



# ROB-EX Scheduler

Global References & Case Studies

### Fed up with rescheduling, bottlenecks, overtime, and delayed deliveries?

ROB-EX Scheduler, part of the Proficy MES family, enables companies to create and maintain dynamic and efficient production orders in real time based on resources and asset capacity.

This modular production scheduling system can be used as a complete standalone planning solution or integrated easily with ERP and MES.

ROB-EX Scheduler tracks production orders and, as the orders execute, tracks actual measured production, consumption, waste, and yields, updating ERP and MES systems automatically. It also provides reports and analysis tools.

## Outcomes



### Reduce labor costs

Determine resources needed, scheduling down to minutes in a leaner operation



### Increase customer satisfaction

Improve capable-to-promise by giving reliable delivery dates



### Speed decision making

What-if simulation of scenarios improves and accelerates decisions



### Optimize capacity

Valid schedules checked against finite capacity and material availability



### Better accommodate variation

Reschedule based on capacity changes, leveraging automated rules



### Increase collaboration

Combine local scheduling and central multi-site planning, allowing users to work simultaneously from the same plan





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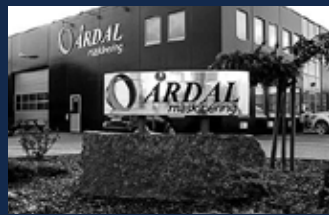
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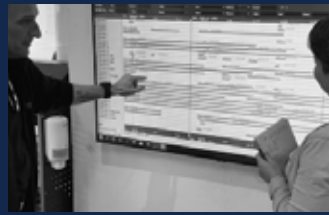
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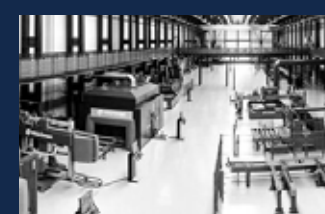
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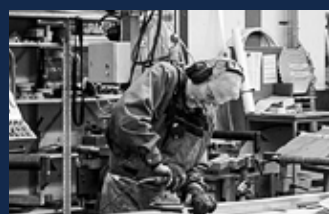
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# AkzoNobel (Nouryon) Connects People, Plants, and Data with GE Digital



# AkzoNobel (Nouryon)



The AkzoNobel (now called Nouryon) Pulp and Performance Chemicals plant in Columbus, MI manufactures and sells expandable microspheres around the world.

## A need for better traceability and scheduling

The chemical site was still managing its raw material information, processes, and finished products on paper, and didn't have a system that was able to trace what batch number each customer delivery was associated with.

## Results

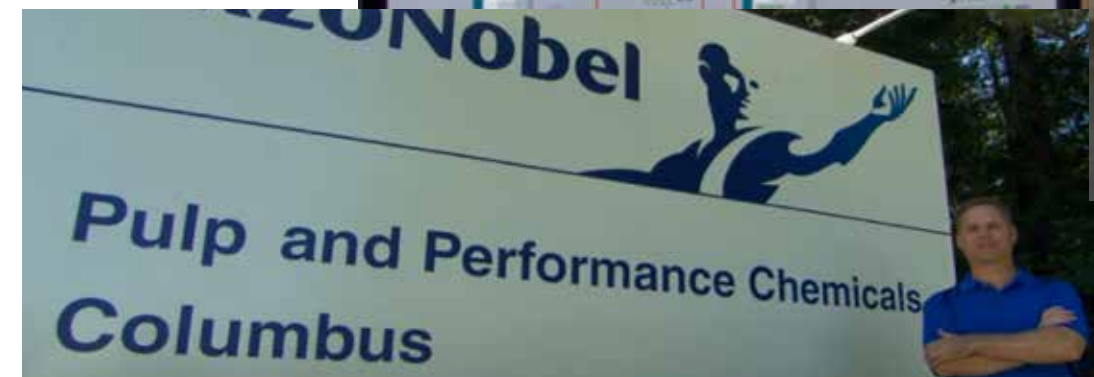
### A vision for global planning

By leveraging Proficy Plant Applications and ROB-EX Scheduler from GE Digital, AkzoNobel was able to transform its operations.

- 20% Increase in capacity
- Decreased lead time to customer delivery
- Increased traceability of batch-to-customer
- Increased ability to spot key production trends

### Global Solutions for Nouryon

- Proficy Plant Applications
- ROB-EX Scheduler
- iFIX HMI/SCADA
- Proficy Historian
- Professional Services (Production Management, Quality, Efficiency; Certificate of Analysis; SAP Integration)



Watch Video





# Aluflex AB achieves more efficient production with ROB-EX Scheduler





Aluflex has worked and developed in the Scandinavian automation industry since 1988. The company provides automation solutions such as aluminum profile systems, conveyor belts, pallet conveyors and workstation systems as well as linear products such as linear guides, ball screws, linear modules, telescopic movements and rack and pinion solutions.

As the company has grown, Mats Andersson, Production Manager at Aluflex, realized that their own production required better planning, and the choice fell on Novotek as supplier.

#### **Outgrowing Manual Processes for Production Planning**

When Mats started at Aluflex, there were only two people in production and one person in the workshop. Today, Aluflex is located throughout the Nordic region, and as specialists in efficient mechanical solutions for industry, they have a large customer base. Originally, production planning took place in Excel, and Mats had ultimate planning responsibility.

Mats had to move information manually every day, and every Friday the planning was written for the next week out. The planning would quickly become obsolete, as the reality of production often changed. His experience with the production

planning in Excel was very time consuming, and it could be a problem when he was not at the office. When Aluflex acquired a stamp system, it became more difficult to use Excel, and the more the company grew, the harder it became to keep track of all orders – which could sometimes be 20-30 per day.



*“ROB-EX felt like the best option. One good solution for integrating it all.”*

— Mats Andersson  
Production Manager, Aluflex AB

#### **Easy Integration**

At a trade fair in Gothenburg, Novotek introduced Mats to ROB-EX Scheduler, and he then took up the matter internally in the company. It was an easy journey for Mats to convince the management team after Novotek did a demo. Aluflex chose between two planning systems, and the choice was ROB-EX Scheduler. “ROB-EX felt like the best option. One good solution for integrating it all,” Mats explains.

After the order was placed with Novotek, it took only two months before the system was up and running and integrated. “We did not experience any complications with either the introduction or the integration,” Mats says.

ROB-EX has its own web client for feedback, but in Aluflex's case, the planning software was integrated with their business system Navision and the stamp system Bofab, which worked well.



## Aluflex AB

### **Solution**

ROB-EX Scheduler integrated with Navision and Bofab

### **Benefits**

- More efficient production
- Increased view of entire production
- The opportunity to visualize
- Easy to use
- Everything happens in real time

Through experienced staff and quality products, Aluflex delivers the best solutions to their customers. They are specialists in both profile systems and linear movement in the Nordic market. Novotek, a GE Digital partner, is proud to be a supplier for their planning system.



# The Automation in the Process

Mats describes the benefits of ROB-EX as many, but the foremost advantage is the automation in the process. Everything happens in real time, and the numerous technicians can easily plan the orders. All salespeople and production workers have a viewer, so they can easily open up and see how the planning looks and follow specific orders.

Everyone in the staff at Aluflex is satisfied with the solution and thinks it is easy to use. For Mats, ROB-EX Scheduler has helped to save a lot time in his work schedule compared to working in Excel.

## Profitable Investment

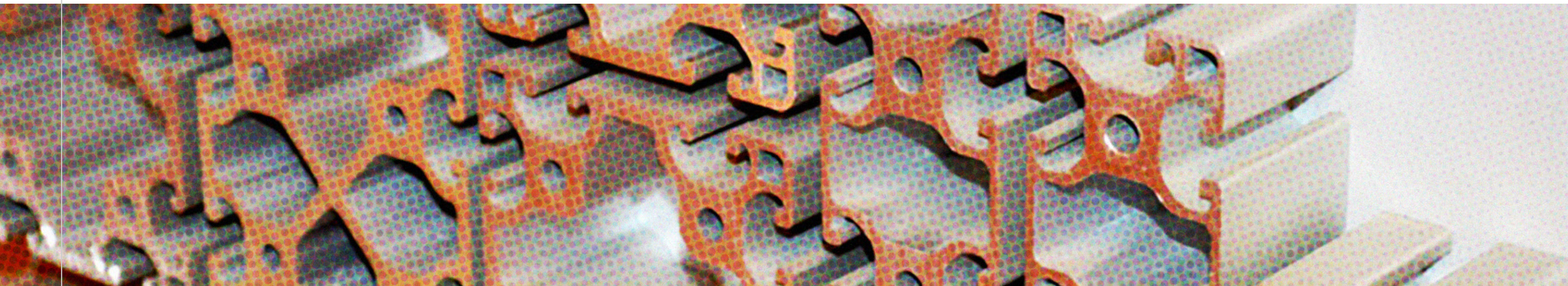
The investment paid off quickly, since the company started using ROB-EX. They experience more efficient production, which leads to increased sales and lower staff costs. Mats says: “It is safer to set customer delivery times that we can meet. We can easily see which orders may be affected by delays and can work more preventively.”

Aluflex is very satisfied with the collaboration with Novotek and think it has worked very well.



*“To summarize the benefits in one word, it's the visualization – everyone can see what is happening in the production planning.”*

— Mats Andersson  
Production Manager, Aluflex AB







# Årdal Maskinering leverages ROB-EX for complex production scheduling



## About Årdal Maskinering

Årdal Maskinering processes all types of metal and mainly supply components for the oil industry. The company has no products of their own, but manufactures to order, which stipulates high demands for production adaptability. Previously, detailed scheduling was performed in the company's ERP system in combination with Excel, but increased complexity in the production made it more and more difficult for the company to maintain control and overview. Therefore, they use ROB-EX Scheduler for their production scheduling today.



# Årdal Maskinering



“When we get an order, it often consists of 40-50 parts that we must manufacture in different processes, and perhaps the order also has to be sent to one of our many subcontractors to get some kind of special treatment,” says Jørn Arvid Sæther, production manager at Årdal Maskinering. “In the past we used our ERP system and an Excel spreadsheet to schedule the tasks, and this was getting very chaotic.”

## Complex manufacturing with short scheduling horizon

“The last three years we have increased sales enormously, and our production has become much more complicated,” Jørn Arvid Sæther continues. “With this many different orders, customers, and subcontractors, it was impossible to keep track. Not least, because we work with very short delivery times. We rarely plan more than 1-2 months ahead, and in addition, very often we receive rush orders.”

## Can see the entire production in one single picture

When Årdal Maskinering’s ERP provider announced that they no longer would develop the solution’s scheduling module, the company chose to invest in ROB-EX Scheduler. Jørn Arvid Sæther elaborates: “ROB-EX is developed specifically for production scheduling and is much more suitable than an ERP system. Among other things, ROB-EX has given us a significant better overview. We can see the entire sales order in one single picture, and at the same time, we can see all the different production orders that the sales order consists of. Furthermore, we can sort on individual parts of the process and see workload on both operators and machines all the way through production.”

## Easier to make room for rush orders

“ROB-EX makes it possible for us to utilise our capacity much better than we could before,” adds Jørn Arvid Sæther. “I can see exactly how large the workload is on each operator and machine, and if we receive a rush order that we need to squeeze in between the other orders, I can see what the consequences will be of doing so. Visually, what happens is that the rush order displaces all production lines, and I can see where I need to make adjustments to make it all fit together again.”

## A highly visual tool

“ROB-EX works really well visually,” Jørn Arvid Sæther continues. “For example, when I schedule a new order, I get a red colour marking if my scheduling means that we will exceed the delivery time. We have many orders and customers that run parallel at the same time, and in our industry, we have to fight on delivery times. Therefore, it is important for us to have a tool that tells us what it takes to meet the timetable, both for our subcontractors and us.”

## ROB-EX reuses data from the ERP system

ROB-EX is integrated with the company’s ERP system, and the two solutions exchange all necessary data automatically. Jørn Arvid Sæther says: “We have always been satisfied with our ERP system, and we still are. The only problem was that we could not use it for complex production scheduling, but ROB-EX has solved this problem for us. Once a week, I hold a meeting with sales and production departments where we go through and prioritize all our resources one by one via big screen. Furthermore, our salespeople can check the production schedule by using a viewer feature, but without rights to edit.”

## Simple remote support

When Jørn Arvid Sæther has questions regarding the use of ROB-EX, ROB-EX A/S, a GE Digital partner, connects via remote support, and they can look at the solution together. “It is very easy,” he says. “We have an assigned contact person that we can get hold of and who is good at helping us out. Not that it is necessary very often, and I think it has been easy to learn how to use the solution. Today, I am completely dependent on ROB-EX. Because of the complicated production that we have today, I could not imagine having to work without ROB-EX!”

## Challenges

Increasing complexity in the production made it more difficult to keep a clear overview for the company.

## Solutions

- ROB-EX Planner
- ROB-EX Viewer
- ROB-EX Plus
- ROB-EX Project
- ROB-EX Integration
- ROB-EX Macro

## Benefits

- Significantly better overview
- Can see workload on both operators and machines
- Better utilisation of capacity
- Visual marking if scheduled delivery time is exceeded





# Baltic Emballage: Only 65% of orders were delivered on time — today on-time delivery has reached 99.8%



## About Baltic Emballage

Baltic Emballage produces buckets for varnish and paints for both private homeowners and the industrial markets. The main market for exports is the EU, but Baltic Emballage also exports products to the US, Russia, Turkey, The United Arab Emirates (UAE) and Singapore.

# Baltic Emballage

“We use ROB-EX Scheduler to the full, and we are extremely happy with the system. There is really nothing negative that I can say,” says Jesper Larsen, COO at Baltic Emballage.

## We now have an overview and deliver on time

When Jesper Larsen was employed by Baltic Emballage several years ago, almost 35% of the deliveries were delayed. Jesper Larsen was familiar with ROB-EX Scheduler from a former position and was formerly involved in the implementation of ROB-EX in other companies. Only a year after the implementation of ROB-EX in Baltic Emballage, on-time delivery reached an impressive 99.8 % — and today the company has a much better overview of production.

