PRESS RELEASE

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Direct clamping for small diameters on the micro-scale

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MAPAL has expanded its programme of narrow contour HTC clamping chucks, whose narrow shapes are produced without a restrictive brazed joint thanks to additive manufacturing. These new chucks can directly clamp diameters of 3, 4 and 5 mm, now also allowing hydraulic clamping chucks to be used on the micro-scale, for example in medical technology or the timepiece and jewellery industry.

Until now, reduction sleeves were usually required to clamp diameters below 6 mm: with the new chuck, these are no longer needed. Moreover, the advantages of combining hydraulic clamping technology with the contour of a narrow shrink chuck can now also be enjoyed on the micro-scale. Like its counterpart for diameters above 6 mm, the new HTC is made using additive manufacturing. The reason: as of yet, it has not been possible to produce either the narrow contour or diameters ≤ 6 mm for direct-clamping hydraulic clamping chucks using conventional manufacturing methods.

The clamping area is very close to the front of the chuck, which is not possible in conventional manufacturing. This provides an ideal concentricity of < 3 µm at the locating bore and < 5 µm at 2.5 x diameter, plus high geometrical accuracy along with good vibration damping. The damping built into the system reduces micro-outbreaks at the cutting edge, giving the tool a longer life expectancy and reducing wear on the machine spindle.

The HTC with a narrow contour offers all the advantages of the proven MAPAL HTC (High Torque Chuck) technology, with the “T” standing not only for “torque” but also for “temperature-resistance”. The wide operating temperature range of up to 170 °C ensures additional process reliability. The balancing quality is G = 2.5 at a turning speed of 25,000 min^{-1}. The chuck is suitable for all machining in contour-critical areas. It allows the tool to be clamped easily and quickly. In other words, no training courses are required on its implementation, and no high set-up costs or expensive peripheral devices are needed.

Captions:

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By extending the HTC chuck range to include chucks with a narrow contour for directly clamping small diameters, MAPAL has allowed hydraulic clamping chucks to be used on the micro-scale.

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Short profile MAPAL Dr. Kress KG:

MAPAL – tooling the customer's success

MAPAL Präzisionswerkzeuge Dr. Kress KG is one of the leading international suppliers of precision tools for the machining of practically all materials. The company founded in 1950 supplies leading customers from the automotive and aerospace industries and from machine and plant engineering. With its innovations the family-owned company sets trends and standards in production and machining technology. MAPAL sees itself as a technology partner, supporting its customers with the development of efficient and resource-conserving machining processes using individual tool concepts. The company is represented with production facilities, sales subsidiaries and representatives in 44 countries worldwide. In 2014 the MAPAL Group had 4,500 employees, generating sales of EUR 510 million.