AutoCAD® Plant 3D™ 2026

Brief overview

What is AutoCAD® Plant 3D™?

AutoCAD® Plant 3D™ is a class-based software for creating 3D models of process plant components.
It allows you to plan piping runs, add equipment and other components, and incorporate support structures.
The software ensures that underlying data is exchanged directly between the 3D model, P&IDs, isometric and orthographic drawings to ensure consistency and timeliness of information.

Concepts and Terms

An Overview

Project manager	Central hub for all drawings, pipe classes and data You always work within one project.
Data manager	Table with all project or character data. You can edit this data directly.
Part	pipe system component
Platzhalterteile	A component that is used temporarily in the model until the part is added to the pipe spec
User defined Parts	A component that is not in a piping system specification
Project.xml	The project file

Navigation

Navigating the model

Left click to select object or start cross selection
Right click -> object context menu
Mouse wheel click -> PanMouse
wheel scroll -> Zoom
Shift + mouse wheel click -> Orbit
Ctrl + right mouse button > Snap options
Ctrl + left mouse button on fastener -> connection selection

Do you need more information?

Online help: https://help.autodesk.com/view/PLNT3D/2025/DEU/

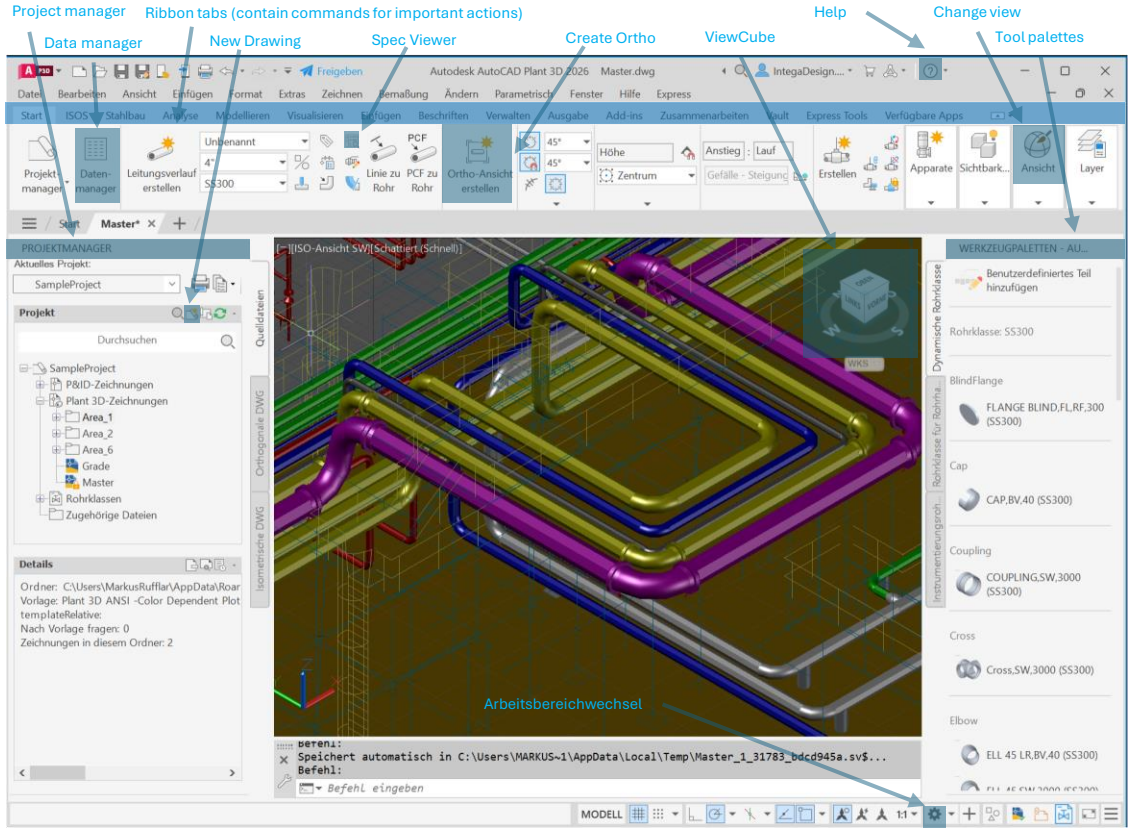
Forum: autodesk.com/autocadplant3d-discussion

IntegaDesign CAD Blog https://blog.integadesign.de/de/cad-blog
Consulting: https://www.integadesign.de

SuCri https://www.sucri.de

The drawing window

Understanding the user interface



Using the Project Manager

You can use Project Manager to create new drawings, open existing drawings, copy or link files to project folders, and start projects.