It was precisely the overview that used to be lacking — both as regards a long-term overview and an overview of items and materials critical to production. Scheduling was carried out manually in a spreadsheet — and there was no flexibility.

“We had a whoops! situation almost every day,” Jesper Larsen recalls. “We were constantly facing emergencies, and we saw good employees leaving all the time and had to spend a lot of resources on recruiting new people to replace them. Today we are finally rid of the frantic pace and working climate and are able to settle down and focus on actually doing our jobs, in relative peace and quiet.”

Today, Baltic Emballage communication is almost 100% IT based, and this constitutes the basis for new and essential flexibility, also for Jesper Larsen, who no longer needs to be physically present in the company every day to run production.

## Give employees a say: efficiency increases and job satisfaction improves

ROB-EX has helped the company improve communication and inclusion of employees. Jesper Larsen continues, “Everyone has access to viewing the production plan via the many Viewers that have been set up everywhere in the company — including production. This has generated a constructive and productive working climate — people know what to expect, and we now see improved flow.”

## Saving time equals saving money

ROB-EX has simplified communication in all phases of the order process, by giving everyone access to viewing the plan and to seeing where the status of the order in the system.

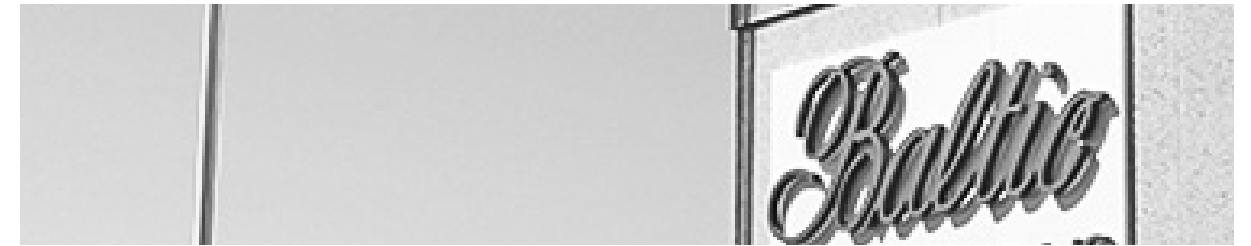
“Employees have an entirely new and positive approach now, and the overview enables them to plan their daily work more efficiently. Employees report back to the ERP system themselves. The ERP system is integrated with ROB-EX, and this makes it possible to keep progression in production updated at all times,” says Jesper Larsen. Direct reporting into ROB-EX saves a lot of time. Furthermore, it is not only production that has viewing access to ROB-EX Scheduler; the Department for Shipments is also able to view the status of orders, e.g. whether a given order has been produced or is pending.

## We spot problems sooner — and are able to pre-empt disaster

Jesper Larsen continues: “We have experienced other benefits than the ones we targeted. We have views that cover the whole plan. We no longer have to rely on two sets of eyes to spot all potential problems — we now have 12 people actually working on the plan. With more eyes comes more feedback, and we are able to spot potential problems and find constructive solutions before everything goes haywire”.

## The implementation process and collaboration have been great

“The process of implementing ROB-EX in the company has been a great experience. We implemented ROB-EX Scheduler several years ago, and we were fully operational in 2 weeks. Our collaboration and contact with ROB-EX A/S (a GE Digital partner) have both been excellent and we have not experienced any problematic issues whatsoever. ROB-EX A/S has always been easy to reach and ready to help us. I always call Tommy (Tommy Junge Hansen), who provides us with prompt and targeted solutions to whatever we need,” concludes Jesper Larsen.







# Revenue growth and more satisfied customers at Bifodan

- ▶ Bifodan A/S, now part of Deerland Probiotics & Enzymes, produces dietary supplements and medicine. The production consists of both Bifodan's own products and customers' brands. After working with Novotek and implementing ROB-EX Scheduler, Bifodan has improved their credibility as supplier and realized a 20% revenue increase.



# 100% confidence of effective management

The production processes at Bifodan include mixing of ingredients according to prescriptions, production of pills or capsules, surface treatment, packing, quality control, approval, and delivery.

ROB-EX Scheduler provides overview of all processes, ensuring that production is scheduled so that resources and materials are utilized optimally.



ROB-EX has made a big difference in the daily work at Bifodan. Logistics and purchasing manager Steen Christensen says: "ROB-EX gives us control of our delivery times and our reliability as supplier is top notch. It is essential in our industry. Our customers have 100% confidence that their orders are in the best hands with us and that they receive the agreed goods delivered in the agreed quality and on time. Through an effective and strict management of our activities, from order receipt to delivery, it has been possible to increase both turnover and revenue without hiring more employees. ROB-EX has a share of the credit for this."

*"Our credibility as supplier is top notch."*

— **Steen Christensen,**  
**Logistics and purchasing manager, Bifodan A/S**

## From order to finished product

ROB-EX is a graphical scheduling tool where the information to the production schedule can come from the ERP system. At Bifodan ROB-EX is integrated with NAV. When customer orders, production orders, and purchasing orders are set up in NAV, the relevant order information is exchanged with ROB-EX, and ROB-EX can afterwards automatically place the order in the production schedule. Changes will immediately be exchanged with NAV if the planner edits the production schedule.



## Bifodan A/S Hundested, Denmark

### Challenges

To get as close as possible to 100% compliance with promised deliver because security of supply is an all-important factor in the pharmaceutical industry

### Solutions

- ROB-EX PLANNER
- ROB-EX VIEWER
- ROB-EX PLUS
- ROB-EX PROJECT
- ROB-EX MANPOWER
- ROB-EX INTEGRATION
- ROB-EX SERIES & GROUPS
- ROB-EX MULTI-USER

### Benefits

- Delivery compliance went up from 82% to 98%
- Increased credibility
- Contributory cause of 20% increase in turnover



# Obvious benefits

**There are a number of benefits related to giving relevant employees at Bifodan direct access to an updated production schedule.**

- The purchasing department focuses on whether the ordered items arrive on time, so that scheduled orders can start on time.
- Optimization of planned purchasing, meaning that raw materials for production arrive as close as possible to the time of consumption. This reduces inventory levels and lowers handling costs.
- It calms things down and increases efficiency when you can take bottlenecks and other issues into account before it will affect the ongoing production in the form of sudden changes.
- Bifodan does not have to spend time discussing possible changes and delays with customers and internally in the company.
- No orders where the sales department promises a delivery time that Bifodan cannot comply with. In the production schedule employees can see what consequences a rush order will have.
- The workload graph in ROB-EX gives the sales department an opportunity quickly to see when there is capacity available to take in new orders.



## **Increased credibility and turnover**

Bifodan meets delivery times on 98% of orders after implementing ROB-EX. Before it was around 82% of orders that were delivered on time. Now Bifodan has more credibility as a supplier, and they have also increased satisfaction among both customers and employees. Moreover, better scheduling of production has contributed to a 20% increase in turnover.





# Cabinplant coordinates all project plan and production schedules in ROB-EX Scheduler



## About Cabinplant A/S

Cabinplant A/S was founded in 1969 and employs several hundred employees. They have subsidiaries in Germany, Spain, England, and Poland. Cabinplant is a market leader within the manufacturing of complete production plants for the food industry and delivers turnkey installations worldwide.

# Cabinplant



## A scheduling tool for the entire company

A single order for a customer can consist of more than 100 different processing machines and transporters, etc. In the past each department had its own Excel sheet to plan their work in, and since most orders consist of complete production plants for the food industry, all departments are usually involved in solving the tasks. This meant that a lot of time and energy were spent on coordinating and updating the individual spreadsheets for each department to keep track of production and deliveries.

This task had become so demanding that Cabinplant decided to try to find a scheduling tool which could solve the overall scheduling task in one single schedule for the whole company, and which could include all production and project tasks in all departments. ROB-EX Scheduler had the features that Cabinplant demanded for their scheduling challenge.

## An ambitious project

The Cabinplant team was aware that they had started a very ambitious project if they were to meet their own objectives and gather project and production schedules for all departments into a single schedule. Therefore, Cabinplant decided to have consultants from ROB-EX A/S, a GE Digital partner, on the project as advisor and project manager throughout the entire implementation process. It would ensure the best possible start and that all departments' needs were met best possible within the standard system framework.

Cabinplant put together a project team with participants from all departments, and together with a consultant from

ROB-EX A/S they built a template model to use every time a new project is created. The model was tested on a number of selected projects, and this way the template was adjusted to match the "real" world at Cabinplant.

Therefore, when Cabinplant chose to go into operation with ROB-EX they were confident that it would work as intended, and all stakeholders had a successful experience. When you put such a comprehensive system into operation it is important that the employees who provide input to the solution also get a result at the other end, which gives relief in their daily work, e.g. in the form of updated reports and overviews they can count on and steer by.

## A good follow-up tool

When the sales department submits a new order to the technical department, it is created in ROB-EX using a template project which is quickly adjusted to the current project. When the project is described in detail, the project manager from each department makes sure to get the need resources and the estimated time registered in the project schedule. Also supply agreements with suppliers are managed in the project schedule in ROB-EX.

Every employee has an overview of what tasks they are assigned on various projects that run simultaneously, and if the total workload sums up to more hours than the resource is rated for, an alarm will show in the schedule in ROB-EX.

All employees who are assigned projects regularly reports their time consumption via the time registration system in Dynamics, and the project schedule in ROB-EX are regularly updated with the actual time consumption. This way the

project managers and heads of departments can follow the progress in on-going projects. And it gives them a very good follow-up tool.

The project schedule in ROB-EX can be seen at a very general level, but it can also be folded out to multiple levels and for each level the schedule becomes more and more detailed. Cabinplant can do with one project schedule that meets all stakeholders' needs for information, ranging from the need for the big picture of the overall project to the employee who works with a single machine part in a project.

## Challenges

To get an overview of all activities related to deliveries of complete process lines and a continuous and action-oriented follow-up throughout the project cycles

## Solutions

- ROB-EX Planner
- ROB-EX Plus
- ROB-EX Project
- ROB-EX Integration
- ROB-EX Multi-user

## Benefits

- Control of time consumption and costs throughout customer project cycles
- Projects and production gathered into one schedule





# Campine has an accessible and up-to-date scheduling system



## About Campine

At Campine, a company located in the Belgian town Beerse, proper scheduling is necessary. Campine produces the substance antimony trioxide. It is found in flame-retardants for example. In addition, Campine produces plastics used in packaging and households. The company is also active in the field of lead recycling. It recycles about 50,000 tons of lead-based batteries and other waste products.

# Campine



## All production data integrated into a single schedule

At Campine it is important to have an overview and surveillance of the three production lines. Since the implementation of ROB-EX Scheduler, the scheduling at Campine has become more transparent. Frank Bogaert, head of the plastics production department, knows how important this is.

## Excel sheets are history

In his department Frank Bogaert is responsible for several tasks regarding working schemes, materials, and maintenance of production lines. Recently, ROB-EX has been implemented to optimize the production scheduling at Campine. Frank explains: “Excel sheets and printouts belong to the past. Now everyone has access to the schedule, and the number of errors is significantly reduced.”

## Always updated

From the initial idea of having an advanced planning system to the actual implementation there has been a very short time period. Frank continues: “Within two months the project was realized. We have an easy and visual system where all our specific needs are included. In addition, ROB-EX is an affordable solution.”

## Accessible and easy to delegate

“The color markings on each line clearly show when different products are to be used in production. And the system is accessible for departments within the company. We are better able to plan the working teams, the machines operate more efficiently, and we can respond more quickly to customer inquiries. In addition, it is easier to delegate tasks to other planners.”

## Opportunity to expand the solution

Frank has been working with ROB-EX for some time. He is very satisfied with the system, and he believes Campine can get even more benefits of using ROB-EX in the company. “We really want to deepen our knowledge of the system. We also have a wish to integrate ROB-EX to our ERP system SAP. Thus, we can save even more time because we will be able to better control the procurement of raw materials for example. We also examine the possibility to get an overview of the set-up and switch-over times on the machines with a new tool that could connect to the system. This would give us the ideal schedule in ROB-EX. We are sure that the future holds many opportunities for our use of ROB-EX.”



## Challenges

Campine needed a better overview of their three production lines and less errors in the production

## Solutions

- ROB-EX Planner
- ROB-EX Viewer
- ROB-EX Plus
- ROB-EX Materials

## Benefits

- Better overview of the entire production
- Reduced number of errors
- More effective utilization of machines





# De Danske Gaerfabrikker “the Danish Yeast Factories” increased production capacity by 15-20% with ROB-EX



## About De Danske Gaerfabrikker

DDG is a subsidiary in the Lallemand Group. Lallemand Group specialises in yeast production and products for the bacteriological production industries. Worldwide, the group has 4.000 employees distributed in 70 production plants across the globe. De Danske Gaerfabrikker is located in Grenaa, Denmark, and has 100 employees. Gert Fogh has been the Head of Logistics at DDG for 10 years. Production scheduling has been carried out in Excel spreadsheets up until the implementation of ROB-EX.

The system automatically collects data from the many process tanks and storage tanks. This data is uploaded to ROB-EX. The company has installed about 25 physical view/access “stations” with ROB-EX across the entire factory. There are both process “stations” and operations “stations,” distributed so that all employees are able to log on to the system wherever they are.

# De Danske Gaerfabrikker

“Our ROI as regards ROB-EX has been only three months. We used to be under a great deal of strain to keep up, but in only three months we have increased productivity, and are now getting everything done in time, and with ease. We are talking about an increase in capacity of 15-20 %, all due to the introduction of ROB-EX,” says Gert Fogh, Head of Logistics at De Danske Gaerfabrikker (DDG).

He continues: “We have increased capacity and improved efficiency significantly by implementing ROB-EX — and we expect to continue to do so. I would like to commend ROB-EX for the way that the system pinpoints the areas in production that have capacity to yield more output. We operate with total transparency, and we are able to see the timeframe for each process — something that we were not able to do before ROB-EX. If a machine breaks down, we are able to get back up and running much sooner than we used to, and we are simply able to increase our production volume, just by introducing ROB-EX.”

