CADIS●N® WORLD

EXPERIENCES & NEWS

Piping

Process & Instrumentation

Steel Layouts

Estimation & Planning

Mechanical

Electrical
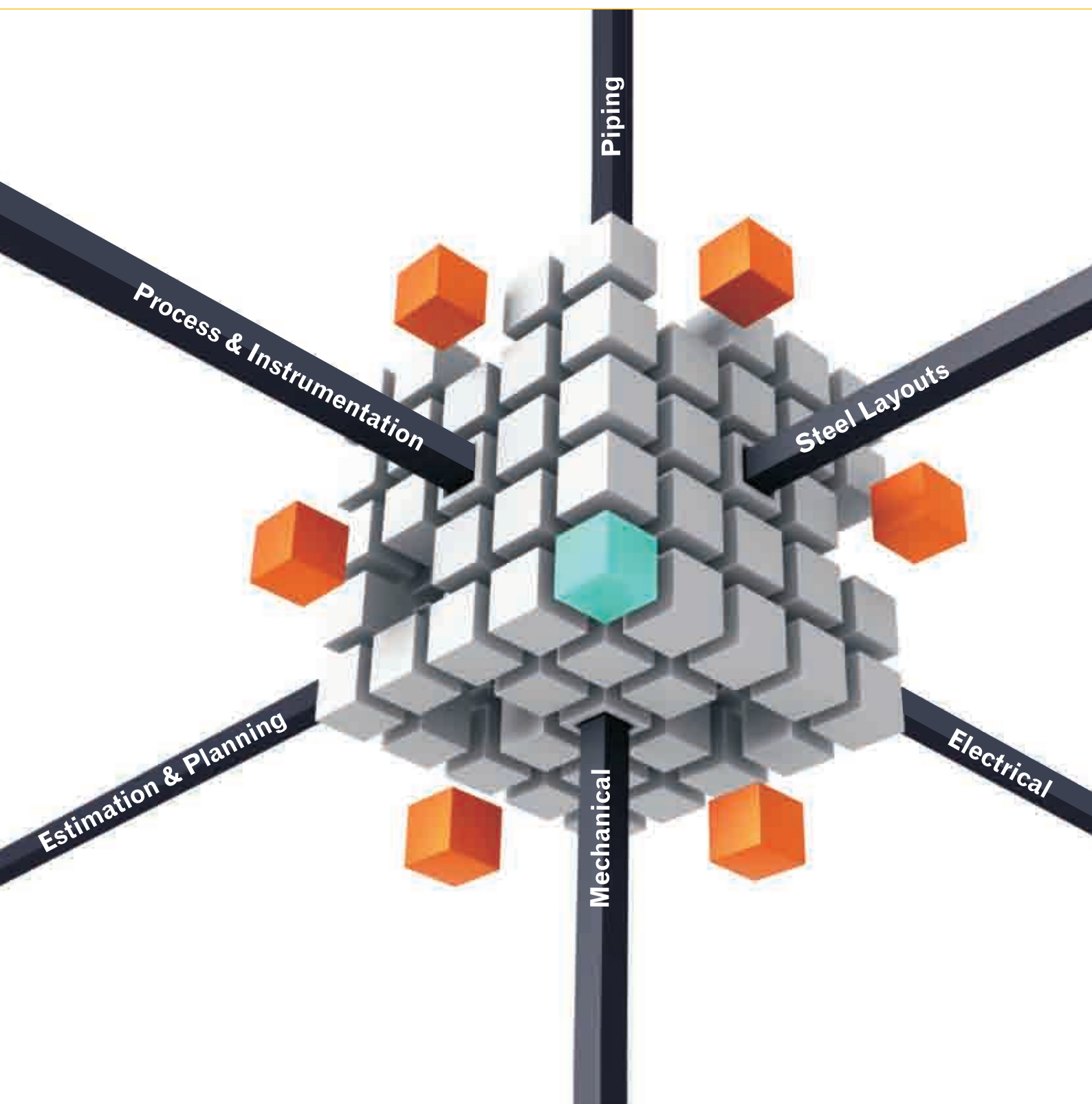
i^2 PIM

intelligent and **integrated** 'Plant Information Modeling'

Index

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Ralf Lehmann

Ajit Joshi

Michael Brückner

"The next release of CADISON® simplifies report generation capability and takes it to a new level of performance. The new 'Form Designer' dialog wizard is another example of ease-of-use for process & project data inputs."

Stefan Kraus

Falko Meier

Prashanth Chunduri

Dear Customers,

Welcome to CIC 2015! Every year our goal is to share with you what's new in the next CADISON® release and how year-after-year our focus on improving your engineering efficiency results in higher productivity for you.

A good example for the upcoming R15 release is the planned 'Report Query Wizard' or the new 'Section Views' creation functionality which will help in ease-of-use & productivity improvement. The new feature '3D pipeline image in isometric view' in R15 is a good example of improving communications with people at a construction site. The improvements that you will see in our Steel Layout module or in our Electrical Designer module will tempt many of you to purchase additional licenses.

In 2015, we are also introducing Visio® P&ID Process Designer, a standalone P&ID solution which is easier to install and use. This product is meant for non-CAD users like process designers, managers and sales engineers interacting with their clients or prospects at the proposal or conceptual design stage. What is particularly impressive is the fact that we have brought AutoGrid functionality to the cost-effective Visio® platform in this product, thanks to a major user who asked for it during the last CIC.

In 2015, we are putting in place a distribution and support structure in U.S. to support CADISON® users there. CADISON® is already equipped with applicable U.S. standards and catalogs. This will be good news for many of our European and Asian customers who have operations in the U.S.

At ITandFactory, we are excited about our journey.
The *i²*PIM positioning that CADISON® has established and which we are further working on it will definitely establish a new standard over the next few years for plant design & equipment engineering. We look forward to interacting with many of you during CIC 2015.

ITandFactory

Productivity

Ease of Creating Section Views

In order to have associativity between model space and paper space, section views is one of the key requirement of GA drawing creation. With the implementation of 'Selection Box' in model space of a given drawing, user will be able to define the associative area of selection for section views. Easy drag and drop of 'Selection Box' from CADISON® tree into paper space will create multiple sections (logically connected), so that any modifications in the designs will be automatically reflected in the views.

With 'Selection Box', user can :
* Specify the size of 'Selection Box' or resize it with grips / relocation points
* Visualize the objects falling within box for perspective views
* Show/hide the "Selection Box" in model space to avoid cluttered view
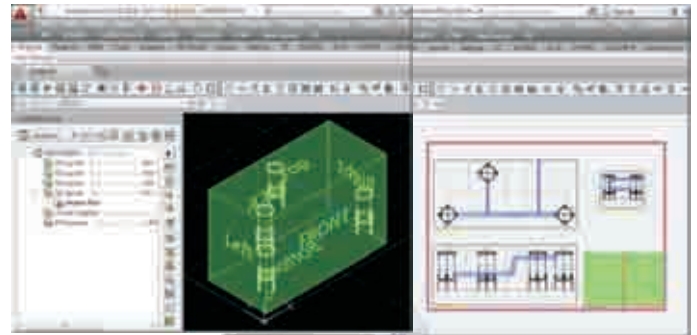
Benefits :
* Reduce the number of steps in creation of section views
* Eliminate manual efforts of defining area at the time of section view(s) creation
* Eliminate manual updates / recreation of view in case of any change in model, resulting in some reduction of rework

Open Continuation Drawing with Cross References

Open continuation drawing with a single click on 'cross reference' object - whenever an object (for e.g. pipe line, cable, etc.) is used across the drawing, it is common practice to add cross reference symbols to indicate 'To & From' in both drawings. The designer needs to traverse between these drawing and it requires multiple clicks to open the drawings. This new command enables users to traverse between the drawings with the help of 'Cross Reference Symbol' with a single click.
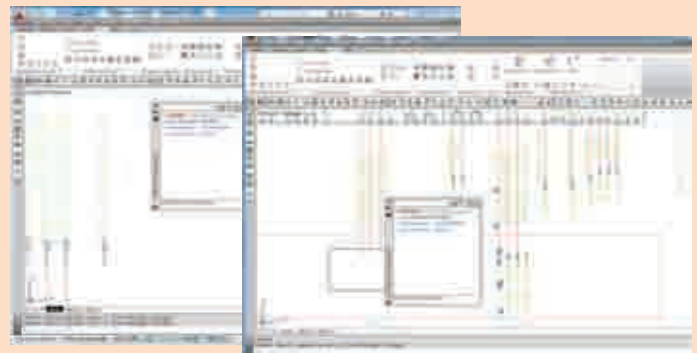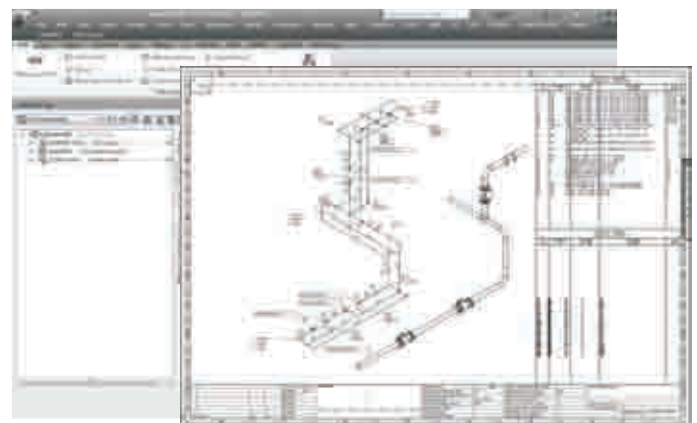

Benefits :
* Eliminate manual opening of continuation/previous drawing, resulting in quicker access to drawings
* Save time in switching between drawings

3D Pipeline Image in Isometric View

3D pipeline image (real view) of the pipe in isometric view for reference during the construction stage. With CADISON® R15, users can now deliver a 3D image of the pipeline in the isometrics (to construction site people) which is beneficial during erection of complex pipelines.

