

## Paperless Manufacturing with 3D PDF

Many manufacturing companies use 3D CAD systems to design their products. However, paper drawings are still considered the authoritative documents for manufacturing, quality assurance, assembly, and other downstream processes, including even sales and marketing. Paper documents are still commonly used in outsourced manufacturing. These paper documents often contain valuable technical manufacturing information, such as geometric dimensioning and tolerancing (GD&T), material properties, bills of material, and annotations. Such PMI is stored in the CAD or PLM systems, and linked directly to the associated 3D geometries.

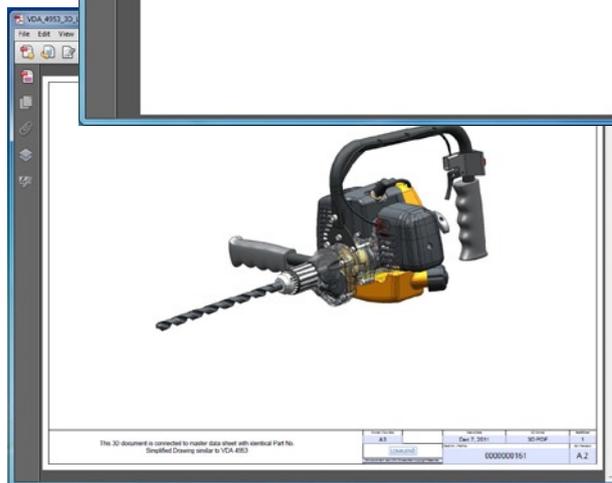
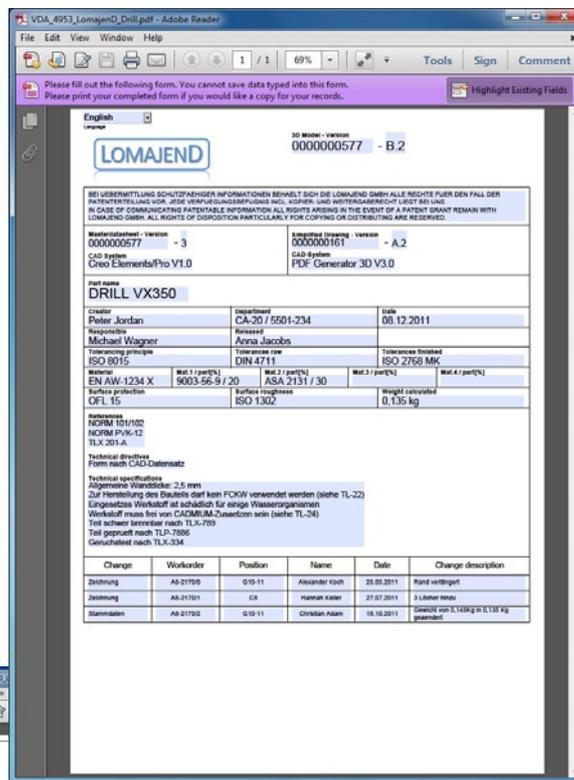
Companies would rather go “paperless.” This would free designers from producing paper-based drawings. It would also save companies the associated costs of printing, handling, and storing paper drawings. Paperless manufacturing would enable companies to—as required—rapidly update their manufacturing documents, securely distribute documents to external partners, and utilize 3D models to make the documentation easier to understand and to minimize errors in manufacturing and assembly.

### The PDF solution

Besides replacing 2D drawings and supporting paperless operations, 3D PDF containers bring together all the information in the product development process into a single file. A compact container may contain all the 3D models, PMI, and other related documentation necessary to integrate external manufacturing partners into the product design development/manufacturing process. These would provide invaluable product information to partners who would not normally have access to a customer’s internal PDM/PLM systems.

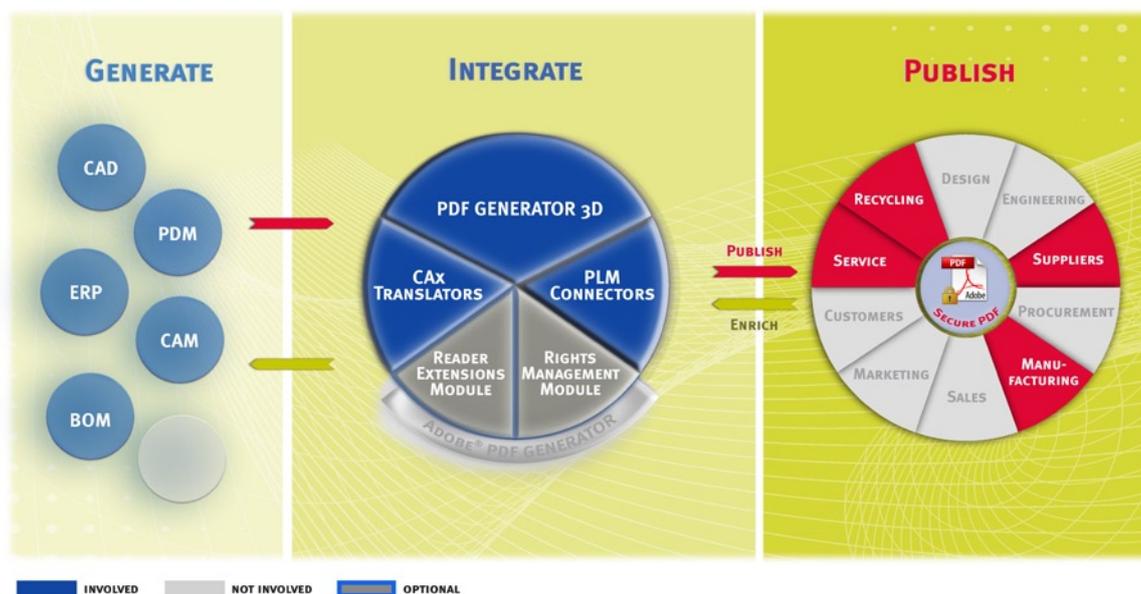
>> The 3D PDF container can contain all the information associated with a CAD model as well as all the other information relevant to designing and manufacturing a product.

>> The 3D PDF container can contain native CAD data and STEP files, and multimedia files such as simulations, animations, and videos that illustrate manufacturing and assembly workflows.



Besides replacing 2D drawings and supporting paperless operations, 3D PDF containers bring together all the information in the product development process into a single file.

- >> All documents and attachments can be password-protected for secure, authorized access per recipient. Optional security mechanisms can block access to invalid, time-sensitive documents within the PDF file.
- >> Integrating 3D PDF technology into corporate processes supports automated and paperless operations in, for example, purchasing, PLM, and ERP.
- >> Electronic workflows can support the distribution of 3D PDF documents, ensuring that all participants receive timely notification of changes.



### The benefits

- >> Reduced documentation time and costs.
- >> Automated collection and distribution of manufacturing documentation.
- >> Less manual effort creating and revising drawings and other paper-based documentation.
- >> A single container for all information from the product development process.
- >> The elimination of distributing and storing paper drawings.
- >> Quick and secure access to PMI by all internal and external team members.
- >> Better understanding of complex manufacturing and assembly workflows.
- >> Greater security and transparency in revising documentation.