

## Highest precision and longevity with ceramic milling tools

### Smallest diameter precision drilling and micro milling of extreme tolerances with Ziroxit® ceramic material from Metoxit.

Carbide tools are used for conventional drilling and milling processes. For every hole diameter a separate drill is necessary. This results to a higher volume of tools in the tool holder and more frequent tool changes which is associated with the loss of productivity.

Additionally, carbide drills are subject of high wear and need to be replaced frequently where high tolerances are required, leading to additional costs.

Metoxit has developed a ceramic material for milling tools, for drilling in the interpolating micro-milling process and for precision milling with constant tolerances over a long service life. The comparison of the much faster precision decrease of carbide tools for conventional hole drilling are visible in the tables on reverse side of this flyer.

**Put your trust in Ziroxit® ceramics for future-oriented production technology!**

#### Properties:

- very high wear resistance
- high hardness and toughness
- low vibrations

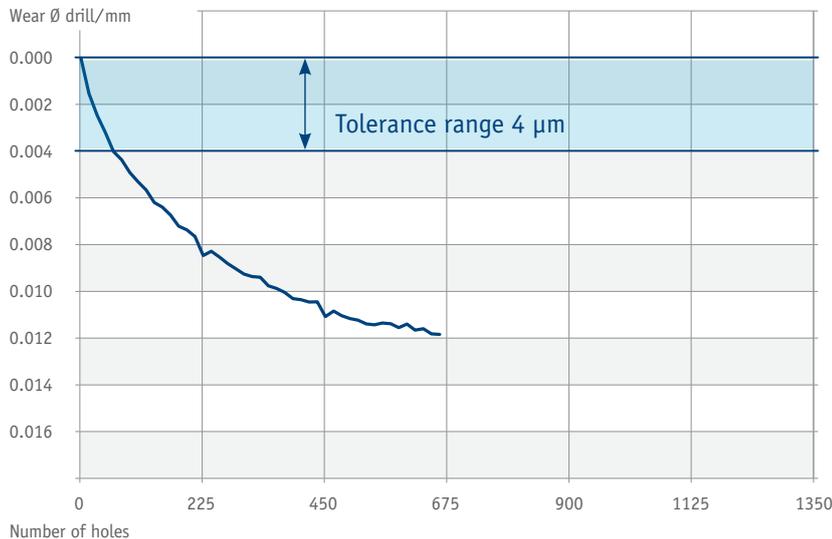
#### Applications:

- Bronze, brass, copper, further non-ferrous metals
- Aluminum alloys
- Graphite, GRP

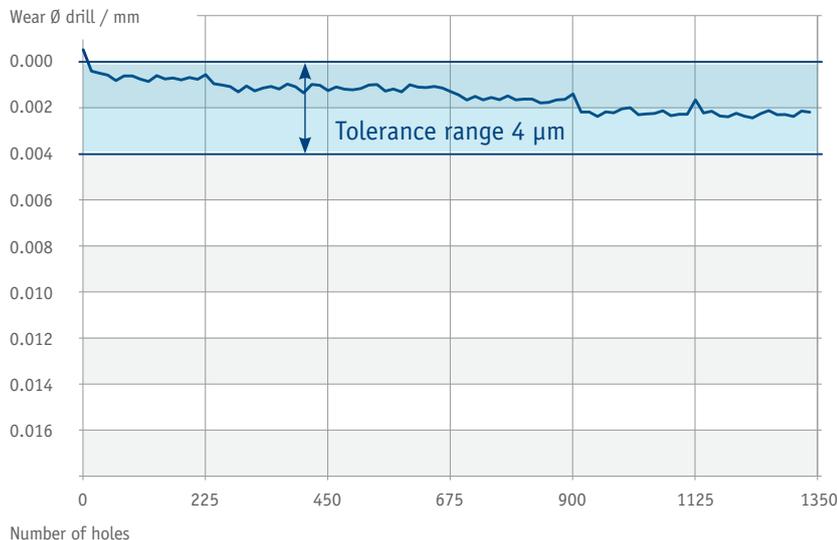
#### Why Ziroxit®:

- low wear, longer life
- highest precision, maintaining heighest tolerances
- Productivity increase, less downtime
- One drilling tool for diameters up to 6mm

## Drilling tests carbide for diameters up to Ø 6 mm



## Drilling tests Ziroxit® ceramics for diameters up to Ø 6 mm



Conventional carbide tools fall out of the tolerance range of a few microns in these interpolating milling operations after only 100 holes. The low wear allows the ceramic tool to stay in the tolerance range after more than 1400 holes. Clear advantage of our Ziroxit® ceramic material. It offers a completely different wear behavior than classic carbide tools and thereby demonstrates its superiority!

All information and data correspond to the present state of our knowledge concerning properties and applications. They do not guarantee certain properties for products designed for specific applications utilizing material(s) described herein. We guarantee, however, first rate quality described in our terms of delivery.

The trend towards miniaturization has reached mechanical components and requires increasingly smaller dimensions. The use of Ziroxit® ceramic milling tools allows the machining of precision components by means of CNC micro milling with long service life while continuously keeping to tight tolerances in the micron range.

Examples of typical components produced by micro-machining are parts for watch cases, as well as components for medical technology, semiconductor industry and aerospace. Ziroxit® ceramic milling tools have demonstrated their superiority regarding wear and tear and reproducibility of quality over carbide tools. Vibration-free machining at high speed over a long service life guarantees consistent quality and cost saving.

The use of Ziroxit® ceramic milling tools also offers convincing micro drilling results. Interpolating milling instead of drilling allows machining of holes with different diameters with tolerances in the lower single digit µm range with only one milling tool. When using carbide, one tool for every diameter is necessary.

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