



Plant Kirchheimbolanden in the Pfalz, BorgWarner Turbo & Emissions Systems Headquarters (Picture: BorgWarner)

TURBOCHARGING INNOVATION FOR BORGWARNER TURBO & EMISSIONS SYSTEMS

CIDEON Conversion Engine for SAP R/3 supports the automotive supplier by automating its product processes

A common PDM-/ERP Solution at BorgWarner Turbo & Emissions Systems increases the speed of the development process and ensures more safety with regard to business procedures.

Automotive suppliers like BorgWarner Turbo & Emissions Systems, a division of the globally active organization BorgWarner, Inc., are forced by increasingly intense competition, to bring innovations to market with ever shorter product cycles and improved quality. Therefore a comprehensive, dependable and sophisticated product data management plays a key role, to master this challenge if it arises. The PDM System that was available in 1995 was no longer capable of growing with these demands. Because the company had already successfully implemented SAP R/3 some time ago, SAP PLM was an obvious choice for the management of product data.

“We wanted to build a solution with SAP PLM, that would allow us to manage product data and change management together and integrated with the production data“, explained Bernhard Luy, manager of the Global PLM System at BorgWarner Turbo & Emissions Systems in Kirchheimbolanden. In order to satisfy customer requirements, the company operates a MultiCAD environment. Pro/Engineer is the core system with 116 seats worldwide, joined by 10 CATIA V4 and 36 CATIA V5 and 8 Unigraphics seats. “If one wants to improve, one has to think about the principles: What are the processes and procedures like? How do we achieve greater process security? How do we increase efficiency? After evaluation of the whole environment, it quickly became clear to us, that we needed an automatic conversion solution for our CAD data, in order to optimize the engineering and approval processes in CAD neutral formats“, explained

the PLM manager. Using the automation BorgWarner Turbo & Emissions Systems wanted to ensure, that the title block information on the 2D CAD originals and the neutral TIFF format documents match with the SAP database information.

PLM Alliance on the job

BorgWarner was in contact with several companies, who work in the SAP R/3 environment. As a PLM Alliance partner in the CAD interface field, SAP recommends companies, such as CENIT AG, CIDEON AG, DSC Software AG and Triess engineering GmbH, who worked together within the Alliance, in order to offer comprehensive solutions such as conversion solutions.

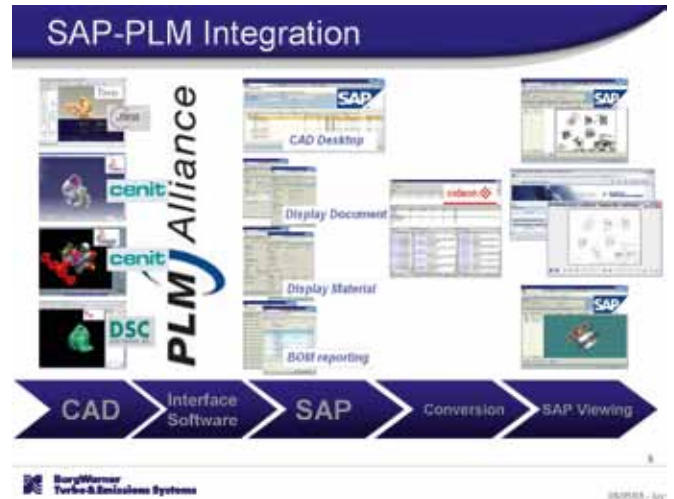
The automotive supplier evaluated the alternatives offered by the competition. “We found that the PLM Alliance’s MultiCAD solution, which included the CIDEON Conversion Engine, to be convincing and incorporated it into our project. The goals of this alliance and their cooperation made it easier for us to decide on the direct integration of each partner and the MultiCAD conversion“, explained Luy.

“When they implemented the conversion solution within the SAP PLM project, CIDEON left a very positive impression, as an uncomplicated, efficient and skilled organization. We had a detailed plan agreed to by all parties. For example, even CIDEON had to make some adjustments to its software, in order to process our extremely complex Pro/Engineer structural data. When obstacles arose, CIDEON went to great lengths to react within a timely manner in order to provide a satisfactory solution“, stated Luy.

