



PRO.FILE
BY PROCAD



Document Control in the Construction of Petrochemical Plants

PROMAN embraces digitalization leveraging DMS^{tec}

- Compliant storage of project documents
- Reliable process flows through document control automation
- Electronic transmittals as packing slips for documents

Anyone who has ever set foot in a petrochemical plant with its countless pipes, boilers, and distribution stations will walk away with a better sense of what complexity really is. It all starts with the meticulous planning that is involved in the construction of these types of plants. This process alone creates thousands of project documents that need to be sent back and forth between dozens of stakeholders, commented, approved, and properly stored, prompting the need for automated document control just like PROMAN GmbH has been orchestrating with the PRO.FILE DMS^{tec} software.

Founded in 1984 by a small group of engineers, PROMAN has grown into a world leading engineering, procurement and construction

group operating in the gas processing and petrochemical sectors. Headquartered in Düsseldorf, Germany, the company has some 80 employees and holds shares in the world's largest methanol producer. Its engineering, procurement, and construction services (EPC) division plans and executes complex projects in thirteen countries across four continents.

The ability to build and deliver a turnkey plant on time and in budget is intrinsically linked to the company's project management performance. And this is exactly where PROMAN was able to introduce the desired level of automation and digitalization by implementing PRO.FILE in March of 2016.



“We are a technology-driven company and for us, DMS^{tec} is the perfect approach to embrace the digitalization of document-heavy business processes.

Holger Stump,
Project Engineer
at PROMAN GmbH

More so than any other vendor, PROCAD was able to meet all of our requirements.”

Holger Stump, Project Engineer at PROMAN GmbH: “Our largest projects, such as the recent construction of a petrochemical plant complex for the production of fertilizers and melamine in Trinidad, create no less than 30,000 internal and external documents. Until recently, we used a proprietary Oracle database to keep abreast of this flood of information. For every single document, the master data is provided by the supplier using a master document list (MDL), which is transmitted in native Excel format. And we used Outlook to schedule reviews and submission deadlines.” So, while the company did have document control mechanisms in place, they were by no means centralized. The process required a great deal of coordination, effort, and time and revision control left much to be desired. Overall, employees spent too much of their resources communicating manually and the underlying workflows were prone to error.

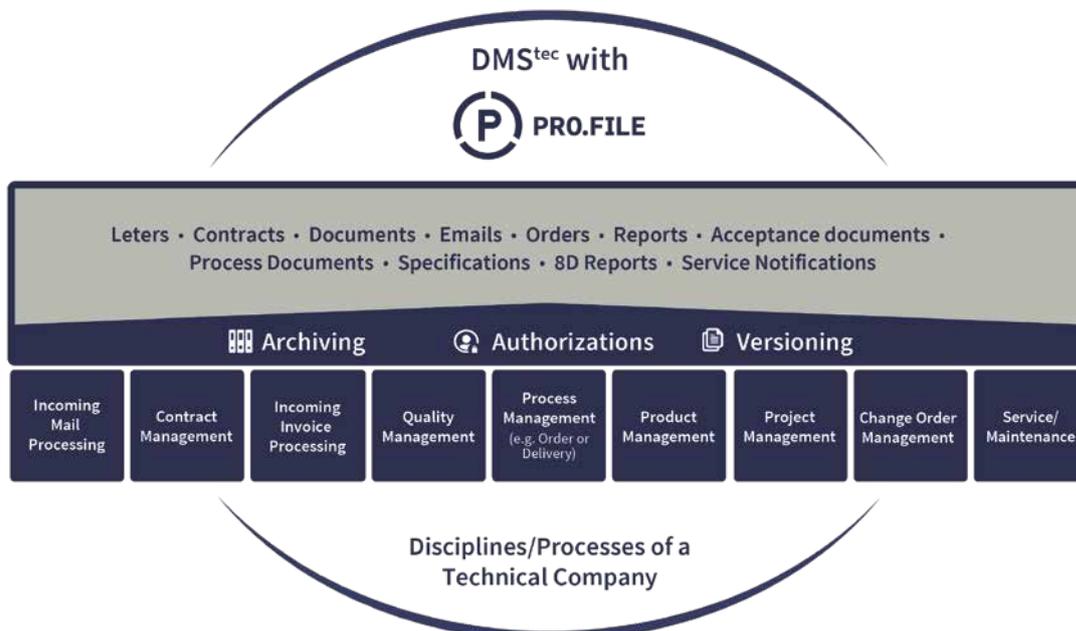
Holger Stump: “DMS^{tec} gives us the ability to store comprehensive project documents in a way that complies with audit standards and to model the digital document review cycle we need.” To get to this, PROMAN leveraged the DMS^{tec} system to implement three sub-disciplines. They started out by setting up project templates specific to their plant construction business. The next steps involved documenting the document flows to meet the strict compliance guidelines that govern the plant construction industry: Which documents were sent to whom and at which revision level? – a question that everyone involved in a project needs to be able to answer at the click of a button. Finally, the team used the DMS^{tec} system to attach documents to tasks in order to trigger and control their processing.

