

# Open – for 3-D

**AUCOTEC and UNITEC develop the first independent platform that combines 3-D plant design and 2-D engineering**



A neutral, manufacturer-independent communication platform that effectively combines 3-D plant design with the two-dimensional flow diagram and the corresponding detail engineering: This was the aim of the new development partnership that AUCOTEC AG and UNITEC Informationssysteme GmbH agreed upon by contract in the summer of 2011. All common 3-D systems for modeling process engineering plants and mechanical engineering designs were to be interlinked with the 2-D I&E and P&ID solution of AUCOTEC's database-driven software package Engineering Base. As developers of basic technologies for the open communication platform and 3-D experts, UNITEC is moreover in a position to integrate further systems and disciplines. At the AICHEMA 2012, the first results and the new possibilities of this unique 3-D linkage to AUCOTEC's cooperative engineering tool for process engineering, EMR and electrical engineering are now presented. For this purpose UNITEC will be present at the AUCOTEC booth with a representative.

With more than 15 years of experience as sales and development partner of leading software developers in plant construction and mechanical engineering, UNITEC has specialized in CAD and process automation solutions for plant designers, operators, machine builders and manufacturers. The focus of UNITEC is on counseling, training and support services as well as on software development for optimizing the complete value-added chain. The establishment of lasting partnerships with customers and manufacturers is the central point of the corporate philosophy of the company with headquarters at Hanau in the Frankfurt area.

### **New kind of overview for designing process engineering plants**

The new, open communication platform works with the high-end systems from both the 3-D world and 2-D engineering. Thus one can in each case choose the system best suited for the individual discipline with maximum professionalism. Uwe Vogt, board member for development at AUCOTEC, on this subject: "The new, open platform combines Engineering Base, from the start designed as cooperative, consistent platform for 2-D development, with any top solution of the 3-D world. All those concerned with the creation of a plant thus work directly with the information from the other disciplines – even at different locations. This combination of openness and professionalism is unique."

From the plant structure to the object properties, all of the information and the logic of the 3-D world are interlinked in navigable form with those of the flow diagram and the detail engineering. Thus supplier data can also be integrated without having to buy the respective authoring tool. This comprehensive data consistency is a significant step towards the "digital plant".

### **3-D made easy**

Independent of the special know-how of the respective other disciplines and with optimized license costs, the various specialists, from the process engineer to the professionals for mechanics, PM&CT and electrical engineering, all use the entirety of the relevant data and get a unique overview of the complete plant.

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## Editorial

Dear readers,



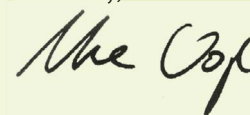
This INFOpaper issue is completely under the aegis of the AICHEMA 2012, therefore the emphasis is on "Engineering Base Instrumentation" – our solution for plant construction in process engineering.

The competitive pressure for plant operators as well as for plant construction companies is continuously increasing. New plants must be designed and offered in next to no time. Changes must be realized quickly and reliably in every phase. Commissioning and down-times must be minimized – time is money, in this case a lot of it!

Here our platform Engineering Base (EB) manifests its full strength because it combines hitherto usually separate disciplines in a uniform and consistent database with just one tool. EB Instrumentation combines process engineering, I&E, automation and electrical engineering and thus offers our customers a massive time- and cost-saving potential.

Since the last AICHEMA, EB Instrumentation has considerably advanced mainly through the good cooperation with major customers. The solution is accordingly successful on the market and forms one of the central pillars for the sustained growth of AUCOTEC AG. With another two-digit growth in the last fiscal year and a very good profit situation, AUCOTEC remains your reliable, innovative and sound partner.

Yours truly,



Uwe Vogt, Board of Directors

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# Open - for 3D

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“With just interfaces between the systems one would be far too inflexible“, says Frank Mayland, UNITEC managing director. Thanks to the multi-CAD capability of the integration platform, compromise solutions that as cheap “allrounders“ usually master only part of the tasks in the required depth are a thing of the past. “What counts here are synergies covering different subsections and the bridging of insular solutions by integration and process automation“, emphasizes Frank Mayland.