To create a project drawing:
1.In Project Manager, right-click "**Plant 3D Drawings"** and select "**New Drawing"**.
2. In the **"New DWG"** dialog box, enter the drawing number, author, drawing title, and file name.
3. Click **OK.**

Short tips:
Right-click a node in the Project Manager to open a context menu of useful commands. Create and manage folders according to the needs of your project within the Project Manager. Here you can copy or link drawings.

Creating tool palettes

Tool palettes are the primary method for adding valves and other components to your piping model. Click an item in a tool palette, then click on the model to place it.

Short tips:
In the Spec Viewer, click "**Insert in Model**", **"Add to Tool Palette"**, or "**Create Tool Palette**".

Initial Steps

A quick learning program

Step 1: Start AutoCAD Plant 3D

Step 2: Creating a Project Drawing

- open the **Project manager**, navigate to **Plant 3D drawing** and click on „New drawing".
- enter the required information and click **OK.**

Step 3: Creating a Steel Structure

- On the ribbon, go to the **Steel Structures tab**.
- Select **Grid** and click **Create.**
- Under **Settings**, select **Profile Settings**.
- Place and align the profile with the grid.
- Repeat this process for stairs, ladders and other elements

Step 4: Creating Devices

- Go to the **Home tab** on the ribbon and click **Create Equipments**.
- Select a component and enter the shape and nozzle information.
- Click **Create** and place it in the model.

Step 5: Creating a pipe route

-Under the **Home tab** in the ribbon, select from the drop-down menus:
- **Line number**
- **Pipe class**
- Click **Create Pipe Route**.

Click the desired points in the model; press **ENTER** to finish.

Step 6: Insert valves or fittings

- Use the **Tool Palette** or go to the **Home tab** and open the **Pipe Spec Viewer**.
- Select the desired fitting and click **Insert into Model**.
- Place them in the model.

Step 7: Creating isometric drawings

- Navigate to **the ISOs** tab on the ribbon and select **Create ISO** > **Production ISO**.
- Specify the line numbers, ISO type, and output settings for your project.
- Click **Create ISO**.

Step 8: Generate 2D Ortho Drawings

- Go to the **Home tab** on the ribbon and select **Create 2D View**.
- Select the **Ortho drawing** and click OK.
- Adjust the view, set the scale, and display the extents; click **OK**.
- Align the view on the orthographic drawing.

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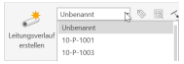
Piping
A general overview (part 1)

Before laying pipes

This group contains the tools for laying pipes:
Insert Part, Compass, Elevation & Routing and Slope Options.

Dropdown lists for nominal diameters and pipe classes

Line numbers



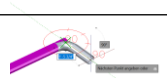
- Pipelines are organized based on their line numbers.
- These line numbers are necessary to create isometric drawings (ISOs).
- It is possible to define separate layers for each line number on which the corresponding pipe components are automatically placed.

Before piping, determine pipe class and nominal diameter

Before you start laying pipes, you should set the nominal size and pipe class. The pipe class controls the following parameters:
- Connection types: for example, flange (FL), weld (BW), socket weld (SW), thread (THD), etc.
- Flange limits and sealing surfaces: such as 150# RF, 300#, PN10, etc.
- Standard branch nominal size types: these include tees, weld joints, SOL (socket weld joint), WOL (welded joints), etc.
- Approved valve types: such as gate valves, globe valves, check valves, and others.

To start routing in the model, click "Create Pipe Route" on the ribbon.

