



PROPLANT, SLOVAKIA

Key Facts

Company: Proplant

Website: www.proplant.sk

Industry: Chemical, pharmaceutical, power generation, mechanical

Country: Slovakia

Products Used:

- CADWorx® Plant Professional
- CAESAR II®
- OrthoGen®
- Isogen®

Key Benefits

- Data-driven, accurate and timely materials procurement
- Bi-directional integration avoids re-modelling, saving time
- Automatically produced consistent, high-quality, industry-standard deliverables for fabrication and construction
- Fast-track project execution supported by a simple, intuitive, integrated software

PROPLANT REDESIGNS AN EXTRUDER VALVE STAND IN RECORD TIME

IDENTIFYING GOALS

Proplant is an engineering company established in 2012 in Nitra, Slovakia. It is a multi-service company focusing on chemical, pharmaceutical, power, and mechanical industries. Proplant specializes in basic and detailed engineering, design documentation, stress analysis, and creation of as-built documentation.

Together with a local partner, Gasinex Projekt Ltd., Proplant was contracted to redesign and reconstruct the valve stand (heating and distribution system) of an existing extruder unit located in a petrochemical (plastic molding) facility. The main project goal was to design the steam distribution and cooling water system. The system had to be improved so that the plant operator could quickly identify and control particular valves used to regulate the temperature of the various zones inside the extruder. The zones of the extruder need to be quickly cooled, warmed-up, or cooled and warmed-up simultaneously, according to the needs of the product being manufactured.

The secondary goal was to improve the maintenance and accessibility of the valves and other controls by reconfiguring the plant design.

After an initial review process, Proplant decided that the best approach for the future would be to completely redesign the valve stand for the extruder, including all equipment, steel access structures, pipes, valves, other devices, and supports, because the outdated structure of the existing distribution unit hampered maintenance activities and safe operations.

OVERCOMING CHALLENGES

The client supplied the design fundamentals, P&IDs, and a basic piping layout in AutoCAD® format. This design basis showed important details such as the connection points to the piping connected to the extruder itself. The client also





supplied, in traditional paper form, piping classes, datasheets for piping and instrumentation, and valve vendor data sheets.

Due to access and space constraints, the new valves stand for the extruder needed to be designed as two separate but connected units that later could be joined together on-site.

To successfully achieve this, Proplant needed 100 percent accurate materials information for all new components to be included in the design and to be constructed and installed in the facility eventually. Four piping classes containing more than 3,000 components were quickly developed for the project using CADWorx® Specification Editor.

Once specifications were available, a 3D model was created using CADWorx Plant Professional. Proplant redesigned all the pipelines to include new valves, existing relief valves, and condensate drain points, and in addition, all steel constructions and supports.

The next step was to conduct static and dynamic analysis checks using CAESAR II® to check the stability and performance of the new piping design. The analysis showed that no rework was necessary.

As the project progressed, the client raised several queries about commodity codes used for procurement, which had to be revised accordingly. To ensure consistency in all deliverables produced, the CADWorx model was connected to a project database. This enabled the same codes to be output to all reports automatically and directly from the model or database, without manual intervention being necessary. Saving time and avoiding error, high-quality, industry-standard, piping isometrics were produced using Isogen, and orthographics and 2D layouts were created via OrthoGen.

For progress checking and ongoing discussions with the client, the 3D model was periodically exported to NavisWorks, which uncovered several minor clash situations requiring

design modifications. These were easily remedied using CADWorx's powerful and user-friendly pipe editing tools.

REALIZING RESULTS

Thanks to the efficiency and ease of use of Hexagon PPM's software, Proplant was able to fast-track the design and deliver the project on-schedule and on-budget. This was largely due to:

- Quick and easy definition and customization of accurate materials catalogues and piping classes, including client codes aiding efficient and timely procurement and materials management.
- 100 percent time savings during pipe stress checks due to bidirectional integration between CADWorx and CAESAR II, avoiding remodelling having to be performed.
- The ability to automatically produce high, consistent quality isometric, orthographic, and BOM deliverables.
- Improved designer efficiency and productivity – one person was able to carry out multiple design tasks including piping classes, 3D models, pipe stress analysis, review mode.

MOVING FORWARD

Vladimir Cebo, owner and project manager at Proplant, commented on the company's experience with CADWorx tools: "CADWorx Plant Professional and CAESAR II are exactly what a company needs to improve project execution. The bi-directional links between the software enable easy sharing of data between different disciplines we've improved efficiency by 100 percent since implementing CADWorx & CAESAR II."

During the project, Proplant standardized its work processes on the CADWorx solution suite. The company expects to employ CADWorx solutions in all of its future plant design and pipe stress analysis projects.

ABOUT HEXAGON

Hexagon is a global leader in digital solutions that create Autonomous Connected Ecosystems (ACE). Our industry-specific solutions create smart digital realities that improve productivity and quality across manufacturing, infrastructure, safety and mobility applications.

Hexagon's PPM division empowers its clients to transform unstructured information into a smart digital asset to visualize, build and manage structures and facilities of all complexities, ensuring safe and efficient operation throughout the entire lifecycle.

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