CASE STUDY

Sihy Oy Finland uses Octave OnSite Spool Design to improve productivity and drive growth

Key facts:

Company: Sihy Oy

Website:
www.sihy.fi

Description: Sihy Oy is a professional pipe manufacturer based in Naantali, Finland. The manufacturing of demanding industrial pipelines forms the core of its operations, which it supports by also performing equipment installations and maintenance work. Its customer base comprises major international industrial companies, particularly in the shipbuilding industry, as well as the process and petrochemical industries.

Employees: 30 full-time employees

Industry: Pipe fabrication

Country: Finland

Octave products used:
OnSite Spool Design
(Intergraph Spoolgen)

The challenge

The traditional work flow for translating a 3D computer model into pipe spools involves the piping design company creating piping isometric drawings that specify precise dimensions along with a comprehensive list of parts – lengths of pipe, flanges, tees and other piping components. Using this drawing, a company such as Sihy has everything it needs to make the design a physical reality. All the steps – cutting, bending, drilling and preparing the pipe for welding – are defined in the drawing. But extracting this information from a drawing rather than using the data directly is time consuming and leads to errors.

Sihy Oy, a major pipe fabricator in Finland, wanted to move away from paper-based manual workflow to a data-centric, automated one. It wanted to automate data transfer from the 3D model all the way through to its workshop machines and to feed data to the various in house systems for planning, tracking and controlling production.

Its customer, the shipyard supplying the drawings, offered to produce the data in electronic format, via the Hexagon PPM PCF format, which is used by Isogen®, the industry leading software for automated piping isometric drawing production and supported by many different piping design systems. Octave PPM has recently made the PCF format available for use by all software vendors in a bid to improve industry workflows. Research by Sihy

showed that OnSite Spool Design could process this electronic data automatically and generate the reports and other deliverables needed for its workshop and internal software systems.

Objective

Sihy wanted to introduce a data-centric workflow with both pipe cutting and bending production completed without viewing the drawing. All cutting and bending of the pipe should be performed with the numeric control instructions transferred to the machines automatically so the machine data is generated before the operator needs it.

The first viewing of the isometric drawing should be the pipefitter (who lays out the pipe and attaches fittings in preparation for welding).

Work planning should be sped up so that management can always stay ahead of the workshop. When the pipe shop is busy, no extra manpower is required in the work planning department due to the high level of automation.

"Digitalization has enabled us to expand by making us more productive."

Henri Hyvarinen
Sihy Oy CEO

Implementation

OnSite Spool Design has been used to automate the receipt and processing of PCF files, to generate data files for the workshop machines, and to populate workshop planning and tracking systems.

OnSite Spool Design allows the fabricators to make minor edits to the data and produce spool drawings. They are not able to edit the design but can add field welds or annotate drawings. Sihy mainly uses the batch processing capability of OnSite Spool Design, which allows each seat of OnSite Spool Design to be extremely productive. It holds Spoolgen to obtain the 3D geometry of the pipes and transfer to its in-house manufacturing execution system, Sihy PipeCloud. Sihy PipeCloud provides the work planner an overview of the current work to make efficient use of the machines by bundling similar pipes together. These bundles form work packs which are electronically transferred to shop floor and the warehouse for picking using Sihy PipeCloud.

OnSite Spool Design can produce an input file for the HGG plasma cutting machines. This is stored in the database to be ready when required. When the operator selects a pipe from the bundle, the instructions are pulled down to the computer driving the cutting machine automatically. The off-line preparation of the machine instructions means that no shop floor programming should be required.

A bending file is also produced by OnSite Spool Design, which is transformed by the bending machine software into the program to drive the bending machine. Again, this is supplied to the shop floor so the operator does not need to enter data manually.

Results

OnSite Spool Design has saved up to 50% of the work planning effort. Work planning errors are greatly reduced. Now we are able to scale production up and down easily," said Kari Hyvarinen, Sihy Production Manager.

Henri Hyvarinen, Sihy CEO, agreed: "Streamlining planning has freed up our management team to improve and grow the business."

"Thanks to the integration between OnSite Spool Design and the in-house software, we are able to automate the machine tool off line programming, so no shop floor programming is required for our cutting and bending machines," Kari Hyvarinen said.

In the future

Sihy is keen to extend automation further where possible:

- Adding manufacturability checks to the OnSite Spool Design workflow
- Automatically deciding which welds can be performed with their robot welding station and which welds will require manual welding
- Add extra allowance for flange 'collaring,' where a collar is created from the end of the pipe.

Sihy is pushing other designers to supply piping data in electronic PCF format rather than relying on the traditional paper, which will improve productivity and reduce errors.

Sihy also wants to extend mobile device use on the shop floor for viewing drawings and recording activities.

By continuously extending the automation of their data-centric workflow, they plan to maintain their competitive edge.

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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