Release Highlights 2019T1

Version 2019T1 contains new tools for basic and production design and many additions to support users in everyday tasks.

- New tools to reuse parts of diagrams in other projects, auto-routing of pipe runs and multi-selection of objects in Diagram
- Follow-up tool of Diagram data and project status and data from eShare integrated to Diagram
- New spool tool for ultimate pipe production data
- The topology of equipment layout and compartments in Outfitting Basic Design
- More visual cues for pipe routing assistance
- Hull export to scantlings Mars 2000
- New possibilities for basic design and use of Hiltop module
- Additions to shell plates development and elongation lists
- More data is visible – object identifiers for 3D objects in eBrowser and eShare
- Point clouds in eShare and photographs and notes from the site with markups in eGo

Diagram

Easy to reuse parts of diagrams

Significant time savings can be achieved in the initial project stages by reusing previous diagrams or part diagrams. In version 2019T1, it is possible to copy any part or a complete diagram and reuse it for a new project. The improved functionality allows the user to export and import diagram parts. When importing to a new location, it is possible to generate new position IDs, change systems and pipelines or edit a single object, such as assigning a different type of valve or actuator.
Import and export any part of the diagram between different projects or diagrams.

**Diagram Follow-up tool**

Design managers can extract data for project status and follow the progress using various metrics. The Follow-up functionality extracts the main characteristics of the diagram, such as the number of routed pipelines or armatures and equipment and allows comparison with the respective data in the 3D model.
Follow project progress statistics related to Diagram and 3D model object changes at selected time intervals.

Follow-up reports are customizable and can be used for visualization of KPI in project follow-up.
Easier to use: auto route of pipe runs, object multi select and new right click menu

As part of the continuous drive to add functionality and enhance the user experience, the new version has several features to make everyday tasks simpler.

- It is now possible to move custom symbols.
- Additional assistance when joining lines for easy selection lines.
- New piperun diagram labels are automatically vertical when selected piperun point is vertical.
- Enhanced consistency check handling node points with different nominal sizes – each node point is assigned information about the nominal size.

Data from eShare integrated with Diagram

Users can benefit significantly from using the full scope of CADMATIC products. Integrating all project related data using eShare, has additional benefits for Diagram users. In version 2019T1, it is possible to load object data to Diagram from eShare, even if the object does not exist yet in the 3D model. This enables the use of data for Diagram sourcing from calculations, basic design, or supplier data.

Example of data loaded from Excel file in eShare to Diagram object.
Outfitting & Plant Design

New tool for spool generation

The new tool for spool generation enables the generation and automatic annotation of spool drawings for selected compartment areas, as well as the extraction of all production data. The tool offers possibilities for flexible data extraction: user definable views in drawing, possibility to present pipe as it will be located on assembly table and data for manufacturing can be presented in a most suitable way to meet requirements of workshops. Additional checks for production prevent issues related to the manufacturability of pipes and provide possibility to add field weld information and extra length if required.

**Production checks:**
- Continuity
- Volume
- Collisions
- Specification
- Delivered length
- Weld clearance
- Bending

**Rich data for production:**
- Bending and cutting data
- Export in Excel format
- Field welds
- Extra length of pipes
- Flange orientation labels

Binding equipment location and compartments to facilitate change in Basic Design stage

It is possible to bind equipment objects to the compartment where the object is located. This allows location changes to be detected and visualized, so that objects can be moved to their bound location again.

The tool offers possibility to see changes in either equipment positions relative to compartments these are bind to, or moving objects to their bound location in a compartment if either the compartment or the object has been moved from the bound coordinates.
Visual assistance in 3D routing and measurements

The 3D direction disk provides users with visual navigation while defining directions. The direction of branches, bends, and elbows are now easy to see and simple to select for standard angles, such as 30, 45, 60, 90 etc.

Defining directions is often difficult in the 3D space. With the 3D disk, the software assists the user to select from standard angles or to visually check the required direction and input the exact value.

Measurements in the 3D model.

Hull
Export to Mars 2000 for scantling analysis

With the Export to Mars2000 feature, it is possible to export data from CADMATIC Hull frame views to an XML file, which can then be imported into Mars2000 and used for scantling analysis. The exported XML file contains the description of the inner construction and its distribution in the ship, translated for Mars2000. The purpose of this feature is to provide a means to ensure the conformity of the ship design done in CADMATIC Hull with the Bureau Veritas Rules for the Classification of Ships and IACS Common Structural Rules for Bulk Carriers and Tankers.

New possibilities for basic design and use of Hiltop module

Conoship International, SARC and CADMATIC joined forces to develop a collaborative ship design system. The 24-month project, which ran from 2016 to 2017, was titled CPDES (Collaborative Platform for the Design and Engineering of Ships).

The development of the first project phase was supported by the Dutch "MKB Innovatiestimulering Regio & Topsectoren" program. CPDES aimed to create a collaborative software infrastructure that accelerates ship design. With a focus on bulkheads & decks, compartments and piping, CPDES aimed to create a V1.0 implementation, which covers intensively used data and actions, as well as a comprehensive manual and other instructional materials.

