Miele & Cie., the leader in premium appliances, designs quality customer documentation with Arbortext®

A PROCESS 'CLEAN-UP' YIELDS NEAT RESULTS: LEVERAGING 3D DESIGN DATA TO MEET QUALITY ILLUSTRATION STANDARDS

Miele & Cie. KG, Gütersloh, Germany

With more than 16,000 employees worldwide, Miele & Cie. is the only manufacturer of household appliances that has been able to establish itself in the premium segment across five continents. According to the company's motto: "continuous improvement", every employee in the company's 11 locations in Germany, Austria, Czech Republic and China is committed to designing and manufacturing Miele's comprehensive range of washing machines, dishwashers, and other household appliances according to Miele's exacting standards for quality and stylish design.

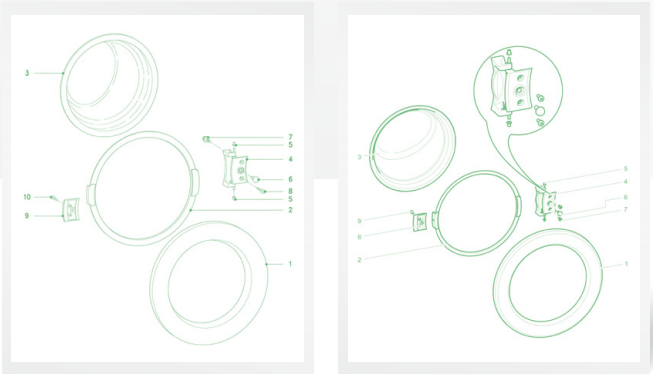

Figure 1. Miele's previous manual illustration process (above left) required eight hours of illustration work. The same illustration (above right), created using Arbortext IsoDraw® from a STEP file output from CATIA, required just 30 minutes of work.

The challenge: Match documentation quvality with product quality

To adhere to these demanding standards, the company believes it is of critical importance that, for products exported worldwide, the quality of the product documentation match the high-quality standards of the products, primarily because top-quality documentation is an enhancement to the user experience, and secondly because the performance and service levels of the service organization realize tremendous benefit from effective, accurate information. In other words, the documentation must be easy to understand and easy to follow, a requirement which is greatly assisted by a consistent use of technical illustrations. The effective use of illustrations also reduces the costs of translation of complex text for user manuals that have to be translated into many languages.

The technical illustrations for Miele's products have, historically, been created in the different manufacturing locations for their respective product lines, using software that is no longer supported by the company that created it. In addition, the processes for creating the technical illustrations, deployed in the different manufacturing locations, were unique, so that the finished results were very inconsistent. Finally, the legacy illustration software did not offer the capability to use original 3D assemblies, so the majority of illustrations had to be created from scratch – often starting from production parts that had to be manually measured and drawn – a very expensive, manually intensive process.

"We made several previous attempts to leverage 3D data from product development," says Nadine Sauer, successful standardization project lead. "But our documentation team had no previous experience with 3D CAD systems, and therefore the project was not pursued with much commitment."

However, the growing maturity and popularity of technologies for the reuse of 3D CAD data for technical illustrations finally convinced the Miele management team to initiate a process-optimization project to reap several benefits from its implementation, such as:

- Standardizing the technical publication environment, and creating a centralized repository, so the regional teams could exchange results and reuse standardized pieces of illustration from a catalog.
- Leveraging CAD data directly from the engineering department, a significant time- and resource-saving benefit that revealed itself during the progress of the project. Of particular benefit was that Arbortext IsoDraw automatically uses common elements, such as thick and thin lines (see Figure 1).
- Publishing of technical documentation that is in synch with new product introductions, to ensure that the documentation is available from the first day the new product is delivered.

The solution: Arbortext IsoDraw CADprocess from PTC

"After comprehensive market research, we selected Arbortext IsoDraw CAD process," says Mrs. Sauer. "We took our time for an in-depth evaluation of available products because we wanted to do the transition seamlessly, as we could not risk delaying new product introduction deadlines or losing existing data."

It was also favorable that the software vendor, PTC (Parametric Technology Corp.), was not unknown to Miele. One Miele manufacturing location has been using PTC's Arbortext Editor™ since 1998, and recently has successfully introduced Arbortext IsoDraw.

The team, led by Mrs. Sauer, took a highly disciplined and coordinated approach to the implementation, so that the process-reengineering project went smoothly and the expected benefits were realized after a very short lead time (see next page for tips and best practices at Miele).