## **ROB-EX Scheduler shows the extra capacity that is already available**

“DDG is fully based on process manufacturing. This means that our various production plant factors are interdependent from start to finish.”

Gert Fogh elaborates: “It really makes a huge difference that we are able to view the interdependencies between machines — we are able to spot areas with idle capacity and we are able to get an immediate overview of production conditions. The overview makes it easy to answer inquiries for new orders — we have a full overview, and customers get reliable information about when we are able to produce their order. Prioritisation is much simpler with ROB-EX. ROB-EX generates viewable

interdependencies, so that we are able to see the holes in the cheese. We are able to see gaps in capacity that we are not fully utilising — we were not able to do this in our old Excel plans.”

## **A flexible solution for complex production**

With about 200 product recipes, production at DDG is highly complex. ROB-EX includes features that automatically schedule and control the many processes involved in yeast production. Yeast undergoes enormous growth during the production process, from one tiny seeding specimen on a glass medium to 30 tonnes of yeast in a tank. By setting up rules in ROB-EX, the scheduling tools include limitations, possibilities and rules for the various tanks and pipe connections so that the many yeast products do not mix or otherwise affect each other.

“We schedule the entire process in ROB-EX, all the way through to the finished and packaged product, which will be some form of dry yeast or a yeast extract that is ready for shipping. Some of the processes take 4-5 days and others take up to 6 weeks. The long scheduling scope was a deciding factor in the decision to implement ROB-EX. The ROB-EX solution is a 100% match to our plant and our production,” says Gert Fogh.

## **Viewable scheduling results in reliable delivery times and optimal stock management**

DDG has a large number of internal customers, i.e. sister companies, that are highly dependent on DDG’s yeast products. With ROB-EX, Gert Fogh is able to provide customers with reliable delivery dates and is able to make accurate estimates for when raw materials and additives are needed. This creates a much more balanced workday all round.

“If one of our suppliers wishes to deliver ahead of time, we are able to say whether or not this is possible — or if delivery is delayed, we are able to see the consequences of the new situation immediately. We have a much better overview and

are able to manage our stocks more efficiently, and we are able to make very accurate estimates of when we need various raw materials, packaging materials, enzymes and other additives for our production.”

Reduction of overall costs through reduced number of faults and errors and reduced down-time on equipment DDG runs a 24/7 production. This means that operators are often on their own if something goes wrong. Before ROB-EX, operators would simply cease working and do nothing, or they would stop production altogether. They were unable to assess the consequences of the situation and this in turn resulted in mistakes and production faults and desperate late-night calls to Gert Fogh.

“Such situations had enormous consequences, both financially and in relation to capacity. If we produced faulty products, or if we ended up with insufficient storage capacity it was extremely costly for us!”

Today operators have a visual overview of production lines via the Gantt chart in the ROB-EX Scheduler, and they are able to see the precise consequences of any changes that they make in the plan. Operators have access to making adjustments and moving operations in the plan, and this gives them more responsibility and influence as regards the planning of their workday. In turn, this results in much more motivated employees.” Gert Fogh continues: “We must dare to utilise our operators’ competences and allocate responsibility for scheduling to them. After all, they are the ones who know and understand the intricacies of the machines the best. Another benefit from allocating scheduling responsibilities to operators concerns our young employees. They enjoy being able to optimise production lines, and they are not shy about running simulations and testing ideas to get the best results. We find that this is a major ‘sales point’ in our recruiting of new employees.”





# East Metal increases efficiency by 10% with new production planning tool



## About East Metal

East Metal manufactures metal components for wind turbines, vehicles, lifting equipment and many other applications. The company delivers prototypes and single-piece products as well as serially produced components, and it therefore requires an extremely flexible planning system that can handle the many changes while keeping production on a smooth run.



# East Metal

East Metal is a recognised manufacturer of metal components with facilities in Denmark and Latvia. The company recently decided to replace its system for production planning, and they chose ROB-EX Scheduler.

## Visual plans give better understanding and responsiveness

“ROB-EX is a great help in our planning process. One of the big advantages is that it makes our plans visual so that everyone can understand them and so that all dependencies are clear. We see the gaps at once and can make adjustments in time”, says Christian Juul Jørgensen, Country Manager Latvia at East Metal.

## Planning in an ERP is not optimal

One of the ideas behind implementing ROB-EX was to separate the ERP and the scheduling process. Until then, the company’s ERP was used to control the production, but it was a troublesome and slightly outdated way to work. East Metal soon has to upgrade to a more modern ERP, but the value of having a dedicated planning system like ROB-EX is clear.

“It is super visual, easy to work with and to understand for everyone. Instead of having whiteboards that never get updated and papers that just lie there, we can use ROB-EX to ‘live transmit’ the plan, so that everybody knows it. Therefore, we will continue to use ROB-EX when our new ERP is in place.”

## Makes it possible for more people to contribute

A more non-hierarchical approach is also on Christian Juul Jørgensen’s and his colleagues’ wishlist. The planning

process used to be top-down and opaque, but now the responsibility will be more shared and knowledge more visible, so that the employees can contribute to a more efficient production and thereby better economic results for the company.

“With ROB-EX we have made things more transparent, and we can now communicate with the entire production floor, even the individual machines. The great visibility that ROB-EX provides has improved our efficiency with, in my estimation, nearly 10%. We now have a 89% utilisation rate of the human-hours available, and this has immediate effect on the bottom line,” Christian Juul Jørgensen says.

## Implementation by remote

Usually, ROB-EX is installed, calibrated and tested on the customer’s premises, but due to the COVID pandemic the solution was activated at a distance. Through a close collaboration between East Metal and specialists from ROB-EX A/S, a GE Digital partner, the system was implemented perfectly, quickly and in a simple way remotely, allowing East Metal to soon reap the benefits despite restrictions.

## All the support needed

After the installation East Metal was connected to the technical expert team at ROB-EX for day-to-day support. The team always stays in close contact to ensure that the customer gets the maximum benefits of their new system for production planning.







# Fipros gets more through their production because they spend less time on machine setup and changes



## About Fipros A/S

Fipros A/S is a subcontractor of food products. The production is highly automated and mechanized with emphasis on food safety and high quality. Fipros' primary customers are Danish food producers as well as export to Scandinavia and Germany.



# Fipros A/S

## Safe supplier

As a subcontractor, flexibility and reliability of supply are crucial to meet the customers' needs and wishes. Therefore, Fipros wants to be able to deliver every order at the time the customer wants — no matter how short the deadline is. Customers must be able to rely on Fipros as a reliable and safe supplier.

Fipros is ISO 22000 certified within food safety for the following product and service areas: drying, mixing, grinding, and packing of food ingredients.

## Opportunity to optimize resources

Orders are created in Dynamics NAV, and when an order has been approved it is automatically exchanged with ROB-EX Scheduler, including prescription and production route. The order is displayed with the status “new” in ROB-EX, and it is scheduled immediately, most often “forward from today with limited capacity.” If the order is scheduled to be ready for delivery within the customer's requested delivery date, everything is fine and nothing further is done.

On the other hand, if ROB-EX shows that the order will be done after the customer's requested delivery date, the planner immediately starts examining the possibility of optimizing resources. First, the planner explores whether they can move one or more orders in the production process to other resources not as overloaded as the first choice.

At the same time, they can see in ROB-EX how large the workload is on each resource and resource group. The

objective is to handle productions within two shifts (18 hours) on weekdays. If it is not possible to optimize within this objective, they must include weekends or a third shift in order to live up to the promise of delivery to the requested time.

## Great help from ROB-EX

Fipros optimizes setup and changeover times by placing production runs with the same route one after another. By doing this they can get even more through the production facilities. At the same time, they assess which production runs require minimal cleaning. This can save a lot of time, e.g. if two productions that contain the same ingredients can be run right after each other. Through tools in ROB-EX, Fipros gets help to assess all these considerations. The greatest help from ROB-EX is when a customer wants to push an order through production in a period that is already full, and all capacity is booked for other orders.

## Easy to simulate consequences

When using ROB-EX Fipros can easily simulate the consequences of pushing a new order into the production schedule. Maybe the consequence will be that one or more orders cannot be finished on time. Sometimes it is possible to agree on another delivery date with a customer, and if this is not possible, they can increase capacity with more hours for human power and machines, ensuring that the order will be finished on time. “Without ROB-EX it will be completely confusing to start moving orders around without losing track. We have used ROB-EX for many years, and I cannot imagine how I would solve my job as a planner without it,” says Poul Pedersen, Production Planner at Fipros.



## Challenges

As subcontractor it is necessary for Fipros to be able to undertake orders when the customers want the orders produced and delivered. This demands 100% control of resources and overview of all tasks at once.

## Solutions

- ROB-EX Planner
- ROB-EX Plus
- ROB-EX Integration

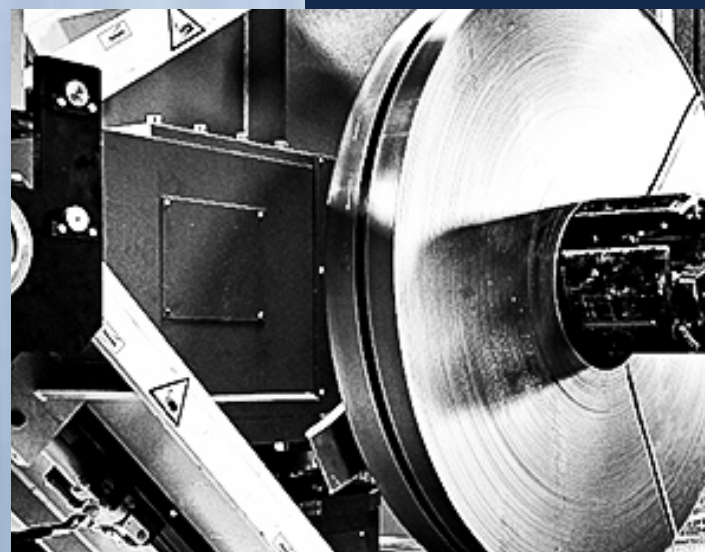
## Benefits

- Delivery at the requested time
- Constant overview of the production





# Ib Andresen Industri: Introducing ROB-EX in production is like introducing a GPS in your car



## About Ib Andresen Industri

Ib Andresen Industri is domiciled in Langeskov on Funen (Fyn) in Southern Denmark. The company develops and manufactures steel solutions for customers. They do not sell a standard own-brand product. Ib Andresen Industri provides processed and formed steel to a broad range of industries including: wind, solar, transport, construction and manufacturing industries.

The company was founded by Mr. Ib Andresen in 1967 and started out with a total of 4 employees. Today, Ib Andresen Industri has more than 550 employees and owns production facilities covering more than 115,000 m<sup>2</sup>.

# Ib Andresen Industri

“ROB-EX is the heart of the production plan in the roll forming department at Ib Andresen. It is now an indispensable management tool in our production scheduling”, says René T. Skov — Planner in the Roll Forming Department.

“Introducing ROB-EX in your production is like introducing a GPS in your car,” he continues. “With ROB-EX you know exactly what you need to do, and you have a clear overview both of the immediate situation and also of what is waiting up ahead.”

René T. Skov explains: “Before the implementation of ROB-EX, we based our decisions on assumptions rather than on actual knowledge, and we lacked an overview of production. We used spreadsheets and based production on a rudimentary plan that we had cooked up ourselves.”

“We now base all decisions on the tools provided in ROB-EX Scheduler. Our roll forming department has benefitted significantly from the implementation of ROB-EX, and everyone is very impressed with our new scheduling tool. We use ROB-EX as our primary management tool, and it is highly suited for the large volumes produced in the department.”

## **ROB-EX ensures that delivery is reliable and delivery times are kept**

ROB-EX has been instrumental in improving the company’s delivery reliability, and it has improved delivery times. ROB-EX has provided an overview of production, and the team is able to call in extra staff as needed for peak production. “We are able to act proactively if we need extra human hours to get production finished on time,” says René T. Skov. “ROB-EX displays the workloads on our respective machines, and we benefit greatly from being able to see how far ahead each machine is booked and which orders we have received.

This helps us ensure the adequate manning of machines at all times — and enables us to keep our delivery times.”

## **Data exchange with the ERP system generates a reliable and immediate status**

ROB-EX exchanges data with Ib Andresen Industri’s ERP system and integrates this data in the scheduling processes. The data exchanged with the ERP system includes: calendars (manning and number of hours), materials and pending production orders.

“We are able to obtain a reliable status overview of production without having to check a lot of different programs and systems. This provides us with a fantastic overview that enables us to act promptly, if anything unexpected should occur — and we are also able to see the consequences of the necessary adjustments immediately. We are, in other words, able to avoid nasty surprises. We have a clear overview of the raw materials available, and based on this information, we are able to act in due time,” says Rene T. Skov.

## **Actively making use of the expertise of our operators**

“The best feature of ROB-EX Scheduler is the overview of production that it provides, and René T. Skov is particularly happy with the visual scheduling overview he has obtained. Viewers have been mounted in production so that all production employees are able to see what is going to be produced and when.

“It is a major win for us that we are able to view all orders visually, and that everyone in production has access to the same data. Operators and production setup-staff are able to see what we are going to run and make certain that

preparations for production are carried out in due time. This has resulted in an improved production flow and more flexible production in general. We no longer have idle or wasted time,” says René T. Skov.

The roll forming department runs with a three-shift system. Ib Andresen Industri currently has 19 production plants in the production plan. René T. Skov meets with the production setup-staff once a week and goes through the week’s scheduled production with them, and they provide input based on their knowledge and expertise. “The operators provide their insight and knowledge about the machines and setup-times, and provide feedback so that we end up with a plan that also makes the most practical sense.”

## **It was easy to get started with ROB-EX**

“The process of implementing ROB-EX in the roll forming department was straightforward,” concludes René T. Skov. “The entire project phase was run really well, and our IT people were already experienced in the implementation of new systems, and this made it easy to get started.”