A 'Show 3D graphic image' check box is now added to provide the option to select 3D graphic representation, whenever necessary while generating isometrics. In the 3D graphic image, hidden lines are removed for better visualization. This 3D image can also be added as an AutoCAD block format, if the user intends to resize or scale the image.
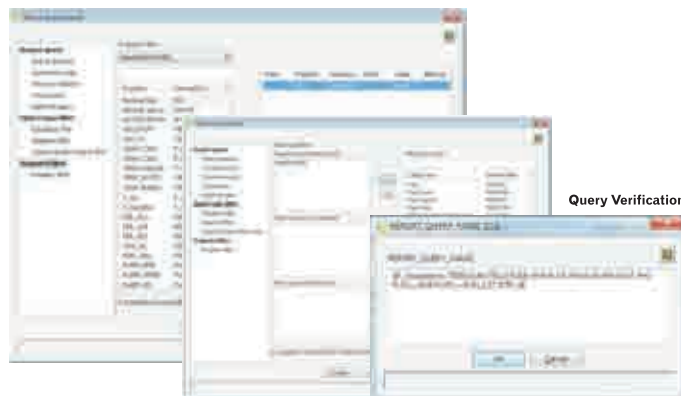

Benefits :
* Real view of the pipeline to help users in referring to the 3D model at site during construction without having to access the CAD model
* Reduces time to generate additional views in the isometric drawing during construction stage for better understanding of the pipeline

'Report Query Wizard' for Quick and Accurate Creation of Reports Query Statements

Customized or Company-specific report generation (for standardization) is a strength of our CADISON® solution. The new 'Report Query Wizard' introduced in R15 simplifies and speeds-up creation of customer-specific report templates. This feature helps in generating the reports query interactively, resulting in elimination of the pain of again and again looking up the internal names of objects.
Users can now create, run the query and verify the results at the time of query creation itself.

Query Verification

Benefits :
* Simplifies, saves time and reduces errors, resulting in ease of report template creation

Form Designer for Process and Project Data Inputs

The Form Designer feature enables the users to design forms (dialogs) interactively or to modify existing forms and provide the facility to define mandatory fields as per their organization's requirements. The dialog wizard simplifies and speeds-up the data input process. Users will also have the possibility to switch between their own created customized dialogs or the standard dialogs provided with the software.

Benefits :
* Eliminates the need to define forms (dialogs) in XML format
* Quickly & easily define your own dialogs (forms)

Revision Management of MATPIPE Catalogs

This new feature in CADISON® R15 enables users to create & maintain multiple versions of the same catalog with built-in revision control.

Benefits :
* Allows the organization (users) to create & maintain revisions and publish different versions of the master catalog resulting in improved revision control

Templates for new catalogs and Pipe Spec

Template Catalogs

Provide catalog objects for CADISON Projects

Master Catalogs

Provide Master Objects for Replicas

ver 1...n

Working Catalogs

ver 1...n

MATPIPE

Selector
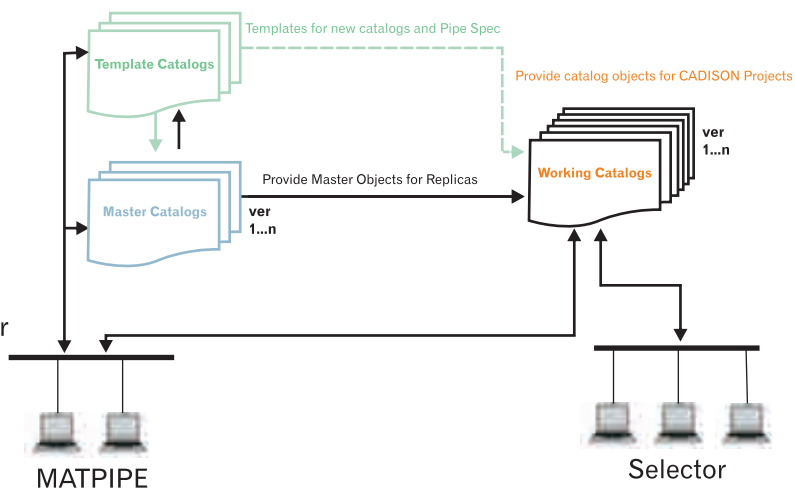
Productivity

Copy Parametric Models across Catalogs

Users can now use the newly introduced 'Copy Parametric Model' feature within CADISON® MATPIPE, to easily copy and reuse complete or some parts of parametric definitions across the catalogs. This eliminates the need to recreate graphical primitives for new catalogs. It also helps in creating catalogs by copying parametric primitives / sub-as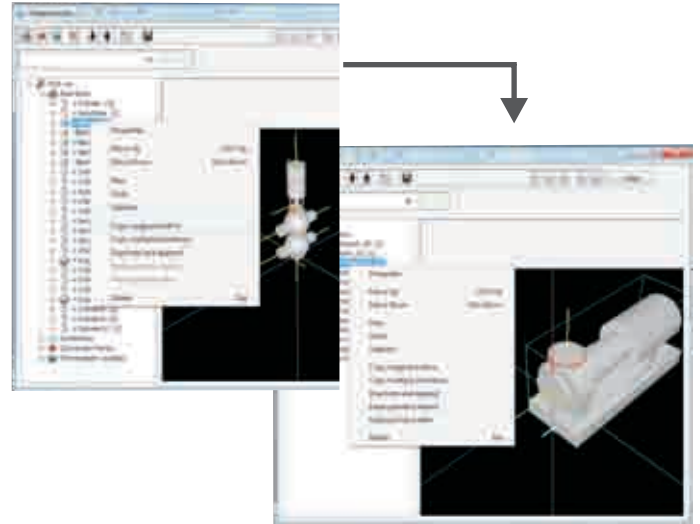semblies from multiple catalogs. User may create set of basic elements and generate multiple catalogs using copy feature with the desired combination.

Benefits :
- Reduces time to create new objects by using the 'Copy Parametric Model' feature
- Speeds up the process of new catalog creation

Wizards for Caged Ladder and Trusses in Steel Layout Module

In addition to the earlier available structures (staircase, handrails, platforms, ladders, water tank, etc.) with CADISON® R15, users will be able to easily create and place caged ladder and trusses in the steel structures.

7 types of Trusses are supported :
King truss, Queen truss, Warren truss, Pratt truss, Lattice truss, North Flight truss, Hove roof overhanging truss.

3 types of Caged Ladder are supported :
Caged ladder with front exit, Caged ladder with left exit, Caged ladder with right exit.

'Edit Structure' command for editing structures created using wizards

The Edit Structure command allows users to easily edit the structures created by using wizards in the Steel Layout module.

Benefits :
- Higher productivity and reuse of existing structures from previous projects
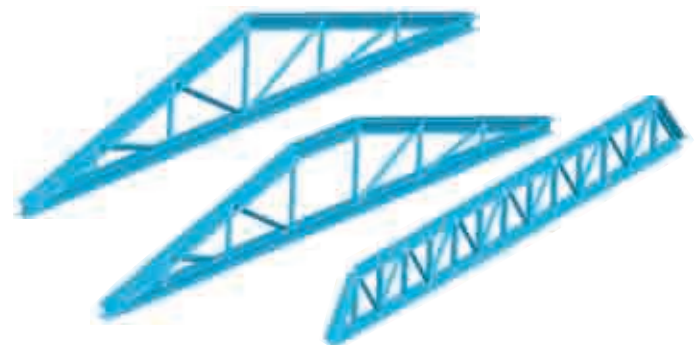
Introduction of AutoGrid, AutoLegend and Copy & Paste functionality in Visio® PID Designer

AutoGrid functionality is introduced in Visio® PID to align the object and place the connection points on grid line similar to AutoCAD functionality. The AutoLegend command automatically creates legends in a drawing. The 'Copy and Paste' feature allows users to reuse the objects / sub-systems created earlier.

Benefits :
- With AutoGrid feature users can quickly insert and align new shapes from the stencils
- Automatic creation of legends in a drawing
- Some amount of reusability with the Copy & Paste feature
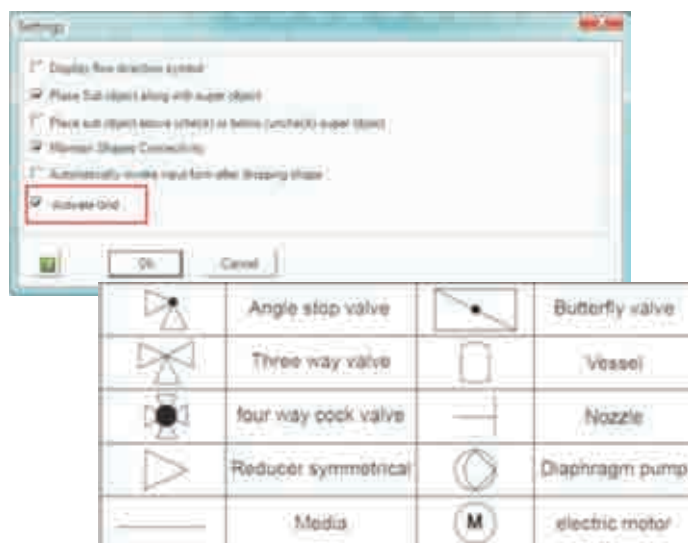
Sizing Calculations in CADISON® Electrical Designer for – Transformer, UPS, Earthing / Grounding and Cable Sizing

Transformer Sizing : Users can calculate the MVA rating of the transformer and voltage drop (at transformer terminal) based on actual connected or operating load. The calculations are done as per IEC standard 60076.

Uninterrupted Power Supply (UPS) Sizing : This functionality enables users to calculate the capacity of UPS and Batteries based on minimal inputs such as list of equipments (to be protected by UPS), voltage & current rating, power factor, etc. as per IEEE standard 485-1997.

Earthing (Grounding) Calculations : This feature enables designer to calculate total earth resistance of the system, plant or building based on various inputs such as fault current, length and diameter of earthing rod, type of electrode, etc. Using calculation results the designer can determine the total soil resistance (which should be less than 1 ohm) and can validate the number of electrodes and conductors selected.