Digitalizing existing processes

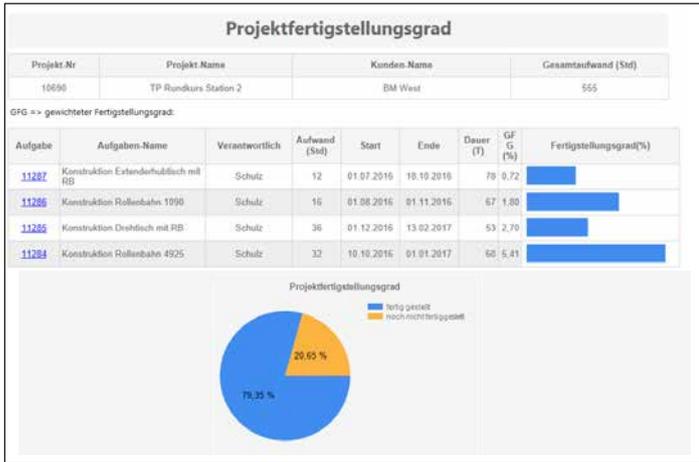
Consequently, PROMAN began its search for a software solution that would not only bring structure into its document management, but that would also keep track of who needs to review which documents, where a document is at and in what status, and whether the reviewer is working on the correct version. Over the course of one year, the company kept a close eye on the DMS software market, assembled a short list of twelve DMS systems that was then whittled down to two, and eventually chose DMS^{tec} with PRO.FILE by PROCAD.

Project templates: empty vessels that are gradually filled out

In DMS^{tec}, project templates represent project structures that, due to their frequent reuse, can be freely defined and reused for later projects. They can include sub-projects, tasks, folders, document masters and much more. Templates are nothing new in CAD and PDM/PLM environments; DMS^{tec} with PRO.FILE is now leveraging this principle for recurring document management processes, procedures, and products (DMS^{tec} system). As the project starts, a



DMS^{tec} with PRO.FILE – designed for the needs of technical companies



Task management with DMS^{tec} – web report

document master shows which documents are to be created (internally and externally) over the course of the construction phase – just like an empty vessel that is slowly but surely filled with content. As the project progresses, the document master makes it easy to engage in a continuous gap analysis between the documents that are yet to be created and those that are already available in status X, providing clear visibility into the project’s current progress.

Before the start of the project, each supplier must fill out a template (MDL) specifying when they will deliver what document. Any information that applies to every document – project goals, purchase number, order number, document number – is automatically read out and transferred from the master document list to the DMS^{tec} as metadata. This list serves to facilitate communication between suppliers and PROMAN and is the company’s main means of control in its plant construction projects.

Suppliers submit these master document lists to PROMAN, where they are then read into the DMS^{tec} system. During this process, PRO.FILE creates document masters (metadata) below the project, generating master data for any future documents relevant to the project.