The communication between 3-D plant design and 2-D engineering works bidirectionally. Changes in the 3-D system are handed back to Engineering Base. The coupling is based on the data for the devices, containers, instruments, loads, pumps,

valves and fittings defined in the P&I. In turn, once planned in EB the components can also be integrated in 3-D.

### Efficiency potential

Both AUCOTEC and UNITEC are committed to promoting interdisciplinary cooperation in their respective domains because both have some time ago realized a large potential for future increases in efficiency. Both partners moreover count on Microsoft linkages, which mean a major asset in user-friendliness. “In many areas we have similar philosophies, and our mutual experience also fits quite well, that’s why we came to a quick agreement“, thus Uwe Vogt commends the cooperation.

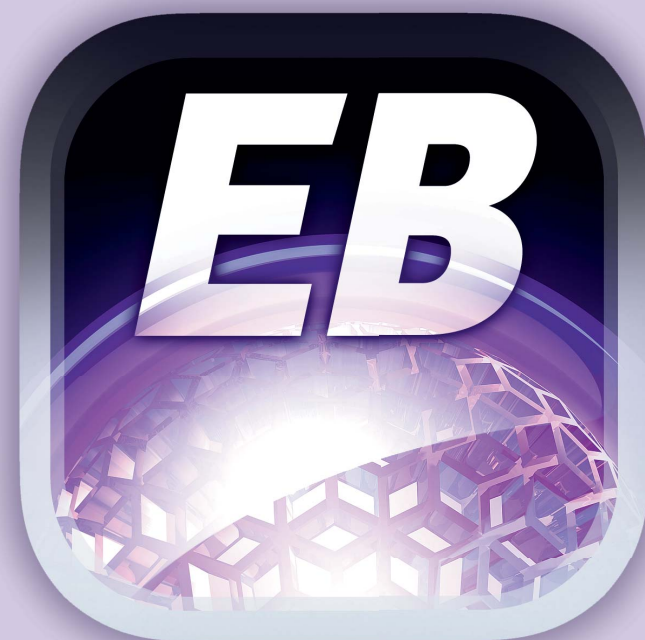
## Engineering app makes operators more mobile

An important improvement of the operator access to plant data is the new AUCOTEC app for the software system Engineering Base (EB). It is a higher configuration level of the new cloud application recently presented by AUCOTEC at the 2012 Hanover Fair. The easily manageable app solutions range from the “dashboard“ project overview to maintenance applications directly from mobile devices.

The new web service makes the data elaborated via EB available to other applications. Thus the Service personnel become distinctly more flexible because the actual “as-built“ status of a plant, the next maintenance date of

a device, an assembly instruction or details of a connected cable including its destination can be called via the mobile device directly from the EB database, no matter where the user is actually located. Moreover the app permits to create or edit maintenance jobs. Maintenance information is thereby entered directly into the EB database.

Maintenance professionals can thus cheaply, easily and safely access the current plant documentation from anywhere without time-consuming consultations or data transfer and adjustment. That saves time and if applicable downtime costs.