Cable Sizing : Cable Sizing calculation can be done based on user inputs such as rated power, rated voltage, load current, actual current, number of runs required, ambient temperature and installation method as per IEC 60364-5-52. Using this calculation, users can ensure that the selected cable withstands full load, avoid excessive voltage drops and short circuit currents.
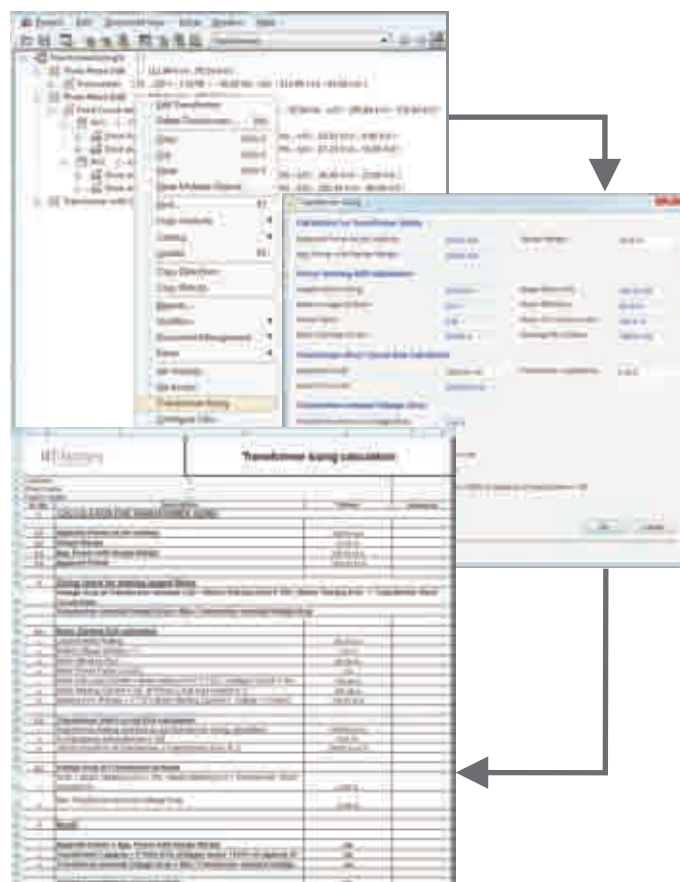
Benefits :
- Improves productivity by allowing users to do all sizing calculations without creating electrical schematics
- Generate reports for cable sizing activity at the calculation stage itself

Fermentation Plant Designed in CADISON®

TOOL FOR FAST TRACK

Whoever is responsible for plant documentation, can easily have grey hair unless he uses an object-oriented engineering tool that simplifies the task assigned to him.

In the pharmaceutical and bio-technological industries, the regulatory requirements for plant documents are particularly high. The time and personnel efforts required for creating these documents are equally intensive. In order to minimize the project duration and effectively adapt to project modifications, Pharmatec (a Bosch Packaging Technology Company) uses the engineering tool CADISON® not only for design and engineering but also for creating the qualification and plant documentation as per their customer standards.

Integrated Design and Engineering

Earlier, the Pharmatec engineers worked with the AutoCAD as a CAD platform for plant design and independently created the plant documentation with MS-Office. Since the projects were highly complex and the requirements of customers or authorities were stringent, in 2007 the company started looking for the most efficient engineering tool to meet their needs. The multi-disciplinary approach of CADISON® along with its object-oriented database convinced the engineers to go with CADISON®. As it is possible to integrate all design phases through the object-oriented data models for the different application areas, it saves time and costs. Information can be obtained from the acquisition stage itself and is available for further project phases to all project team members. Thus, whether the engineering data for the project is generated first or graphical data, it is irrelevant.

Each change is automatically shown in all desired views and updated within the project; a redundant and thus costly data management process is completely omitted.

Since 2008, CADISON® is the essential engineering tool within Pharmatec. Dr. Tommy Kern is the coordinator today for working with this engineering tool in Pharmatec, in addition to his daily work in handling projects for process and bio-systems. His goal primarily is to standardize and harmonize designs using CADISON®. Soon, Pharmatec had the standard templates available for designing frequently re-used systems, which made the design and engineering process faster and brought the quality of design to a higher level. "We have implemented many such standards in CADISON® that increased the productivity as well as the quality of our project work. Our engineers are working virtually in the project to take into account the pipe classes and suppliers preferred by our customers" says Dr. Kern.

For this, at first it was necessary to adapt the standards (i.e. the object models provided in the software) to the requirements of Pharmatec. This customization began with the support from the software consultants of ITandFactory, today it is mainly undertaken by Pharmatec on their own. Torsten Große, Head of Design, is convinced that a huge potential lies in the use of standards. "An engineer familiar with CADISON® can execute his projects in a much faster and reliable way by using the defined templates."

Internal Revision Management is Certainly Beneficial

In a company-wide project within Bosch Packaging, the standardization of customer documentation as per new corporate design was achieved within the pharmaceutical product

range. Originally, the customer documents were created from different data sources that lead to inconsistent header and metadata, discrepancies in layout and formatting between the documents. The aim of the project was that all documents come from the same source. The data and also the templates should be centrally maintained in a database and finally, multiple languages should be implemented (at least German and English is mandatory).

This project is made for CADISON® : The customer documentations were added step-by-step as report templates to the CADISON® database. After a year (as of spring 2014), already more than 70 customer documents were converted, resulting in a significant improvement in quality. Additionally, the preparation of the reports are now much faster as the customer document structure is fully mapped in the CADISON® report selection list. The data is centrally stored in the CADISON® project and acquired via report generator. "The documents are completely formatted for the direct transmission to the customer, reviewing is not required" explained Dr. Kern.

The use of internal revision management proved to be very advantageous. Many documents remain in CADISON® during the project period and can be revised using CADISON® revision management and logic analyzer feature. Revision date and all revision remarks are stored in CADISON®.

Torsten Große expressed that the decision for CADISON® was correct: "Since we started working with this tool, the expenses for documentation (for e.g. in the technical department) has significantly gone down, because we could access a consistent database."

During project management, Pharmatec works with full-time project managers, who are trained in Robert Bosch and qualified as per PMI (Project Management Institute) and ISPE Project Management systems engineering. The project is executed with optimum (risk-based) target achievement and is documented consistently, such that the traceability is ensured.

Integration Simplifies Fast-Track-Projects

More and more customers are using fast-track-projects in the pharmaceutical and biopharmaceutical industries, where a tight schedule must be adhered to with pressing deadlines. In order to meet complex requirements in less time and without errors, one needs a reliable database and an integrated data system. Thus, CADISON® is the platform for creating and managing documents (concept creation, development, design, procurement, assembly, start-up documentation, qualification, validation documentation and transmission of documents to the customers) which entirely enables all aspects of project management with higher quality. Even after delivery, the documentation is required for maintenance service and expansions and needs to be maintained. Thus, it remains up-to-date over the entire life cycle. The designer saves resources, time, cost and improves the quality.

Software with Additional Value

REPORTING IS A CHILD'S PLAY

That's why CADISON® is suitable for the technical documentation in pharmaceutical plants. All positioned valves and equipment are automatically provided with unique codes (DIN, KKS, etc). Their numbering system can be easily adjusted as per company specific requirements. The texts are aligned as per standards and are managed in their own designation layers. The valves inserted in pipelines take the corresponding specification parameter of the pipeline. Free designations can be additionally created at any time, wherein all properties of the object are executed as fully associative texts. The designation masks are available for simple bill of material or complex designations. They are directly connected with the object and are immediately/dynamically updated with changes.

The reporting of CADISON® is powerful : All data created with the P&ID-Designer or Project-Engineer can be displayed by the integrated report generator in different forms and formats. For instance, this could be a valve list or a prepayment in order to be able to calculate the necessary numerical data. All reports can be revised and have release mechanism. They are directly saved within the project. All documents can be automatically provided as PDF.

An important advantage for Pharmatec : The designer can store the documents in the databank as standards and in the structure exactly in the form as the customer wants them. "In this way, our engineers work with precision", said Dr. Tommy Kern. CADISON® is particularly efficient in tracking documents, even in case of revisions, which is vitally important in the pharmaceutical industry: "Our customers demand complete traceability of revision work."

P&ID
Process Designer

VISIO® P&ID Process Designer -
A Standalone Product From ITandFactory

Microsoft Visio® Professional Platform

Visio® P&ID Process Designer is an add-on to your Microsoft Visio® Professional software, that intuitively assists you to create block flow charts, PFD's, and P&ID's without use of any CAD systems. It is cost effective, easy to learn and user-friendly.
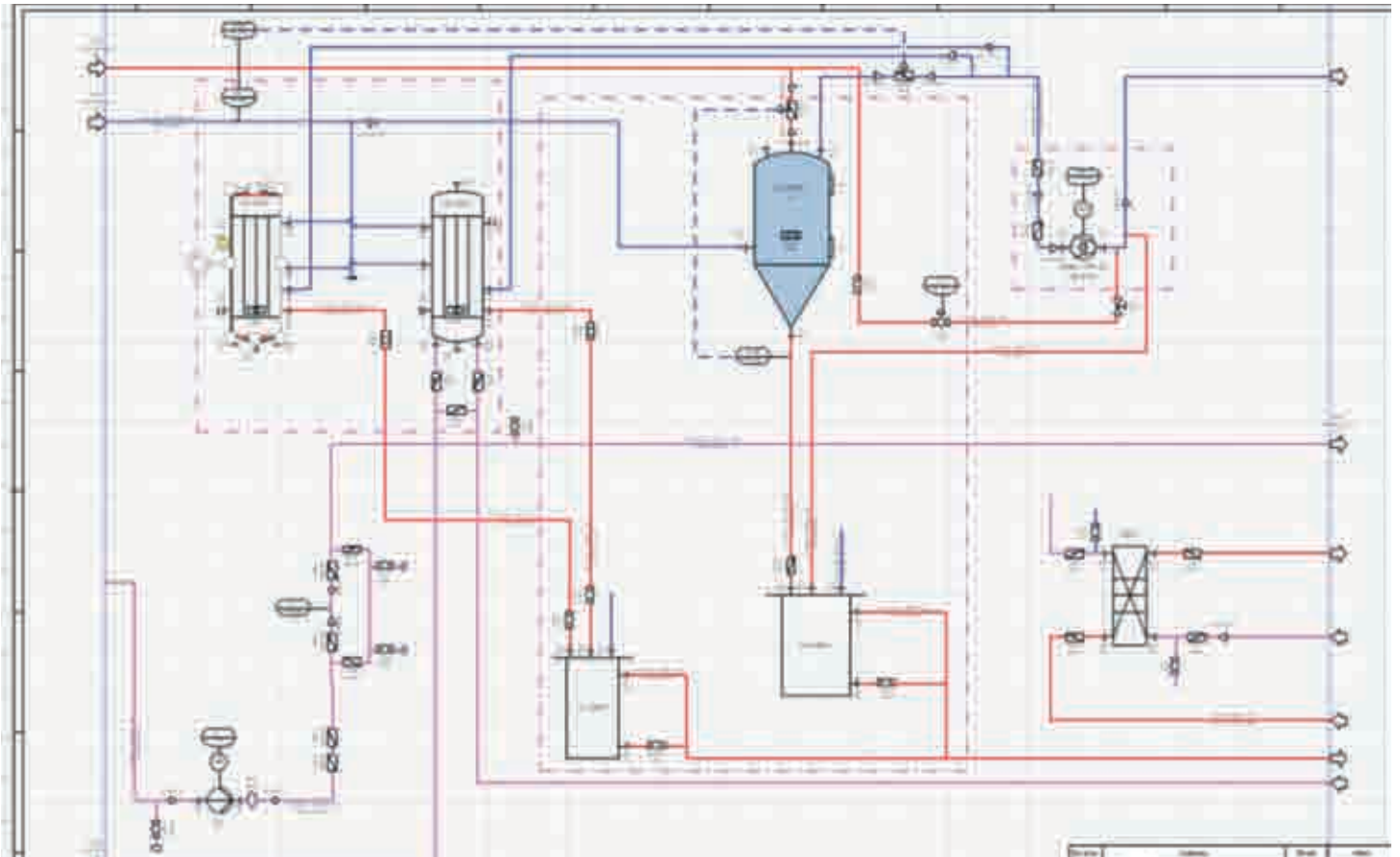
- For sales engineers and process designers / engineers for proposals or basic design
- Transform your ideas into PFD / P&ID schemes quickly using Non-CAD environment
- Export drawings to .DWG format and extract reports (in word, excel and pdf)
- Built-in quality & error checks and revision control capability