# JP Group has optimal use of resources, better scheduling, and increased turnover



## About JP Group

The JP Group consists of JP Group Automotive, Johs. Pedersen a/s, Hovwdiaudi, and Garia. Johs Pedersen a/s (JPM) is a state-of-the-art production and assemblies enterprise specialising in mechanical engineering. Products manufactured are primarily spare parts for classic cars, e.g. Porsche and VW. Products include: fuel tanks, oil tanks, heater channels, lamp bodies, arches etc.

JPM supports both JP Group a/s and external OES customers with knowhow, product development, sub-supplies and tools. The largest customer is the sister company, JP Group Automotive. ROB-EX has contributed to better utilization of resources and greater consistency of supply.

Johs. Pedersen Maskinfabrik and Dansk Autoparts have integrated their ERP with ROB-EX which is used to schedule production in both companies.

When orders are received, they are created in the ERP in two separate accounts for Dansk Autoparts and Johs. Pedersen Maskinfabrik respectively, and the production orders are transferred to two separate schedules in ROB-EX. After the exchange of order information, the planner is responsible for scheduling the orders in ROB-EX.

Detail scheduling of jobs

The planner ensures detailed scheduling and moving the jobs to the desired combination of humans and machine. When the planner has prepared an optimal production schedule, the schedule is approved by the foreman before the scheduling information is exchanged with the ERP system and sent further out to each clock card machine in the production. At the same time a production schedule for each work center is printed out. This way everyone can see in what order they should run the production orders.

Room for rush orders

Flemming Jensen, CIO at JP Group, says about the investment in ROB-EX: “When we get a request on a task from a customer the production schedule in ROB-EX can tell us right away whether we can meet the customer’s delivery requirements. If our delivery date is too far out into the future compared to what the customer wants, we have a good overview of all our current production orders, and we can assess the possibility to move some orders and how much overtime work we have to calculate with, as well as what our customer have to pay in additional fees if we are to deliver a rush order.”

Good overview

Before the implementation of ROB-EX there was no real possibility to assess the consequences by taking in new orders

and move around on the priorities in the production. Now the production scheduling is so secure and so detailed that JP Group with great certainty can inform the customers when they may have a desired job put into production. “With ROB-EX we have a really good overview of our 300 production orders in progress”, says Flemming Jensen.

Sale of machinery

Before purchasing ROB-EX, JP Group was about to buy new machines to keep up with demand. But after the implementation of ROB-EX they could do with one single planner (instead of four) and they ended up selling some machines because they were no longer needed.

General scheduling and overview with ROB-EX

Mariane Borring is a planner for JPM - “We need to be highly flexible and prepared to adapt to change, e.g. in order to be able to deliver prioritised orders to the JP Group, when they have an acute shortage of goods for sale.

Mariane Borring primarily uses ROB-EX Scheduler to provide an overview of machines, and for general scheduling. Her scheduling tasks cover all seven production areas: a department for stamping / punching, two welding areas, pipe bending, robot welding, CNC and fitting. Mariane Borring continues: “I have up to 30 production orders that need to be scheduled before a unit can be sent off to the customer — and I have about 1000 production orders all in all. Scheduling covers about 3,500 operations.”

“I am really happy with ROB-EX and the overview of machine operations that the system provides,” Mariane Borring explains. “I set up production in our ERP and transfer the data to ROB-EX. I then carry out the general scheduling for each machine. I print lists for the production staff, so that the operators are able to see the production orders that have been scheduled for their specific machine — and the operators then carry out the detailed scheduling for the day. I believe that having a say in the detailed planning of production improves job satisfaction among operators — they are the specialists when it comes to the machines and which items that can be produced using the same tools.”

Inspiration from the user network

Mariane Borring has worked with ROB-EX for years, and she is happy to recommend the system to others. “It is really interesting to see other companies’ productions and to hear about their approaches to scheduling and the ways that they use ROB-EX. I always come back from the network meetings updated on both new and existing features and possibilities for using ROB-EX,” she concludes.

Challenges

Better overview of the company’s approximately 300 production orders in progress and thereby give the customers more precise delivery dates that can be kept

Benefits

- Optimal utilization of resources — workforce and machines
- Greater consistency of supply
- Better scheduling of the entire production
- Larger revenue

Solutions

- |                  |                      |
|------------------|----------------------|
| • ROB-EX Planner | • ROB-EX Material    |
| • ROB-EX Viewer  | • ROB-EX Integration |
| • ROB-EX Plus    | • ROB-EX Macro       |
| • ROB-EX Project |                      |





# KiiltoClean: ROB-EX for strategic scheduling and allocation of capacity



## About KiiltoClean A/S

KiiltoClean A/S is a subsidiary of the Finnish Kiilto Group. Kiilto was founded in 1919 and currently has subsidiaries and production facilities in 12 countries, including Denmark, Norway and Sweden. KiiltoClean has 1,000+ employees, of which 95 work in Assens.

KiiltoClean A/S is specialized in Workplace Hygiene — soaps, creams, hand sanitation and disinfectants, and in Workplace Safety — band aids, plasters, first aid, eye wash etc. Products are delivered in product containers of many different sizes, ranging from 30 ml tubes to 1,000-liter IBCs.

# KiiltoClean

## KiiltoClean: Strategic scheduling and capacity management with ROB-EX

“We needed a tool for detailed scheduling, as our Microsoft ERP system does not facilitate this. We also needed a tool for scheduling human power and materials. Our scheduling was carried out manually, and it was slow and cumbersome to make changes in our plan,” explains production planner at KiiltoClean A/S, Søren Arevad Barnkob. He continues: “We operate in three shifts and schedule everything from mixing to filling. We produce to order and to stock, and we are able to control and trace all batches in the ERP. With ROB-EX Scheduler we have improved routing between mixing and filling operations, and we save time and resources.”

### Motivation for implementing ROB-EX in the organization

“We initiated the process of implementing ROB-EX in our production in March, and we were up and running in the autumn,” says Søren Arevad Barnkob. “The objective was for ROB-EX Scheduler to improve efficiency in our scheduling, so that we could meet agreed delivery dates while still maintaining a high degree of flexibility and retaining our ability to make quick changes in production. We wished to reduce our stocks and to make preparations for us to handle increased complexity and larger volumes in the future. And we succeeded beyond our wildest expectations. We were even able to expand our product portfolio and increase production volumes concurrently with the implementation process,” he says smiling and continues:

“We are well underway, and we can expand our utilization of ROB-EX further, for example by rolling out the managing of material in the rest of production. We only use part of what ROB-EX has to offer. In the future, we will also schedule human power, machines and materials in ROB-EX Scheduler.”

### Keeping stocks low and releases capital with ROB-EX

ROB-EX Scheduler has already become an important tool in strategic planning and purchasing at KiiltoClean. Via ROB-EX Scheduler the company gets a full overview of the capacity. An overview that provides insights that improve decision-making in a broad range of production-related functions: from recruiting, expansion of calendars and assessment of the need for weekend shifts to deciding whether to bring in sub suppliers during peak production periods. “We run a much more flexible production. We are able to adapt to changes at a much earlier stage,” Søren Arevad Barnkob concludes.

Microsoft Dynamics is the information hub for stocks, purchasing, HR and sales. Orders are opened for production in the ERP, and they are scheduled based on delivery dates on the individual production lines in ROB-EX Scheduler. Production dates are updated in Dynamics. The ERP updating is a key element for KiiltoClean A/S. The scheduled production dates constitute the input for decision-making in purchasing. “We are able to keep our stocks low and to release capital,” says Søren Arevad Barnkob.

### KiiltoClean gets a comprehensive overview of scheduling —and this saves time

“KiiltoClean A/S has an average of 1,000 production orders in the production plan, a timeframe of two weeks for detailed scheduling and a 4-month framework for initial scheduling. Søren Arevad Barnkob adjusts the plan daily and then releases it so that the next week’s production is viewable. He is delighted to carry out scheduling in the Gantt chart instead of in Dynamics columns. “It provides a much more comprehensive overview, and it is much faster,” he says. “I am able to do the detailed scheduling on all 1,000 production orders in a matter of 15 seconds — it is simply brilliant!” Søren Arevad Barnkob uses ROB-EX Scheduler to carry out detailed scheduling on several parameters, including capacity,

human power, materials, start/finish and the specifics relating to each production order. When the detailed scheduling is completed, he releases the plan to production. Transfer of the plan to production is carried out via an HTML report and is viewable on a large screen via ROB-EX Viewer.

### Simple remote support

When Jørn Arvid Sæther has questions regarding the use of ROB-EX, ROB-EX A/S, a GE Digital partner, connects via remote support, and they can look at the solution together. “It is very easy,” he says. “We have an assigned contact person that we can get hold of and who is good at helping us out. Not that it is necessary very often, and I think it has been easy to learn how to use the solution. Today, I am completely dependent on ROB-EX. Because of the complicated production that we have today, I could not imagine having to work without ROB-EX!”

### Competences: mixing, filling and transporting to storage

KiiltoClean A/S has 12 storage tanks of 12,000 liters each and 6 storage tanks for alcohol. The company’s filling machines are fully automated and carry out filling 6 bottles at a time, capping, labelling and packing in boxes.

### Transfer of data from Microsoft Dynamics to ROB-EX:

- All production orders from the status “scheduled” to “started” (approximately 1,000 orders)
- BOMs for each production order
- Notes relating to each production
- Absence (human power) — days off/holidays etc. Employees register their daily arrival and departure in ERP
- Stock inventory
- Purchasing orders
- Sales orders
- Machines





# Kjærgaard manages all their projects and 100 technicians in ROB-EX



## About Kjærgaard A/S

Kjærgaard A/S is a total supplier within automation and installation for the manufacturing industry. From construction installation building of telecommunications and data networks to the most advanced machine control and robotic cells. Daily Kjærgaard saves many hours on planning and project monitoring because they use ROB-EX.

# Kjærgaard

## New project

At Kjærgaard new orders are created as projects in the ERP system with an estimate of time spent per project phase such as scheduling, installation, programming, documentation, and implementation. Created projects are transferred to ROB-EX for further scheduling.

## On-going follow-up on projects

The many employees in the company are listed in ROB-EX, and it is the individual department which is responsible for distributing tasks in the subprojects. When tasks in a project is appointed to each operator, Kjærgaard can print out worksheets for each employee. All employees also have electronic access to ROB-EX where they can follow the project and the remaining tasks for each and all related personnel. At least once a week the employees must report time spent per task. Time spent on the projects are registered in the ERP system and then exchanged with ROB-EX. Head of department can follow the project's progress via ROB-EX, and continually assess the project according to time of delivery. This gives the head of department opportunity to bring a project extra resources or take in more tasks if the department has excess capacity.

## Extra flexibility

Lars Johansen, head of department at Kjærgaard, says about ROB-EX: "We have seven department heads whose task is to schedule the projects by distributing the tasks to all operators. Department heads can see all operators in ROB-EX regardless of which department the operator belongs to. This provides additional flexibility because excess capacity can be moved to departments that lack employees."

## A good overview

In ROB-EX Kjærgaard can continuously monitor tasks and progress through feedback from employees, and it provides a good overview of the current status for each subproject and each employee's tasks. The electronic calendar is loaded into ROB-EX giving heads of departments the opportunity to see scheduled vacation for each employee. They also register absenteeism due to illness and other absense in ROB-EX, as it affects the time schedule for projects. Earlier Kjærgaard used Excel for scheduling, but it became too heavy and time-consuming to maintain.

"ROB-EX is the tool we have been looking for. ROB-EX saves us from many hours of daily scheduling and project monitoring, and I have no doubt that we already have earned the investment in ROB-EX many times," says Lars Johansen.

## ROB-EX reuses data from the ERP system

ROB-EX is integrated with the company's ERP system, and the two solutions exchange all necessary data automatically. Jørn Arvid Sæther says: "We have always been satisfied with our ERP system, and we still are. The only problem was that we could not use it for complex production scheduling, but ROB-EX has solved this problem for us. Once a week, I hold a meeting with sales and production departments where we go through and prioritize all our resources one by one via big screen. Furthermore, our salespeople can check the production schedule by using a viewer feature, but without rights to edit."



## Challenges

To get an overview of on-going projects as well as manage and coordinate the operators' tasks, resulting in compliance with stated delivery times.

## Solutions

- ROB-EX Planner
- ROB-EX Plus
- ROB —EX Project
- ROB —EX Integration
- ROB-EX Multi-user

## Benefits

- Optimal utilization of company employees
- Greater delivery safety







# Knudsen Extrusion: Now we can deliver an order confirmation in 5 minutes



## About Knudsen Extrusion

Knudsen Extrusion is an order-producing company that manufactures extruded hoses, tubes, flat tapes and profiles in a variety of thermoplastic materials. The customers come from industries such as automotive, pharma, wind energy plus oil and gas, where high quality and reliable supply has top priority. This means that production planning is a critical factor for Knudsen Extrusion.

# Knudsen Extrusion



Knudsen Extrusion in Præstø, Denmark, has achieved great benefits from introducing ROB-EX as a planning tool in production. Planning used to be made in Excel sheets, on boards and Post-It notes, but after implementation of ROB-EX, big displays have been mounted around the production floor so that everyone can see the current status of production. An order confirmation which used to be up to 48 hours in the making can now be delivered in five minutes.

## Visibility makes people feel more responsible

Accessible information not only provides a great overview, it also promotes ownership to the process between employees in the production. COO Stig Bergendorff from Knudsen Extrusion explains: “Our co-workers have been given much more responsibility and ownership because they now can see the plan at all times and see how their work influences on the whole. They report back frequently, one to three times a day, and then we update the plan so that everybody sees what’s happening right now. The employees now understand the difference they make, encouraging them to take much more responsibility for the production than before

## Faster planning

With ROB-EX the planning process at Knudsen Extrusion has become easier, faster and with less friction. It used to be a cumbersome work to process a customer order because the consequences had to be calculated in Excel. Now the planning staff can execute quick and precise analyses in ROB-EX so that the customer can get an almost immediate response.