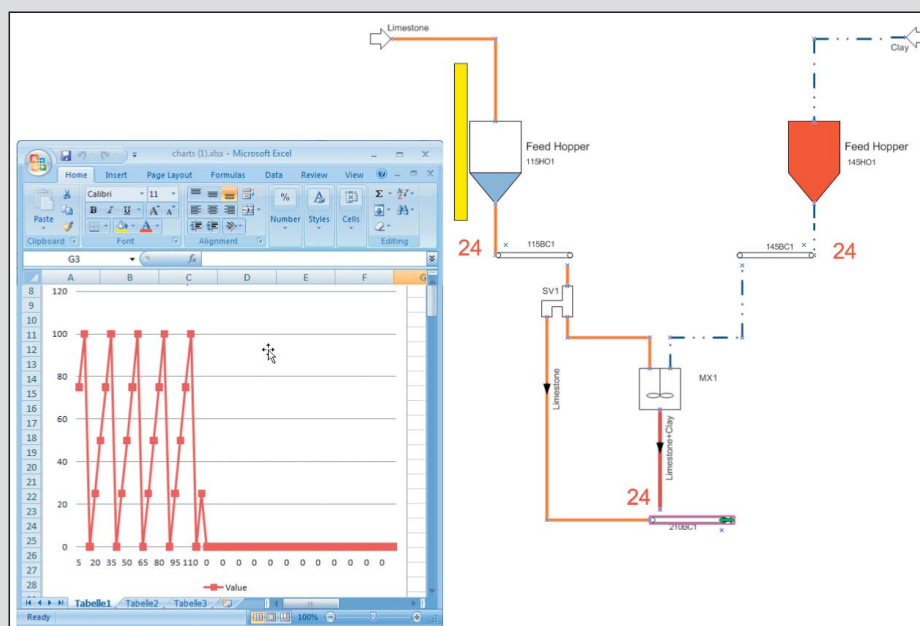


## What counts is the content

### Avoid standstill: calculate in advance different operating stages of a plant directly in the engineering tool

Process engineering plants stand up to a lot in their lifetime. In many cases they must comply with a large number of varying recipes. In addition there are seasonal temperature fluctuations that influence the humidity and granularity of some substances and can thus change the flow rate. And finally there are the necessary cleaning routines that are due at regular intervals even without formula changeover.

All these requirements influence both the effectiveness and efficiency of a plant. In facilities where the consequences of malfunctions would be disastrous, e.g. airplanes or nuclear power plants, special tools are used that simulate all functions of a facility. These analyses are very time-consuming, however. Moreover they require trained specialists and are for many applications “too ambitious“. Even more common is the situation where there is no possibility to represent and plan the different requirements of a plant in advance.



Adaptations during operation and down-times are then often unavoidable.

### Simulation included

At this year’s ACHEMA, AUCOTEC shows the prototype of a visualization for the software system Engineering Base *Instrumentation* that can map the different plant conditions with manageable means and without additional tools. Thus the designer gets a largely reliable statement about the plant performance early on. With this information he can then optimize the electrical equipment for the many haulways, mills, mixers, filters, cooling and heating units in due time already in the design stage.

The integration of this feature into the virtual plant model not only increases the benefit of the engineering tool for designers and operators. The quality of the plant design likewise increases considerably.

# Always synchronous

## Engineering Base offers reliable as-built documentation also for asynchronous planning processes



In the life cycle management of plants it is essential to have the current documentation of a plant available anytime, despite or even because of frequent conversion planning and maintenance work. Quite different disciplines such as pipe design, instrumentation, planning of the process control systems and diverse suppliers must for this purpose cooperate in a coordinated manner and merge their results. Often several medium- to large-range planning projects overlap in quite different areas.

Moreover it must by all means be ensured that the various documents represent both the same devices and the same resulting status. With an inhomogeneous tool environment it is impossible to efficiently create a reliable as-built documentation, and even a massive effort cannot ensure consistency when later on matching the data from different disciplines. Time-consuming

coordination processes, misunderstandings, different and erroneous data are preprogrammed. This leads to delays and causes additional costs.

### **Up-to-date despite reconstruction and extension**

In cases of major extension and reconstruction projects, Engineering Base (EB) can be used to swap data from corresponding sub-projects for separate processing without impairing the current status of the plant documentation. Whoever works in the original as-built project is purposely alerted to the outsourcing – not only in the graphic and the object tree of the as-built project but also by its various wizards, from the wiring manager to the assignment support for PLC I/O's. Thanks to its being based on a database, EB can combine engineering, data management and documentation in an interdisciplinary, integrated approach. In

EB's virtual plant model, each genuine part is represented by precisely one object.

### **Everything under control**

When after conversion planning the modified project is reimported, a special synchronization manager assists you in consistently integrating the data into the new, current as-built status of the plant documentation. The matching works interactively, i.e. the project engineer in charge maintains the control of the changes he accepts. But even if automation is considered the magic word per se: no plant operator or designer would or should consent with losing control of the "last word".

This procedure is unique, at this time no other system can offer such a controlled data integration and thus such a consistent as-built documentation in the operating phase.

## „Do you still follow up relics or do you already engineer?“

**Frank Mayland (45), managing director of UNITEC Informationssysteme GmbH, on time-saving broader views and the cooperation with AUCOTEC**

### **Mr. Mayland, how did AUCOTEC attract your attention?**

An Austrian interested party had got solution offerings for various engineering solutions. We were involved just as AUCOTEC was. Thus AUCOTEC had heard about our portfolio and shortly thereafter consulted us to fathom the possibilities.