“Each document we receive or create has to undergo a predefined document review cycle,” explains Holger Stump. “The fact that we model this cycle using DMS^{tec} gives us far more visibility into

Why did they choose PRO.FILE?

For PROMAN GmbH, DMS^{tec} with PRO.FILE is the perfect tool for the digitalization of its business processes. More so than any other vendor, PROCAD was able to meet all of the customer’s requirements with its DMS^{tec} and PDM/PLM software. DMS^{tec} and PRO.FILE gives PROMAN the ability to store comprehensive project documents in a way that complies with audit standards and to model a pre-defined digital document review cycle.

the process and reliable process flows.” Suppliers are obligated to deliver their documents within a contractually stipulated period of usually ten days. The documents are submitted through PROOM, PROCAD’s hub for the controlled exchange of documents, and then stored in PRO.FILE.

The next two days are allocated for internal and external (engineering contractors, customers, construction site) reviews. Once these are concluded, the documents must be sent back with comments. The different reviewers for each document are specified in the master document list. The document is also sent back to the supplier, who is given a three-day window to make any necessary changes and re-submit it, thereby completing the cycle.

Transmittals: packing slips for documents

During the review cycle, PROMAN relies on electronic transmittals generated by PRO.FILE – essentially a kind of packing slip to which documents can be attached – to monitor and document incoming and outgoing documents. When documents need to be sent to external parties, such a web report is created as a PDF document and uploaded to PROOM. When PROMAN receives a document, they receive a transmittal from the supplier that is then stored in PRO.FILE.

The challenge

The goal was to replace the existing database solution with an intuitive and customizable document management system (DMS software) that would store vast amounts of projects documents with complete audit trails for compliance and support the implementation of a document review cycle.

The solution

DMS^{tec} with PRO.FILE as a Product Data Backbone can correlate any document it holds with predefined workflows. The task files in PRO.CEED are used to link documents to tasks, which are in turn assigned to specific individuals, and monitor their completion.

