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HAIMER
Qualität gewinnt.

Made by Haimer:
Tool holders
Measuring equipment
Precision machines

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Press release Haimer SafeLock 08/06

Tool holders for high-performance chip removal

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Anyone wishing to exploit his machine capacity to the full can find special tools that will stand up to the high load. To ensure that these are safely and accurately clamped, Haimer presents its SafeLock system that combines the benefits of a shrink fit chuck with those of a form-closed connection. Haimer is working in cooperation with other companies from the tool and chuck manufacturing sector to continue the development of this system up to a stage where it is ready for the market. Other partners are welcome.

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Users exploit the drive power of their machines to its limits in high performance cutting (HPC), so that they can drive into the material with a maximum feed rate. For a few years now special tools have been on the market that support this kind of machining. They can withstand the resulting high torques, feed rates and tractive forces without breaking. But on the other hand, the danger of the cutter being pulled out of the chuck when under such a load is much greater. This is true at least for tool holders that offer accurate chip removal with good true running accuracy, as is the case with shrink-fit and hydraulic chucks or even collets. They all function on a friction closed principle which limits their clamping force so that it is sometimes not sufficient for HPC.

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For this reason many users fall back on conventional weldon-holders whose clamping screw effects a positive locking. In this

way any desired torques can be transmitted until such time as the cutter finally breaks. The only problem with weldon is that users are again confronted with all the familiar disadvantages: inaccurate runout, bad clamping because the shank in the chuck needs a little air, and the short life span of the tools that in this case are very expensive.

40 No other alternatives were as yet on the horizon – a challenge for the tool clamping specialists at Haimer in Igenhausen. They developed a combined solution called SafeLock that links a shrink fit chuck with form closing elements. The idea goes as follows: form closed drivers grip into the screw-shaped grooves that are ground into the cutter shank. Thanks to the screw shape of the groove, the tool can be safeguarded simultaneously against spinning and against its being pulled out. The drivers are integrated in the chuck. These can be balls or also pins.

50 In this way we have united the benefits of high precision with the shrink fit clamp and those of a form close.

The clamping procedure is very simple. The chuck is heated as usual and then the tool is inserted with a screwing movement. The balls or pins find their own way into the grooves with the turning movement. The tool attachment, which is free of play, is supported by a spring. After a few seconds the holder cools down and the friction and form closed connection is made.

But the principle of the SafeLock system is not only limited to use in shrink fit chucks. It can just as easily be integrated in a collet chuck or a hydraulic chuck.

60 As Haimer would like to offer this solution, for which a patent has been filed, as a standard for many chip removers, the cooperation with other tool manufacturers and other suppliers of tool holders is essential. Their experience and ideas should enhance the optimising process of the SafeLock system so that finally we will have the ideal solution to launch on the market.

The opinion at Haimer is: "We would like to achieve a wide market penetration and are hoping to work together with a lot of

partner companies. That is why we will be offering the licences at a very competitive price.”

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Caption:

The Haimer SafeLock system is pull-out safeguard for tools during high-performance chip removal.

You will find the Haimer GmbH at the AMB 2006 in Stuttgart in Hall 5.2, on stand 123.

80 Please find further information at www.haimer.com or give us a call by dialling: +49 (0) 82 57 / 99 88-0.

We would be very grateful for a publication.
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