping inspection business process or to keep piping isometric documentation up to date in line with the as-built facility to meet regulations.

InConcert Core

Forte 3DWorx 2D P&IDs and 3D models, including embedded data, and other documents produced by the software, can be loaded into InConcert Core (formerly HxGN SDx), where the information can be used to support owner-operator business processes, e.g., Risk-based Inspection, during the operational phase of the plant lifecycle.

What are Forte 3DWorx's native file formats?

The core file/document types created and managed as part of a Forte 3DWorx project are .dwg, .txt, .pdf, .xlsx, .docx, .mdb (if using Microsoft Access) and .pcf (to import piping to Aspect Pipe Stress), .pvdb (to import equipment into Aspect Pressure Vessel), .c2 (to import piping from Aspect Pipe Stress into Forte 3DWorx).

Which file formats can be imported/exported from Forte 3DWorx?

Facets P&IDWorx

- .dwg, .dxf, .mdb

Forte 3DWorx

- .dwg, .dxf, .mdb, .pcf, .pvdb, .c2

Forte StructureWorx

- .dwg, .dxf, .stp (CIS/2), .mdb

Forte ReviewWorx

- Import: .dwg, .dxf, iFV, HSF, SAT, SAB, IPT, IAM, MODEL, DLV, EXP, SESSION, CATDrawing, CATPart, CATProduct, CATShape, CGR, 3DXML, IFC, IFCZIP, IGS, IGES, X_B, X_T, XMT, XMT_TXT, PDF, PTS, PTX, XYZ, ASM, PAR, PWD, PSM, SLDPRT, SLDASM, STP, STEP, STPZ
- Export: .dwg, .vue, .3DPDF, IFC (2x3, 4)

Note: *Forte Interop converts .dwt with .dwg and .vue to .zvf and MDB2 formats.*

BricsCAD Pro

- Import .dwg, .dxf, .dgn, .dae, .3dm, .skp
- Export: .dwg, .dxf, .fbx, .dwt, .bmp, .wmf, .dwf, .emf, .dwf, . dwfx, .svg, .stl, .dae, .udatasmith, .3dm, .asat, .asab

Communicator for BricsCAD

Forte 3DWorx uses the import capabilities available in the CAD platform on which it is used to import 3D models produced in other vendor systems.

When Forte 3DWorx is used with BricsCAD Pro, Communicator for BricsCAD provides additional import formats in addition to those provided out-of-the-box in BricsCAD Pro.

Import:

- ACIS: .asab, .asat, .sab, .sat
- Autodesk Inventor: .iam, .ipt
- CATIA v4: .model
- CATIA v5/v6: .CATPart, .CATProduct, .CGR
- Creo Elements / Pro Engineer: .asm, .prt
- IGES: .iges, .igs
- NX: .prt
- Parasolid: .xmt_bin, .xmt_txt, .x_b, .x_t
- Siemens: .jt
- SolidWorks: .sldasm, .sldprt
- STEP: .step, .stp, .stpz
- VDA-FS: .vda
- XCGM: .xcgm

Export:

- 3D PDF: .pdf
- ACIS: .asab, .asat, .sab, .sat
- CATIA v4: .model
- CATIA v5: .CATPart, .CATProduct
- IGES: .iges, .igs
- STEP: .step, .stp
- VDA-FS: .vda
- XCGM: .xcgm

BricsCAD BIM

- rvt, .rfa, IFC (2x3, 4)
- rvm, .nwd, .nwf format files are not supported. However, Navisworks can open a BricsCAD/Forte 3DWorx .dwg file. Forte 3DWorx 3D model properties are read by Navisworks.

Note: *Forte Interop converts .dwg and .vue to .zvf and .mdb2 formats.*

Does Forte 3DWorx integrate with BricsCAD BIM?

Yes, Forte 3DWorx products can use BricsCAD BIM as their CAD platform. Doing so enables 3D plant models and BIMs to be created in a single DWG-based design environment and workflow.

BricsCAD BIM can also import IFC files from other BIM solutions. It supports collaboration between the architectural design and plant design groups working on a project. For example, a BIM modeled in Autodesk Revit can be integrated with a Forte 3DWorx plant model to check that the plant fits inside the building, or vice versa, enabling changes needed to either the plant model or the BIM to resolve problems, e.g., clashes, to be easily identified and remedied before construction begins.