“We have a quality target stating that customers must have order confirmations within 48 hours. If you ask me, we could cut that target to 10 minutes — in fact, we often can confirm in 5 minutes or less,” Stig Bergendorff explains.

## Acceptance from the production staff?

Replacing a system can be an unwelcome change for those who are supposed to use it in their daily routine. But the benefits of ROB-EX were immediately so obvious that it went surprisingly smooth.

“It was far easier to obtain the acceptance of ROB-EX from the employees than we expected. They had grown used to Post-Its and printed Excel sheets on a weekly basis on which they could tick off boxes as production went along. But after just a single day, they had accepted that ROB-EX was their new planning tool.”

## Painless implementation

“The actual implementation was easier than expected,” Stig Bergendorff continues. “And much faster. We had a deadline on October the 1st where everything had to be ready. We had completed implementation way earlier than that.”

Knudsen Extrusion chose a standard activation. This is a simple and fast activation which means that the customer can begin reaping the benefits of ROB-EX quickly. In fact, it soon became clear that the solution gave much more value than expected.

“Before we went live, we had two weeks with the old planning process in Excel, and then we jumped into it. Now we do everything in ROB-EX. We have put up displays, and we use the system as planned,” Stig Bergendorff concludes.

## Even more benefits to come

ROB-EX is now an integral part of the daily planning routines at Knudsen Extrusion. The company wants to exploit the system to an even higher degree and is preparing to pull data from purchasing and material handling into the system in order to optimise the scheduling even more.







# Krogsgaard's Machine Shop improves customer service with on-time delivery



## About Krogsgaards Maskinværksted ApS

Krogsgaard's Machine Shop Ltd. is a metal processing company with both one-off productions and series with larger number of units. A lack of overview of the production orders because of growth made it necessary to have a planning tool that would ensure that all orders complied with delivery dates, thus increasing the company's credibility as supplier. The solution was ROB-EX Scheduler.



# Krogsgaards Maskinværksted ApS

## The production at Krogsgaard's Machine Shop

Krogsgaard's Machine Shop makes subcontractor work in CNC machining, and their production is highly automated. Deliveries consist mainly of medium-sized parts to various industries in all types of alloys and in accordance with the customers' quality requirements. Krogsgaard's Machine Shop has both one-off productions of complex workpieces as well as series with larger number of units.

## In need of a good overview

As Krogsgaard's Machine Shop got more and more orders, it increased the need for a planning solution that could give a good and visual overview of the orders in the production. At the same time, they wanted a tool that could ensure delivery dates were met, i.e. that the customers could be sure to receive their products on the agreed date

## Better service to customers

The solution to the problem was ROB-EX Scheduler. Krogsgaard's Machine Shop uses ROB-EX to schedule their entire production, thus ensuring that products reach the customers on time. Compliance with delivery dates is improved significantly, and delivery dates are generally kept for every order.

A standard feature in ROB-EX has ensured that the machine shop can manufacture just-in-time, meaning that the products are ready on time and without taking up unnecessary space in the warehouse. Krogsgaard's Machine Shop has customized the solution to fit exactly to their needs and requirements.

"ROB-EX provides a very good overview of the entire production and all the orders, and it has become an indispensable tool for us," says Helle Madsen, who is responsible for the production scheduling at Krogsgaard's Machine Shop.

Approx. 60 % of orders are one-off orders at Krogsgaard's Machine Shop. Therefore, they still need to enter much information, and this naturally takes some time. In return the scheduling on the orders that have standard routes are done very fast, and here the company saves valuable time.

The machine shop has integrated ROB-EX with the ERP system, part of Microsoft Dynamics. The two systems exchange the necessary data and ensure that all data in both systems are updated.

Following the implementation of ROB-EX the customers experience a better service and this will, according to Helle Madsen, give more customers and increase turnover.

## Procurement will be joining

The ROB-EX work processes are clearly defined and trimmed and therefore Krogsgaard's Machine Shop is not afraid to try out the other useful features in the program. Next step is to implement material management to get a better overview of what is in stock, what needs to be ordered, and when it needs to be ordered.



## Challenges

Lack of overview of production orders, as well as a wish to deliver all orders on time

## Solutions

- ROB-EX Planner
- ROB-EX Viewer
- ROB-EX Plus
- ROB-EX Integration

## Benefits

- Better overview of production and all orders
- Delivery on time
- Better customer service





# MBE has a better graphical view and far less errors in their data entries



## About Midtjysk Beton-vare og Elementfabrik

Midtjysk Beton-vare og Elementfabrik, also called MBE, is a Danish private company which produces precast concrete units for office, industrial and residential buildings. MBE is many contractors' preferred supplier of concrete units for prefabricated buildings throughout Denmark. ROB-EX Scheduler provides MBE with a better overview, and it increases reliability of delivery.

# MBE

## Satisfied customers

MBE has more than 50 years' experience in the concrete unit production industry and carries out continuous development of their methods of production, so that they are able to match the requirements of the national and international construction industries at any given time. The company is able to plan on all projecting bases, depending on the requirements and wishes of the individual customer. Their employees follow up on the projects so that the concrete units are delivered to the satisfaction of the customer.

## Have minimized number of entry mistakes

Anders Sørup is Production manager at MBE and says the following about the investment in ROB-EX: "We tried to obtain an overview of our on-going operation by using an Excel spreadsheet, but this was a complicated tool to work with, and we also experienced serious blunders due to typing errors. This was why we decided to invest in ROB-EX and at the same time get the scheduling program integrated with our ERP system, Dynamics NAV. This meant that we could avoid having to type in data twice and this has clearly minimized the number of errors in our planning."

## A clear graphical overview

MBE set up all new orders in Dynamics NAV, and when they plan their production, all data is exchanged with ROB-EX. They have gained a clear graphical overview of all orders in operation. They are able to see immediately whether they will have difficulties in delivering on time, and they can adjust the plan in ROB-EX at once and the changes are automatically transferred back to Dynamics NAV.

Furthermore, MBE's salespeople are provided with a clear overview of on-going projects enabling them to see fairly accurately when they are able to promise delivery on new projects.

## A very significant spin-off

When the orders are keyed in, the drawing department works out detailed drawings of the units that MBE are to produce, and they do this in AutoCAD. Thanks to the ROB-EX Viewer all employees have access to viewing the production data and drawings, and if the details need to be studied more closely, they simply zoom in on the drawing and the given detail can, if so desired, be printed out on a printer on the shop floor. This feature saves time for employees in the production, and it has been a very significant spin-off that MBE had not expected when they started scheduling in ROB-EX.

## A good investment

ROB-EX has proven to be a fantastic investment for us, and we are very happy with how we are able to employ the system in our daily assignments so that we carry out our production as optimally as possible," says Anders Sørup.



## Challenges

To obtain better control and overview of work in progress securing precise delivery

## Solutions

- ROB-EX Planner
- ROB-EX Plus
- ROB-EX Integration
- ROB-EX Macro
- ROB-EX Multi-user

## Benefits

- Fewer mistakes
- Fast and easy to re-schedule
- Much better overview of work in progress
- Information available to all involved personnel





# Novozymes has reduced lead times by 30% and achieved a considerable increase in productivity



## About Novozymes A/S

Novozymes A/S is global market leader within the field of biotech. The division in the Danish town Kalundborg produces enzymes and microorganisms and has more than 700 different products. The site in Kalundborg is one of the world's largest and most advanced enzyme production facilities.



# Novozymes

## Enzymes everywhere

Enzymes for industrial utilization are found in e.g. detergent, animal feed, the production processes of bread, wine, beer and juice, and also in the treatment processes of textiles and leather. Enzymes replace traditional chemicals or additives, and make possible a reduction of water and energy consumption in many production processes. Enzymes are found inherently in all living organisms: plants and animals including human beings.

## The production process

The production process where micro organisms are grown to biochemical products is in general called fermentation. The fermentation process is a biological process created by microorganisms such as yeast or bacteria, for example yeast cells that transform sugar into alcohol. After fermentation, the material undergoes a very complicated cleansing and purifying process that is divided into several steps, which are carried out in a separate purification facility. The material is liquid and undergoes a process involving between five and 12 steps with a lead time up to 170 hours. The production process varies considerably. The material consists of living yeast cells, and consequently no two batches will be identical.

## Ambitions of better scheduling

Novozymes wanted to improve the scheduling of the purification processes. In general the objective was to carry out the scheduling assignments locally and to improve predictability of the process. The meant raising the level of detail. Previously only the first step in the planning process was scheduled, and therefore it was difficult to see and handle bottlenecks. The aim for Novozymes was to schedule

all processes, including intermediate storage in tanks, and have a quick implementation of the solution.

## The solution

Novozymes chose ROB-EX Scheduler because of these features:

- Graphic display and editing of Gantt schedule
- Linkages between process steps
- Definition of resources including capacity and allowing for flexible definitions of one or more physical plants as a scheduling resource
- Alternative production routes
- Setup and changeover time, transportation, and overlap for operations
- Feedback of start/stop directly to the schedule with visualization of consequences if operations are delayed
- Re-scheduling on the basis of new situation
- Bottleneck sorting

The orders are detail scheduled on app. 40 resources and the current schedule is distributed electronically via a ROB-EX viewer for operators in the control room.

## Integration to SAP

At Novozymes ROB-EX gathers data for detail scheduling from the ERP system SAP. The exchange from SAP to ROB-EX includes order data (batch no., product no., amount, and planned start/stop), resources, and production routes (prescription). This saves double data entries and minimizes errors in data.

## Improvements that are easy to spot

The biggest gain has been achieved through improvements in lead times. This has also led to better compliance with delivery times to internal customers, a reduction of work in progress, and capacity on existing equipment has been freed. Now the operators can see immediately what a delay somewhere in the process means for the rest of the production process, and how it affects the orders that are in progress — not to mention what alternatives there are to choose from when adjusting the schedule. Decisions are made faster and on a qualified basis, and employees are happy with the visual overview and clarity in the complex production.

## Challenges

Establish a local detailed scheduling that could increase predictability

## Solutions

- ROB-EX Planner
- ROB-EX Viewer
- ROB-EX Plus
- ROB-EX Shop Floor
- ROB-EX Integration

## Benefits

- Improved lead times
- Reduced work in progress
- Freed up capacity
- Visual overview and clarity







# OTV Plast handles more orders because of better scheduling



## About OTV Plast A/S

OTV Plast A/S is a major supplier of both semi-finished plastics and plastic items produced by machining. ROB-EX Scheduler has helped to triple the volume of orders and ensure OTV Plast's position as a reliable supplier in the industry.

# OTV Plast

## The production at OTV Plast

The processing of technical plastics is carried out on state-of-the-art production equipment, and combined with 20 years of experience, this ensures competitive prices and a consistently high quality. OTV Plast's machine portfolio consists of advanced CNC-operated processing centres, among these: a 9-axial turning and milling centre, 5-axial milling centres, large plan milling centres and 10 other processing centres complete with modern programming equipment. OTV Plast specializes in both prototypes and mass production based on sketches or drawings.

Hot and cold bending is an expanding business area for OTV Plast. They also carry out gluing of PVC and acrylic materials as well as hot air welding and extruder welding. OTV Plast has a large stock of semi-finished plastic materials (technical plastics) at their disposal, and this allows them to deliver from day to day.

## Tripled the orders

Henrik Jylov is Managing Director at OTV Plast. He says the following about the investment in ROB-EX: "In the first three years with ROB-EX our orders have tripled without an increase in our number of employees. I give ROB-EX a significant part of the credit for this. Without this tool for planning our production orders, we would not have been able to assess the flow of the work in progress in production."

ROB-EX means that OTV Plast can provide their customers with reliable delivery times. In the event that a delay has occurred due to e.g. lack of materials, complications with machines or other equipment, or absence due to illness

OTV Plast has been able to alert customers about the situation very quickly. This enables the customers to take the delay into account and make the appropriate adjustment in their own production. And this is of vital importance to the customers so as sub-suppliers, they are able to provide precise information concerning the status for delivery. If OTV Plast is unable to deliver e.g. wearing bands/treads, gear, wheels, bushing/sleeves for a given machine on time, it may consequently result in delays for customers and their customers' subsequent deliveries, often for projects worth millions.

## The ability to deliver on time is vital for growth

All orders were entered into their ERP system for order management, but it was difficult to get an overview of the accumulated workloads in relation to production capacity. The result was too many delayed orders. The only person able to make a prognosis in relation to time of delivery was far too often the production manager. If one of OTV Plast's customers called to get a status on their orders, the only person able to provide answers was the production manager. Therefore, ROB-EX has also been a great help in relieving the pressure on the production manager.

## Satisfied customers

Since the implementation of ROB-EX, everybody can access the production schedule and see when there is room for a new order, or they can see the status of a given order in progress. This has meant satisfied customers — and increasing numbers of customers as well, because the news of the good results spread among potential customers in the machinery industry.



## Challenges

Obtaining a better overview of production and providing customers with more accurate information concerning delivery times.

