

Case Study

Quality certificates at Linde



In the following user report you can read

- + about the challenges of plant component manufacturing at Linde Engineering in the testing, administration and compilation of quality certificates von Qualitätszeugnissen hatte.
- + how the solution from SEAL Systems has established a document management system with barcode recognition.
- + how old documents stored under ArchiveLink were easily migrated to DMS.
- + about the advantages the project brought to Linde Engineering.



THE LINDE GROUP

The starting position

As a plant manufacturer and manufacturer of pressure vessels, Linde Engineering is obliged to comply with various regulations (e.g. Pressure Equipment Directive - PED, AD 2000, ASME). These regulations prescribe the material certificates in the form of test certificates for pressure-bearing components. Certificate requirements are communicated to the supplier when an order is placed. The certificates must be provided by the supplier in the form of PDF files or paper, at the time of receiving the goods at the latest. Depending on the size of the system, this could be up to several hundred quality certificates. From incoming goods, to production, to delivery, the quality certificates in the SAP system are managed by Linde Engineering. The SAP standard only offers the ArchiveLink interface in the certificate record for file storage, which has certain disadvantages. There is

neither version control, nor the ability to stamp the certificate files on release, or to link them to respective SAP material batches. Even automated compilation of all quality certificates required for a plant is not possible. The management of certificates, including review and approval, as well as their compilation for delivery, is therefore a time-consuming and manual process that combines many resources and is prone to error.

The aim of the project

- + Establishment of a document management system for quality certificates, including version management, release status, object linking and classification
- + Development of object links to the certificate master record and material batch



**At Linde Engineering
approximately 4,500
employees work in more than
20 locations worldwide.**

- + If required, migration of old files into the new system (e.g. for current projects) through an extended search transaction (XSA)
- + Automation of the compilation of all quality certificates required for a plant
- + Use of existing DMS processes such as conversion, stamping, structure resolution and output management

The solution

In order to make the administration of quality certificates more comfortable through object links, features, status networks, several original files and WS applications, at Linde Engineering, we have simply changed over certificate management to SAP Document Management. The dialog for creating and displaying files in the certificate master record was carried out via enhancements without having to make modifications. The task of SEAL Systems therefore, was to decouple the files in the certificate master record from the ArchiveLink, and instead have them managed by DVS. This made it possible to create document info records, to store more information and object links with the certificate documents. At the same time, SEAL Systems enabled the creation of object links for the document to the certificate master record, and to the material batch, so that certificates as well as other files can now be provided with characteristics, and automatically selected by the object links.

A loading procedure with barcode recognition has also been set up. So that the document info record does not have to be filled in manually or documents require to be assigned manually, barcodes are now applied to documents, with automatic assignment to the certificate master record and the material batch. The SEAL Systems Digital Process Factory automatically reads these barcodes and documents.

It was also important to migrate old certificates, which were still stored under ArchiveLink, into DVS. This is where SEAL Systems' XSA (Extended Search and Action) program was used. It searches for relevant certificates, creates corresponding document info records, and migrates the files. The certificate master record screen now shows which certificates are still managed by ArchiveLink and which are already managed by DVS.

The following functions were specifically implemented by SEAL Systems:

- + Modification of the „Save original“ function by editing in QC51/QC52 - instead of ArchiveLink attachment, a file selection dialog is now displayed and a document info record is created in the background
- + Change of the „Show original“ function in QC53 - instead of ArchiveLink attachment, it now jumps to the document info record display (CV03N)
- + Object Link Document Info Record for Certificate Master
- + Object Link Document Info Record for Material charge

- + Automatic transfer of certificate record and batch data to characteristics of the document info record
- + Conversion with PDF stamping for certificate master record release (SAP ConvServ and DPF4Convert)
- + Loading process for PDF files - Quality certificates - with naming conventions (DPF based)
- + Loading process with barcode recognition for multi-page PDF files (for scanned document stacks in goods receipt - goods receipt slips with recorded material identification)
- + Migration tool for migrating ArchiveLink attachments to DMS documents with search function for certain legacy datasets (AL-XSA)
- + Structure resolution for collecting all required quality certificates via the „Installation“ object (/SEAL/IB). The installation of this so-called „As Built Configuration“ takes place with reference to production data such as production order or serialized assembly.

Outlook

The goal of automatically compiling all quality certificates for the delivery of systems to customers has not yet been realized for all product areas in the previous project step. To do this, SAP material masters are to be converted to batch or serial number requirements for each product. In a follow-up project, the potential to further automate plant documentation production will be created. Based on the as-built structure, quality-relevant and production-accompanying documents (test reports, image documentation) should be determined for the final documentation. These are then laid out using appropriate preparation processes, to subsequently generate structured PDF files for plant documentation. The same applies to technical documents, such as drawings determined by an integrated product structure resolution..

About Linde AG

Headquartered in Munich, Linde Gas and Linde Engineering is a listed, globally active German technology group. Linde's core business is gas and process plants. The head office of the globally operating Linde Engineering business is Pullach near Munich. With more than 1,500 procedural patents and 3,500 systems built, Linde Engineering is a world leader. At Linde Engineering, around 4,500 employees work at more than twenty locations worldwide.

Customer opinion

It was only with the conversion of certificate administration into DVS and the link to the SAP material batch, that an important milestone in the automation of certificate management processes was achieved. This project once again demonstrates SEAL Systems' excellent DVS competence and professional project management.

Thomas Hofmann, PLM Inhouse Consultant - Project Manager



Contact



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