

## The best of two worlds

**Machining processes in the automobile industry have become increasingly complex. To be able to cope with that, and to ensure its leading role in modern tool development, ALMÜ Precision Works has always focused on innovative and groundbreaking solutions. In this Insider issue, we describe you in detail how to process the bearing carrier of a car's clutch case.**

We are using a PCD monobloc milling tool developed and produced by ALMÜ, which has been combined with an adjustable inserted spindle tool. The aluminum material AISi9Cu3 is being milled and spindled at a machining center made by the German company Grob.

Which are the individual steps of production?

First, you prepare the finishing phase using a five-blade circular milling tool, followed, in a second step, by fine drilling by a spindle tool equipped with ISO boards.

We use type CCGW09T304-PCD ISO boards. All the H7 tolerances specified are observed. The drilling quality we can reach is  $\varnothing$  79H7.

Using the ALMÜ-Flex system ensures that this quality tolerance can even be maintained in large series.

In the picture, you see one of the two clamping screws used to keep the circular miller in its position in the upper part of the tool. Four adjustment screws ensure even rotation of the circular miller down to the last  $\mu$ .

What are, after all, the advantages of this combination of tools?

By avoiding tool changing, standstill times become shorter. The combination of monobloc and interchangeable board tools, there are further advantages when it comes to maintaining the workstation. The insert miller is dismantled, then resharpened. In the meantime, the user can continue the job using a backup miller with the carrier tool. When it comes to resharpening the carrier

spindle tool, only those ISO boards have to be replaced that are really dulled. Thus, you increase your flexibility using your tools as much as possible, which, after all, makes it easy to understand why you save costs.