Does Forte 3DWorx integrate with BricsCAD Mechanical?

Yes, Forte 3DWorx products can use BricsCAD Mechanical as their CAD platform. Doing so enables mechanical models designed in BricsCAD Mechanical to be included in 3D plant models developed in Forte 3DWorx.

Due to everything working in a single DWG-based design environment and workflow, Forte 3DWorx equipment models analyzed via the link to Aspect Pressure Vessel, then brought back to the 3D model via bi-directional integration possible between these products, the equipment can be further detailed in BricsCAD Mechanical, enabling all required deliverables needed to fabricate the equipment to be produced.

Does Forte 3DWorx integrate with solid modelers, like SolidWorks, Autodesk Inventor, etc.?

Solid models developed in these systems can be imported to become part of a Forte 3DWorx model. If BricsCAD Pro is being used as the platform for Forte 3DWorx the model must first be imported via Communicator for BricsCAD. This creates equivalent solid models in .dwg format, which can be referenced against a Forte 3DWorx model, also held in .dwg format. It is recommended that the size and complexity of the imported solid model be reduced first before it is used in Forte 3DWorx. This can be achieved in various ways (not defined here).

Free plug-ins for SolidWorks and Autodesk Inventor available from Octave enable Equipment in Forte 3DWorx models exported to Aspect Pressure Vessel, subsequently exported from this software post-analysis, to be opened in these third party products, where the models can be further developed before all required deliverables are needed to fabricate the equipment are produced from the detailed equipment model. The plug-ins are available to download from Octave Community.

Does Forte 3DWorx integrate with Computer Line Associates, PUMA5?

Not as a standard feature, but yes, Forte 3DWorx can share piping information with Computer Line Associates and PUMA5 piping management software via an import format it has.

Does Forte 3DWorx integrate with Autodesk Revit?

Yes, Forte 3DWorx 3D models can be exported to IFC 2x3, which Autodesk Revit can import.

Does Forte 3DWorx integrate with Autodesk Navisworks?

Yes, Forte 3DWorx 3D models are held in .dwg format, which Autodesk Navisworks can open.

Does Forte 3DWorx integrate with CloudWorx for BricsCAD or AutoCAD?

Yes, CloudWorx integration with CAD enables either multi-discipline as-built Forte 3DWorx models to be developed from point clouds, or the point cloud can be used as a clash-able obstruction, ensuring clash-free designs are produced when designing new structures, equipment, and pipelines, which will be retrofitted into an existing brownfield facility.

Can Forte 3DWorx import/export IFC 2x3 or 4?

Forte ReviewWorx can export Forte 3DWorx 3D models held in .dwg format to IFC 2x3 or IFC 4 format. This enables a plant design model to be integrated with a BIM; for example, add the plant model so that it is included inside a building designed in a BIM solution, e.g., Autodesk Revit.

If Forte 3DWorx uses BricsCAD BIM as the CAD platform, IFC 2x3 or IFC 4 files import into BricsCAD BIM, then saved in .dwg format, then referenced against a Forte 3DWorx model. This integration enables a BIM combined with a plant design model developed in Forte 3DWorx.

Does Forte 3DWorx include a document management capability?

Bricsys 24/7, a document management solution from Bricsys NV, can provide this capability to a Forte 3DWorx project.

Deliverables

What is OrthoGen?

OrthoGen® is a software program that streamlines projects and automating orthographic drawing production by eliminating repetitive tasks, pin-pointing plant objects and locations, protecting data integrity, sharing drawings and data, and producing fast-consistent design drawings. Automatic drawings generated from 3D models are created in a fraction of the time previously spent and accurately and consistently reflect model conditions.

Is OrthoGen included with Forte 3DWorx?

OrthoGen is a cost add-on that Forte 3DWorx customers can optionally purchase for use with Forte 3DWorx.

Is OrthoGen included with a Forte 3DWorx evaluation?

No, it must be requested separately.

What outputs does Forte 3DWorx produce?

Forte 3DWorx provides several options to quickly and accurately create high-quality deliverables based on the 3D model.