The outcome

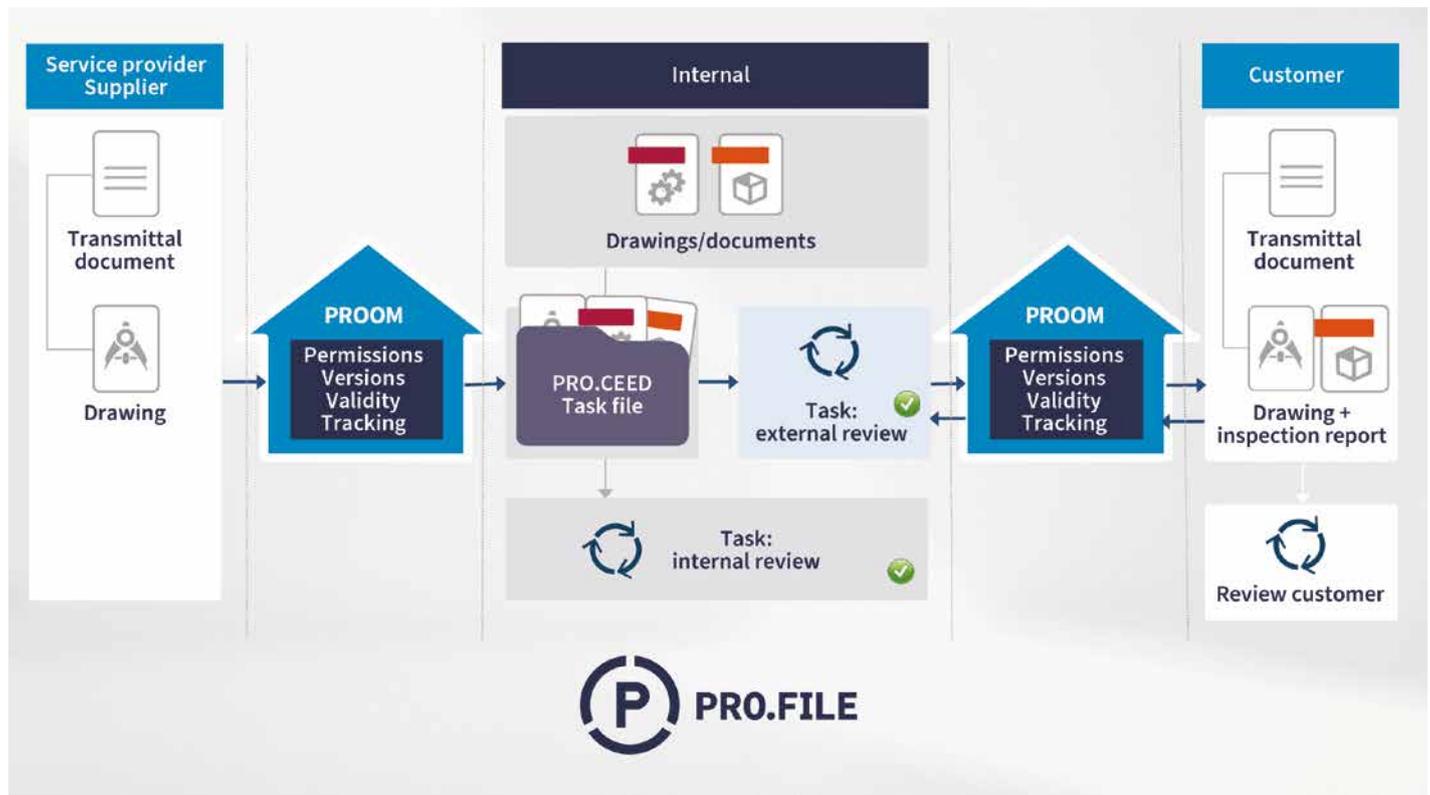
PROMAN was able to completely digitalize the document workflows in its engineering, procurement and construction services business, eliminating communication gaps, creating a seamless user experience, and giving project teams a far better ability to relay relevant information to stakeholders both inside and outside the company.

This gives everyone working on a project complete transparency as to when they received and sent which documents and in what status. The result: short response times, the ability to provide relevant information at any time, and a seamless documentation experience across company lines.

Document control with task files

Tasks are another object in the DMS^{tec} system and the most crucial one when it comes to document control. They are assigned to users and come with dedicated target performance/current performance

information and start/end dates. By linking them to documents and part masters, these tasks become a task file that collects every single piece of information about a task and assigns it to a person. DMS^{tec} with PRO.FILE automatically creates these tasks by automatically entering the relevant reviewers into the respective document master as it reads out the master document list. Everyone contributing to the review cycle is assigned such a task, even external parties with no DMS^{tec} system in place. In these cases, a PROMAN employee is tasked with making the documents available to the external partner. „With PRO.FILE, we can use any number of task files we need,“ points out Holger Stump. „If a document needs to be reviewed by ten people, we will create ten tasks for it.“ To do so,



Document control with DMS^{tec} and transmittals

PROMAN has also implemented the PRO.FILE add-on PRO.CEED, which adds IT-enabled project and process management to the PLM process level. Today, the company relies on these electronic task files to automate the flow of its documents. On top of that, PRO.FILE also delivers web reports and customizable dashboards that provide instant visibility of tasks and documents – and with them of the current progress of the project itself. This gives PROMAN end-to-end transparency, which in turn has significantly increased the quality of the company’s document/drawing review process and reduced the time and resources spent on complaints and troubleshooting. This gives PROMAN a faster path to acceptance and project settlement.

What’s next

Looking ahead, PROMAN plans to take its PRO.FILE installation beyond project management alone and to turn it into an enterprise-wide document management system. To this end, the company intends to automate even more functions such as the application of electronic signatures. On top of that, PROMAN is also strongly considering using PRO.FILE to build digital information twins.