Industry Standard P&ID Symbols / Libraries :

- Built-in libraries for various standards (ANSI, ISO 10628, etc.)
- Built-in 'Symbol Editor' feature and construction set / assembly editor to create / manage your own symbols / libraries
- All symbols and drawing elements have associated data properties (e.g. media, piping class, material, pressure, temperature)

Intuitive Creation of PFD & P&ID's :

- Powerful drafting features / tools, variety of smart connectors and 'Drag & Drop' functionality for inserting P&ID symbols
- Dynamic generation of symbols for flow direction control and cross references across several drawings
- Components automatically align and snap into location when placed on pipe lines. Lines automatically break and mend as components are attached or removed
- Automatic insertion of gaps and/or stylized symbols at pipe line intersections
- Automatic synchronization of title blocks and reports
- Robust user management, document & revision control

Instrumentation and Control :

- Standard instrumentation symbols are available
- Creation of instrumentation datasheets and I/O lists
- Creation of control logic symbols (valves & drives) for standardization

Logic Analyzer to Track Errors and do Quality Checks :

- Built-in 'Logic Analyzer' feature with pre-defined check routines and ability to add own rules
- Quick navigation throughout the project or drawing or objects

Export Feature to Excel or *.CSV format or .DWG format :

- Share drawing or project data with other teams by exporting to Microsoft Excel or *.CSV formats. Users can also import feedback / modifications for updating the P&ID's in the exported *.CSV files
- Drawing export to .DWG format

Accurate Reports Generation :

- Pre-defined reports (e.g. valve lists, equipment lists, measurement lists, etc.) in excel or word and ability to define companywide formats
- Easily create datasheets in *.XLSX or *.docx formats, using existing excel templates
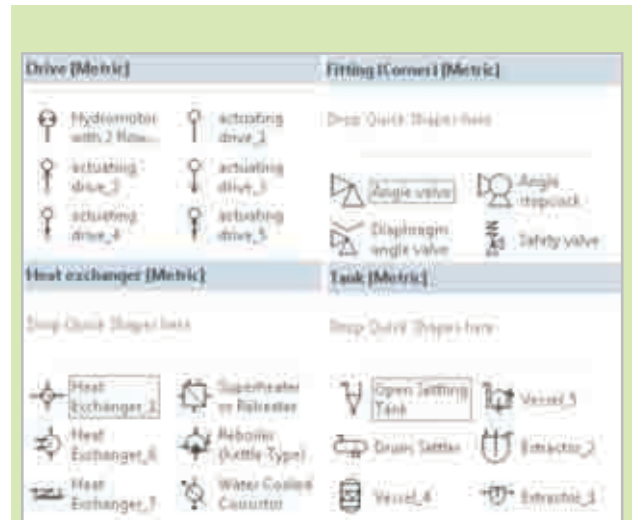
P&ID SYMBOLS & LIBRARIES

OBJECT INSPECTOR

CONSTRUCTION SET

Plant Design & Equipment Engineering Solution
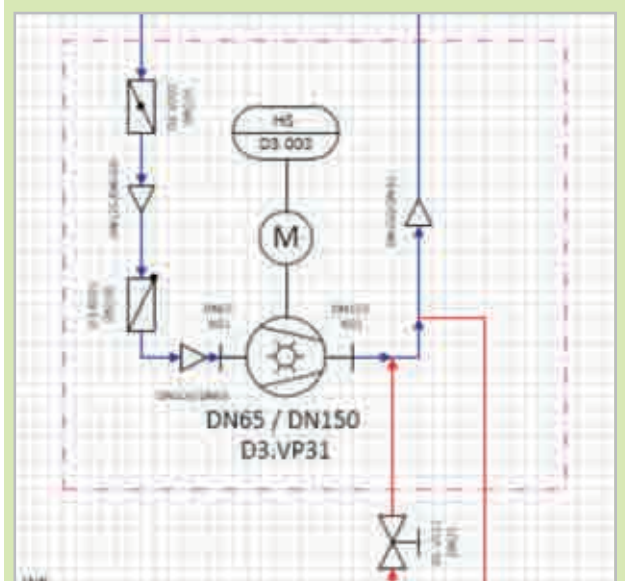
CADISON® 3D-Designer: Installation and pipeline planning in the 3D model are in the competence of the 3D-Designer. Normally this module is used for access to data from Basic Engineering or P&ID. Efficient assistants are available for installation planning: For instance, isometrics can be automatically generated from the planned pipeline systems.

CADISON® P&ID-Designer: The CADISON® P&ID-Designer plays a decisive role in design, construction, commissioning and maintenance and has an enormous effect on the complete lifecycle of a plant. In this case the preliminary project engineering will be integrated with Basic and Detail Engineering and 2D layout planning.

CADISON® Electric-Designer: The module for creation of intelligent electrical schematics (such as single line diagrams, circuit diagrams, terminal drawings, loop wiring diagrams), panel layouts, 3D cable tray and bus duct routing. CADISON® tree structure enables creation of detailed work breakdown structure (WBS) in non graphical environment to use the Electric-Designer from bidding stage onwards. Drag and drop, synchronization features guide the designer in developing schematic, 3D drawings from WBS to drawing generation and reports creation. A common database to access data of all disciplines of a project allows user to combine workflow of electrical engineering with process engineering.

CADISON® MATPIPE: Independent module for development and management of pipe classes, creation of parameterized 3D components, preparation and integration of manufacturer catalogues, import and export of data plus examination of existing catalog data to ensure that the data is up-to-date.

CADISON® Project-Engineer: The basic tool for Process Engineer and Project Manager. User may create plant work breakdown structure and calculate cost in non-graphical environment such that the detailing is possible in stages without data redundancy. This is what we call "Conceptual Engineering". It allows to create and control project data, users, document management, workflow management and can handle total project change management without CAD interface.

CADISON® Pipe Support Modeler: Pipe Support Modeler assists users in creating and updating secondary supports in an easy and intelligent way. 'Create and Edit' wizards for secondary support speed-up the entire process of modeling pipe supports, generation of reports for material take-off and generation of production drawings. It has provision for ten types of predefined supports with additional flexibility to create multiple combination of profiles, orientations, offset,etc.

CADISON® Steel Layout: A wizard driven module to quickly create steel structures required in plant design and easily visualize the plant layout. Users can also create custom assemblies like ladder cages, towers, pipe supports, frames, gratings, roofs, etc. and edit / modify these assemblies. The module also provides users the ability to extract GA drawings of the structures created and generate reports for Bill of Material and Quantities required.

Visio® PID Designer: This process engineering solution is very useful for conceptual design and proposal generation. It's a tool for process engineers and business development professionals who are interested in lightweight CAD systems.

CADISON

For Improving your
Engineering Efficiency by 30%

© Julius Montz GmbH
- generated using CADISON® technology -

CADISON® Project-Navigator: The Project-Navigator is a pure "Viewing Tool" for your access to all engineering data of your projects. It has the same user-interface like the Project-Engineer and is an indispensable tool for operation and maintenance of your plant.

CADISON® Archiver: The CADISON® Archiver allows you to swap and archive the complete project from the CADISON® productive environment. Archived projects can be rapidly and easily viewed with CADISON® Archiver-Browser without the need to retrieve them from the productive environment. Data and documents of completed projects can be accessed directly. Archiver enables the user to refer / utilize knowledge of archived projects in active projects.

CADISON® Engineer2Web: E2W is a web-based solution which enables users to gain access to CADISON® data over the Internet. Plant data generated using CADISON® Project-Engineer, P&ID-Designer, 3D-Designer etc can be visualized, new objects can be inserted & updated over a standard web browser, and documents of all types can be generated & viewed and added to a document group. E2W can be configured in a manner that the user can access it via Intranet or Internet depending on the requirement of an organization.

CADISON® ERP-Interface: The bidirectional CADISON® ERP-Interface combines the ERP and engineering workflow for creation of a highly integrated system. For instance, orders can be directly released and controlled from the engineering workflow. During plant operation, the technical specifications can be adjusted and the maintenance processes can be initiated. Company-specific standards can be presented individually.

