

Case Study

2D and 3D conversion for the Medical Technology Manufacturer Bauerfeind

A joint project of SEAL Systems and CENIT

- + SEAL Systems helped the German medical technology manufacturer Bauerfeind to digitally release CAD documents.
- + What's more, the production team at Bauerfeind can now easily convert CAD documents into long-term and 3D neutral formats.
- + The groundwork for this solution was a PLM project utilizing SAP PLM, which had been carried earlier out by Cenit, a partner of SEAL Systems.

The Bauerfeind Project

Bauerfeind has been producing bandages, orthotics, medical compression stockings and orthopedic inserts for more than 80 years. Production is carried out exclusively at its factory in Germany, and partly by hand, with 2,000 employees, 20 subsidiaries and numerous distributors representing the company around the world. Its head office is in Zeulenroda-Triebes (Thuringia); production additionally takes place in Remscheid (North Rhine-Westphalia).

CENIT, an important partner of SEAL Systems AG, had already worked with Bauerfeind on a PLM project based on SAP PLM and delivered a direct integration to CATIA. SEAL Systems was now given the task of creating the digital release of CAD documents and easy conversion into 2-D long-term and 3-D neutral formats.



The Requirements

In order to be able to reliably send production orders or released CAD drawings, Bauerfeind needed a high-performance output management to take on the preparation and distribution of engineering drawings. Specifically, the company required that release processes, which until now had to be done manually, be carried out digitally in the future.

This meant that the solution had to be designed to access the CAD drawings directly in SAP, document changes to documents automatically and then with the document's release convert it simply and easily into a long-term format (e.g. TIFF, PDF or Bitmap) or into a 3-D neutral format (3-D PDF).

The project had to be carried out in two stages: First the set-up of a functioning output management system, then the integration of the CAD conversion.



The Challenges

Bauerfeind instituted the creation of 3D neutral files along with SEAL Systems' proven 2D neutral files. New territory for SEAL Systems was the integration of an additional server (from the company Prostep) for the automated creation of 3D PDFs. One element of the project was the choice of 3D neutral format. Here, early considerations on 3D PDF were laid down.

The Process – Phase 1: Output Management

In an early project phase in 2012, Bauerfeind first transferred a large amount of old data in SAP DVS (document management in SAP) and connected to it over the output management system. Documents (Word, Excel, Visio) created during running operations could now be converted to the standard format PDF/A over a conversion server, and be managed in SAP DVS in accordance with the stricter requirements in the medical products industry (regulated environment).

The Process – Phase 2: CAD Conversion

In the project's second phase it now tackled the conversion of the engineering documents into long-term, universal formats, along with the certification documents. Bauerfeind applied CATIA at

its workstations as its main CAD system. With the CAD integration from CENIT, the models, neutral formats and meta data were stored in SAP

The Result

Project Parameter

PDF Conversions:

- MS Office (Word, Excel, Visio) to PDF
- CATIA drawings to PDF
- PDF to PDF/A-2b

3D PDF Conversions:

- CATIA 3D data (parts and assemblies) to 3D PDF

More than 10,000 conversions per year and up to **100 conversions per workday**

One server for Office conversions, one server for CATIA applications

Right at the early stages of document creation, i.e. the SAP status "start work", view copies of the CAD drawings are generated as PDFs through the direct integration of CENIT. These are then available to the company right from the start. A PDF/A is created only by the actual release over SEAL Systems' conversion server. The existing PDF is then deleted in SAP DVS. This way it is ensured that only authorized departments can view the documents during the development process, particularly in the early stages. The 3D PDF by CATIA Parts and Products is also created with Prostep's 3D PDF generator in the initial phase before the actual release.

In Summary

Our solution has been producing results with Office since January 2014 and with CATIA since July 2014. Since then more than 4,000 CAD models and 20,000 Office files have been successfully converted without failures or malfunctions. Now all new Bauerfeind projects are converted over this new solution. The users' work, from design to work preparation, has improved considerably with it.



„Since we've been using SEAL Systems' conversion system, our users' work, from the design to the work preparation, has improved considerably.“

Christian Andersch
Team leader Construction & Simulation
at Bauerfeind



Dr. Uwe Wächter is the expert for all of your questions about conversion and publishing

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