

Date: 25.07.2019

Significantly better surface finishes thanks to vibration damping

Vibration often occur during machining. This leads to dynamic instability of the system. Inadequate surface finishes, insufficient accuracy, high machining noises, shortened tool lives and, in extreme cases, broken tools and cutting edges can be the result.

In order to minimise these vibrations and their consequences, MAPAL has now developed an innovative system for vibration damping in the tool shank, as particularly tools for boring and milling with very long projection length tend to vibrate due to an inadequate dynamic rigidity of the overall system. When designing the new system, the developers took into account all factors arising from the interaction of the machine tool, the tool and type of clamping as well as the component. The result: A system for vibration damping that is matched to all common types of machine stiffness. It can be used for machining different materials with different tools.

The self-contained system of auxiliary mass and several steel spring packages counteracts the deflection of the tool body and minimises it. The vibrations can be up to 1,000 times lower compared to tools without absorber system. Despite the long projection length, quiet, stable running is achieved. This makes it possible to work at higher cutting speeds and significantly increases the material removal rate.

In addition, significantly better surface finishes are achieved thanks to vibration damping. When milling case hardened steel (16MnCr5), for example with a 250 mm long combination of milling cutter arbor and milling cutter with five cutting edges and ISO indexable inserts (diameter 50 mm), the R_z value was halved from 7.8 μm to 3.9 μm for material removal a_e of 18 mm and a_p of 3 mm compared to the same tool system without vibration damping.

MAPAL Präzisionswerkzeuge
Dr. Kress KG
Postfach 1520 | D-73405 Aalen

Contact:
Andreas Enzenbach

Phone: +49 7361 585-3683
Fax: +49 7361 585-1019
E-mail: presse@mapal.com

Date: 25.07.2019

Milling cutter arbors with vibration damping in the shank are available with internal coolant supply for clamping diameters 16, 22 and 27 mm with a length of 200 and 300 mm for SK40, SK50, HSK-A63 and HSK-A100 connections.

MAPAL Präzisionswerkzeuge
Dr. Kress KG
Postfach 1520 | D-73405 Aalen

Contact:
Andreas Enzenbach

Phone: +49 7361 585-3683
Fax: +49 7361 585-1019
E-mail: presse@mapal.com

Captions:

01: Thanks to the new milling cutter arbors with vibration damping, significantly better surface finishes are achieved during machining. For comparison: The left milling paths were machined without vibration damping and the right one with vibration damping.

02: Vibration damping is integrated directly into the tool shank of the new milling cutter arbor.

Words:	321
Characters:	1,673
Characters with spaces:	1,990

If published, please send a voucher copy
by mail to Patricia Hubert
or by e-mail to patricia.hubert@mapal.com.

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 2018 the MAPAL Group had 5,500 employees, generating sales of EUR 640 million.