

Control Seal B.V.

Unique valves for the most demanding customers



The Dutch company Control Seal uses 3D CAD and PDM applications from Autodesk and support from the Czech CAD Studio to successfully supply giant custom-made valves for oil and gas processing industries.

The customer

The company Control Seal has more than a hundred-year-long history in precision engineering. The company started manufacturing ship engines in 1907, at that time under the name Brons Motoren Fabriek. In this millennium the company specializes primarily in manufacturing of high-pressure valves for oil and gas industries. Designing, manufacturing and assembling of the products takes place in Appingedam, Netherlands. About one hundred employees working in one location produce valves that meet the demand of customers worldwide.

In addition to its standard products, the company also manufactures custom-made valves for specific customers and their unique projects. That is why the company started using the product documentation management system (PDM) some years ago and recently it has also decided to upgrade its Autodesk computer-aided design (CAD) solution to the latest version. Based on the previous positive experience, Control Seal has chosen the Czech company CAD Studio that has been able to successfully provide remote support in the long term.

New functions with no interruption of design process

The key requirements for upgrading of Autodesk products to the 2018 versions included: maximum speed and minimum interruption of design process. In

the preparatory phase a new production environment had been created and tested, and automated installation procedures were prepared – from workstations used by designers, to fixes and add-ons and to migration of custom setups of the software. The preparatory phase was performed remotely, without any disruption of everyday design operations.



The live upgrade was supposed to take only one day. During the single day experts from CAD Studio performed a complete upgrade of the Autodesk software, both on the server and on designer workstations and they handed over the system for operation. The remaining time was reserved for minor fine tuning of configuration in the Autodesk Vault application and software add-ons so that they better reflect current needs of the users. The last but not least phase included training of the users in the new system functions, dealing with current problems and discussions about potential future development of the CAD solution to ideally support successful development of the company. The company is currently desperately

looking for a product development engineer, a designer and a CNC operator.

“Such an extensive and fast deployment of modern technologies could not have been successful without an experienced contractor. Control Seal has been very happy to use services provided by CAD Studio, both in the implementation and subsequent technical support. Each upgrade also includes training to ensure a smooth transition to the new software version,” says



Tomáš Sedláček, head of the Control Seal design department. *"It is expedient for us to have a single contractor for everything we need. We also take advantage of mutual links between specialized Autodesk applications that make it possible for us to focus primarily on our creative work."*

More efficient 3D designing and data management without expensive errors

The new and improved functions of the 3D design and data management software applications provide completely new opportunities for the designers, as well as the chance to better respond to changing requirements of our demanding customers. Currently, twelve engineers are using the same number of licenses of *Autodesk Product Design & Manufacturing Collection 2018* that provide them with all necessary 2D and 3D design and presentation tools – from conceptual sketches to visualizations, including special functions for analyses and simulations, manufacturing and mechatronics. Purchase of additional licenses has been planned along with the growth of the company's creative team. The engineers are also getting

interested in the *Autodesk CFD* solution allowing computational simulation of fluid flow which is closely associated with valve designing.

Autodesk Vault Professional version supports the team cooperation. *"Vault makes it easier to view the history of parts and assemblies, allows to return in time, and many everyday processes do not need any more to be performed manually and are automated now. The system is able to monitor the user's work and provide alerts if all conditions required by the work procedure have not been met. Thus the system eliminates human errors. It also enables simple set up of user access rights and restrictions for individual files and users, as well as searching and filtering of files. It is also a practical tool for managers who can view the work of the individual engineers at any particular time,"* adds Tomáš Sedláček.

Successful supplies of huge valves are opening new markets

Control Seal has succeeded e.g. in manufacturing and supply of several giant valves Double Block and Bleed

Plug for various media in the oil processing industry. The unique customized order for Saudi Aramco, the world's biggest oil company and the key client of the Dutch company, consisted of valves of unusually big sizes – from 18" and 24" to 30" and 36" to the biggest valve in this category – 42". The prestigious client had very strict specifications and standards that had to be observed in all stages of implementation.

"Without the 3D CAD and PDM Autodesk solutions we would not have been able to meet such an order. The Autodesk tools make it easier for us not only to design the valves but also to cooperate in the team. They help us prevent critical errors in the design which can be extremely costly in case of projects of this size," says the designer Jasper Mensinga. *"The whole order is now just before completion and it serves as our important reference for valves sized over 30". Such valves are far from commonly available on the market. Moreover, our client in this project is the world's leading company and it has granted to us a certificate of a reliable supplier with the authorization to supply valves without any size limitations."*

Advantages of modern industry-specific technologies

Features appreciated by Control Seal engineers in Autodesk software applications include simplicity and speed of digital prototyping, easy optimization of designs and better efficiency of design processes in 3D. Along with the advanced product data

management, the Autodesk Product Design & Manufacturing Collection has helped the designers to shorten the prototyping phase of the product and eliminate errors which might have been otherwise caused by human factor.

"With Autodesk applications we have succeeded in reducing delivery times and we have avoided errors which would have been otherwise discovered only in the course of manufacturing. Since the valves manufactured by our company are very big and their prices exceed 500 thousand EUR per piece, even a tiny error in the design might cause major losses or delays sanctioned by the client," reminds Tomáš Sedláček. *"Another factor that played a role in our decision to deploy the latest Autodesk technology was our effort to remain competitive. Moreover, advanced 3D modeling and simulation have opened for us the way to other technologies spreading in the industry, including 3D printing."*

(All photographs were provided by the Control Seal company)

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Contractor: CAD Studio a.s. – www.cadstudio.cz

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Status: CAD/PDM in operation

