

From naught to 360 degrees in less than two seconds!

Circular machining of inner and outer shapes has been state of the art for years. Usually, these two processes are, however, carried out in two separate steps, using different tools. This is often necessary to produce special contours and recesses into which you can later insert seals, retaining rings, and similar parts.

Requirements are increasing for both admissible tolerances and contour transitions. The contours have to be shaped in a way that every corner radius of a recess fits tangentially to the respective diameter drilled. Only thus, can you ensure the seals will not be spoiled by sharp edges during assembly.



NEU

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Circular machining of both inner and outer shapes of a steering tube are integrated into a single tool.

In this example, we show you how the tool is used for machining a steering tube.

When designing the tools, you have to keep in mind that diameter of the inner miller and that of the outer miller fit each other exactly. You can meet this requirement by separating these two groups, adding a possibility to adjust them. In this process, the miller for the inner shaping can be aligned for either concentric and axial runout. Moreover, such a modular design can reduce re-sharpening and, in some cases, maintenance costs.

Due to the special geometric proportions, we had to do a lot of brainstorming concerning the conditions of cutting. We have created appropriate tools to

be able to calculate the approach strategy and the cutting parameters. They focus on optimizing the metal removal rate, keeping in mind not to overstrain neither the tool nor the structure of the parts.

Due to the sophisticated design of the tool, you also have to carefully adjust

Facts circular millers:

Vc = 1320 m/min

n = 6000 rpm

F_{circular} = 5000 mm/min

Diameter of the milling path = 52.1 mm

Machining time t = 1.96 sec.

the tool's rotation speed: it has to be different from the resonance frequency of the multi-mass oscillator, consisting of the component, the fixture, the machine, and the tool.

Like already for other tool solutions, we can provide you with the geometry data and the cutting strategy, as well as with details from our CNC program according to ISO. Thus, our customers receive a perfect all-in-one package, allowing them to act most efficiently.

ALMÜ®
 TRADE
 FAIR

Visit us at the AMB,
 Neue Messe Stuttgart,
 Germany
 hall 2, stand B22.



Sept. 18 to 22, 2012



Bernd Göppinger

Bernd Göppinger studied mechanical engineering at the University of Stuttgart, and initially worked as a project engineer in research and development. He has been with ALMÜ since 2008.

Insider: Good morning, Herr Göppinger. About two years ago, you took over the design and production departments from your predecessor, Günther Frank. How was the transition?

Bernd Göppinger: Taking over the core departments of a company in a time of an enormous economic boom means a great challenge. Our customers had to get their deliveries in time as always, and with the well-known ALMÜ quality. That was a demanding task, in terms of planning processes, delivery schedules, and capacities – and a challenge for me.

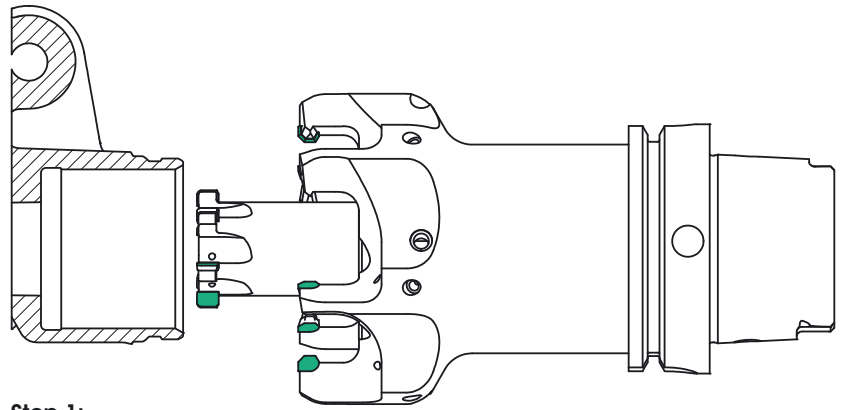
Insider: What kind of challenges were these, and how did you manage to succeed?

Bernd Göppinger: With our customers' production figures rising, they also needed additional tools. Planning the production of special tools is anything but trivial in normal times, but when such tools have to be produced in great numbers, planning gets even much more complex.

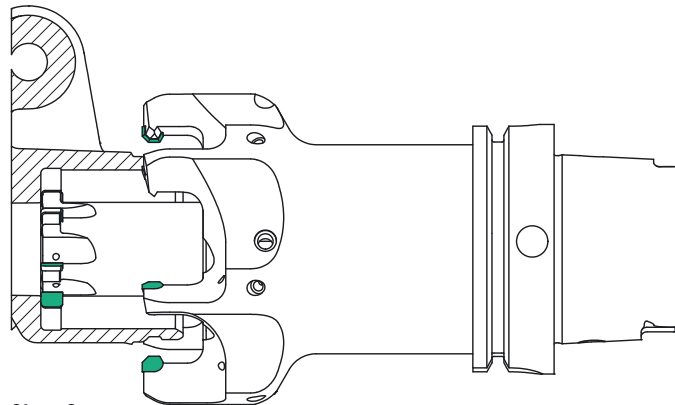
Through new investments in an additional fully automated circular grinding machine, extending our eroding capacities, plus an additional five-axle machining center, we have increased our flexibility, ensuring short reaction times when it comes to realizing our customers' wishes. Our automated processes make it possible to react flexibly even to urgent orders, and stand for high results with reduced set-up and tool changing times. Thus, we will remain a reliable and competent partner for our customers in the special tools sector.

Insider: In September, there is the AMB fair in Stuttgart. What's the news?

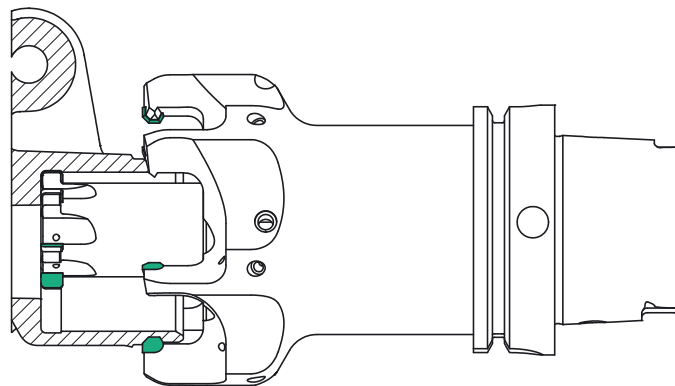
Bernd Göppinger: We will extend our portfolio by a new line of products. We will present it at the AMB 2012. Therefore, we will be very happy to meet visitors at our trade fair stand in hall 2 at stand 22.



Step 1:
Positioning



Step 2:
Moving in centrally



Step 3:
Circular milling of the inner and outer recesses in one go

