



Visualization software enables creation of technical documentation in half the time

Fast Facts

Company

The Dürr group is a leading global service provider of products, systems and services for the automotive production in 25 countries and achieved annual sales of 1.9 billion euros in 2004.

Number of employees

7,300

Initial situation

The creation of commissioning documentation mostly done by hand was very expensive. This cumbersome process was caused by the drawings and schematics that were used as a basis and which had been created in many different formats. They all had to be consolidated into one document.

Solution

The Visual PlantEngineer software on a Microsoft Office Visio 2003 basis makes it easy to quickly create any commissioning documentation. Central data access and standardized graphics are always available for all documents.

Benefit

The time needed for plant design and documentation has been reduced considerably. All documents are of a consistently high level of quality. Expensive outside contracts are no longer necessary, since the employees are able to produce the drawings and schematics themselves.

"The Microsoft Office Visio 2003-based Visual PlantEngineer makes it possible to merge all of the necessary elements."

Mehmet Tugay, team leader for system training, Dürr Systems GmbH

Dürr Systems is one of the best addresses worldwide in production plants for the automotive industry. The software development based on Microsoft Office Visio 2003 was the solution the company had been looking for in order to considerably simplify and accelerate the creation of commissioning documentation that belongs to every plant. Tedious manual compilation and adaptation of the drawings, diagrams, and schematics created in various data formats are no longer necessary – a click on the button is all it takes now. Thanks to central data access, all participants are able to access all documents in the respectively current version at any time. A uniform graphics standard improves the cooperation between the departments and provides higher drawing and document quality. Result: The design and document sectors work more productively than ever; the easy-to-use Visio interface makes it possible for the employees to quickly familiarize themselves with a solution.

"Thanks to the Office Visio 2003-based Visual PlantEngineer, we were able to create the commissioning documentation more efficiently, faster, and with a higher quality."

Mehmet Tugay, Team leader for system training, Dürr Systems GmbH

A small number of highly specialized companies dominate the global market for production plants for automotive production. One of them is Dürr Systems GmbH. With 7,300 employees worldwide, the Dürr group attained sales of 1.9 billion euros for the year 2004. Almost all renowned automotive manufacturers around the world have ordered entire paint shops and final assembly plants from the system provider and plant construction based in Stuttgart, Germany. Furthermore, the group is represented in 25 countries and supplies cleaning and filtration plants that are utilized in the production of motor and gear components.

If an automotive manufacturer submits an order to Dürr for a plant – such as a painting line – he will receive the commissioning documentation upon delivery. A document containing up to 150 pages describes how the system was set up so that it is completely functional and fulfils the individual specifications of the client.

The commissioning documentation plays an important role not only for the customer but for the supplier as well. In case of doubt, the document provides Dürr with verification at all times about the correct function of the plant at the time of the delivery. At the same time, it also enables the client to easily replace single components and reinstall them as required. Thanks to the exact details of all setting and process data – such as one of the more than 1,500 MSR units that are contained on average in a painting plant – the operator of the plant knows exactly how to install spare parts, for example.

Error-prone manual work

The commissioning documentation starts in the construction departments. The drawings, diagrams and flow charts that belong to a plant are integrated into one document. It was at exactly this point that Dürr used to have several difficulties: Construction drawings were done with CAD (computer-aided design), tables were created in Microsoft Excel, and other documents had been created in Microsoft Word. Not only was it expensive to procure a CAD program, but the employees, who had a sound technical knowledge, were only able to work with the program after

a long training period.

The uncoordinated creation of procedure schematics and the compilation of information meant time-consuming manual work in conjunction with data redundancies and a generally high rate of errors. Due to the many isolated solutions in the individual departments, there was no possibility of centrally accessing all the data, which made it difficult to maintain, release, and revise them. Furthermore, the many different technical departments participating in the construction often used different names and symbols for one and the same components because there was no uniform graphics standard. "Submitting the documentation on time was always linked to a lot of stress," recalls Mehmet Tugay who is responsible for the creation of the commissioning documentation at Dürr Systems.