CADISON® Inventor Interface: Inventor Interface enables users to import an Inventor Part or Assembly into CADISON® environment as CADISON® object. Add on menu in inventor will assist user in exporting Inventor Part or Assembly file into SAT and XML format. There is a provision to define connection point to planar face of any shape in Inventor as well as in CADISON® import wizard. User can Import object with or without connection points. Update feature enables the user to revise the exported component as per revised Inventor Part / Assembly.

CADISON® MS Project Manager Interface: Project Manager Interface is a bidirectional tool to plan and track the project status in CADISON® as well as in Microsoft Project 2007 or 2010. This enables project managers to synchronize the project plan between CADISON® and MS Project. This empowers the team to plan and track the project, update project status in design environment. New tool named 'Task Viewer' updates the status of tasks assigned to a user in CADISON® environment without use of standard tools like MS Project.

CADISON® ROHR2-Interface: The ROHR2-Interface of CADISON® makes it possible to transmit all pipeline systems created with CADISON® 3D-Designer to the Pipe Stress Analysis software. All required information will be completely transmitted to ROHR2 in the form of NTR files for analysis. Weak points are recognized and can be iteratively eliminated.

CADISON® CAESAR II Interface: CAESAR II interface adds the ability to export pipeline or selected pipes data to neutral ASCII-format .cii file from CADISON® 3D-Designer to be imported into CAESAR II interface. CADISON® object model "ITF-CWIN" contains the essential CAESAR II properties required to ensure accurate data transfer between systems and allows the user to customize to the needs of the project.

Navisworks: Navisworks from Autodesk can be used for visualization and clash detection by exporting the project model (along with attribute data) from CADISON® to Navisworks.

CADISON® Application Programming Interface (API): The CADISON® API allows you to optionally integrate your CADISON® engineering workflow in your business workflow. CADISON® API offers you a high rate of flexibility – not only for external access to data, contents, structures and points of view of CADISON® but you can use it even for dynamic data exchange. New objects can be generated and existing objects can be modified or even deleted. Thus, you have a new level of openness and accessibility of database. CADISON® API can be used by all customers as free-of-charge supplementary module.

CADISON® ERP Interface

Projects are driven by data, typically the engineer or designer works with graphics and creates multiple datasheets and excel lists to hand over to the purchase department. The challenge for the engineer and the purchase department is to synchronize these files. This process requires a lot of attention and time, and if done manually will need multiple quality checks.

Another challenge is the maintenance of a material master record. Typically, there are 2 material master records available:

- One in MATPIPE with all technical specification including graphic parameters
- One in the ERP System with all commercial information including the ERP material number

Bringing both these systems together and, synchronizing the data between CADISON® and the ERP System is possible with the CADISON® ERP Interface. CADISON® Supports various ERP Systems (like SAP, Movex, Navision, Infor).

The CADISON® ERP interface supports different modules

The following process steps are supported :
- Initiating an ordering process from CADISON® (BANF)
- Save item number of CADISON® in MATPIPE
- Monitoring changes -
  - Define your own monitoring rules
- Creating the cancellation object
  - Matching the cancellation objects
  - Edit display cancellation objects
- Adding new transfer instructions

Simplified checklist for successful ERP integration:
1. Workflow coordination with the ERP specialist and ITandFactory implementation specialist
2. Setup a test environment
3. Install the ERP interface
4. Setup all required transfer protocol
5. Data synchronization with MATPIPE
6. Data synchronization with a defined project in CADISON®
7. Perform optimization
8. Work on an Test project
9. Transfer setup / Settings to Productive System

(M)	MATPIPE	Synchronizing material master record with the ERP System
(E)	Project Engineer	Communication with the ERP System

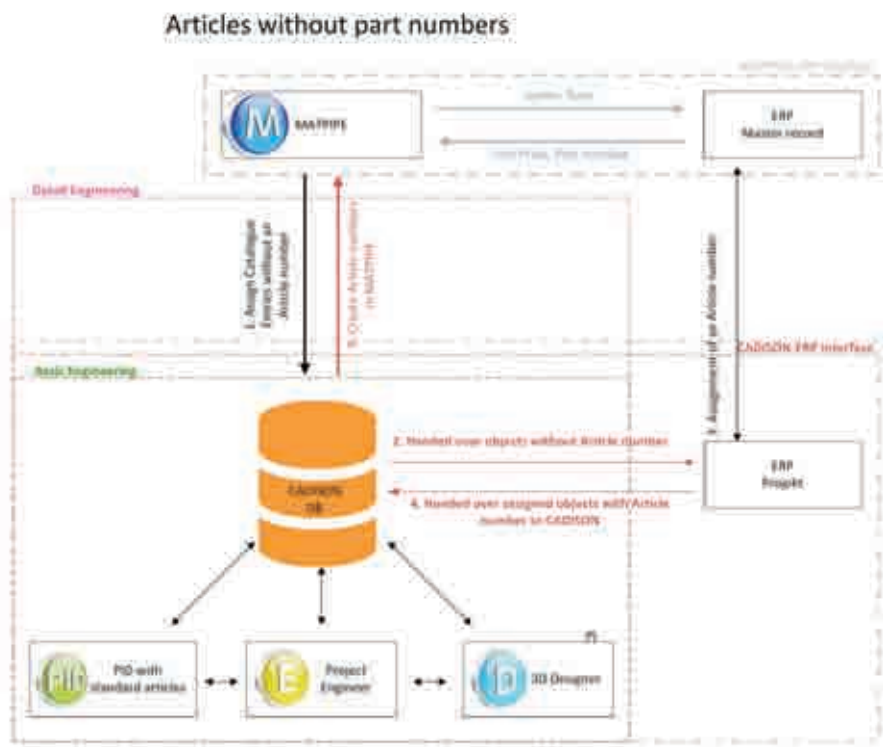The following graphics provides an overview (two examples) of how the interface works .

Figure 1 shows an overview how CADISON® works with 'articles without a part number'.

The CADISON® ERP interface handles :
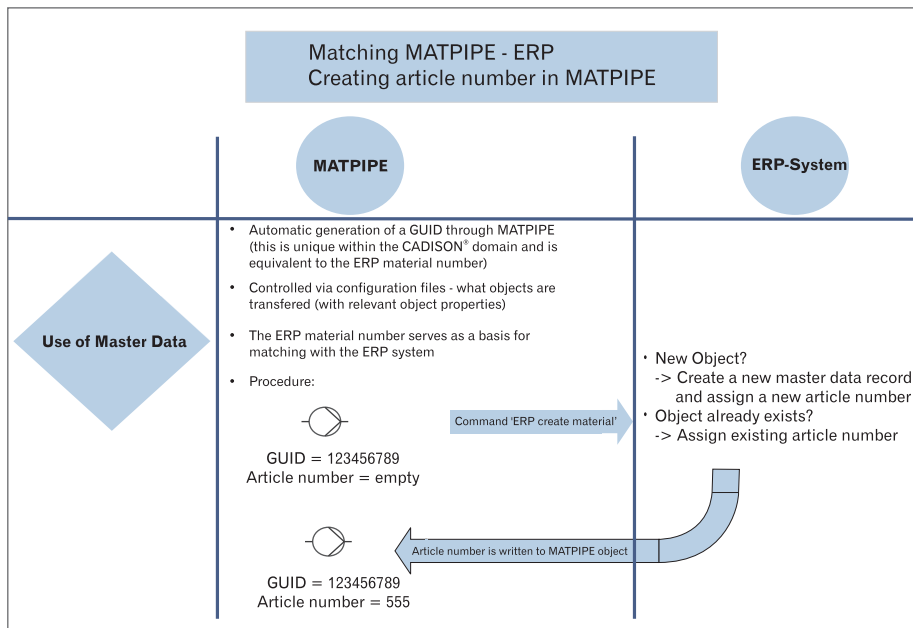- Articles with part numbers
- Articles without part numbers

Figure 1

Figure 2 shows an overview of how you can match an article over the ERP interface in MATPIPE.

In this process MATPIPE is checking whether a new object is required or whether an existing object can be used. In case of a need for a new object, MATPIPE creates a new article number.

Figure 2

CADISON® Trainings and Webinar Series

To help our customers better implement CADISON®, we organize regular trainings on various CADISON® modules. Trainings are either conducted at our office in Bad Soden or at your location. Below is the training schedule for 3D-Designer and P&ID-Designer modules at our Bad Soden Office. Please check our website (www.cadison.com) for the detailed training calendar. If you are interested in participating or arranging for trainings for your team, please contact us at : info@itandfactory.com

ITandFactory periodically organizes webinars focused on specific topics about CADISON®. You can view our past webinar recordings on our website (www.cadison.com). Below is the schedule for live webinars (in English) during 2015.

For more information about the webinars,
Visit : http://cadison.com/en/news-events/event

Training Schedule 2015

Month	P&ID-Designer (2 Days)	3D-Designer (3 Days)
July	07.07. - 08.07.	28.07. - 30.07.
August	04.08. - 05.08.	25.08. - 27.08.
September	01.09. - 02.09.	22.09. - 24.09.
October	06.10. - 07.10.	27.10. - 29.10.
November	03.11. - 04.11.	24.11. - 26.11.
December	01.12. - 02.12.	15.12. - 17.12.

Webinar Schedule 2015

Date	Description
31.08.2015	Using Form Editor
28.09.2015	Overview of CADISON® R15 – Highlights
26.10.2015	Faster with Dynamic Symbols
23.11.2015	Interface : ROHR 2/CAESARII
14.12.2015	Logic Analyzer for Checking the Projects

Refined Oil & Fat

Integrated Engineering Solution for Plant Design

As a quality producer of vegetable fat, Florin AG lays emphasis on controlling the entire production process and operation in-house. Consequently, while deciding their engineering design tool, the company had opted for CADISON®, an integrated and multi-disciplinary solution.

Chocolates, Biscuits, Eggs, Baby food :

Vegetable oil and fat determine the texture, appearance, smell and taste of several foodstuffs. They provide energy, vitamins and essential fatty acids. In addition, they also protect the skin as cosmetics and have the medicinal healing power through ointment and essential oils.