- **Forte Isogen** – included with Forte 3DWorx; used to generate piping isometrics from the 3D piping model automatically.
- **OrthoGen** – optional add-on; used to automatically annotate general arrangements and orthographic views of the 3D model in the 2D layout space.
- **Bills of materials** – contain all the materials within the entire model or just a subset of the total materials for parts of the model.
- **Database reports** – various custom reports exported via the Switchboard database front-end provided within the Forte 3DWorx Access .mdb template file or using other custom UI/reporting tools developed to work with a database.

You also have the flexibility of BricsCAD's drawing tools to create any other drawings and details your project needs.

What is Viewbox used for?

Viewbox creates standard orthogonal views of the content inside a 3D box placed anywhere inside a Forte 3DWorx 3D model. The views created can be inserted into 2D layouts where they can be dimensioned and annotated to create 2D drawing deliverables.

Can Bills of Materials (BOMs) be generated from the 3D model?

Bills of Materials (BOMs) are essential for any project as they are needed to provide accurate information for procurement and construction. Users can create user-configurable bills of material in the commonly used data formats - in Word, .docx, plain text in .txt or Excel, in .xlsx, or from a linked database, in .xlsx format.

Additionally, pipe, component, spool, and weld information can also be reported via Isogen.

Are BOM reports customizable?

Yes, a general-purpose BOM reporting tool produces reports per discipline basis – for piping, structure, etc. The content and order of columns in the BOM are configurable, enabling custom reports to be produced based on the information in the 3D model.

Additionally, custom BOM reports can be extracted from a linked database using SQL and the database system's reporting tools or export options.

What formats can BOM reports be exported to?

Reports can be produced in plain text, Word, Excel or PDF format.

Is it possible to automatically generate pipe support drawings?

No, however this capability is currently being considered.

Is it possible to generate automatically piping isometric drawings?

Yes, Isogen, the industry standard for the automatic generation of piping isometrics from 3D models, is included with Forte 3DWorx.

Is it possible to generate automatically spool isometric drawings?

Yes, if pipelines include Site (field) welds, Isogen will observe the location of these and create spool drawings accordingly. The presence of a Site weld indicates to Forte Isogen the end of one spool and the beginning of another.

Can users customize the isometric output in accordance with company standards or project requirements?

Forte Isogen comes with a companion tool called I-Configure. This tool is used to configure isometric output on a customer's border/backing sheet. All aspects of the isometric can be configured, including BOM, title block, texts, fonts, pipeline graphics, piping component symbology, etc.

Octave offers services to configure Isogen isometric outputs.

Is there a limit to the number of isometric drawings that the software can produce?

Isometric production via Forte Isogen (in Forte 3DWorx) is unlimited.

Is it possible to generate automatically 2D drawings, e.g., Plan and Elevation views?

OrthoGen can be used to automatically annotate hidden-line plans and elevation views of the 3D model placed in layout/paper space.

Can 2D detail drawings be created?

Yes, Forte 3DWorx includes several drawing features enabling 2D drawings to be easily and quickly created with dimensions, annotation, BOM based on views using the Viewbox feature.