Central data pool

Tugay, who had frequently worked with the Microsoft Office Visio 2003 visualization software, discovered X-Visual Technologies GmbH by coincidence. With Visual PlantEngineer, the company offered a further developed version of Visio 2003 that could be adapted to customer requirements and which was developed specifically to plan, manage, and document technical systems. Since the solution is based on a uniform data model, it combines the procedural schematics of the plant, plans and information of all departments and divisions: from construction and assembly up to commissioning.

Summary of the technology

Microsoft Office Visio 2003

Office Visio 2003 is a modern visualization software that can be used to quickly create diagrams for the most diverse commercial and technical scenarios. Shapes (symbols) can be developed individually; they are quickly integrated into any diagram using drag and drop. The revisions and comments from several users can be displayed for all diagrams. The data can be evaluated, filtered, sorted, and edited further with Microsoft Office Excel 2003. Another important advantage: Thanks to the familiar Microsoft Office interface, users of Office Visio 2003 will hardly need any time for learning.



Since the end of August 2005, engineers have used Visual PlantEngineer to register, for example, all assembly and commissioning data directly at the construction site and then transfer the data to a central database. This database provides the project status or detailed information at any time. Depending on the need, Visual PlantEngineer automatically generates checklists, parts lists, or entire commissioning protocols from the data and drawings. Only a few steps are needed to create the final commissioning documentation. The tool collects the required information and presents it clearly and in different language versions – divided by plant sections and functional groups. Thanks to the ready-made graphical elements, design engineers use the application to effortlessly create complex plans and diagrams as well as schematic illustrations of technical process flows.

Faster and more efficient

"The usual time pressure when creating the documentation is now finally history," explains Tugay, naming one of the most important advantages of Visual PlantEngineer for Dürr. The efficiency and productivity of the employees when creating the commissioning documentation has increased, and the expenditure for making the procedural plant schematics could be considerably reduced. It also makes the customers happy, because they will also receive the commissioning documentation earlier.

The Baden-Wuerttemberg plant construction was able to register noticeable improvements in the work steps before assembly and commissioning as well. Because to the uniform data basis, the cross-departmental collaboration has reached a new quality and increased employee productivity.

The new solution leads to the company-wide use of standardized symbols and terms thanks to a corresponding Shape Library. For a pump there is now only one single type of presentation; cumbersome inquiries and incorrect interpretation of individual details are a thing of the past.

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The templates (shapes) were mutually developed by the X-Visual and Dürr employees so that they would correspond exactly to the requirements of the company.

The creation of procedural schematics has been standardized in the same way. In combination with the now consistent data basis, the error rate during the planning and installation of the production plants has been considerably reduced and at the same time uniform, company-wide quality standards have been created for drawings, diagrams, and commissioning documents. The technical data of the installed components can be transferred from SAP via Microsoft Excel directly to Visio 2003.

Another important advantage is the ease of use of Visual PlantEngineer: "Usually even beginners can work quite well with it after only two to three hours," reports developer Wolfgang Welscher from X-Visual Technologies. On the customer side, Mehmet Tugay can only confirm this: "If you know how to use Excel and PowerPoint, then it is easy to learn how to use Visual PlantEngineer."

Expensive outside contracts to create drawings are no longer necessary; instead, the employees maintain this phase of a project on their own. No wonder that Dürr has decided to significantly utilize Visual PlantEngineer in light of the positive results: In the future the solution will be installed worldwide in all Dürr branches, and the integration of further departments is planned for the plant in Germany.

Software and Services

- Microsoft Windows Server System
Microsoft Windows Server 2003
- Microsoft SQL Server 2000
- Microsoft Office System
Microsoft Office 2003
- Microsoft Office Visio 2003
- Windows XP
- Microsoft Windows 2000
- Technology
Microsoft Internet Explorer

Hardware

- CAD stations:
Dell Precision 370
- Standard PCs:
Dell Optiplex GX 280
- Laptops:
Dell Latitude D 610/810

Partner

- X-Visual Technologies GmbH