Florin AG is an independent Swiss family run company with about 130 employees. As the largest manufacturer of vegetable fats in Switzerland, it is the ambition of the company to provide premium quality products. The vegetable oils and fats come from traditional farming. Genetically enhanced raw materials and the solvent extraction are not used. Florin produces the oils only by pressing and heating.

The management is convinced that the best quality level is achieved when all production steps are under one roof and everything is produced in the Muttenz location itself. As the only manufacturer of fats in Switzerland, Florin AG has control over all aspects of the product development production and distribution, right from the extraction of raw materials through to the delivery of oils, fats, and margarines with guaranteed freshness.

The customer portfolio ranges from gastronomy and bakery requirements through retail trade, food industry, chemical industry, pharmaceutical industry to animal feed industry.
The company invests several millions of Swiss Francs yearly in modern logistics, production plants and storage capacities.

Command over Diversity in the Plant Technology

In addition, it also added the new crude fat storage tank recently brought into operation. It is used for temporary storage for various crude fats for further processing in the refinery. Each of the eight tanks has a capacity of 40 m^3. The crude fat is stored at a temperature between 60°C and 80°C depending on the origin, thus the fat remains fluid and can be delivered for refining on demand without delay.

The storage tank was designed by Vitali Fischer. As a designer and project lead in the company, he creates the basic P&ID diagrams for every engineering project with Visio® PID Designer and continues with CADISON® 3D-Designer for further plant design.

This fully integrated multi-disciplinary engineering tool was selected considering the diversity in the plant & equipment engineering within Florin. The company is proud of its industry-wide unmatched vertical integration. Another speciality for a plant designer in Florin is the different filling machines and package sizes (bottles, bibox-containers, high rack warehouse, etc. to huge crude fat

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storage tanks). The company which can provide such an impressive in-house production depth and variety in packaging as a quality feature itself, must also have a equally efficient planning tool.

CADISON® Modules Save Time and Costs

What differentiates CADISON® from other designing tools? The tool was not developed by software developers as a pure CAD-Tool, but as an object-oriented database driven engineering solution. All project data is automatically and immediately available in different disciplines, such as P&ID, 3D-Piping, isometric-generation, automatic report generation etc. through the integrated database.

The common object-oriented data model for the different fields of application makes it possible to integrate all planning phases so that time and costs are saved. With CADISON® valuable information is captured and made available in all later project phases to the project staff. Thus, it doesn't matter, whether the engineering data for the project is generated first or the graphic data.

Every component is stored in the database and the users can access them in the respective planning stages. It starts with the submission of an offer and ends with the documentation. The component is always specified in detail in the planning process, it contains media information etc. All data appears in the database and the information stored and allotted are always same for every user.

Conclusion

Vitali Fischer concluded : "In my opinion, currently there is no other better engineering tool in the market for our field for plant design".

Fig : The new crude fat-storage tank was designed with CADISON® and has been operational since then.

> CADISON® combines the entire engineering workflow in one system. The tool supports users through its high flexibility to adapt their own workflow as well as catalogs, which can be modified quickly and efficiently to meet the company standards.


(Vitali Fischer, Florin AG).

Vitali Fischer "I also work regularly with the CADISON® tools like 'Tank Assistant', 'Nozzle Assistant' and 'ISOGEN'. With these modules, I can create and edit 3D-Vessels and 3D-tanks in a short period of time." Other requirements such as sections, elevations and perspectives are automatically generated and offer a high degree of support. After positioning the tanks or pipes in 3D-design, the piping design can later be easily continued on the intelligent nozzles. "And the highly practical tool ISOGEN generates automatic piping isometrics after creating the sketches which is subsequently used for production in the workshop" said Fischer. The simultaneous creation of piping plans and isometrics is a substantial advantage according to Vitali Fischer. Currently, he is designing a plant expansion with CADISON® which is planned to be completed in two years. Fischer added : "By designing the new plants or changing the existing plants with CADISON®, we can avoid possible assembly errors or collision. In addition, it is possible to order all required parts and components in the correct quantity and the proposed specification. This also saves us a lot of time!"

6000 TPA Specialty Chemical Plant Expansion Project with CADISON®

"*Before CADISON®, all the jobs were done in AutoCAD. We had to prepare each and every drawing manually, resulting in productivity loss, cost of poor quality (COPQ-Six Sigma) and excess inventory.*"
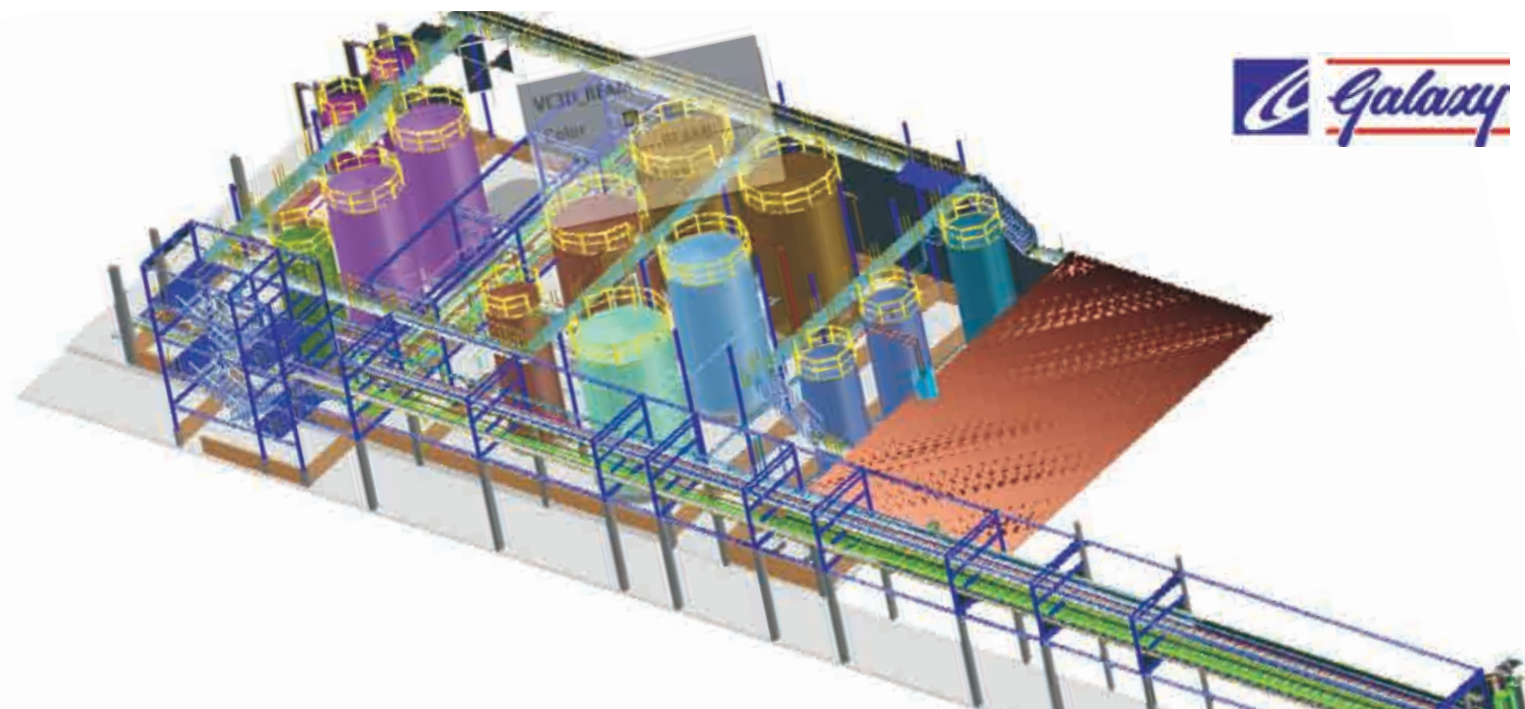
The project was executed by 3 engineers who were allocated defined areas of work. The engineers completed the equipment modeling, steel layout, pipe routing, etc. in a separate database and later merged them into a single database.

Project details : 12 pipe specifications (including specialty pipes like SS304, SS316 & PP), 7 P&ID's.

Deliverables extracted from P&ID : Pipeline list, valve list, equipment list, media list, process parameters line-wise, misc-components list, instrument index, etc.

Deliverables extracted from 3D : Isometrics, flange list, bolt list, cumulative BOQ for all the pipe and pipe components, GA drawings of the plant layout, sectional layout with critical elevations, etc.

"We are now confident that our engineering team has gained experience with CADISON® and are capable of executing new green-field projects which are more complex than expansion projects. We thank the Neilsoft / CADISON® hotline support team in providing crucial technical support as & when needed."

Galaxy Surfactants is a leading manufacturer of specialty chemicals which includes Surfactants, Mild Surfactants, Rheology Modifiers, Pearlizing Agents, Conditioning Agents for the personal and home care industry.

"Last year we invested in CADISON® solution and completed the pilot project and training. We incorporated customized standards, workflows, methodology etc., in CADISON® as per our requirements to get better results in all our future projects. Our engineering team is using CADISON® for in-house projects and our internal customers are quite happy with the outputs delivered through CADISON®."

Avinash Shinde, Projects Leader

CADISON® R15 MATPIPE Enhancements - Catalogs

In CADISON® R14, new templates for catalogs (default, working and master catalogs) were introduced for easy catalogs creation, standardization and reusability of catalogs at a project level. To enhance this further, new functionalities are added in CADISON® R15 such as copy parametric graphic objects, revision management and control, replicate the catalogs, extend the replicas, etc. Several new catalogs are added in MATPIPE, for e.g. catalogs with both units (metric & imperial) of measurement and additional vendors catalogs. The newly added catalogs also include various types of objects, required in CADISON® Plant Designer and Electrical Designer modules.

Catalogs for P&ID, 3D Designer and Steel Layout module include :
Pipe, Pipe & Pipe Fittings (Cap, Clamp, Crosses, Elbows,

Flange, Gasket, Reducer, Tee), Pipe Support, Weld, Slip-on and Welding Neck Flange, Blind Flange, Lapped Flange and other Flange types, Gaskets, Gate Valves of different types, Malleable Iron Threaded fittings, Socket welded fittings, Threaded fittings, Steel flanges, Metric Beams and Channels, Imperial Beams and Channels, etc.

