CASE STUDY

Velesstroy finds Octave Solutions indispensable for streamlining processes and production performance

Key facts:

Company: Velesstroy

Website: www.velesstroy.com/en/

Industry: O&G, Electrical Power, Industrial Engineering, Civil Engineering

Country: Russia

Octave products used: OnSite Spool Design *(Intergraph Spoolgen),* Forte Isometrics *(Intergraph Smart Isometrics)*

Identifying goals

Velesstroy is a major construction and engineering company in Russia and one of the leading businesses operating in the oil & gas, electrical power, industrial, and civil engineering industries. Velesstroy's facilities are located across Russia – from the Leningrad region in the west to Sakhalin Island in the east and from the Yamal Peninsula in the north to Krasnodar Region in the south.

In 2017, Velesstroy chose Octave division's (formerly known as Intergraph) OnSite Spool Design solution to optimize pipeline welding and installation processes. OnSite Spool Design is a leading specialized software designed for technical preparation of the process pipeline installation due to its ability to meet the requirements of a modern production organization in the construction industry.

Velesstroy's key goals were to improve the quality of documentation, eliminate errors, and reduce production costs when ordering equipment and materials. Additionally, they wished to decrease installation costs at the construction sites to ensure cost-efficiency.

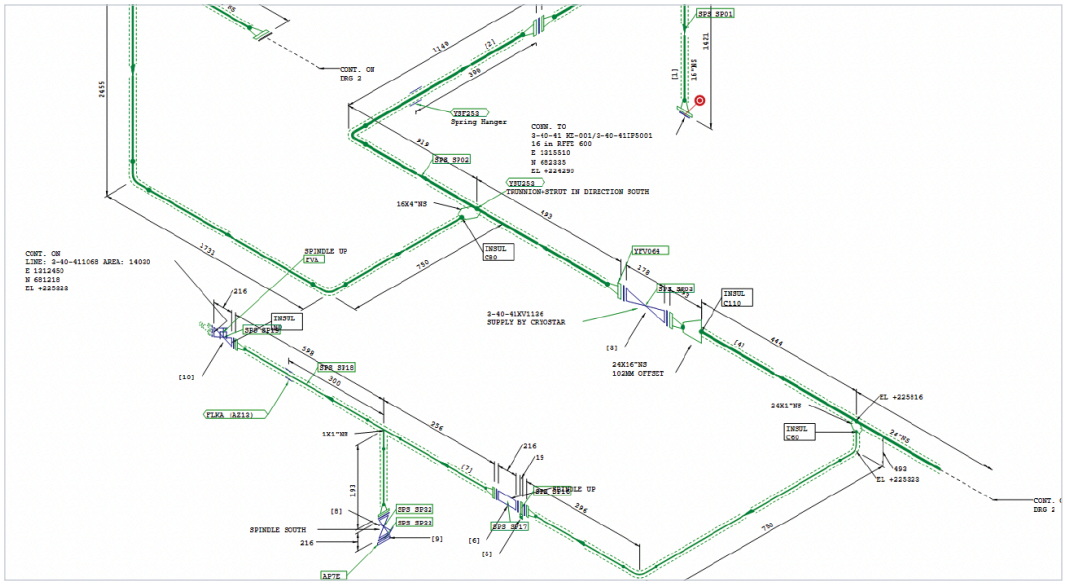
Overcoming challenges

Velesstroy had the following issues to overcome when searching for a new software solution for pipeline welding and installation management:

- **Data management:** obtaining and managing initial data in a centralized manner was not possible. The company used to receive the drawings and specifications separately, often in an uneditable form. Usually, a lot of rework was needed.
- **Change management:** tracking, monitoring, and controlling changes in design was challenging, both internally and when working with customers due to a lack of integrated, digitalized system.
- **Manual work and lack of automation:** Velesstroy had to work with separate drawings and data, and the drawings and technical information had to be combined manually. Specifications were manually generated, and the data was not connected between the information and the drawings.
- **Error-prone work processes:** existing errors in obtained installation documents and work plans were difficult to notice. Generating installation specification was prone to errors.
- **High cost of labor:** manual work and the need for continuous rework increased labor costs.

"The combination of Octave software is indispensable for pipeline welding and installation as it streamlines the construction process and enables companies to achieve higher production performance."

Ravil Shaykin
Director of Production and Technical Management Velesstroy



An example of a source file used before processing.

Realizing results

Velesstroy has used Octave solutions in the following engineering, procurement, and construction (EPC) projects, working together with world leaders in engineering:

- Construction of an LNG plant for Yamal LNG together with Technip S.A., France and Yamalo-Nenets Autonomous Okrug, Russia
- Construction of the Amursky Gas Processing Plant (GPP) for Gazprom Pererabotka Blagoveshchensk, together with NIPIGAZ, Russia and Linde AG, Germany
- Construction of an ammonia plant for EuroChem Northwer, together with Maire Tecnimont, Italy
- Construction of a delayed coking unit for the Omsk Refiner for GAZPROMNEFT-ONPZ, together with Maire Tecnimont, Italy
- Construction of a sulfur recovery unit for Omsk Refinery for GAZPROMNEFT-ONPZ, together with OMZ-Daelim
- A project to expand production capacity of Tengiz field for Tengizchevroi in Kazakhstan, together with KPJV Ltd. PJV, Kazakhstan, Australia, and the USA