The results: Significant time- and cost-savings, higher-quality documentation

An additional benefit to the time-savings, enabled by the ability to seamlessly leverage 3D data, was a substantial reduction in the overhead to manage updates from existing documents. This is a testament to the benefit that existing content can be transferred seamlessly into Arbortext IsoDraw – that such frequent design changes and updates have now become "easy as pie".

Administrative overhead costs have also been reduced through the ability to carry out all tasks within one consistent environment. These time-savings enable the Miele documentation team to create substantially more drawings within a given period of time. Through the enhanced use of graphics, the quality of the documentation has increased – which is consistent with the company's premium strategy.

"As you know, the processes in technical documentation can be highly complicated," says Mrs. Sauer, with a smile. "I can hardly believe how easy the deployment was and how intuitively we are now working with complete assemblies directly from the 3D CAD data set."

All assemblies are first converted into the STEP format, and then opened and manipulated in Arbortext IsoDraw, with no further manual labor required for coordination. This benefit relieved the fears of both illustrators and CAD designers that the new process would pose an additional burden on their workload.

By reengineering and standardizing the processes of technical documentation across all manufacturing sites, Miele was able to reap substantial reductions of time and cost while improving the quality of their technical documentation to meet their exacting standards for quality.

Miele & Cie. KG optimizes its processes for technical documentation through the use of Arbortext IsoDraw in a solution that delivers both cost-savings and an enhanced user experience.

Best practices for successfully selecting and adopting new technology – Contributed by Nadine Sauer, Miele & Cie. KG

- Find out, early on, if it is possible to migrate your legacy data seamlessly into the new system. Any data loss would significantly reduce the ROI of the new environment.
- A team of PTC Arbortext IsoDraw experts provided valuable support in testing the data exchange between our authoring tools. We recommend using this service, provided by PTC, in an extensive way.
- PTC provided comprehensive assistance in helping to define our future processes and identifying the most important capability gaps. These processes also enable project teams to provide valuable ROI information for capital investment decisions.
- Integrate downstream departments, early on, that can benefit from an available gallery of technical illustrations. Form a small, interdisciplinary group of experts to communicate and mediate between the vendor and your internal beneficiaries. Too many stakeholders tend to water down the potential benefits!

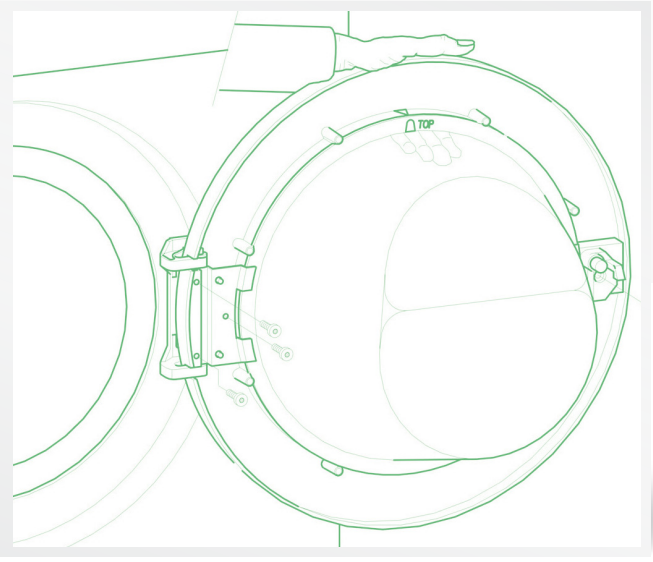

Figure 2 Miele's existing illustration archives were migrated into the Arbortext IsoDraw format (.iso) using an automated batch process. This example was executed using an intermediary DXF format, with all adjustments of line widths and text automated via a mapping table, maintaining all layer information.

- Make sure, in an early phase, that design data can be reused without any loss, and plan a process with the engineering department as to how this data can be made available for technical illustrators (see Figure 2).
- Make sure, in an early phase, that the downstream process can seamlessly use Arbortext IsoDraw data, for instance, when importing illustrations into a desktop publishing tool.
- Engage all illustrators, who will be working with the new software, early on in the evaluation process. Keep them updated about the progress of the project. This inclusion will make them more receptive to any required process changes.
- Don't try and save money at the back end. Staff training is vital to ensure a quick ramp-up to productivity. It may be worthwhile to spend time analyzing individual training requirements, and then setting up customized learning programs.
- Before we started training our users, we configured the Arbortext IsoDraw environment to meet our specific requirements. This preparation enabled our users to quickly become familiar with their future working environment.
- "Train the trainer": Create a group of expert users who will start familiarizing themselves with the software ahead of their peers, so they can assist their colleagues on the job.

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