## Solutions

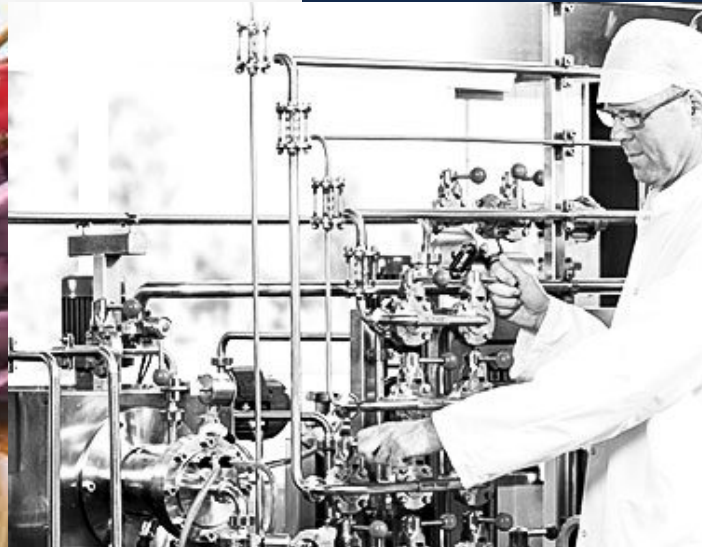
- ROB-EX Planner
- ROB-EX Viewer
- ROB-EX Plus
- ROB-EX Manpower
- ROB-EX Integration

## Benefits

- Increased productivity
- Improved overview of work in progress
- Delivery times that are kept
- Visual marking if scheduled delivery time is exceeded

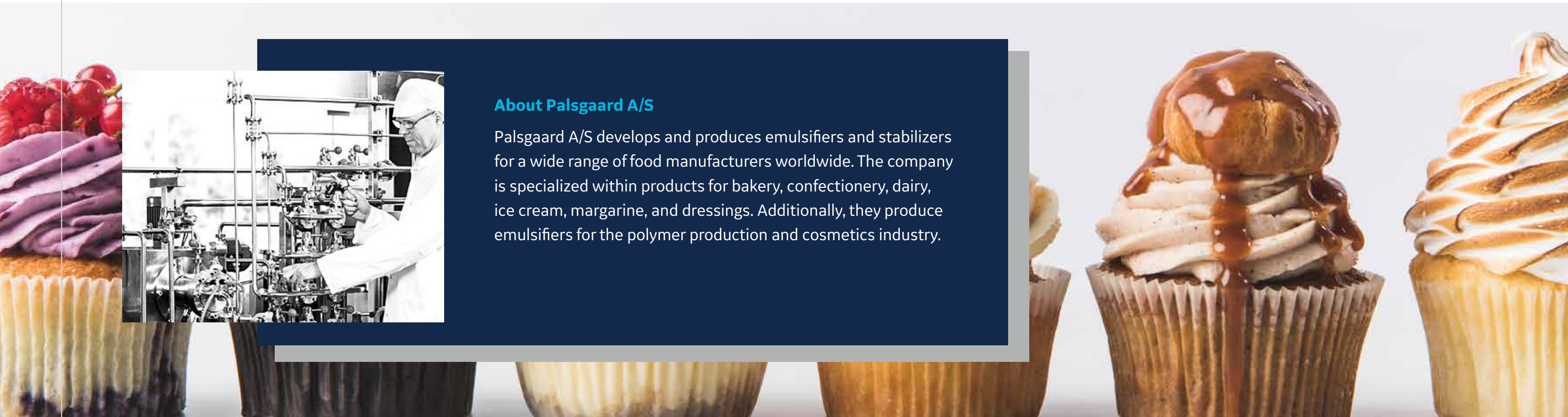


# Palsgaard has a better visual overview and can plan according to capacity and constraints on equipment



## About Palsgaard A/S

Palsgaard A/S develops and produces emulsifiers and stabilizers for a wide range of food manufacturers worldwide. The company is specialized within products for bakery, confectionery, dairy, ice cream, margarine, and dressings. Additionally, they produce emulsifiers for the polymer production and cosmetics industry.





# Palsgaard

## Ingredient producing company with overview

Food manufacturer Palsgaard A/S with headquarters and manufacturing in Juelsminde, Denmark, is a growing company. It has 12 subsidiaries and manufacturing in the Netherlands, Mexico, and Malaysia.

Palsgaard is a healthy, growing company. The company's growth very much looks set to continue, and therefore Palsgaard needed a planning and scheduling system that provides overview and transparency. With the implementation of the planning system ROB-EX Scheduler, the production has been optimized. Among other things, it has meant a much better overview of the production processes.

## Visual overview

The transition to ROB-EX Scheduler has resulted in much less use of printouts. Information and knowledge sharing are done through ROB-EX Scheduler, which is used along with the company's ERP management system.

"Today we have a much better visual overview of the plants. We can see the production in context. In the past, we operated with detached Word documents to each production unit. Now we have a complete picture on one screen," says Torben Dahl-Hansen, Supply Chain Manager at Palsgaard.



ROB-EX Scheduler has given Palsgaard a visual overview of capacities on the individual facilities. Because of this, they are able to optimize the order flow.

"Our production planners have a good overview of what each new order means for the other deliveries," says Torben Dahl-Hansen.

## Shared knowledge

The enhanced sharing of information and knowledge is a major advantage of ROB-EX Scheduler, according to Toben Dahl-Hansen — also when new employees start in the company.

"Everything is organized and managed in one system with a single screen. Everyone has access to knowledge about the entire production. In this way, everyone can contribute even better to the development and improvement of processes," says Torben Dahl-Hansen.

## On-going development

At Palsgaard it is crucial that they can keep developing and refining the scheduling system to match new requirements and new needs.

"It is important that we can develop the system continually. Right now, we are testing a new feature in the scheduling program, which clearly show shelf life on the products, and thereby when they need to proceed to get fewer stops in production and reduce waste," he emphasizes.



## Challenges

Create a better overview of production, and obtain better information and better knowledge sharing.

## Solutions

- ROB-EX Planner
- ROB-EX Viewer
- ROB-EX Plus
- ROB-EX Material
- ROB-EX Macro
- ROB-EX Series & Groups
- ROB-EX Multi-user

## Benefits

- Visual overview of all facilities
- Reduced waste
- Shorter buffer time
- Better overview of delivery dates
- Adjust the individual orders to the facility's capacity and constraints



# Production Scheduling in food manufacturing

Production scheduling in the food manufacturing industries entails a wide array of very specific challenges for the planner.

Manufacturers of food, medical products, chemicals etc. often operate with batches. There will be aspects of both production to order and production to stock — and food manufacturers often operate with process manufacturing. Process manufacturing demands scheduling tools that are specifically designed for this type of production. Other typical challenges facing food manufacturing companies include: production lines with many variants on each line, CIP, physical limitations in production, fluctuating demand, load balancing, and handling of possible allergens.

Food manufacturers face new and ever stricter regulations, and scheduling must take these into account.

## Overview is key for Palsgaard A/S

Supply Chain Coordinator, Christina Elstrøm Jensen, at Palsgaard A/S tells us that the company has used ROB-EX for 5 years now. She highlights the overview provided and the immediate visual presentation of the consequences of all scheduled activities, as some of the greatest benefits that can be obtained by food manufacturing companies, such as Palsgaard. She continues:

“The overview provided by ROB-EX enables us to be more precise in the offering of delivery times to customers — we also save time, and as we all know, time is money. Production is much more flexible today, and we are able very quickly to determine e.g. whether we have capacity to take in rush orders or not. ROB-EX makes it much easier for us to manage

our many semi-manufactured products. We receive a lot of raw materials on trucks, and we package finished goods of a variety of shapes and forms, e.g. pellets, blocks / cakes, powder or liquids that are shipped in plastic jerrycans, drums or road tankers.”

Palsgaard A/S emulsifiers and stabilisers are developed and produced for e.g. food manufacturers, bakeries, dairies and for products such as salad dressing, cosmetics etc. Palsgaards A/S has 5 planners and a total of 420 employees (of which 285 are employed in Juelsminde, Denmark).

## Key challenges: shelf life, storage and allergens

Product shelf life is the primary concern in some of the production areas.

“We have deadlines that must be kept to a tee, and products that must progress through production within fixed time frames. We have restrictions relating to shelf life and storage capacity. We have storage volumes of up to 130 tonnes. With such large volumes, it is critical that we meet deadlines — should we fail to do so, the consequences are enormous,” Christina Elstrøm Jensen says.

In other areas of production, the main issue is allergens. One production plant operates with as much as 6 allergenic groups that must be processed in a fixed sequence, to avoid carry-over. ROB-EX provides a full overview of the allergens — it is easy to determine which products that belong in a given allergenic group.

“Products are processed in segregated stages, and today production has a full overview of when they need to move the product from one group to the next — and when they

need to carry out extra cleaning cycles. There will always be residue left in the machines — we cannot get around this fact by simply introducing fixed sequencing. However, the consequences of carry-over are carefully monitored and controlled,” Christian Elstrøm Jensen explains.

## Multiple product variants and product lines

Christina Elstrøm Jensen says: “Palsgaard operates with multiple product lines, and ROB-EX makes the connections between them visible. We transport products from one production area to another, and if we fall behind schedule, we are immediately able to see the consequences of the delay for the second area. This makes it possible to make qualified decisions about how we can mitigate any delays. Some products must leave the production area within 8 hours — this makes it absolutely necessary to have a clear overview of the consequences all way round.

“We try to pre-empt problems. ROB-EX helps us predict a lot of the potential problems so that we are able to avoid downtime, changeovers and extra cleaning. It really is important to be able to predict potential problems, and to act promptly by initiating pre-emptive measures.”

Christina Elstrøm Jensen further explains: “ROB-EX makes it possible to see the consequences of various scenarios, so that we can schedule activities optimally. If we predict delays, we are able to handle these more efficiently. We are also able to reallocate the employees affected by the delay. We are simply much better prepared now. Scheduling is like a jigsaw puzzle — you constantly pull the bits apart and reorganise them, in order to make them fit more neatly together.”



### A viewable plan: access for all relevant areas in the company

“Every morning, purchasers, planners and production have look at the plan together, to see if the scheduled activities are on track. They quickly get a full and diagrammatic overview of the status in production — and all relevant people in the company have access to the monitor.

"In production they are able to view the scheduled orders and to keep updated on changes in the plan. Our production staff are very happy with their Viewer access — now they are always fully updated on the products that are scheduled for production, and they are able to have more of a say as regards their daily work. The contributions from our production staff result in more efficient scheduling. They are able to use their experience and know-how to make suggestions for the practical execution of orders, e.g. by suggesting a change in the sequencing of operations that may save us a cleaning cycle,” Christina Elstrøm Jensen says.

ROB-EX continues to feature new development, and Christina Elstrøm Jensen looks forward to utilising new features.

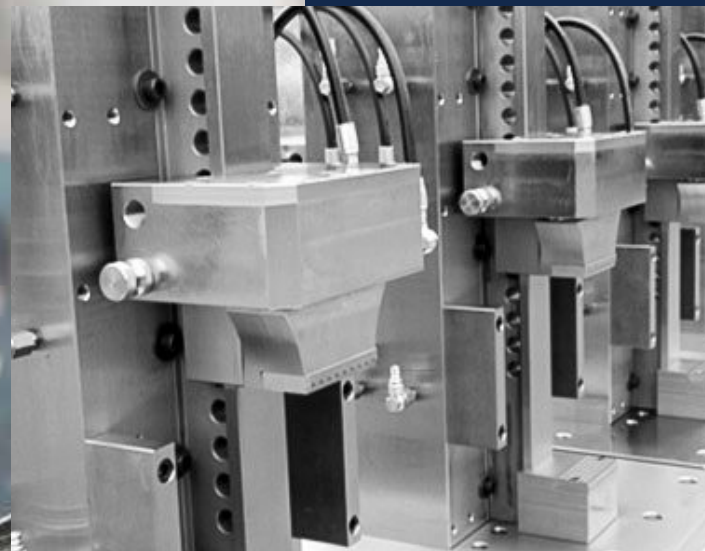
“The new feature 'Campaigns' makes it possible to operate with groupings of groups of products, lock the period and then finish the campaign. This means that we are able to skip a cleaning cycle, e.g. when we run products for ice cream. Finding ways of reducing the required number of cleaning cycles is a big deal in a company such as ours,” Christina Elstrøm Jensen concludes.







# Polund provides reliable delivery dates and can see the consequences of their priorities



## About Polund A/S

Lars Pors and Ole Tolderlund founded Polund Machine Works in 1998. Polund A/S provides subcontracting work especially for milling and surface grinding, but today the most important part of the turnover comes from Polund's own brand - PRO-CLAMP Systems. Polund wanted a better overview and more certainty about delivery times. ROB-EX Scheduler met their requirements.



# Polund A/S

## Valid delivery times

Along with the PRO-CLAMP Systems, Polund performs milling in plastics and aluminum, surface grinding, and form parts for the tool industry etc. When working hours are set up in the company, careful consideration is given to the needs and wishes of each respective employee. This means that the scheduled working hours are individual for most employees. Their ERP helps with the administrative assignments such as billing and accounting, and ROB-EX Scheduler controls production scheduling.

Lars Pors is the managing director of Polund, and he is very satisfied with the investment: “Scheduling with ROB-EX enables me to provide our customers with reliable assessments of delivery times. Even more impressively, ROB-EX allows me to give my customers alternative delivery times and prices based on the overview that I have in relation to when individual machines and operators are available. I am able to give my customers a choice between the earliest possible delivery — using the fastest machines and operators and at a higher price, or slightly longer deadlines for delivery and at a lower price. Without the scheduling tools available with ROB-EX, we would never have been able to offer our customers this service.”

## Screen image provides important information

The production planner has set up the production schedule in ROB-EX so that he is able to include the following information in a single screen image:

- Every employee’s working hours and holidays
- Every employee’s scheduled operations on each machine
- Setup times on machines and human power
- Scheduled workload on each machine per hour, day, week, month, quarter, and year
- Scheduled assignments with one operator handling multiple machines
- Scheduled execution of stock orders

## Efficient tool for scheduling

In the daily scheduling in ROB-EX, the production planner has a regular working procedure. When a new order comes in, resources such as machines and human power will be booked in ROB-EX. This is done taking already scheduled orders into consideration and keeping an eye on the workload scheduled for the respective resources. If Polund receive a rush order that requires changes in the scheduled orders, they are immediately able to see what the consequences of this will be for the entire plan, and thereby make a reprioritization which they know the consequences of. The Gantt screen image also enables Polund to monitor the progress of individual orders. Therefore, they have full visibility all the way from order placement to delivery of the finished product.



