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## Pictures for the METAV Press Release:

### New developments in the manufacture of precision tools



 ISF

((05-01\_ISF\_Polierschleifen\_Bohrwerkzeug.jpg))

A good drilling tool flute surface is important in order to ensure effective chip removal even with high cutting data levels and challenging workpiece materials, especially when producing deep bores.

Photo: ISF



((05-02\_Mapal\_Spannfutter.jpg))

Mapal has used additive methods to optimise the temperature resistance and geometry of the hydraulic expansion chuck.

Photo: Mapal



((05-03\_ISF\_Biermann.jpg))

Dirk Biermann, head of the Institute of Machining Technology (ISF) at TU Dortmund: "Tools nowadays usually require special microshaping of the cutting edges in order to ensure maximum productivity. This is why it is important to use suitable measuring systems and evaluation strategies for accurate analysis and quantification of the different aspects of the cutting edge micro-shape."

Photo: ISF



((05-04\_Mapal\_Feile.jpg))

"The production – including the grinding – of tools at accuracy levels down to the nearest  $\mu\text{m}$  requires modern machinery and highly qualified employees," says Thomas Feile, test engineer at Mapal Dr. Kress KG.

Photo: Mapal



((05-05\_Zecha\_Fielen.jpg))

Arndt Fielen, Sales Manager at Zecha: "The best possible surface quality is achieved through the precise and specific analysis of the entire process chain in both your own production facilities and those of your customer."

Photo: Zecha

Printable versions of the images are available from:

<http://medianet.messe-duesseldorf.de/press/metav/assets.html>