### Facts circular milling:

Number of cutters: 5

$V_c = 1131$  m/min

$F = 4800$  mm/min

$F_z = 0.06$  mm/cutter

### Facts spindling / fine drilling:

$F_u = 0.08$  mm/rotation

$V_c = 599$  m/min

$F = 200$  mm/min

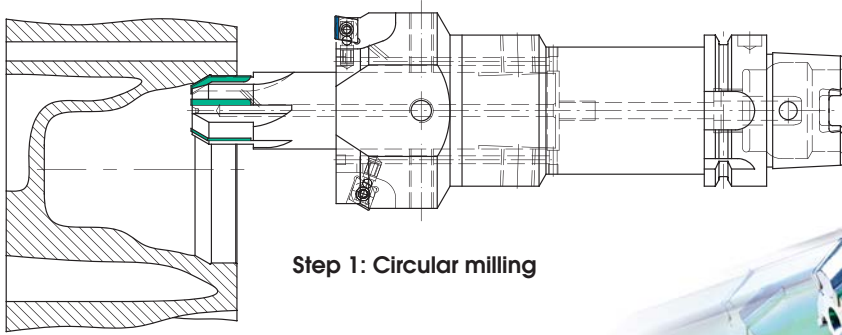
$n = 2500$  rotations/min



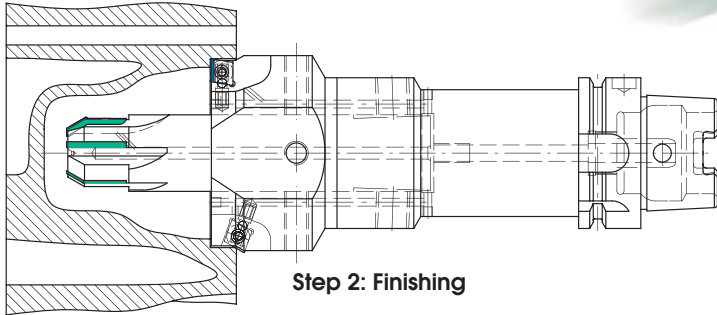
## ALMÜ<sup>®</sup> FACTS

### Advantages of the ALMÜ Flex system

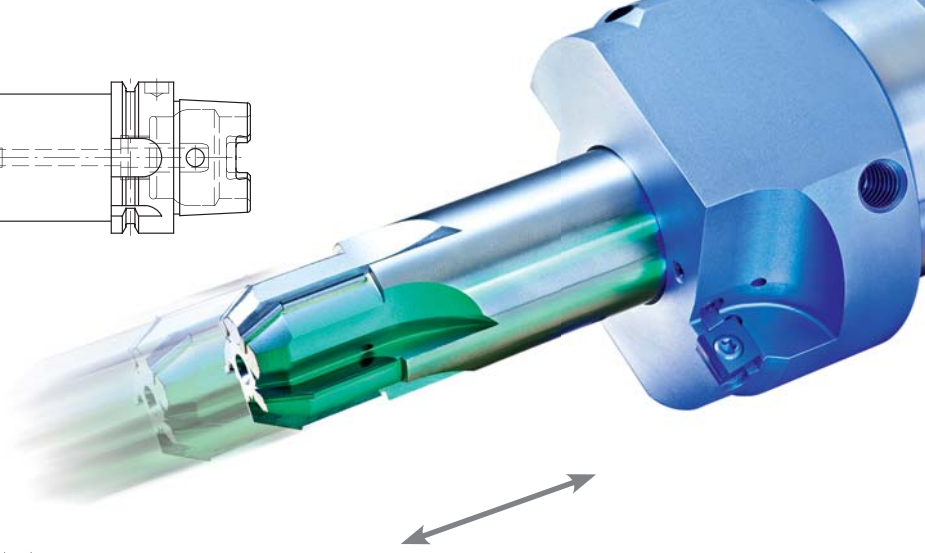
- Operation PCD ISO interchangeable cutting boards
- Easy resharpening, only of the cutting boards
- Adjustability down to the last  $\mu$
- Tolerance field IT6
- Can be inserted in radial, axial, and user-defined angle positions
- Small space for the adjustment system
- Rapid insertion and adjusting of the cutting boards
- Reduction of the number of carrier tools



Step 1: Circular milling



Step 2: Finishing



By dismantling the locking screws, changing the circular miller is done rapidly and easily.

## ALMÜ<sup>®</sup> INTERN

In a former ALMÜ Insider issue (March 2008), we already talked about the important subject of training apprentices. Then already, Markus Müller was able to boast a 12-percent quota of apprentices, compared to the overall number of employees.

**Insider:** Herr Müller, as for training, what has been the development over the past years?

**Markus Müller:** I do not want to join the chorus of those who keep talking about such a thing as "lack of qualified staff". My opinion is that a well-organized company has to be able to open itself to what young people expect, and to act accordingly. For years, we have opened our doors for them. We simply cannot hide behind our machines, produce top quality tools, and forget about new blood.

**Insider:** How exactly should we imagine what you mean by "open doors"?

**Markus Müller:** Things no longer work like in the old days when you placed an ad in the "jobs offered" section of the local newspaper. For many years, we have participated when the schools have offered company experiences for students. We felt we had to become more active. Big was the response to the open doors day of our local business community, which I support as an



Markus Müller cultivates cooperation between schools and the company

active member of the board. Although we are all but active in the B2C market, we profited from this day, presenting ourselves as a great company for apprentices.

**Insider:** Are there other things except such an open doors day?

**Markus Müller:** We have engaged in a training partnership with the Albert Schweitzer School (a craft-oriented school) in nearby Albershausen. Such a cooperation between the school our company is a great opportunity to successfully contact of motivated and qualified school leavers. The aim of this partnership to organize hands-on training, company visits, and presentations, so school leavers can organize



Apprentice Moritz Hummel while selecting a set of grinding disks

their professional future easily.

This partnership is being supported by no less than three business initiatives, as well as by eight companies from the region, such as Ostheimer, Stama, and Scheizer Group Plattenhardt.

**Insider:** And what are, in the end, the results of such initiatives?

**Markus Müller:** Our current apprentice quota is something like twenty percent, thus distinctly higher than in 2008. And we are happy that many of the apprentices stick with our company later on. I think it is a pity we only find few female apprentices for our metal professions. I will keep an eye on that very special subject in future.