### **And what was crucial for you to engage in this partnership?**

When because of the query we looked closer at Engineering Base (EB), what we immediately noticed was the particular openness of the system. Its central plant model and the flexible three-level architecture are something very special. That was something we also wanted to exploit for our customers.

EB's data does not force data acquisition or delivery, that is unique! With the cooperation we can do without the individual tools, instead with it we see the complete process. And that without additional interfaces – these would again require maintenance and would be far too inflexible – but by genuine, manufacturer-independent integration. All other possibilities we had checked up to that point were much too closed to enable such a comprehensive and highly efficient interfacing.

### **Why are interfaces too inflexible?**

An interface transmits data, but always only in a frozen status. The change history is not transmitted, instead there is a snapshot without validation. By contrast, our new communication platform can display a status for all change information in a kind of object browser, and that differently depending on whether one is dealing with a new, a changed or a synchronized object. This can be displayed very clearly also in the form of a traffic light.

### **What benefit can customers draw tangibly from the cooperative solution?**

For many customers the much-praised consistency does not go beyond P&ID, for some it is the beginning, for others the end of their planning job. This means over and over again information matching, consultations with colleagues from other disciplines, changing or duplicating data. In short: It costs a lot of time and includes a high risk of error!

We now proceed much further, and the customers have both the PM&CT and the 3-D planning not only in mind but have in fact bidirectional access. They avoid the effort for change management, fault localization or correction as well as that for the creation of parts lists quasi by hand, something that still happens all too often. Planners at the other end immediately get to know changes at any point of the total spectrum of the plant engineering. With the platform departments work together and no longer side by side, and parts lists are always up to date. That creates synergy at its best!

### **And who are the people for whom the solution is particularly interesting?**

In this context a simple counter-question comes to my mind: 'Do you still follow up relics or do you already engineer?' – But quite honestly: The design changes that often

must laboriously be maintained by highly qualified engineers in lists, drawings or 3-D models 'by hand' still are very common but ultimately costly daily routine. I think that with the current shortage of skilled personnel it is high time not to have the know-how present in the company blocked by such admittedly important but in fact rather simple tasks. The solution offers huge potential for all plant designers who have broader views and are fed up with duplicate work. Someone who wants to view PM&CT and 3-D to the left of his flow diagram and to connect his processes in order to work faster, better and more economically here finally hits the mark.



### **Are there further plans for continuing this cooperation?**

Up to now we have mostly been talking about the design aspect, but of course there is a large synergy potential for the operators. AUCOTEC's cloud/app offering is a pioneering approach in this context. A plant operator might have central access to all data from P&ID via detail engineering to 3-D and could even carry out remote changes. This will soon be possible.

In connection with the above-mentioned change tracking in a kind of browser, we are currently working on developing an automatic, subsections-spanning view of the status of all projects within a plant, something that will give project managers a unique overview of the complete design status.

There is another interesting subject we have only envisioned so far. But we know from customer feedback that rankings and certification are becoming ever more important. Since any planning process always carries risks, a company whose planning is more standardized, more efficient and optimized with regard to procurement will rise in ranking. We are convinced that here the new communication platform is a genuine asset, and we can imagine to further develop it also with this in mind.

**Thank you for the talk, Mr. Mayland!**

# One for all

## Dow Chemical counts on central data management with Engineering Base

The Dow Chemical Company with headquarters in Midland, USA, belongs to the major chemicals groups worldwide. Dow combines science, technology and creativity to create innovative solutions e.g. for clean drinking water, the use of renewable energies or for boosting agricultural yields. Based on technology and know-how, approximately 52,000 employees at 197 locations worldwide create more than 5,000 pioneering products for customers in about 160 countries.

Dow also counts on pioneering tools. At the German sites in Bomlitz, Bitterfeld and Stade the integrated software system Engineering Base (EB) from AUCOTEC is being used. There Dow has been cooperating with AUCOTEC for many years. The manufacturing plants for methyl cellulose as well as the steam boiler in Stade have been consistently documented with the EB predecessor AUCOPLAN and with EB Instrumentation. And EB is the new system for their operation and also for all new projects.

