

Significant cost savings due to the reduction of tool variety

UKM technologies delivers solutions with a high degree of vertical integration to customers from various industries. Offered competencies relate to high-precision metal processing such as forming, CNC machining, heat treatment, precision machining, surface treatment and assembly.

The plant in Meissen approached Gühring KG with the challenge of being able to cover the piston pin production with only one tool. Due to the high component variety, a large number of tools had to be used.

Gühring implied the modular tool system GE100 and adapted it specifically to the conditions in production. Through this modular tool technology, the GE100 system was able to reduce tool variety to 1:5 or save 80%. The tool life was increased by 15% and the costs for retipping a tool were reduced by 63%.



The way to a more cost-efficient batch production

Before: Challenges and opportunities

- Reduction of the tool variety, due to high costs
- Establishment of acceptable tool life at a good price-performance ratio
- Prevention of tool breakage by means of specially designed inserts

Why did you choose Gühring KG?

- Gühring KG accepted the order directly and showed itself to be a real team player right from the beginning.
- At the first customer meeting, elaborated tool concepts were presented and subsequently sample tools were produced directly.
- Despite the high cutting forces of the machines for end machining, Gühring KG accepted the challenge, which many manufacturers had previously failed to meet.
- The specially designed GE100 tool concept enables good tool life at an excellent price-performance ratio.

Results

- Cost reduction of complete tipping with carbide inserts from €200/piece to €80/piece
- Tool life improvement from 3,500 components to 4,000 components
- Savings in tool variety of around 80%, associated with 80% less tool set up, storage costs and administrative organizational effort

100.000 €
cost savings per year

80 %
less tool variety

15 %
tool life improvement

The problem with a large component family

UKM technologies was founded in 1912 and now employs more than 300 people. It has an annual turnover of around €70 million. The supplier of high-precision metal processing develops solutions for customers in the automotive, motorcycle, aerospace, general engineering, plant engineering and the medical industry.

During the realization of the projects, the UKM technologies Group repeatedly found that the economic efficiency in CNC machining as well as the reduction of the tool variety offered some optimization potentials. This particularly affected the production line for piston pins in the plant in Meissen.

Since a different solid carbide tool was required for each component in a very large component family, the costs were correspondingly high. In total, the tooling cost per component amounted to €200 per piece.

The tool life per cutting edge was 3,500 components.



High cutting forces that bring tool manufacturers to despair

The company approached Gühring KG with the challenge of optimizing the existing manufacturing process of an entire product family.

At the first customer meeting, UKM technologies already received elaborate tool concepts, of which, sample tools were manufactured based on the GE100 model from Gühring. In the course of an invitation to the Gühring plant in Markt Erlbach, initial tests could be carried out with the tool concepts.

This was followed by testing on the company's own production line, which made the actual challenge clear: Due to the high metal removal by means of feed of fz 0.4mm/rev, enormous cutting forces resulted.

Based on these values, a GE100 system was developed, which rotates in an uniaxial movement on the component. It produces a chamfer with a 30° angle and 9mm depth on an inner diameter Ø14mm.



Specific adaptations solve specific challenges

By adapting the cutting bodies and cutting edges, the tool life could be increased to 4,000 components, which corresponds to a tool life improvement of 15%.

The logistical ordering effort was also greatly simplified by the cooperation with Gühring KG. By means of automatically set-up delivery schedules for the indexable inserts, the piston pin production area always receives all consumables reliably and on time.

The GE100 modular tool system can cover up to 15 different component sizes of piston pins. Since this system is now used, the tool variety has been reduced by 80%. This corresponds to a tool to component ratio of 1:5. This means 80% less tool set ups and 80% fewer tools in the warehouse, the associated costs are correspondingly lower.



GE100 opens up the entire end machining of UKM at the plant in Meissen and unlocks new capital

Overall, cost savings of 63% can thus be achieved with this tool system. Thanks to the form inserts, the total cost per tipping is now €80 instead of €200. Calculated over the entire year, the savings are more than €100,000.

UKM technologies is so impressed about this success that all machines in batch production have been equipped with the GE100 modular tool system.



Mr. Christian Bartsch, the cooperation with Gühring KG

“We list Gühring's GE100 team as an A-tool supplier, we are happy to recommend without reservation.”

Mr. Christian Bartsch
Process technologist piston pin
UKM technologies GmbH - Meissen



Your way to reduce costs in batch production

Would you also like to optimise your batch production through a new tool strategy like UKM technologies?

Then, the GE 100 team of Gühring KG is at your disposal.

From advice on tool design to profitability calculations. Everything is completely free of charge for you.

Contact us now and you may be able to benefit from cost savings in your production in just a few weeks.

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