Using the Compass



When you use the continuation point, the compass first shows the bends available in the current UCS (user-defined coordinate system) plane. The system uses the bends from the currently selected pipe class. For example, if your pipe class contains 45-degree bends, the compass will show them. Otherwise, 90-degree bends will be shown. If you want to lay pipes in a straight line, you can either select a point on the screen or enter a specific distance.

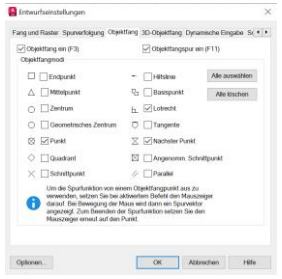
Piping assistant

When you finish a pipeline, it can often be tricky to align the final connection precisely. This is where the Routing Assistant comes in: you can select an existing component, right-click on it and choose the appropriate route from various possible connections.

Short tips – Using snap points when piping

Use object snapping when connecting pipes:

- Use the point **node snap** to precisely connect nozzle or pipe connections.
- If you want to place a fitting at a certain distance from another, use the **from next snap** to ensure precise positioning
- The following points should be activated as snap points by default, others can be temporarily switched on/off depending on the situation using CTRL + right-click.



Short tips – Piping shortcuts

- To remove a selected flanged valve without removing the connecting flanges, press CTRL+Delete.

- To change the routing layer, hold down CTRL and right-click in the drawing area.

- To replace a bolt set, hold down CTRL and select the red circle of a flange connection.

- To set the orbit for the 3D model, hold down SHIFT+mouse wheel.

- To change the compass level when routing, press CTRL+right mouse button.

Piping
A general overview (Part 2)

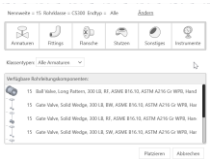
Routing Assistent

When completing a pipeline, it can often be challenging to align the final connection precisely. The Routing Assistant is available for this purpose: it allows you to connect to an existing component, right-click on it and select the appropriate option from various available routes.

Short tips:

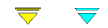
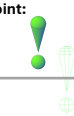
To change the plane, press "B" and select one of the three orthogonal planes (alternatively, you can also use CTRL + right mouse button).You can switch between viewports at any time to change the viewing direction. Press "C" to undo the last action when routing.

Placing pipe components during routing



1. At the PlantPipeAdd prompt, enter "F" (Pipe Fitting).
2. In the dialog box, click a class icon.
3. From the list of class types, select a component description (e.g., Valves).
4. Under Available Piping Components, select the desired component (e.g. Ball Valve, Long Form, 300LB, RF).
5. Click Place.
6. To choose a different direction, enter "A" (orientation).
7. To specify the center of the armature, enter "B" (base point). Run the command multiple times if necessary.
8. Specify a dimension for the placement of the armature.
9. Click to specify a rotation of the component, or press ENTER for no rotation.

Pipe, component handles, special symbols
An overview

Start/Continue: 	Starts or continues laying the pipe.
Reverse: 	Rotates a component in the opposite direction. Yellow for connecting objects (e.g. screw set) Blue for all other components
Exchange: 	Pipe system component Yellow for connecting objects (e.g. screw set) Blue for all other components
Height:	Move the tube up or down to set the desired height.
Move/Stretch: 	Moves a component or stretches an existing pipe.
Rotate: 	Shows the compass to rotate the component. Yellow for connection objects (e.g. screw set) Blue for all other components.
Add nozzles 	Adds a nozzle to an equipment.
Edit the nozzle: 	Edits an existing nozzle on an equipment. For equipments from the catalog, you must first click on the nozzle with CTRL + left mouse button so that the pen appears.
Placeholder part:	Indicates whether this is a placeholder part.
Flow direction arrow: 	Indicates the direction of the flow. The blue arrow is the flow reversal symbol.
Iso symbol: 	The sphere shows that an iso symbol has been placed at this position.
Reference dimension: 	The sphere shows that there is a reference dimension to an object at this position.
Starting point: 	Sets the starting point of iso generation.

