



SAIPEM S.P.A., ITALY

Key Facts

Company: Saipem S.p.A.

Website: www.saipem.it

Country: Italy

Industry: Oil and Gas

Products Used:

PDS®

Intergraph Spoolgen®

Key Benefits:

- Amount of manual data entry and rework dramatically reduced
- Time to produce data for material management and welding management activities reduced by 80 percent
- Merged graphical and numerical data give fabrication teams a clear picture of what they are going to build
- Quick and easy implementation

SAIPEM USES INTERGRAPH SPOOLGEN® TO SEE THE BIG PICTURE IN FABRICATION AND CONSTRUCTION

EPC Chooses Hexagon PPM to Automate Piping Material Management

The Saipem Group is a global contractor with three global business units: onshore, offshore, and drilling. It is a leader in providing EPIC/EPC services to the oil industry, for both onshore and offshore operations, with a focus on the most technologically challenging projects. Its drilling services operate in many of the oil and gas industry's hotspots, frequently in synergy with Saipem onshore and offshore activities. In 2008, the company generated US\$14 billion in revenue and \$1.25 billion net profit.

IDENTIFYING GOALS

The Saipem Group is one of the largest international turnkey contractors in the oil and gas industry. Throughout the past 14 years, Saipem engineering centers have used PDS® to generate isometrics and a variety of proprietary packages in the home office and on the construction site. PDS is a comprehensive, intelligent computer-aided design/engineering (CAD/CAE) application for plant design, construction, and operations.

"Approximately two years ago, we identified the need for software that could automate the complete piping material management process for our construction team," said Ugo Salvi, vice president of information and communication technology at Saipem. "The system would have to cover engineering, fabrication yards, and piping assembly."

OVERCOMING CHALLENGES

- Take advantage of PDS data to generate shop drawings
- Drive the activities of planning, material tracking, and construction management with detail work
- Provide weld data to two groups: in-house software for production analysis and quality department for non-destructive testing (NDT) evaluation
- Conduct a daily cross-check between what was made available from engineering through the approved for construction (AFC) document issuing and the working progress at the site, with a special focus on isometric revisions



REALIZING RESULTS

“We had a variety of objectives to meet by adopting a new solution. The main project goal was to produce shop drawings more easily,” said Ulisse Beretta, business application manager at Saipem. “The natural solution was to adopt a package that could take advantage of the data that PDS was already producing to integrate the fabrication activity. That is why we chose Spoolgen.”

Spoolgen acts as the bridge between engineering design, fabrication and construction. The software takes isometrics from any design system that supports Isogen® and provides a workflow environment for fabrication and construction information to be added by the appropriate people at the appropriate time for the production of manufacturing drawings and associated reports.

Spoolgen is a system designed specifically for use by companies involved in piping fabrication and construction, and has workflow management built in as standard, ensuring maximum productivity with minimal effort. Using simple editing functionality, users add fabrication and construction information to design isometrics (electronic IDF or PCF data files), before automatically generating all necessary fabrication spool drawings and reports. Spoolgen then automatically produces the required number of spool isometrics for pipe spool manufacture in the fabrication workshop, and erection isometrics, showing pipe spool assembly details, for pipeline construction at the plant.

“The main reasons we chose Spoolgen were that Hexagon PPM’s products were already in use and well-known by our workforce. Globally, there are many skilled personnel available with good construction competencies who can be recruited or subcontracted,” said Beretta. “Plus, we appreciate Hexagon PPM’s world presence and in-depth understanding of engineering and fabrication activities.”

Spoolgen is used by the technical department on-site to produce shop drawings and to generate isometrics with relevant weld information, enabling an overall view for test-pack activities. Spoolgen is tightly linked with proprietary systems for both input and output.

Because Spoolgen has been the only data supplier for welding control and material management, the amount of manual data entry was dramatically reduced. Beretta noted, “For each isometric, the time to produce data for material management and welding management activities has been reduced by 80 percent.”

Saipem decided to implement a number of interfaces to ensure data accuracy. The company uses PDS to generate lists of material to be used for purchasing, and IDF files to feed Spoolgen.

Saipem heavily relied on outgoing data, such as welding maps and spool-based lists of material, during the entire project. Plus, by having all data centralized, the company was able to completely control the release of new isometrics and revised isometrics. As a result, the amount of rework dramatically decreased.

Hexagon PPM personnel worked with the Saipem home office to develop interfaces between PDS, Spoolgen, and in-house developed legacy software. Spoolgen was fed with external data. There were approximately 5,000 line list records and 6,000 component index records.

The project involved 11,500 isometrics leading to 41,500 fabrication spools. Saipem produced 21,000 “assembly spools” (consisting of small bore, valves, etc.) as data to enable complete materials management activities. The system produced all the needed information, such as weld type, diameter, thickness, and piping class. Even with more than 200,000 welds, no data entry was required, which saved time.

MOVING FORWARD

“We have discovered that for a construction company, using a spooling system to obtain shop drawings is a necessity,” said Beretta.

Saipem is already developing and expanding new functionalities to be applied in an upcoming project. “We want to go further in our implementation to take advantage of all of the information Spoolgen provides,” said Salvi.

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](https://www.hexagon.com) and follow us @HexagonAB.