Time-consuming design data exchanges and managing the consistency of design data are designers’ main challenges. Therefore, uniform, modern data exchange interfaces between early design software tools and steel design software tools are very beneficial, which is exactly what CPDES aimed to achieve.

CPDES has achieved the following for bulkheads and decks:

- A two-way 3D data exchange between PIAS and CADMATIC Hull
- A 3D data synchronization mechanism between PIAS and CADMATIC Hull
- Communicate design changes with synchronized logbook entries
- User-friendly settings and features to facilitate communication between the systems

In the early design stage, most small and medium-sized shipyards and design offices have difficulty controlling consistency when exchanging a ship’s arrangement and hull data between the 2D General Arrangement (G.A.) plan and stability analysis tools. The exchange of design data is often done manually and it can take days to implement design changes like repositioning decks or bulkheads in the G.A. plan and analyzing the effects on the various design calculation applications. Performing damage stability calculations very late in the basic design process, for example, often involves a lot of rework and results in increased building costs if the design does not fulfill the requirements.

Additions to Shell Plates development and
elongation lists

Based on feedback from our clients, we have improved the elongation reports. In our example project, you will find examples that can help to define your own definitions.

It is now possible to add an elongation table to the excel layout. The elongation values are an average elongation at each template location. The number of elongation values per template can be set.

In this example, five positions are defined. The elongation direction is perpendicular to the template. The system collects the elongation values from an elliptic area and calculate the average.

Other additions to elongation lists and shell templates include:

- Possibility to set elongation factor
- User definable size of text labels
- The definition for curvature types (Flat, Conic, Elliptic, and Hyperbolic) and minimum/maximum radius
- Warning for meshing tolerance
- Rotation of perpendicular shell views
- Definable coding configuration for templates
- Possibility to remove a template set form a block
- Automatic creation of bending lines in DXF format
Marking lines from adjacent blocks for shell plate cutting data

**Deformation attribute for weld compensation**

When welding two plates together, shrinkage can lead to deformation. The primary purpose of the new deformation attribute is to enlarge the plate on one side so that the deformation will be neutralized after welding.

More additions for production data include:

- Bevel and Extra length settings
- Changes in the number of weld labels in use

Deformation attribute for weld compensation.

**Other additions to the new version include:**

- Changed default color combination
- New possibilities for hole dimensioning
- Increased limit to 200 for block export
Information Management

More data is visible - object identifiers for 3D objects in eBrowser and eShare.

Now it is possible to get even more information from navigating 3D models in eBrowser and eShare without the need for additional clicks. 3D object identifiers are customizable with 3D labels and position IDs, key attributes or other data. The labels are displayed on top of the 3D model view and are always aligned with the model and move with objects.

Any attribute can be displayed on top of the 3D models, such as position IDs, system names, pipelines etc.

Labels will appear during the navigation and zoom in or out.
The labels will be visible also in snapshots taken from the model and can be utilized to complement data for the construction site.
Enrich 3D view with more data without the need to check it from individual objects.

**Point Clouds in eShare**

Version 2019T1 allows point clouds to be added to the eShare server. Currently, the supported format is CPD, originating from the CADMATIC Laser Scan Modeller. In eShare, point clouds are automatically converted to photo panoramic images, which can be transferred from the server to the user quickly when opened.

Once point clouds are added to the eShare server, users can directly navigate to between the point clouds that will be shown in photorealistic views and see point clouds alongside the 3D model. It is possible to measure distances between the cloud and 3D objects, add smart points to store notes or other extra information related to the point cloud.

Adding tags with smart points to equipment and point clouds provides the possibility to easily find it in the 3D model and check any integrated information for it from other linked systems, such as maintenance or operation controls and instructions.

Use “bubble views” to see photorealistic point clouds with the 3D model.
Navigate from one location to another with point cloud markers
Add measurements to the views
Add notes and comments to the points cloud with the smart points feature.

**DNG files and zipped document support in eShare**

The user can open documents in DGN format in eShare the same way as DWG and DXF format documents.

The new “Show documents inside ZIP files” option enables viewing documents that are stored in ZIP files. Only one document is listed from each ZIP file, using the preference order .dgn,.dwg,.dfx,.pdf. In addition, the administrator can select which file types are listed.
Use DGN format documents in eShare

**Take snapshots and notes from the site with markups in eGo**

Create markups in eGo to add notes, dimensions, and labels to 3D views of the model and compliment it with a picture taken on site. Taking eGo on inspection trips or to a construction site or production workshop now adds the possibility to share pictures with engineering or asset management by syncing data between eGo and eShare.

Editing markup in eGo - add comments and annotations for 3D views.
Sync markups between eGo and eShare to send data from the field to design or engineering office.
**eShare:**

- Links to objects in eShare can specify that other objects are hidden
- A user can select several objects and change their statuses with one action

**eBrowser:**

- 3D object identifiers with customizable attributes displayed
- Pipe connection points are shown and used in measuring if they have been published to EBM

**eGo:**

- Go to a particular location in the 3D model with the possibility to set camera location in eGo
- Administrators can specify how QR code is interpreted when eGo is used together with eShare
- New help in HTML5 format