



NUMIKON, ZAGREB, CROATIA

Key Facts

Company: Numikon d.o.o.

Website: www.numikon.com

Industry: Chemicals, oil & gas, power generation and marine

Country: Croatia

Products Used:

- CADWorx® Plant Professional
- CAESAR II®

Key Benefits:

- Laser scanning offered major time savings compared to manual surveys
- Laser scanning avoided the need to work at height or near hazardous equipment
- 3D models linked to equipment database and stress analysis software

NUMIKON IMPROVES BROWNFIELD OPERATIONAL SAFETY AND EFFICIENCY WITH CADWORX® PLANT PROFESSIONAL AND CAESAR II®

IDENTIFYING GOALS

Numikon specializes in the calculation and analysis of mechanical, power and process equipment and components, project engineering of process and power plants, pipe stress analysis, pressure vessel design, as well as laser scanning and laser surveying.

Numikon's customer, INA-Industrija nafte d.d., a leading oil exploration, production, refining and marketing company in Croatia, was looking for an efficient solution to create as-built information for their Sisak refinery.

INA d.d. hired a consortium of three companies (Numikon d.o.o., TUV-Croatia d.o.o., KONZALT ING d.o.o.) for the project.

OVERCOMING CHALLENGES

Extensive asset documentation for the refinery existed, but there was uncertainty about how accurate and complete it was. Furthermore, there was insufficient information about the specifications of the piping and exact pipe routings throughout the refinery. This lack of information was highly undesirable for safety, operational and regulatory reasons.

INA decided to have all of the piping in the refinery surveyed to create an accurate and up-to-date 3D model, complete with information about the piping material grades, wall thicknesses, topology, etc. of the pipes, and document all of this on new isometric drawings. This information could then be used to perform pipe stress analysis on critical pipelines.

The survey had to be undertaken while the refinery was operating. Some of the piping was difficult to access because of its location under ground or because it was





insulated. In addition, the work had to be carried out on a tight deadline.

To save time and improve safety, Numikon proposed using:

- Leica Total Station for laser surveying and measurement of the plant
- CADWorx® Plant Professional to create 3D model, isometrics, and data integration

Numikon first analyzed INA's drawing specifications and configured the Isogen component of CADWorx Plant Professional to ensure that all deliverables met the company's drawing standards and completely fulfilled the customer's requirements.

REALIZING RESULTS

Numikon surveyed its part of the Sisak refinery in 49 days. Using the laser surveyed data, they created all deliverables required by their client, including:

- 3D models
- Piping isometrics
- Details of piping components (valves, pressure regulators, flanges, supports, etc.)
- Tag and nameplate details
- Details of the equipment and connected piping
- Pipe stress analysis results (including required test pressure) and pipe data (wall thickness, material properties, etc.)

These deliverables enable the owner operator to operate the plant safely and efficiently and comply with all

regulatory requirements. The detailed as-built data also greatly facilitates maintenance and plant expansion and modification.

Mario Anić of Numikon explained, "When we first started using the Leica Total Station and Hexagon PPM software, the two companies trained our staff. It took them about 10 days to get up to speed and start on their first project. We were particularly impressed by the in-depth knowledge of the Hexagon PPM and Leica people. On the whole we estimate that our productivity has gone up by as much as 640 percent (six times)! This productivity gain means that we can minimize the on-site project time and maximize efficiency, offering our customers a very attractive package".

MOVING FORWARD

Anić continued: "Currently we are the only company in our region to offer this service based on laser surveying and the Hexagon PPM software in a full package together with non-destructive materials testing, measurement and hardness and thickness testing. That gives us a major advantage in a competitive market.

"Currently we have four employees who use this equipment and software, and we are planning to recruit two more in the near future. We are using CADWorx solutions for oil refineries, the pharmaceutical industry, gas plants, and other sectors. At present we are working on similar technical documentation packages for another four plants, again based on laser surveying and CADWorx 3D models."

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.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 20,000 employees in 50 countries and net sales of approximately 3.8bn EUR. Learn more at hexagon.com and follow us @HexagonAB.