



INTERGRAPH SMART® WELD QUALITY MANAGEMENT SYSTEM INTEGRATED QUALITY CONTROL AND TRACKING PLUS WELDER DATABASE MANAGEMENT

Intergraph Smart® Weld Quality Management System (WQMS) is a comprehensive application that integrates with engineering, fabrication, and construction processes for welding quality control and material traceability. It includes quality monitoring of welds and non-destructive testing (NDT) inspections for both piping and structural fabrication activities, including standard reporting capabilities, documentation, and automated handover (final documentation) through its inherent EDMS features.

BENEFITS

Industry Requirements and Practices

To claim completion for a fabrication or construction task, quality acceptance is a mandatory step according to industry practices. Quality Control (QC) functions are a fundamental part of Smart WQMS. All required QC-related items are addressed, including welds, repairs, and re-weld details, as well as fit-up, visual, NDT, and Post Weld Heat Treatment (PWHT) records. All of the data will be composed and incorporated so that the owner or main contractor can have precise data at all stages of the project.

As part of Intergraph's integrated approach to engineering, procurement, fabrication, and construction, Smart WQMS works with piping and structural data from Intergraph Smart 3D or other CAD systems, covering all operational components

in the fabrication process. It supports both minor projects as well as the complex, mega-sized project requirements. In addition, the solution complies with industry requirements.

Integrated Quality Control and Tracking

Smart WQMS enables the automated production of quality documentation for the testing and certification of structural parts and pipe spool fabrication and erection at the construction site. By integrating the production of documentation with corresponding engineering drawings and data, you can take advantage of a single common platform to:

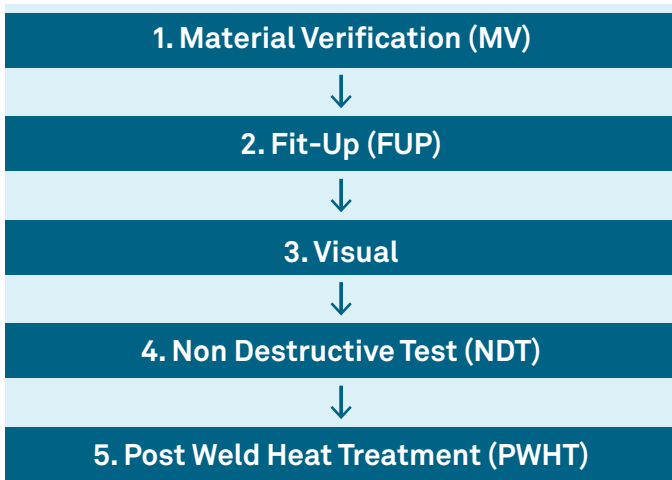
- Streamline fabrication workflows
- Eliminate manual entry
- Perform change management more efficiently

The pre-defined inspection sequences and workflow-driven functionality offered by Smart WQMS ensure that all steps of quality checks and verifications are recorded. Comprehensive weld-map data provides complete traceability for welds. This data can be created automatically from the integration of engineering systems, without the need for manual input.

Smart WQMS covers the entire cycle of inspection activities, including Notice of Inspection (NOI). Full status and progress information and material traceability are maintained for both piping and structural materials by detailing the location and status within the fabrication process.



This enables the system to record and present the progress of welding and NDT inspection at any point in time. It also ensures that full material reconciliation can be performed as soon as the project is completed. This information is important for the overview of acceptance of onsite work and further supports the claiming and invoicing process.



Smart WQMS processes.

Welder Database Management

Generally, it is important in all projects to have complete traceability of welds:

- Who is the welder?
- What qualifications does the welder hold?
- What is the welder’s experience and track record?

Consequently, Smart WQMS includes welder maintenance records to keep qualifications up-to-date and maintain full welder histories. It contains a welder database which manages welder registrations, qualifications, tested processes, certificates, and passes. Data can be searched by welder, process, joint type, material, etc. You can easily analyze welder performance by accessing weld historical records which contain welder identification. This helps to reduce overhead and enhance efficiency in managing welder quality.

Built-in Industry Expertise

Smart WQMS was developed by a group of industry experts, following a set of common oil and gas industry practices and

requirements. The solution enables full traceability from design to acceptance and delivers all of the major benefits associated with a comprehensive and proven system, including:

- Engineering information – Weld number, weld size, material, joint configuration, etc
- Production information – Welding procedure specification (WPS), welder ID, date welded, date repaired, etc
- Quality control information – Inspection results, NDT reports, and PWHT data

Such information helps the fabricator to monitor, measure, and control critical processes during fabrication.

Rapid Return on Investment

Smart WQMS makes it possible to accelerate the execution of EPC projects at lower cost without compromising quality or accuracy. This leads to secure creation of value and ensures a fast return on investment. Competitive advantages can be rapidly gained because the system delivers numerous benefits, including:

- Reduced cost due to major improvements in efficiency and productivity
- Minimized manual effort, including elimination of duplicate data input into multiple systems
- Centralization of all information into a single platform

Item No.	Weld No.	Weld Status	NDI	MAV	FUP	VIS	NDT
			Status	Report	Status	Status	Status
1	1	Done	0001	Start	0001		
2	2	Done	0002	Start	0001		
3	3	Done	0002	Start	0001		
4	4	Done	0002	Start			
5	5		0002	Start			
6	6		0002	Start			
7	7						
8	8						
9	9						

Sample progress report.

ABOUT HEXAGON PPM

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