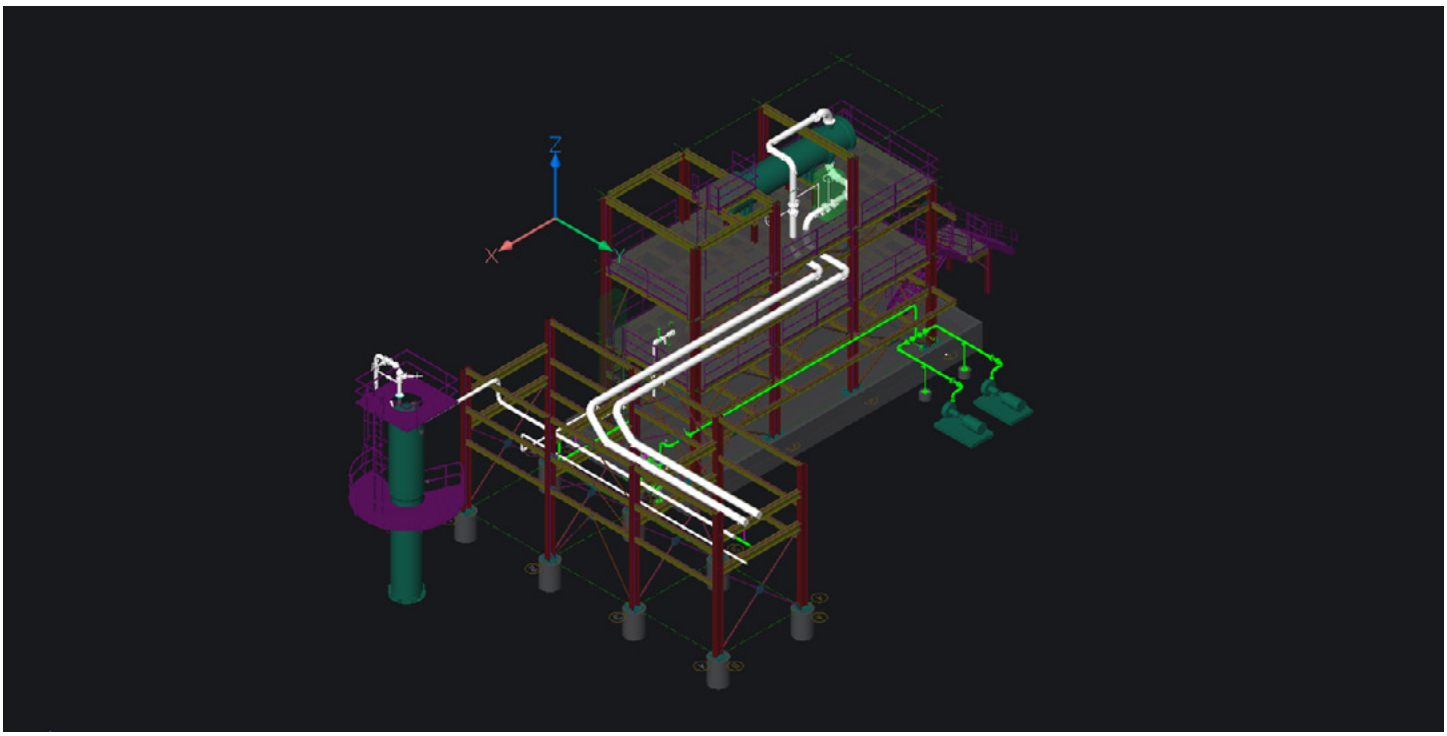
Can drawings be saved or exported in PDF format for supply to contractors and clients?

Yes, PDF export format is a standard feature of BricsCAD Pro.

Forte Isogen also enables .dwg to be saved as .pdf.

Is a free viewer available?

No, but if the Object Enablers in Forte 3DWorx are installed, Forte 3DWorx models and their intelligence can be opened and viewed in BricsCAD, AutoCAD or Navisworks.



Software upgrades

How often is an update of Forte 3DWorx released?

Octave provides 4 types of software release.

Release Type	Numbering convention	Request from your local Octave sales office	Download from Octave Community
Major	XX.XX.XX.XXXX	Yes	No
Minor	XX.XX.XX.XXXX	Yes	No
Service Pack	XX.XX.XX.XXXX	No	Yes
Hotfix	XX.XX.XX.XXXX	No	Yes

A new major version is typically released every 12 months.

One or two service packs are typically provided for each major product release, spaced roughly six to eight months apart.

Hotfixes are produced as needed for critical issues that impact production work.

Who has access to the latest Forte 3DWorx upgrades?

All users with current maintenance contracts are entitled to use the latest software upgrades.

How are users informed that a Forte 3DWorx upgrade is available?

If 'Subscriptions' for each product used are configured inside Octave Community, maintenance customers are automatically notified whenever a major, minor, service pack or hotfix version is released.

How are Forte 3DWorx upgrades supplied?

Octave operates a 'pull' system for the supply of software upgrades; that is, major/minor upgrades are not shipped automatically to maintenance customers when the software is released; customers need to request upgrades themselves when they need them e.g., a release contains a fix/enhancement that the customer has been waiting for.

- US customers can open a service case against product upgrade in Octave Community.
- International customers should contact their should contact their local Octave sales office.

Online Resources

Where can customers find useful information and other resources related to Forte 3DWorx?

Visit the Resource Center then filter resources using the 'Type' drop-down.

About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property and assets – for any scope, at any scale. For decades, we've partnered with customers to sharpen performance, elevate efficiency and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what's possible from day one onward.

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