

## PCD mono-bloc tools vs. PCD insert tools

Today's metalworking industry would be unimaginable without tools with polycrystalline diamonds: they have long been established everywhere. The steadily increasing challenges tool manufacturers face require very flexible thinking. That makes high competence in handling the cutting material PCD necessary when it comes to designing tools. But which are the advantages in using interchangeable inserts, the so-called cutting inserts, and when should you choose PCD cutters brazed in?

**The long-life solution – the PCD tool**  
 Tools with fixed brazed tips in are basic elements of efficient workpiece machining in modern manufacturing, especially for complexly manufactured components. As you don't have to adjust the cutting edges, handling these monobloc-style tools turns out to be incredibly easy. The advantages are obvious: you don't have to readjust it, and it offers high cutting performance, long service life, as well as a significant reduction of the necessary tool changes. In many cases, all relevant manufacturing parameters can be im-

proved. Moreover, by operating a PCD tool, process reliability is considerably enhanced. The aim is to combine several machining tasks in a single tool.

**The universal one – the insert tool**  
 Tools with cutting inserts represent a modern solution for economical machining of today's basic materials. They are a technological end economic alternative along with the PCD tools. Using the well-established ALMÜ Flex System, the PCD-equipped insert tool can be adjusted accurately to the micrometer. Furthermore, the inserts can be

resharpened to be used gain. As for monobloc tools, the burst of a single cutting edge means the entire tool body has to be repointed. Re-sharpening costs are thus substantially higher, compared to insert tool solutions.

Also, while using the same size insert, you can employ different cutting materials and geometries. As for quiet running and true running accuracy, both tool versions are said to offer fine characteristics.



### Apprenticeship with ALMÜ – setting the course for the future

Training young people has always been important for ALMÜ. For more than twenty years, we have trained apprentices in our manufacturing and construction departments. At the moment, we train cutting tool mechanics and technical product designers.

Last year, ALMÜ could boast Germany’s winner for the profession of cutting mechanics: Charles Fischer finished his apprenticeship with the best grades nationwide.

**Insider:** Herr Fischer, what made you start your apprenticeship with us at ALMÜ?

**Charles Fischer:** After secondary school, I completed a couple of internships. In school, my technical skills were not very much encouraged: thus, I initially didn’t have much of an idea what kind of profession I should go for. At the apprenticeship exchange, I got in touch with ALMÜ. The perspective of getting trained for a technical profession was very interesting. After an aptitude test and a day of work on a trial basis, I could start my apprenticeship in 2011.

**Insider:** And then you finish your apprenticeship as the best of Germany. What was actually your motivation?

**Charles Fischer:** I soon realized that this was exactly the profession for me. My personal ambition to be the best then reflected in my grades. I was always the best of the year. The great quality

of training here at ALMÜ contributed a lot to that.

**Insider:** After three and a half years of training, you successfully completed your apprenticeship. So what will come next?

**Charles Fischer:** Now, I will gather professional experience here at ALMÜ. I appreciate that Herr Müller holds out the prospect I will be able to study mechanical engineering at the University of Applied Sciences in Esslingen along with my job as of 2018. I will go for that with the same kind of commitment.

**Insider:** In retrospect, what did you like most about your apprenticeship?

**Charles Fischer:** Actually, the complete package is perfect at ALMÜ. In a familiar working atmosphere, I can accomplish my tasks on my own, and what I like most: I can in the end examine my finished product. Here at ALMÜ, working is really fun.



Advantages and disadvantages at a glance:

#### PCD tool

- No adjusting of cutters
- High cutting performance
- Long service life
- Less tool changes
- Post-processing when cutter is defective
- Very quiet running and true running accuracy
- Vast variety as for number and arrangement of cutters

#### Cutting insert tools

- Economic production
- No re-sharpening necessary
- Potential savings as for storage and transport
- Highly flexible
- Cutting inserts come in various shapes and sizes
- Very quiet running and true running accuracy