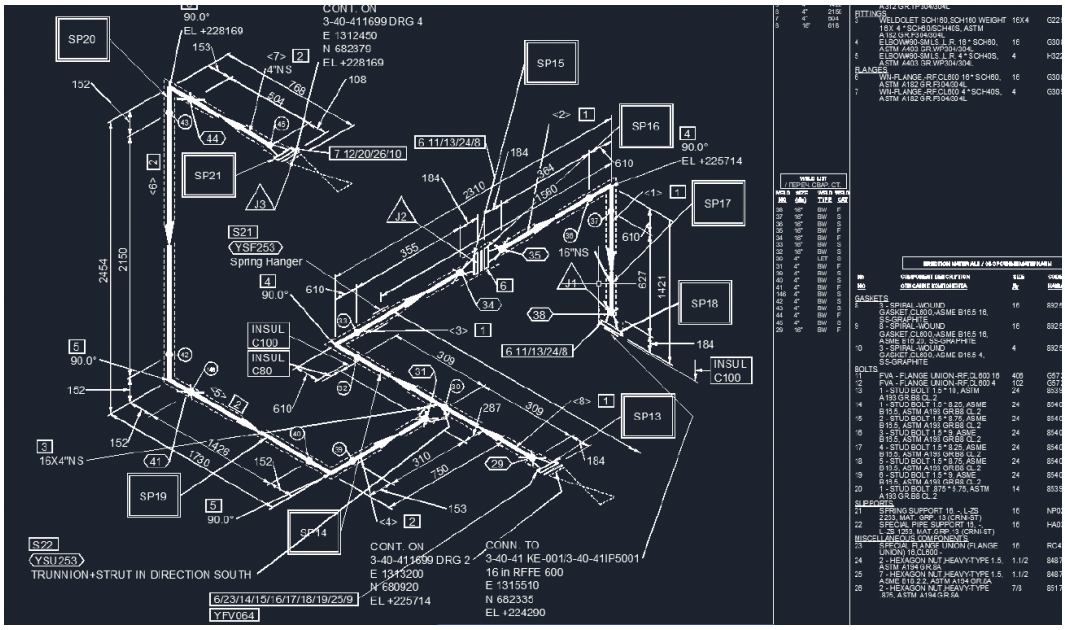
OnSite Spool Design has been helping Velesstroy to automate most of the work involved in creating spools and isometrics, creating visibility and greater efficiency. The work management has been overall improved as OnSite Spool Design is utilized to process all the upcoming inputs from contractors.

Velesstroy also noticed how an average user, with basically no 3D design skills, can quickly divide any pipeline into spools. The spools are automatically generated together with their respective isometrics, which provides an overview of the installation work packages.

When creating the spools and/or the installation work packages, Velesstroy utilizes OnSite Spool Design features to consider all the fabrication and/or construction criteria efficiently, including:

- Limitations of spools – extremely useful when planning storage, transportation, and the logistics for the installation on site. Having this information enables an accurate assembly, fully following the designed layout.
- The correct types of welded joints - workshop or field welds – including proper weld identification in any output (isometrics, spools, and respective reports).

Velesstroy also uses OnSite Spool Design to automatically generate various reports, such as welding and cutting lists and bills of materials. This saves a lot of time compared to creating the lists manually.



An example of a post-process file.

Also, Velesstroy uses Forte Isometrics to create or adjust pipelines and consequent outputs whenever required. These adjustments may happen for different reasons - changes based on project deviations when information is received via "classical red-marks", or when Velesstroy needs to replace elbows by pipe bends or even redraw the whole pipeline as the PCF/IDF files can be missing, or were not delivered by the engineering companies to begin with.

This combination of Forte Isometrics and OnSite Spool Design has proved to be helpful in Velesstroy's day-to-day work.

Moreover, Velesstroy also uses OnSite Spool Design's pre-processing capabilities to read data from external sources and automatically fill any required properties without any need for user intervention.

Key advantages witnessed by Velesstroy are:

- Reduction of time spent on the preparation of documents – it takes between 5-20 minutes to process a pipeline and a few seconds to generate isometrics and spools. By contrast, the same work in CAD software could take between 30 minutes to 1.5 hours.
- Guarantee of future system compatibility – Hexagon (Intergraph) owns the IDF/PCF standards.
- Both Hexagon tools significantly save resources (employee-hours).
- OnSite Spool Design notably reduces errors and, by consequence, costs, during planning and installation phases.
- The installation/assembly time is reduced due to the consistency of information exchanged between engineering and field.
- The tools save important time on any revision, either during the engineering design or onsite, as all outputs are automatically generated after any change/revision.
- The tools can work with data from virtually any industry or unit system.

Moving forward

Velesstroy will continue to use OnSite Spool Design and Forte Isometrics in their day-to-day project implementations and increase the number of users utilizing the solutions.

Ravil Shaykin, Director of Production and Technical Management at Velesstroy, says: “The combination of Octave software is indispensable for pipeline welding and installation as it streamlines the construction process and enables companies to achieve higher production performance.”

About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property and assets – for any scope, at any scale. For decades, we’ve partnered with customers to sharpen performance, elevate efficiency and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what’s possible from day one onward.

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