



Linak

LINAK is one of the world's leading manufacturers of electrical linear motion systems, the development of linear actuators, and control systems for actuators. The products are used for height-adjustable desks, beds, and wheelchairs, for example.

A large part of the production takes place at the factory in Denmark, and is challenged by, among other things, the Danish wage level.

LINAK is a make-to-order company that offers a wide and specialized product range that places high demands on production. Each customer's order becomes at least three individual production orders. As a result, there are many low-quantity orders.

Projekt New Factory

LINAK initiated a project with the goal of securing an economic basis for continuing to operate mechanical processing in Denmark. The project is called "New Factory."

The focus of the project is on production. Productivity should be increased, and process costs should be reduced. A major part of the project has been reducing processing cycle times while also reducing internal transportation, handling, and packing.

Large parts of the mechanical processing tasks are automated, so the production layout has changed significantly. An intermediate goods warehouse was partially automated with the introduction of a vertical storage lift and a LOGIA warehouse management system.

In particular, the introduction of new technology and increased automation have helped to lower process costs, thus maintaining and insourcing jobs.

New production layout

The first step of the New Factory project was the total reorganization of LINAK's mechanical processing tasks. Processes across the entire department had to

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be evaluated, rather than just optimizing individual processes.

To ensure that the planned solution would have enough capacity despite very unpredictable and flexible production rates, a full-scale simulation based on one week's production was conducted. This laid the foundation for the concrete targets for cycle and handling times.

Cycle times were reduced by 40%

A new production planning system (MES) binds the entire production process together. It receives production orders from Axapta, processes data, makes detailed plans, sends data to machine controls, and reports back to Axapta.

New automatic production lines improved LINAK's cycle times by up to 40%. The automatic production lines automatically receive order information from the MES, and they automatically report back when the order is completed. Data on each item produced is passed through an interface to the next stage of the process.

The machine control in all lines ensures fast change-over time, minimal material waste, flexibility, and the

LOGIA is managing:

- » A vertical storage lift and a manual warehouse area
- » Receiving, registering, labeling, and temporarily storing component parts
- » Automatic and total retrieval of components for assembly orders
- » Managing and prioritizing warehouse operations

ability to process orders all the way down to one unit.

A handling robot is located after all machine lines and packs all components into baskets before they are transported to the intermediate goods warehouse. This ensures that the components are not scratched, that they are cleaned or emptied of emulsion, that there is always the correct number in the basket, and that all baskets are reported as finished correctly to the MES. The robots can identify each item and sort them into multiple baskets/orders. This is an advantage, in that two simultaneous orders can be made on several of the lines.

When packing is completed, the robots ensure that baskets are automatically changed and transported to the intermediate goods warehouse.

Optimalflow from production to warehouse

It is difficult to ensure that all components for an assembly production are finished at the same time. It is therefore necessary to have an intermediate goods warehouse.

The warehouse is partly automated and consists of a vertical storage lift and a pallet rack for half-pallets. The warehouse is managed with the LOGIA warehouse management system. The solution is integrated with Axapta.

As the components are produced, they are sent directly from the production lines to the intermediate goods warehouse. Then, components are transported in baskets via a driven roller conveyor and truck, respectively, to an undriven roller conveyor. In both cases, the basket ID is scanned so that the sequence of baskets on the tracks is known.

When all components for an assembly order have been received in the intermediate goods warehouse, a consolidated removal from storage of all com-

ponents for a given assembly production can be initiated. The operator is guided to pack all items into an assembly order on one pallet, which is driven by truck to the assembly department.

Intermediate goods warehouse management

Many components pass through the intermediate goods warehouse daily. They arrive in a random order, are automatically registered via the basket ID, and stored in the vertical storage lift or in the pallet rack warehouse.

The LOGIA warehouse management system manages and prioritizes all activities related to components that have to pass through the intermediate goods warehouse.

The warehouse is operated by one man who, using simple LOGIA display dialogs, is guided through the storage and retrieval of components. LOGIA controls the order in which jobs should be processed; the operator only has to follow the easy-to-understand visual instructions on the screen.

About LINAK:

- » **One of the world's leading manufacturers of electrical linear motion systems, the development of linear actuators, and control systems for actuators**
- » **The group is headquartered in Guderup on Als, Denmark and uses an area of 38,000 m²**
- » **Present in approximately 35 countries**
- » **About 1,600 employees**