CIDEON Conversion Engine

The CIDEON Conversion Engine converts CAD documents, CAD Models and CAD drawings in neutral and exchange formats and provides them with status information. A process flow control relieves the SAP/R3 Job System and offers an overview of the conversion tasks queue at any time. The Conversion Engine clients direct the various applications or CAD converters to generate neutral formats. The neutral formats, TIFF and JT files in BorgWarner Turbo & Emissions System's case, support building digital archives, such as document distribution in paper or digital form. Using a release stamp the documents can be made available to colleagues in all departments or suppliers and customers.

BorgWarner Turbo & Emission Systems now operates eight conversion servers using CIDEON software at locations in Germany and the USA: five of them in Kirchheimbolanden in the Pfalz, the largest engineering location worldwide, and three in Asheville, NC, USA



BorgWarner Turbo & Emissions System's SAP PLM Integration (Picture: BorgWarner)



Diagram of CIDEON's Conversion Engine for SAP (Picture: CIDEON Software)

At a glance		
Company:	BorgWarner Turbo & Emissions Systems is a division of the globally active automotive supplier BorgWarner, Inc.	
Industry:	Automotive Industry	
Challenge:	Creation of an integrated comprehensive solution for integrated production and product data management	
Solution:	Implementation of SAP PLM with CIDEON's Multi-CAD-Conversion solution	
Benefits:	Integrated comprehensive solution with automated conversion and release processes, processing security	
CIDEON Services:	CIDEON Conversion Engine for SAP, adaptations	

Automated processes

Upon implementing SAP PLM and the CIDEON and PLM Alliance conversion solution the automotive supplier achieved the goal in product development and release processes of automatically generating neutral formats. This also prevents the manipulation of data within the process chain. Previously the release was based on manually generated TIFF documents, whereby the drawing title block information was manually adjusted during the release process with the assistance of a TIFF editor. There was no process security. Currently the automatic workflow prevents such interventions and potential sources of error. The information on the drawing title block is guaranteed to match the entries in the database.



“R2S” for Volvo D5 2,4 I diesel engine (Picture: BorgWarner)

Furthermore, documents which are not released are stamped with a sort of watermark. Thus a drawing in pre-released status, for example, would be stamped with the overprint: “Preliminary – not for Manufacture“, so that it is clear that nothing can be produced based on this drawing.

There are approximately 80,000 TIFF drawings in our dataset without corresponding CAD data. “There are approximately 80,000 TIFF drawings in our dataset for which there is no CAD data. Of course we don’t want to convert these. Besides that, we needed the ability to have the final approval by the customer, which one must not underestimate in the automotive industry. All that the customer does is place the drawing in their drawing frame in order

to sign it. We need to save this new TIFF document into our system as well. We also needed the ability to turn off the conversion on demand if a specially formatted TIFF drawing wasn’t supported by the conversion server, for customer data, when the customer prefers to have a title block on our drawings for purposes of internal approval and to demonstrate the intensional deviations from the 2D CAD original on the TIFF drawings. Hence we have a switch in our classification, called the ‘Conversion Flag’. When the flag is switched to ‘No’ then conversions will not be performed. It’s an elegant solution, which we developed jointly with CIDEON. We already specified this concept at the start of the project in the detail plan. It is now a function within the conversion server“, explained Bernhard Luy.

Important link in the chain

“The colleagues, who approve the drawings, are very pleased. Compared to past processes, the current process is significantly more convenient and secure,

because many of the checker’s tasks are completed automatically and because the system functions dependably“, according to Luy. CIDEON and the PLM Alliance’s conversion solution plays an important role in the integrated PLM-/ERP overall system.

Dr. Philipp Grieb



Turbocharger for commercial vehicles (Picture: BorgWarner)



Turbocharger for passenger cars (Picture: BorgWarner)

BorgWarner Turbo & Emissions Systems

is a leading global supplier of innovative turbocharging systems and air management systems for passenger cars, light trucks and commercial vehicles. The company supplies these systems for engines with an output range of 20 to 1,000 kW per exhaust gas turbocharger. They reduce the gas consumption and increase the vehicle’s performance. What is more, BorgWarner’s exhaust gas recirculation systems (EGR), secondary-air systems (SAS) as well as the actuators improve engine performance and ensure lower emissions.

CIDEON Conversion Engine for SAP

converts data in neutral and exchange formats and provides them with current status information. A process flow control in CIDEON Conversion Control Center (CCC) for SAP PLM provides a comprehensive overview of the conversion orders at all times.

The Conversion Engine relieves the SAP/R3 Job System. The Conversion Engine Clients direct the various application or CAD converters to generate neutral formats.