## Challenges

Gain overview of orders including work in progress allocated to staff and production work centers, so that customers can be provided with reliable delivery dates

## Solutions

- ROB-EX Planner
- ROB-EX Viewer

## Benefits

- Optimal utilization of resources increased
- Due date performance
- Better production schedules
- Increased turnover





# Pro-Automatic saves money on overtime costs after the implementation of ROB-EX



## About Pro-Automatic A/S

Pro-Automatic A/S is a modern manufacturer of electronic switchboards and control panels. The company develops and manufactures all types of switchboards, from small boards to advanced distribution switchboards of several thousand ampere. The production of control panels includes control panels for machine operations as well as complex process control panels. All panels are delivered in type tested system modules that meet the national and international norms and standards. ROB-EX Scheduler has made planning at Pro-Automatic easy to handle and more accurate.

# Pro-Automatic



## Precise status on individual orders

Pro-Automatic had previously used Modulex boards for planning the production of electronic panels and switch boards, but this proved too complicated and slow when dealing with the large number of orders that they have. Therefore, they decided to get a modern PC-based planning tool, and they chose ROB-EX Scheduler. “We have not regretted our choice for a single moment,” says CEO Michael Schrøder.

They have a volume of approximately 300 current orders for electronic panels and switchboards, and ROB-EX gives a clear overview of all orders. ROB-EX also enables Pro-Automatic to provide their customers with a precise status on individual orders, and the customers can rely on the delivery time they are promised.

## No frustration in production departments

Whenever they receive an inquiry concerning a new assignment, the sales team is able to see when a time of delivery for the order could be realistic. Subsequently, if Pro-Automatic receives the order, it does not result in frustration in production or in fitting/assembly departments, because the sales team has a clear overview of all current assignments.



## Work groups and human hours available each day

At Pro-Automatic the employees are divided into different work groups. These groups have been set up as resources in ROB-EX, and each resource deals with various core products. The core products are:

- Mains and distribution panels (distribution of electricity and effect of current)
- Control panels (machine control)
- Group panels (e.g. for single family detached houses)
- Double insulated panels (e.g. for agriculture, harbours, camping grounds etc.)
- External fitting (restructuring of existing panels and switchboards)

Pro-Automatic has ROB-EX set up to show the number of human hours that they have at their daily disposal in each work group, and they can see how many hours that have been allocated to the daily assignments in each group.

## Quick overview by means of colors

The foremen can monitor the progression of production for each individual order. When the order is set up in ROB-EX, it is given the status “created” and the colour grey. When the drawing is ready, the status is changed, and the colour also changes to dark blue. When production of the panel frame is started, the colour is changed to light blue in the production schedule. Following, when the panel is fitted/assembled, the order in the schedule turns green.

ROB-EX provides the foremen with the possibility to monitor the progression and they can react immediately if the progression does not proceed as expected. If a customer calls to inquire about the status of the order/orders that they have placed, the foremen are able to provide a clear answer immediately, by simply glancing at the schedule in ROB-EX. Furthermore, they are able to obtain an overview of the individual fitters and the assignments that are allocated to each of them respectively.

## Challenges

Obtaining a better overview of the time consumption for the current production of boards and panels in order to exact more precision in the stipulation of delivery times — and not least to be able to meet the said delivery times once they have been stipulated

## Solutions

- ROB-EX Planner
- ROB-EX Viewer

## Benefits

- Excellent overview of all orders
- Less overtime work
- Better scheduling
- On-going optimization of production processes
- More accuracy in delivery times





# Royal Agio Cigars Connects Real-Time Information to Production, Improving Efficiency and Quality





Royal Agio Cigars is one of Europe's largest cigar producers, known for brands such as Mehari's, Panter, Balmoral, and De Huifkar. The Westerlo factory in Belgium produces approximately 3,000 country-specific end product cigars with no fewer than 164 production lines.

Managing Director Johan Gebruers and Chief Operations Officer Koen van Hooft explain the role of MES and automation solutions from GE Digital partner Novotek and how they automate the data flow of the entire production process, while simultaneously responding to changing legislation.

*“We have made huge improvements in efficiency. Quality and data have improved. Production now has real-time information and the administrative activities of our employees are now completely automated. This data gives us insight into the production process with which we can further optimize.”*

— **Johan Gebruers, Managing Director, and Koen van Hooft, Chief Operations Officer, Royal Agio Cigars**



### Products

- Proficy Plant Applications
- CIMPLICITY HMI/SCADA
- Proficy Historian
- ROB-EX Scheduler
- Proficy Workflow

### Results

- Zero operator errors
- Enormous gains in efficiency & quality
- 100% failures caught
- Visibility and access to real-time information

### The MES / automation solutions include:

- OEE, quality and traceability
- Centralized monitoring system
- Real-time visualization and control
- Industrial data management – real-time and historical
- Information anywhere, any time through web browser
- Scheduling and planning across plants



# The Role of Automation

“The entire automation operation has been rolled out in various phases and consists of a number of steps,” Johan begins. “The first step was to fully automate the data flow to and from the PLCs. Many of our machines were already equipped with PLCs, but they were still set manually. In addition, only global information was available. At the start of the project, we only looked at the automation of production registration and some other simple things. By implementing the MES solution for operational excellence solution with Novotek, it now automates the entire data flow, including the data collection of all PLC failures. As a result, in the pilot alone, we uncovered an important difference in production. We had been working on these differences for years.”

## Less Administration

“We have also made great strides in terms of functionality,” Johan continues. “We now see exactly which product will run on which machine because the data flow is now fully linked. Actually, our operators can no longer make mistakes.”

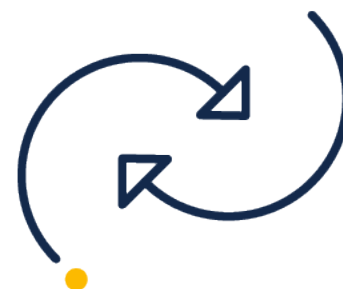
Koen adds: “We have made a lot of progress in the processing and handling of complaints. Originally these were manual procedures. For example, a complaint came in about a coil (roll of net curtain-like fabric on which the tobacco leaves are stored) from Sri Lanka. In the past, the booking voucher had to be looked up first, then that voucher went to administration, and eventually the ignition coil could be booked, and the complaint passed on. In this new situation, the ignition coil is already scanned on the machine and logged automatically. Any remarks about quality will immediately be considered. It is now fully automated and traceable online.”

## Catching 100% of Failures

“Phase two included the RFID story,” says Johan. “Now if a container with bunches (semi-finished products) is placed on the wrong machine, the system will immediately display a message on the screen, and the machine is immediately stopped. In the past, the machines continued to run for a few more hours, with enormous consequences. Such an error produces 100% failure: the entire batch was then unusable. This occurred five to six times a year. That is now captured and errors prevented! Because there is a link between MES and RFIDs, we know exactly what is on the pallet and what goes into the machine.”

## Linking HMI and Document Management System

Phase three is also currently running. Johan said “We have taken on the extra functionality that was not in the pilot, such as the Document Management System. All our procedures are included. Until recently, they were printed out and hung up on the shop floor. If something changed in the procedures, you had to restart all numbering and replace all versions. Now the HMI is linked to the document management system, allowing operators to immediately have access to the corrected versions.”



## Changing Legislation

Koen explains that Agio Cigars also immediately deployed the real-time scheduling and planning module, ROB-EX Scheduler, in view of changing legislation. “Until now, all products were packed in Westerlo. We then put it in the Netherlands in stock, where we labelled the products country-specifically. Due to new legislation, there will soon be so many stickers on packaging, that we will switch to country-specific packaging, and therefore have to plan across factories: from ‘single-site planning’ to ‘multi-site planning.’ ‘We are also going from ‘make to stock’ to ‘make to order.’ Real-time planning is then a must.”



## About Novotek

Novotek is the leading creator of innovative solutions for Automation and Industrial IT in the Nordic countries, Benelux, Switzerland, United Kingdom and Ireland. The foundation is a portfolio of great products from among others GE Digital. With a team of highly dedicated solution architects, we are able to deliver solutions that make it possible for our customers to stay ahead with competition.





# Rynkeby Machine Shop has more orders in production and improved delivery performance



## About Rynkeby Machine Shop Inc.

Rynkeby Machine Shop Inc. is supplier to a wide range of industries. They are a modern company with 24-hour operations, and they focus on having good cooperation with customers. ROB-EX Scheduler has resulted in improved utilization of capacity and better customer service because they can provide accurate delivery dates.

# Rynkeby Machine Shop

## They cover a wide field

Rynkeby Machine Shop has customers from many different industries, including brake manufacturers, pump manufacturers, cogeneration plants, agricultural industry, wind energy, etc. The tasks are all kinds of milling, turning, and grinding processes of small and large workpieces. For example, transmissions, brake components, bar machined parts, pistons, screw compressor houses, and fast spindles. Materials range from steel to aluminum, cast iron, and stainless steel. Rynkeby Machine Shop is also a total supplier of complete solutions.

## The scheduling was inaccurate and time consuming

Before the investment in ROB-EX, Rynkeby Machine Shop had another scheduling system that did not work properly. Therefore, production planning was done with paper and scissors primarily. When they received an order by email, it was prepared for production in their ERP business management system. The calculated time for the order and all the operations were cut out of cardboard and put on a Gantt chart. This scheduling system took a long time, and when changes were made, they had to move all the cardboard pieces that belonged to the specific order to new places. This was an extensive and time-consuming task which also had the consequence that it was difficult to provide customers with valid order confirmations.



## ROB-EX has made a difference

The investment in ROB-EX has brought changes to the planning process at Rynkeby Machine Shop. When the order has been entered and processed in the ERP, it is now exchanged with ROB-EX Scheduler. Here the order is scheduled so that it does not delay other orders, while respecting the delivery date. On the basis of this information from ROB-EX, Rynkeby Machine Shop sends an order confirmation to the customer.

The order's progress through the production will be shown in ROB-EX, both in terms of production start and number of manufactured items. When operations are reported as finished, it is also seen in ROB-EX. At the end the order ends up in the shipping department where it is packed and provided with a delivery note, and the order will now be shown as finished in ROB-EX.

Via screens on the production floor, operators report how much they have done. ROB-EX is afterwards updated via import from the ERP, and the production schedule and status on all orders are updated.

## Increased productivity

ROB-EX ensures that orders are scheduled with a minimum of waiting time in the production, and this means that Rynkeby Machine Shop can get more orders through the production machinery without changing the number of machines or employees, but just by optimizing the utilization of already existing capacity. This means increased turnover and better revenue.

## Better ability to deliver

Allan Bang Steffensen is production manager at Rynkeby Machine Shop, and he states the following about the investment: "We have improved our ability to deliver because now we have a powerful tool for managing the production planning. We can provide a valid delivery date, and if everything does not go as expected, we can inform the customer in due time and thus still be a reliable supplier. At the same time, there has been more time for follow-up on the shop floor because the scheduling in ROB-EX saves time compared to the cardboard strips system."

## Challenges

To minimize the time spent on scheduling and re-scheduling, as well as being able to provide valid delivery dates for the customers

## Solutions

- ROB-EX Planner
- ROB-EX Viewer
- ROB-EX Plus
- ROB-EX Integration

## Benefits

- Can provide valid delivery dates
- More time to follow-up on the
- Shop floor
- Increased productivity





# Sjølund can give their customers exact delivery times



## About Sjølund A/S

Sjølund A/S is specialized in section bending. This specialization, know-how, and highly qualified employees have made Sjølund the leading bending and rolling specialist in Europe. They wanted to provide accurate delivery dates to their customers, and now they can — with ROB-EX Scheduler.





# Sjølund

## A reliable partner

Sjølund bends and rolls steel, stainless steel, aluminum sections, and metal sheets. Fast delivery and a flexible attitude make Sjølund a reliable partner for a large number of companies within a wide section of industries. They have delivered steel sections for many large and famous building projects across Europe. Among these are the Parliamentary Building in Berlin, the Skywalk at Hannover Fair, the Daimler Benz building on Potsdamer Platz in Berlin, Frankfurt Airport, and the Rotunda on Tuborg Harbour.

## ROB-EX gives a great overview

Sjølund has a large number of rolling mills, and at any given time they have approximately 1300 current order lines. Sjølund had difficulties in providing their customers with delivery times that they could rely on. Therefore they decided to find a tool that could provide a better overview of the order book. They chose ROB-EX, which is integrated with Sjølund's Dynamics ERP system.

As soon as Sjølund receives an inquiry from one of their customers concerning a potential assignment, the sales team can access the production plan in ROB-EX and immediately give customers a delivery time that is achievable. This is due to the fact that times of delivery are based on factual knowledge concerning the current assignments already



present in the production process. If the order is placed with Sjølund, it will be set up in the ERP with parts list and production routes, and subsequently transferred to ROB-EX. Here it is allocated directly to a given rolling mill, if the recorder of the order is 100% certain about which specific machine will be used for the assignment. Alternatively, the order is assigned to a group of machines in ROB-EX, and the foreman will then schedule in detail and move the order to the machine on which chosen to perform the assignment.

## Optimized delivery safety

The Gantt schedule in ROB-EX provides a visual overview of all current assignments, as well as a quick overview of the orders that lack materials, something that typically happens because the customers are responsible for delivering the materials for a given rolling assignment. ROB-EX also sends an alert in the event that production time seems to slip and consequently prevents Sjølund from delivering on time. ROB-EX provides the possibility of making adjustments to correct the situation, e.g. by calling in employees to work overtime or by reviewing priorities at the earliest possible moment in the order process. It benefits both employees and customers.

When an order is launched in production, the employees regularly report back to the ERP with time consumption and number of completed items. This means that ROB-EX allows all concerned to monitor the progress of each individual order in production.

ROB-EX has optimized Sjølund's accuracy in relation to delivery considerably, and it has proven to be an excellent investment.



## Challenges

Being able to provide customers with realistic delivery times that Sjølund can comply with.

## Solutions

- ROB-EX Planner
- ROB-EX Viewer
- ROB-EX Plus
- ROB-EX Integration

## Benefits

- Precise delivery times to customers
- Great overview
- Progress for each order



# Symeta Hybrid Achieves Higher than 99% Delivery Reliability



Symeta Hybrid is the specialist in personalized customer communication. Thanks to a unique printing technology and creative possibilities with paper carriers, they provide a personal message tailored to the customer - even when it involves millions of unique documents. The company is a leading service provider in customer communication.