Catalogs for Electrical Designer module include :
Circuit Breaker, Contactor, Fuse, I/O System, Luminous Push button, Receptacles, Relay, Sensor, Switches, Switches & Indicators, Terminals, Voltage Transformer, Ammeter, Enclosure, Fuses, Light, Power Supply, Selector Switch, Transformer, Drive, I/O Module and Flow Sensor, etc. created for different vendors as listed below.

Below is a partial list of catalogs which are added and would be available with CADISON® R15. For the complete list of catalogs, please visit website : www.cadison.com/catalog overview.

| Catalog Name	Unit System	Standard	Modules
AISC_BEAMS	Metric	AISC	Steel Layout
AISC_BEAMS_IMP	Imperial	AISC	Steel Layout
ASME_FLANGED_FITTINGS_IMP	Imperial	ASME	P&ID, 3D Designer
ASME_FLANGES_IMP	Imperial	ASME	P&ID, 3D Designer
ASME_GASKETS_IMP	Imperial	ASME	P&ID, 3D Designer
ASME_PIPE_SPEC_CLASS_150_IMP	Imperial	ASME	P&ID, 3D Designer
ASME_PIPEFITTINGS_IMP	Imperial	ASME	P&ID, 3D Designer
IMPERIAL_HANDRAIL	Imperial	ASME	Steel Layout
COOPER_BUSSMANN	Metric	Vendor	Electrical
FEDERAL_PACIFIC	Metric	Vendor	Electrical
IDEC	Metric	Vendor	Electrical
ITF_DUCT_IMP	Imperial	Vendor	Electrical
LAPP_CABLES_IMP	Imperial	Vendor	Electrical
LEGRAND	Metric	Vendor	Electrical
OMRON	Metric	Vendor	Electrical
HOFFMAN ENCLOSURES	Metric	Vendor	Electrical
ITF_TUTORIAL_IMP	Imperial	Vendor	P&ID, 3D Designer
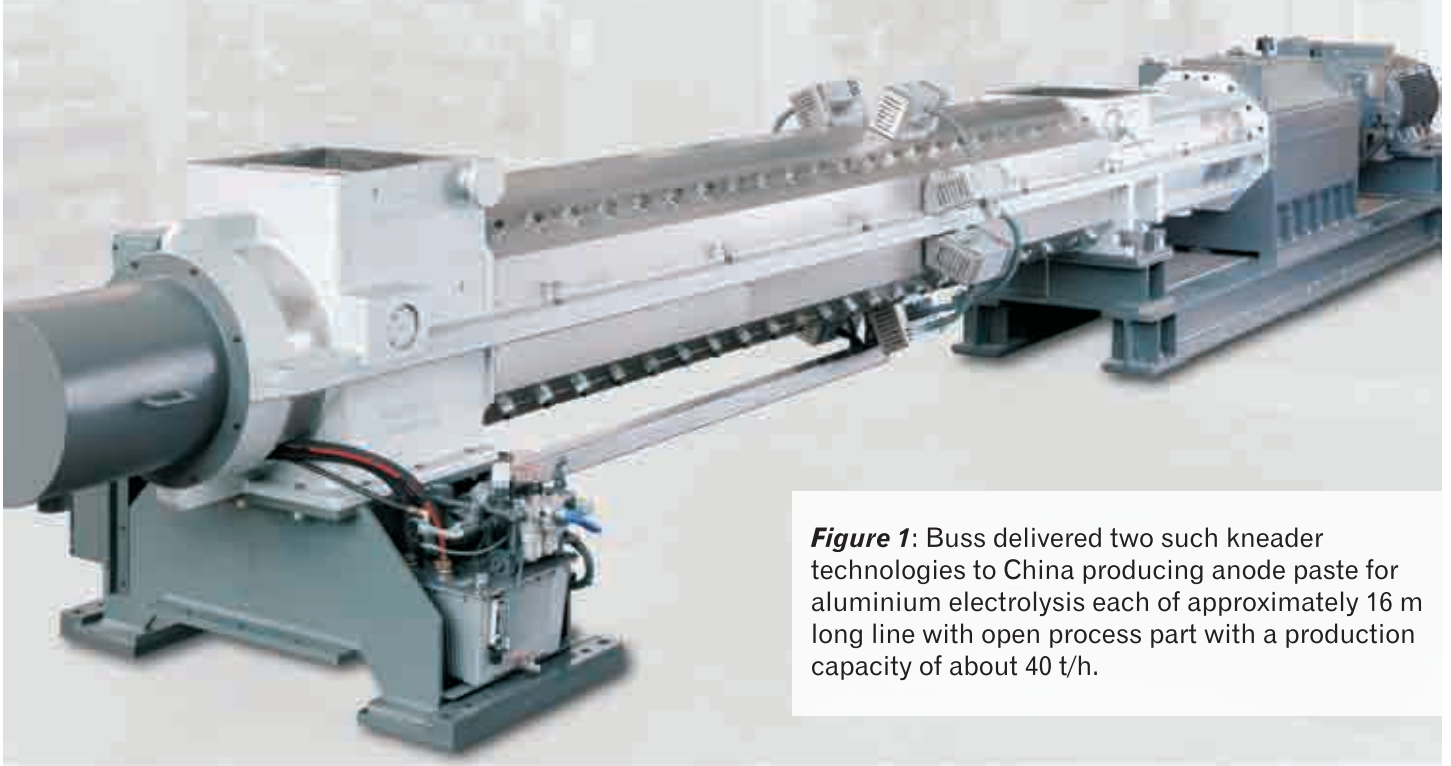
Figure 1: Buss delivered two such kneader technologies to China producing anode paste for aluminium electrolysis each of approximately 16 m long line with open process part with a production capacity of about 40 t/h.

Object Oriented Plant Design

"Previously, the Piping and Instrumentation Diagram (P&ID) was a dummy sheet for us. Today, we create an intelligent model with CADISON®, backed with a database containing all relevant technical data for respective equipment".

How can a company with 150 employees and a turnover of 60 million Swiss Francs (approx 50 million Euros) be so successful world-wide? One creates a niche and develops innovative products? This is the formula for Buss AG in Pratteln.
In this case, the niches are mixing and kneading machines for processing plastics, paint, aluminum products as well as food ingredients. The innovative product is the Kneader Technology of the company. It has a single screw-extruder, that performs both rotational and translational (forward/backward) motion.
The essential advantages of this unique technology lie in its quick product change, as well as in high reliability and longevity. Owing to lower down time, the productivity is equally high. "Our Kneader Technologies set a benchmark especially when it comes to processing demanding products that are sensitive to temperature and shear", summarized Marko Stähler, Head of Project management and member of the management board.

Central applications for the Kneader Technology are common in the plastic industry. For example, for manufacturing cable sheathing, the basic product, i.e. plastic granules is required in primary form, molten form and mixed with functional additions. Since these additions only constitute a small portion of the mass, they must be distributed optimally.

Object Oriented Plant Design

Based on the Kneader Technology, Buss also offers Material Handling Systems and undertakes the planning, designing & execution of customized and advanced technology solutions.

Marko Stähler explains : "In earlier years the customers themselves took care of integrating the ordered Kneader Technology in their plants. Today, most customers expect that we offer complete integration in the plant including instrumentation and control technology." As a solution for such tasks, Buss had decided to use the engineering software CADISON®. How does CADISON® stand out, how does it differentiate from other planning tools? CADISON® was not devised by software developers as a pure CAD-Tool, but as object-oriented database supported engineering solution. All project data are automatically and immediately available in different fields of applications, such as P&ID, 3D-pipeline planning, isometric-generation, automatic report generation through integrated databases.

The Essential Advantages in Planning with CADISON® 3D-Solution :

- Significant acceleration and transparency of the entire process from planning to assembling a plant
- Changes are reflected in all documents and implemented faster
- The tool maintains large amount of data reliably
- The planning / design effort for new plants decreases significantly

All these are essential features, which were considered by Buss AG. "The tool convinced us of costs and

execution", says Marko Stähler.

Currently, Buss is working on storing its products as standards in the CADISON® database. The aim is to save time and costs with consistent & high quality planning. "If our products are represented completely in CADISON® database, drawing efforts reduce by 30 to 50% and our colleagues can work more productively!"

Marko Stähler is convinced that "Standardization when working with CADISON® leads to substantial savings."

Even other companies see the advantages of standardization, according to a survey by the Maexpartners consultancy and Large Industrial Plant Manufacturer's Group (AGAB) at the German Engineering Federation (VDMA). The surveyed plant manufacturers think that by modularization and standardization, it is possible to have an improvement in the overall business result up to 10%. The survey showed that by modularization, engineering savings alone can increase by 15%. Errors and associated warranty costs can also be reduced by as much as 23% based on the participants' judgment.

Cost of Failure Reduces

The consistent use of series at assembly and machine level turns out to be very essential for a successful modularization strategy. Since only through the repeated

systems and plant operations, the non-conformity costs are reduced proportionately with economies of scale. During the project run-time, the optimization potential is estimated to be at an average of 12% by the surveyed participants.

In order to achieve these targets, changes must be made particularly in the organization and business processes that affect engineering and proposal management. However, the sales team should adapt and learn to sell standards.