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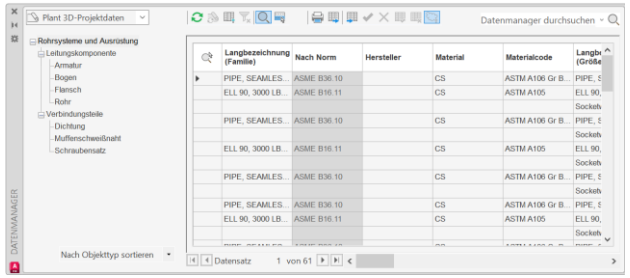
File extensions
General overview

File extension	Description
.dwg	Standard file format for drawings in AutoCAD® that stores 2D and 3D design data
.dwt	AutoCAD® drawing template file used as a basis for new drawings
.dcf	Data control file used in various Autodesk® programs to manage project data
.pcf	Piping Component File, contains piping components and data used in Plant 3D™ and other piping software
.pspx / .pspc	Pipe class files for Plant 3D™ components, stores components and data.
.rcfx	File format for report templates in AutoCAD® Plant 3D™ 2025, used to customize reports. Up to version 2024, the format for report templates was .rcf. If you try to open an old template with 2025, the template will be automatically converted.
.xml	Extensible Markup Language file that stores structured data and is used to exchange data between different applications.
.pcat / .acat	Catalog files in Plant 3D™ that contain material and component data for piping and equipment
.peqx	Project change log file that tracks changes and versioning in Plant 3D™ projects
.atr	Attribute file that stores custom properties and metadata in AutoCAD® .
.dwl	Lock file that indicates that a DWG file is currently being edited to prevent simultaneous access
.bak	Backup file, automatically created by AutoCAD® to save a backup copy of the drawing
.lok	Lock file used in Plant 3D™ to prevent simultaneous access to projects or files
.adsk	Autodesk® Exchange Package file used to install apps and extensions for Autodesk® software
.py	Python script file that contains source code in the Python programming language
.pyc	Compiled Python file generated by Python interpreter to execute source code faster

Edit data in the data manager
Adjust your model data

You can insert, view, edit and capture information about components and lines in a drawing.
The Data Manager is ideal for viewing and editing multiple data sets at once.
You can also export elements to Microsoft Excel® and edit the data there.



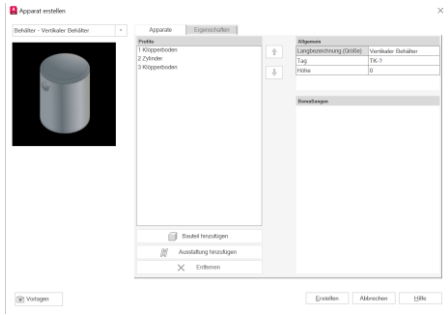
Modeling of devices
General overview

There are three options available for equipments:
Use **predefined equipment types**: Select from predefined types such as pumps.

Assemble equipments from existing shapes: Combine different standard shapes to create.

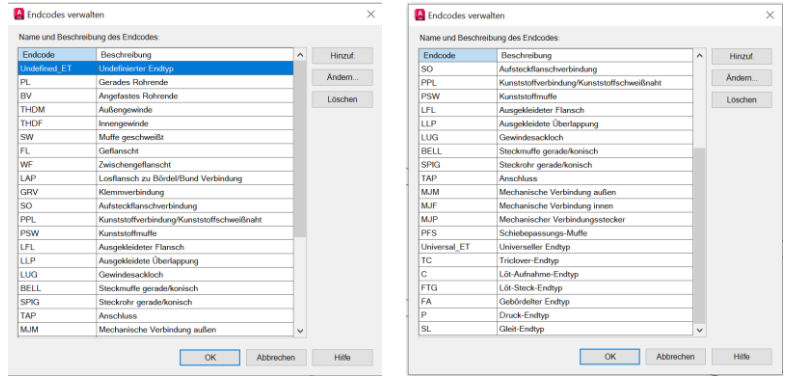
Create custom equipment: assemble using AutoCAD solids and surfaces.

The **"Create Equipment"** dialog allows you to set up your equipment by class (e.g. Pump > Centrifugal Pump). After placing the equipment, you can add or change nozzles by clicking on an **"Add Nozzle" grip.**



Plantendcodes
An overview

With the **„Plantendcodes"** command you can view existing connection end types and add new ones.



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