### Central life cycle support

At Dow, the database-driven engineering platform EB supports the control of the life cycle from the

specification via installation and design to operation. Thorsten Meyer, Engineering Resource Leader in the Stade Engineering Solutions section of Dow, ascribes a particularly important role to the information management: "An essential factor for the success of a project and economical operation is that the complete documentation of the electrical, measuring and control technology is conducted in only one system. In EB, all of the information is maintained centrally: all loops, terminal or layout diagrams including imported package units with all documents such as manuals, certificates and the like."

Due to EB's multi-level system structure, a central data source provides consistency for all relevant documents. The structure also supports the integration of all applications in upstream and downstream engineering – a genuine asset for efficiency. Thorsten Meyer concludes: "With its far-reaching automation and the integration of standards, EB offers an enormous potential both for project documentation and later on for the life cycle of our plants."

# Let the future come!

## Turbomachinery manufacturer views itself as optimally prepared with EB

De Pretto Industrie S.r.l., with corporate headquarters in Northern Italy, exploits experience gained in the 125 years of the company's history for its high-class turbo machines. Its gas and steam turbines or turbo compressors are sought after well beyond Italy's borders, as are the components the company manufactures for diverse branches – from wind power equipment via the chemical industry to nuclear power plants etc. De Pretto's most important customers are



refineries, large steel mills, the basic chemicals industry as well as power companies.

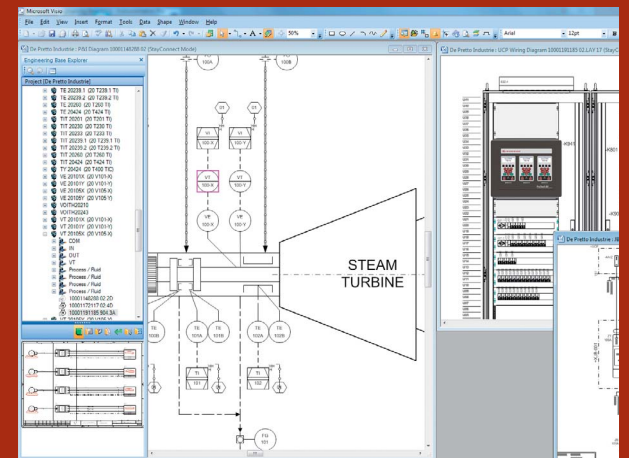
The number of different tools for documenting the processes and the electric detail planning has grown together with the company. The inhomogeneous tool environment has in many cases formerly led to incongruous data in the different documents. This resulted in misunderstandings, time-consuming adaptations and pronounced delays when installing De Pretto's system components.

### 20 per cent working hours saved

After a thorough check of four alternatives, the turbomachinery experts opted in favor of Engineering Base (EB) from AUCOTEC. "The database-driven system best met our requirements for high flexibility, user-friendliness and quick integration into our workflow", explains Massimo Buzzacaro, manager of the instrumentation and controls department at De Pretto. "EB pays off already after a very short time because familiarization is so fast."

This is confirmed by measuring technique engineer Alberto Bellotto, who also accompanied the implementation and adaptation of EB Instrumentation at De Pretto: "We have been profiting from EB from the very first project. Starting with 20 % savings in engineering hours via complete data compatibility between the different documents to a profoundly improved documentation quality!" Bellotto views the genuine common processing of all engineering disciplines involved even at different locations as decisive advantage. "The object-oriented

database provides consistent matching of the data independent of its place of origin; thus we can integrate even data from external suppliers."



### Strong for the market

Something that also contributed to the quick realization of the goals at De Pretto was the valuable on-site support provided by AUCOTEC. Bellotto's conclusion: "With EB's flexibility and AUCOTEC's service, we can face future tasks with confidence!" And manager Buzzacaro adds: "Thanks to AUCOTEC and EB we will continuously strengthen our market position."

**And besides ... most recently among others the following companies opted for AUCOTEC:**



CRITT Automatisation,  
Albi, France



IBAR Systemtechnik GmbH,  
Senftenberg, Germany



Anton Paar GmbH,  
Graz, Austria



PAYR Engineering GmbH,  
Patergassen, Austria



SCHEUCH GmbH,  
Arolzmünster, Austria



SOMETAC engineering GmbH,  
Nuremberg, Germany