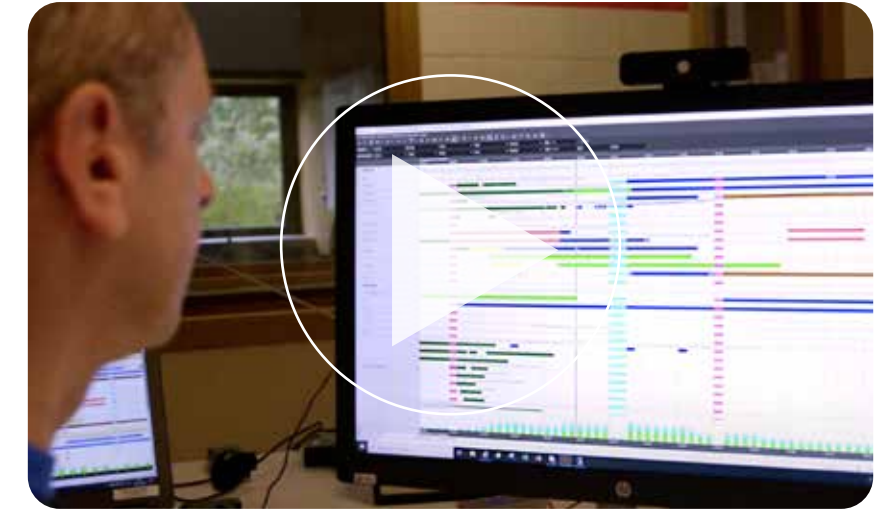


To optimize operations, Symeta Hybrid took the step toward full digitization of production control in order to further guarantee delivery reliability and monitor machine efficiency in real time.

Today, Symeta Hybrid prints and mails 1,800,000 personalized pages for its customers every day, leveraging an innovative solution featuring Proficy Plant Applications, ROB-EX Scheduler, and CIMPLICITY HMI/SCADA from GE Digital's partner, Novotek.

### Assignment of orders and insight into line performance

Symeta Hybrid came to Novotek with the question of how to optimally allocate production orders to the lines and follow them up in real time, building on a foundation of CIMPLICITY HMI/SCADA. In addition, they wanted better insight into line performance by preferably automatically registering the stoppages and reasons for stoppages.



Watch Video

## Solutions

### Implementation of the software for production planning, order execution and OEE registrations

After mapping the requirements and wishes, system integrator Ordina set to work on the implementation of ROB-EX Scheduler for the detailed scheduling part and Proficy Plant Applications for the order execution and OEE registration part. By placing a screen on each line with up-to-date order information and real-time line performance, the operators know exactly what is expected of them and whether they need to make adjustments to meet the planned delivery time.

### Real-Time Visibility and Actionable Information

With the new system, the planner has an up-to-date overview and assigns the orders to the lines. Operators know at any moment which order they need to start at which production line.

Each downtime event is recorded with detailed reason information as a basis for improvement. Furthermore, for each line, the actual performance is calculated.

The planner sees the actual status and progress of all orders in real time and can take action where needed. Additionally, management is provided with insights into production yield and potential improvements.

## Results

### Maintaining a delivery reliability of >99%

Partly due to this digitization, Symeta Hybrid has managed to achieve a delivery reliability of greater than 99% - including at a time when more and more and smaller orders were being processed. In addition, the system provides input to improvement processes, such as optimizing the line speeds. With a digital production control system, Symeta Hybrid can look to the future with confidence.

## Products

- Proficy Plant Applications
- ROB-EX Scheduler
- CIMPLICITY HMI/SCADA





# UG Metal delivers on time and utilizes resources better



## About UG Metal

European metal foundry, UG Metal, is scheduling their production with a ROB-EX solution integrated with Dynamics ERP system from Microsoft. The solution helps UG Metal plan, simulate and visualize their production. The result is a higher utilization and shorter lead times.



# UG Metal

## Modern metal foundry

One of the largest and most modern European metal foundries, UG Metal covers the need for metal castings of high quality in aluminum, gunmetal, bronze, and brass in the European industry. They produce both to orders and standard goods for stock. The customers range from mixers and pump factories to shipyards, windmill and car factories. UG Metal uses MS Dynamics integrated with ROB-EX Scheduler to plan and schedule their production.

## Unique visualization and lower lead times

At UG Metal the production is planned roughly in Dynamics, and ROB-EX is afterward used for the detailed scheduling to ensure that production progresses in the most optimal way and with the least possible time spent on setup and changes.

The unique visualization of setup, process time, queue time, and overlaps in ROB-EX makes it easy and fast for planners to simulate and find the best possible production plan. Dynamics and ROB-EX work on the same data, but the planner decides when the changes that are made in the plan should be exported to Dynamics.

Production planner Peter Dahl from UG Metal says: “ROB-EX has made us capable of increasing utilization and lower lead times. Already during the planning we can see possible problems and solve them immediately. Before we handled problems when the production was running, and this caused interruptions and delays. I simply have not seen anything that does the job as well as ROB-EX.”

## Accuracy on delivery dates

UG Metal has used ROB-EX for several years, and ROB-EX is fully integrated to Dynamics. UG Metal plans the entire foundry process in ROB-EX, including:

- Form creation
- Casting
- Cutting and grinding
- Cleaning
- QA
- Packaging

ROB-EX provides a great overview to both planners and the sales department, an overview that the ERP system cannot supply, and UG Metal has improved their accuracy on delivery dates after the implementation of a ROB-EX solution.



## Challenges

Good overview of the entire production as well as easy integration to the ERP system to minimize data entry and errors

## Solutions

- ROB-EX Planner
- ROB-EX Integration

## Benefits

- Better simulation and visualization of the production
- Higher utilization of facilities
- Shorter lead times





# Voortmann Steel Machinery: Full process overview



## About Voortman Steel Machinery

Voortman Steel Machinery designs, develops and produces machines and machinery for the steel and sheet metal processing industries. The company produces machines for manufacturers all over the world. ROB-EX Scheduler has been implemented in all departments, including project development, planning, purchasing, production, stock and transport — and processes run smoothly.



# Voortmann Steel Machinery

## Process overview = more efficient production

Voortman Steel Machinery, a ROB-EX Scheduler user, designs, develops and produces machines and machinery for the steel and sheet metal processing industries.

## Smart scheduling with ROB-EX Scheduler

We now have a much better overview of our processes, and this has improved our scheduling,” says Gijs Karsten, Production Coordinator at Voortman.

Voortman Steel Machinery produces machines for manufacturers all over the world. “We sell complete solutions. We develop, produce and install modified machines for our customers. We also supply the control software ourselves,” Gijs explains. He continues: “A number of years ago, we started looking into the market for scheduling tools. At that time, we carried out our scheduling in MS Project. Each department had its own schedule — and its own priorities. Everything was fragmented, and this affected our scheduling negatively.

“When we decided to get a new scheduling tool, we first identified the features that we wanted it to have. We looked for a program that the user was able to adjust and change, and that provided management with reliable information, upon which sound decisions could be made. We are an international company, and this meant that the program had to be in English. Reliable and prompt support was also among our requirements.

“Four software suppliers met all our criteria, and out of these two were selected and invited to present their products. ROB-EX A/S (a GE Digital partner) immediately drew our full attention. They didn’t just give us a standard all-purpose presentation. They really listened and processed our input and

wishes. They were very forthcoming, and the story they told us seemed honest and genuine. All of these factors added up, and they immediately gained our full trust,” Gijs recounts.

## Smart scheduling

Gijs continues: “Today ROB-EX Scheduler has been implemented in all departments, including project development, planning, purchasing, production, stock and transport — and our processes run smoothly.

“ROB-EX is very user-friendly. Our staff uses the ROB-EX Shop Floor module. Their individual assignments are viewable on a monitor. The day’s assignments are organised using colour coding, i.e. Black: the job is done; blue: the job is pending and green: I have started this job. This is about as clear and easy to use as it gets.”

## Improved customer satisfaction

Gijs concludes: “Our scheduling is a lot better and smarter. We are better at managing production, e.g. handling bottlenecks or acting when material is lacking. If we receive a rush order, we are able to see whether we have excess capacity in the individual departments, or whether we are able to push other production orders without risking delays in delivery. ROB-EX also has a positive impact on our purchasing, by enabling us to optimise the utilisation of our storage facilities. Less products and materials on stock equals reduced costs. All in all, ROB-EX has generated very positive results: our ratio of on-time deliveries has increased very significantly. The planning tools in ROB-EX help us optimise utilisation of manpower and materials, and also enable us to shorten our delivery times, ...and by the way, all of the improvements that have been generated by our implementation of ROB-EX are also greatly appreciated by our customers.”







# WOCA increased production by 20% — without adding workforce



## About WOCA

WOCA Denmark produces environmentally friendly wood-care products. The company produces wood-care products that ensure longevity and maintaining of the natural beauty of wood and other types of surfaces. Their product portfolio consists of more than 160 products, including products for: pre-treatment, basic finishing, cleaning, care and maintenance. WOCA Denmark is domiciled in Lunderskov, Denmark. The company exports to more than 60 countries. All products have been developed in-house at the WOCA development lab — and all products are produced at the WOCA production facility in Lunderskov. WOCA Denmark was founded in 1969 as a subdivision of Trip Trap Denmark. In 2004, WOCA Denmark became an independent company specialising in wood care products. The company now has more than 100 employees.



# WOCA

"Without ROB-EX, WOCA Denmark would not have improved efficiency to the extent that we have — and certainly not as rapidly. WOCA has been able to shut down the nightshift, thanks to ROB-EX — and we have increased daytime production by 20% — without additional manpower," says Jesper Hornsleth Jacobsen, Head of Production (WOCA). WOCA Denmark develops and produces environmentally friendly wood-care products.

## **ROB-EX optimises all processes in mixing — filling — packing production**

With ROB-EX, WOCA Denmark is able to view the entire process from the mixing of the product in vats and tanks to the filling of finished product into buckets, canisters and other types of containers for liquids. Scheduling and coordinating of production, quality control and the filling department are carried out in ROB-EX. "It is amazing!", exclaims Jesper Hornsleth. "Now that WOCA has implemented ROB-EX, we are able to utilise our resources much more efficiently — both as regards machines and manpower. By pooling orders and leveling production over the whole work week, WOCA utilises capacity optimally and the result is that we make optimal use of our time."

## **A positive impact on everything from purchasing to production, stock control and sales**

All production orders at WOCA Denmark are initiated by sales orders. Production is both MTO (make to order) and MTS (make to stock). Sales orders are imported into ROB-EX from the ERP system, and the finished production plan is exported back into the ERP system. This makes it possible for both internal sales and stock personnel to see when products are ready for delivery. ROB-EX has been instrumental in releasing liquidity as the amount of funds

tied in stock has decreased, and the promised delivery times have become much more accurate and reliable — and customer communication has improved as well:

"WOCA has improved customer services, we have shortened delivery times and we are now able to handle inquiries that we used to have to reject off-hand. All of this is due to ROB-EX providing us with a complete and continuously updated overview of production capacity," says Jesper Hornsleth Jacobsen

## **We are in complete control — reporting and feedback from production in real time**

WOCA Denmark has recently implemented ROB-EX TimeTracker and Shop Floor Operator on each machine in the production and filling departments. Operators are able to see the production scheduled for execution for the next two weeks. The operators report production start and completion directly into the plan. This means that Jesper Hornsleth Jacobsen is able to follow production in real time and is kept updated on progress at all times.

"It means EVERYTHING! We have eyes on all aspects of production and are able to detect all deviations immediately," Jesper Hornsleth Jacobsen explains. "If anything unforeseen happens, we are now able to notify customers immediately — communication with our customers is the be all and end all for us."





## WOCA now approaches production proactively — no idle capacity

With TimeTacker, Jesper Hornsleth Jacobsen and Jim Grytner have a complete overview of actual production output compared to planned output, and they are able to act proactively when there is idle capacity somewhere in production.

“We know that the machines are able to meet the planned output, as we have set up standards for production time for each product,” Jesper Hornsleth Jacobsen continues. “WOCA updates and adjusts standards for production time continuously. We generally operate with positive tolerances when we set up standard production times — as both machines and operators operate more efficiently with optimal scheduling. We are continuously updated on progress — we no longer have idle production capacity, unless this is deliberately scheduled. When we do so, we are now able to schedule the allocation of the affected operators to other assignments in advance.”

Jesper Hornsleth now characterises production as “boring — in the best possible way.”

He explains, “We no longer experience chaos — and we no longer require operators to work overtime. Everyone is kept updated on assignments, and this means improved work satisfaction. Our Supply Chain staff have a calm and productive workday, where they experience a department in full control of things. If something goes wrong in the scheduling process, we now have an overview of precisely where we need to address the given problem, and we can simulate a number of different scenarios in ROB-EX and choose the solution that has the least detrimental impact on our customers.”

## Implementation of ROB-EX at WOCA Denmark

WOCA Denmark has implemented a standard ROB-EX solution. The first step consisted of an in-depth analysis of WOCA Denmark’s actual scheduling and the full range of unaddressed scheduling needs. The company was presented with a proposal for how the challenges could be met with ROB-EX. The proposal was accepted, and the solution was implemented. Relevant staff and operators participated in a ROB-EX training programme. As a part of the continued adaptation and modification services, the ROB-EX Timetracker and ShopFloor Operator modules were added to WOCA Denmark’s standard solution.





## About GE

GE (NYSE: GE) is the world's Digital Industrial Company, transforming industry with software-defined machines and solutions that are connected, responsive and predictive. GE is organized around a global exchange of knowledge, the "GE Store," through which each business shares and accesses the same technology, markets, structure and intellect. Each invention further fuels innovation and application across our industrial sectors. With people, services, technology and scale, GE delivers better outcomes for customers by speaking the language of industry.

## Contact Information

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