Figure 2: A compounding project designed with CADISON®

NOTE : This is an excerpt (English version) of the original article published in 'MASCHINENMARKT ' magazine (Issue : 11/2014)
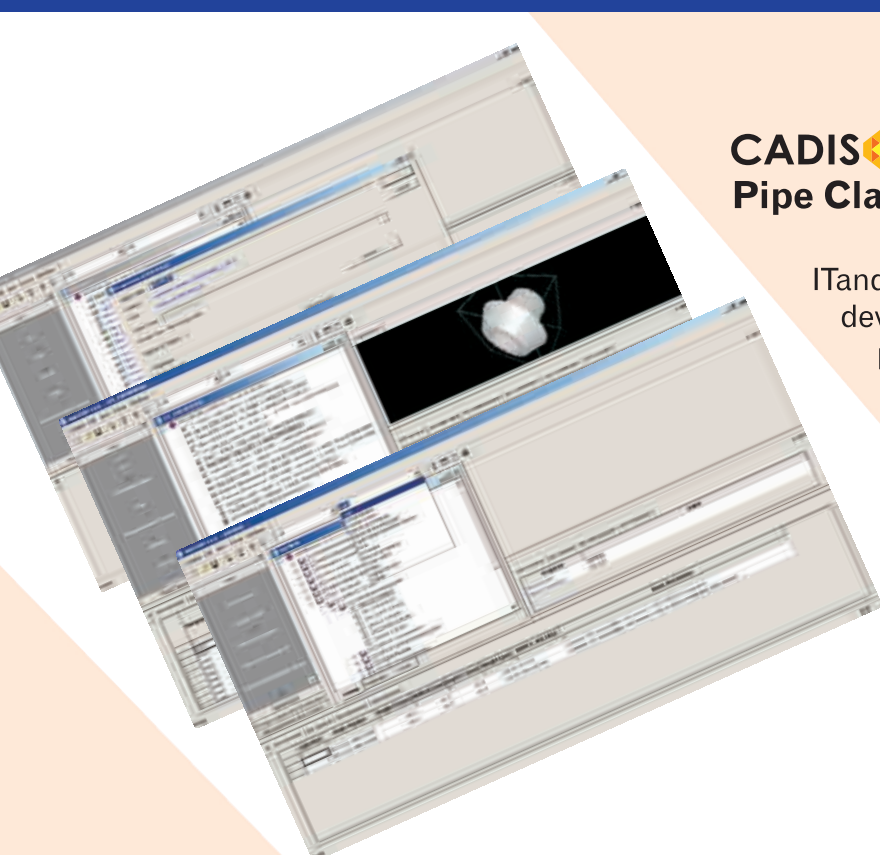

CADIS◆N® MATPIPE –
Pipe Class & Catalog Management Solution

ITandFactory offers independent services for development of pipe classes, creation of parameterized 3D components, preparation and integration of manufacturer catalogs, import and export of data in addition to the maintenance of existing catalogs.

✉ For more information,
write to us at : info@itandfactory.com

MECTECH leverages CADISON® for faster execution of project

*"Last year we purchased **CADISON**® solution for our in-house engineering team and started the training & pilot project phase. Within 2 months, we were ready to execute live projects."*
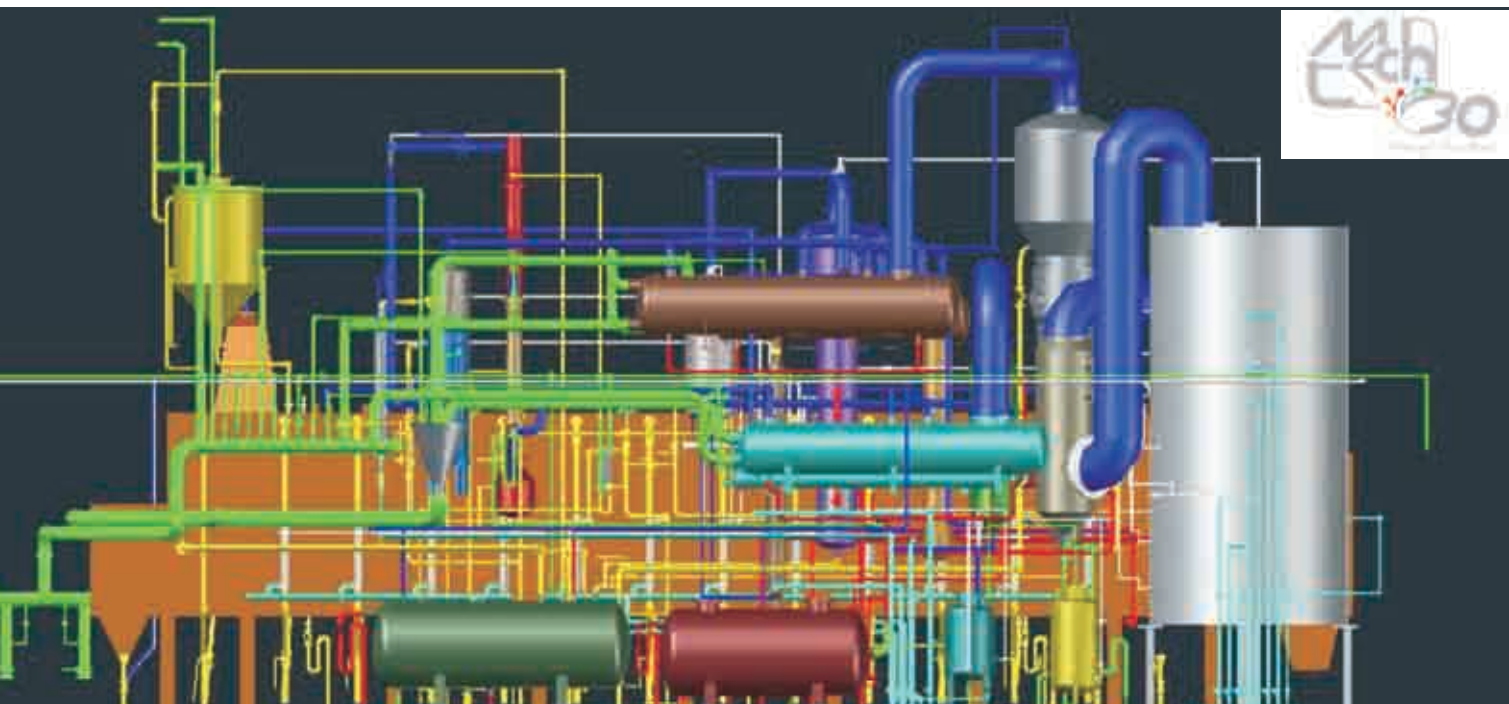
3D CADISON® Model of 400 TPD Solvent Extraction Plant
[27 equipments, 18 pumps, 350 pipelines, 600 valves, 75 instruments]

MECTECH Process Engineers Pvt. Ltd. is a leading OEM specialized in solvent extraction, chemical & physical refining and allied fields through its continued emphasis on achieving qualitative and quantitative improvements in production by modernization and renovation. All the turnkey projects undertaken by MECTECH today reflect the latest, most sophisticated and best available state-of-the-art in technology to over 100 customers in 12 countries.
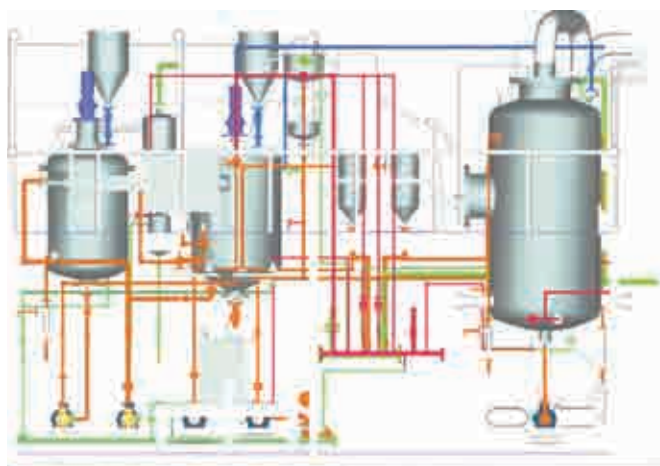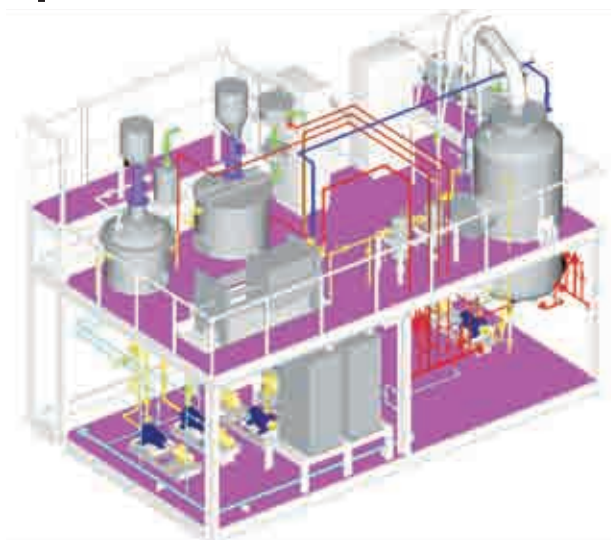
"It just took 5 weeks for 2 engineers from process to construction package including reports, bill of material (BOM), pipe line list, datasheets, isometrics and GA drawings. We also took advantage of re-using CADISON® database with piping specifications for new projects, enabling us to execute multiple projects simultaneously without compromising on quality and time."

Sanjeev Chandel, Engineering Manager

CADISON® Events (2014-15)...

CADISON® International Conference, Germany

ITandFactory participated at FDBR
(Fachverband Dampfkessel, Behälter- und
Rohrleitungsbau e.V)

ITandFactory & Neilsoft Inc. participated at Transatlantic Water
Tech Conference in Minneapolis, MN organized by German
American Chamber of Commerce.

Seminar in Mumbai

Neilsoft participated at IFAT

ChemTech World Expo 2015

CADISON®

ITandFactory GmbH
Auf der Krautweide 32
65812 Bad Soden
Germany
Tel: +49 6196 93490-0
Fax: +49 6196 93490-49
E-mail: info@ITandFactory.com

ITandFactory AG
Quellenstrasse 37
4310 Rheinfelden
Switzerland
Tel: +41 61 833 30 50
Fax: +41 61 833 30 51
E-Mail: rheinfelden@ITandFactory.com

Detroit
6820, N. Haggerty Road
Canton, MI 48187
Tel: (734)-459-1100
E-mail: info.cadison@neilsoftinc.com

Appleton
976 American Drive, Unit 14
Neenah, WI 54956
Tel: (920)-486-6686
E-mail: info.cadison@neilsoftinc.com

Pune
Pride Parmar Galaxy 8th Floor
10/10 + A Sadhu Vaswani chowk
Pune 411001, India
Tel: +91 20 3054 2200
Tel: +91 20 2605 3003
E-mail: info.cadison@neilsoft.com

Bangalore
406, Embassy Centre
11 Crescent Road
Kumara Park (E)
Bangalore 560001, India
Tel: +91 80 2226 7786
E-mail: info.cadison@neilsoft.com

it and factory
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Neilsoft