

CH-Burg, October 2014

MOTEK press release

Sustainable willingness to innovate - even in-house

(about 9,000 characters, incl. spaces / 2 pictures)

((Title page))

- **One Piece Flow in assembly and logistics**
- **An amazing level of organisation comparable to that found in ant colonies**

((Lead))

In a highly technologically-conditioned era with rapid changes and changing competitive conditions, what counts today is "faster, more innovative and better". For a successful company management the most important task in strategic management should be to sustainably promote an environment with innovative structures, organisational units, communications, ways of thinking and solution concepts. In doing so a strategy for growth and healthy handling of indicators are indispensable.

((subheading))

Parallels with the animal kingdom

((Plain content))

We continue to come across interesting parallels in the animal kingdom. Although ants have a completely different body plan to mammals, they are basically more similar to human beings than any other creatures. They build societies, collect, tend, defend and explore. In their fighting and industry they are distinguished by an overarching organisation. Ant colonies are constantly subject to changing influences to which they react

with astonishing ability to plan and on the basis of logical behaviour. If additional food sources suddenly open up then more foragers are needed, and if the colony structure is damaged, then rapid repair is necessary. They adapt their working organisation perfectly to the constantly changing environmental conditions. Ants have an incredibly elaborate and complicated chemical communication system. Their most important sense organs are the antennae via which they record immeasurable information in the form of scents, or pheromones. Here, their instincts are interesting: If they run off they leave behind a scent. Wherever the scent is strongest is their goal. This is a simple information-recording and rule-based application system. The individual ant acts locally, but the effects are enormous.

((subheading))

Willingness to optimise processes

For the Swiss-based thread specialists Eichenberger Gewinde AG, close contact and solution-oriented dialogue with the customer is not only the incentive for innovation but part of the corporate culture. Eichenberger's core business is the rolling, hence cold forming, of threads and the manufacture of ball and slide screws (screw and nut).

Growing demands on assembly procedures and additional customer expectations with regard to cleanliness have led to rising turnaround times and additional expenses. The large inventories among individual workplaces and the scarcely ergonomic provision of material were just two of the many circumstances which with rising unit numbers were having a negative influence on ability to deliver.

***Just like the ants, a company has the ability to organise itself.
Here the question is: Within the company, can rules be defined***

whose compliance leads to untapped potential being fully exploited?

Eichenberger seized the chance and turned to Wertfabrik AG. During 2013 it succeeded in rearranging the entire assembly- and logistics division for assembly according to Lean Criteria.

((subheading))

Lean Management solution: One Piece Flow and Kanban

Lean Management is about the principles of a superior development- and production system in terms of efficiency and quality.

What is meant by "One Piece Flow" is production or assembly where manufacture is on the basis of individual work pieces which "flow" through the entire production system without intermediate storage or buffer. An appropriate assembly line can be quickly changed over; so that different products can be alternately assembled in small or even large unit numbers. Eichenberger has opted for the U-shaped assembly cell, where supply and extraction are located at the same end, the material flow takes place "outside" and the operators "inside" have sufficient room. Thanks to the One Piece Flow principle, work- and downtime are reduced, inventories decreased in production and tracking of the material flow ensured.

The self-regulating Kanban system supports the material supply of the assembly islands. It is a rolling container system which replaces the traditional delivery methods. Via the pull principle, also referred to as pull production, the employee removes the preassigned material required for assembly. The Kanban quantity is controlled by a simple visual inventory control. If for example container no. 3 starts being used for removal, this autonomously activates and triggers manufacturing- and transport tasks

in the upstream processes. This way the material flow can be ensured and regulated with minimum control and with standardised inventories and new storage locations. Thus Kanban promotes the stable running of processes in production, control and logistics.

((subheading))

Assembly of the ball screw in the flow

Added value via less waste does not mean working quicker to the point of overload and exhaustion. Rather, production processes are tightened up via optimisation of procedures and losses in time and production eliminated. Potentials were able to be identified by creating an analysis of the current state. The project team established the optimisation focuses together with the employees concerned. After a very few weeks the assembly workstations in Cardboard Engineering were set up on flow principles and the logistics chain reimplemented according to the Kanban principle. Two One Piece Flow manufacturing islands were started up and the first ball screws were assembled in flow. It soon became evident that the targets set had been vastly exceeded. The indicators confirmed top results in relation to quality, processing time and efficiency. There was no longer anything standing in the way of saying "go" to lean conversion of the entire assembly area and logistics for the assembly area.

The comprehensive multiplicity of variants and dimensions of Eichenberger's screw drives posed a particular challenge. The variations in batch sizes of 1 to about 100,000 pieces and increasing demands of customers in relation to cleanliness and precision were also points whose conversion to lean management made some demands.

Today the whole ball screw assembly is implemented according to lean criteria, including the logistics chain. Its success is remarkable and thanks

to the transparent system easily measurable, quantitatively and qualitatively. Process times have been reduced in an impressive manner, while the increase in efficiency is persuasively. Since the conversion the thread specialist has been delivering large orders for ball screws without a single error. In general a reduction in the error quota of 30 % has been achieved in assembly. The improved ergonomic structure at the workplace makes for happy faces. The involvement and intense raising of sensitization of employees and managers observably complements the quality awareness of the team and in addition strengthens the expertise of the whole enterprise. The processes appear clearly and vividly, which leads to relief when carrying out the frequent customer audits.

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((Captions))

Figure 1

Comparison with the animal kingdom,
with ant colonies resembling innovative enterprises



Figure 2

Test facility with laser inscription at the end of the assembly cell



Figure 3

Bearing balls with appropriate sorting

**Figure 4**

View in One Piece Flow assembly cell

**Figure 5**

One Piece Flow assembly cell with integrated test facility
(100 % function control)



((Box))

Special prize

As the industry association of Swiss business consultants, the Association of Management Consultants Switzerland, ASCO for short, is committed to the strengthening of the country's competitiveness and in 2014 gave awards for the ninth time for the best and most sustainable company transformations. The positive indicators achieved and the constructive and effective cooperation between Eichenberger and the lean management specialists Wertfabrik impressed the 2014 ASCO Award jury so much that

on 27 May 2014 they awarded the special price to Eichenberger Gewinde AG.

((Portrait))

Service providers in development

Eichenberger Gewinde AG is a company with clear objectives: The rolling - hence cold forming - of threads and the manufacture of screw drives (screw and nut). By using the most modern production methods and developing new dimensions, Eichenberger supports the customers in "their" innovation.

- «Carry»:** A ball screw for applications where large loads need to be moved.
- "Carry Speedline":** Non-wearing high-helix ball screws for high movement speed. The patented end cap ball return combines low weight with a good price.
- "Speedy":** The high-helix lead screw converts linear- into rotary movements at high movement speed.
New: Partly available in aluminium.
- "Rondo":** The round thread lead screws with very quiet running properties.
New: Partly available in aluminium.

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