



Industries:

Automotive, precision parts

Categories:

3- to 4-axis milling and drilling of large-size die & mould components and final parts

10.08.2012

New vertical machining centre:

Makino F8/F9 – power pack and precision worker

Hamburg. High material removal rates and great precision are no longer a contradiction in terms – thanks to Makino's brand-new F8/F9 vertical machining centre, which is launched to an international audience at this autumn's MSV (Brno), AMB (Stuttgart) and BiMU (Milan) exhibitions. This big, strong machine works difficult-to-cut materials with utmost precision and delivers very good surface finish qualities. Moreover, the need for manual reworking is minimised, reducing costs, delivery times and the risk of human error.

Forging dies, injection moulds and stamping tools can be efficiently manufactured on the F8/F9, and its strengths are also obvious in machining mould frames and base plates. Makino's high-performance spindle technology plays a key role in this. The 10,000 rpm spindle has the power and rigidity required to machine highly hardened and tempered steel. Drills of up to 80 mm and cutter heads of up to 125 mm in diameter can be set up with no problem at all and demonstrate at high feed rates the excellent interplay of spindle, roller linear guides and high mechanical rigidity. The 20,000 rpm spindle covers a broad spectrum of applications ranging from light high-speed roughing to chamfering with small-diameter tools. And that makes it the ideal solution for large-size plastic injection moulds. The patented core-cooling technology enables the 20,000 rpm spindle to maintain a high degree of precision in the Z-axis during lengthy periods of machining and also prolongs the spindle life. Following a tool change, the F8/F9 returns to the previously milled surface with utmost precision so that no matching errors are perceptible. In other words, there is no need to finish the entire surface with a small tool, which is often common practice. Despite the spindles' high performance they run smoothly with minimal vibration. The outcome: optimal surface finish quality and less tool wear.

The F8/F9 comes in a geometrically symmetrical design where linearity and angularity are a direct result of the high-precision machining of the castings and not of any compensatory electronics. Oversized roller linear guides in all three axes ensure stability and a high degree of dampening while at the same time making agile movement possible. The overhang-free axis design and wide span of the roller linear guides ensure optimum linearity, even at Y travel of 800 mm and a maximum load-carrying capacity of 2,500 kg. The machining load is properly transferred to the floor via strategically positioned support and levelling screws while the wide column-to-bed contact area ensures the cutting forces



are well absorbed in the column. The agility of the drives and the path optimisation made possible by Makino's SGI.4 motion control software speed up machining of 3D-contoured shapes. The symmetric design of the F8/F9 also contributes to its thermal stability. In addition, heat is suppressed in the inner core of the ball screws, the motor flanges and the bearing blocks through cooling lubricant and a cooling unit. This ensures a high degree of dimensional accuracy and extends the life of the bearings.

Four spiral-type chip conveyors with a drum filter make sure that the large quantities of chips generated in high-performance machining are evacuated quickly and effectively to the rear tank.

Last but not least, the machine's easy accessibility reduces set-up times. Splashguard doors opening on both sides give the operator direct access the workpiece and facilitate crane-assisted loading and unloading of large parts.

Specifications: Makino F8/F9

Travels (X, Y, Z axes)	1,300/1,600 x 800 x 650 mm
Table working area	1,550/1,850 x 800 mm
Max. workpiece weight	2,500 kg
Spindle	10,000 rpm BT50 or HSK-A100 20,000 rpm HSK-A63
Rapid feedrates (X, Y, Z axes)	24,000 mm/min
Machine width and depth	3,850/4,300 x 4,090 mm
Machine height	3,560 mm
Machine weight	16,000/17,000 kg

Makino company background

Makino Milling Machine Co., Ltd. is recognised as one of the leading technology and service providers in the machine tool industry. The corporation is listed on the Tokyo Stock Exchange and employs some 4,000 people throughout the Americas, Europe and Asia. Its revenues for the fiscal year ending March 31st 2012 totalled nearly US\$1.4 billion. Makino's wide range of premium-quality products includes machining centres for the production of parts as well as for die and mould manufacturing in a great variety of applications in the aerospace, automotive, off-highway vehicles, industrial components and micro-technology industries. The MAKINO Europe Group has technology centres in Hamburg, Stuttgart (Kirchheim/Teck), Milan and Bratislava focusing on marketing, sales, application engineering and services.

Accompanying pictures

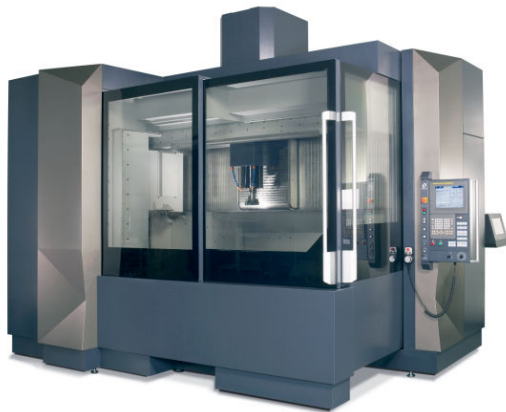
The pictures below are enclosed with the press release as printable JPGs (300 dpi). The text describes the image it accompanies. Reproduction is permitted providing the source is mentioned.

Picture 1: F8 vertical machining centre

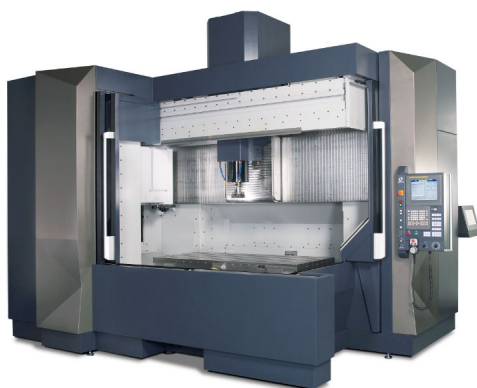
Picture 2: Easy loading and unloading thanks to splashguard doors that open on both sides

Picture 3: Easy access to the part and spindle

Picture 4: Upgraded four spiral-type chip conveyor for more efficient transportation of cutting chips



Picture 1



Picture 2

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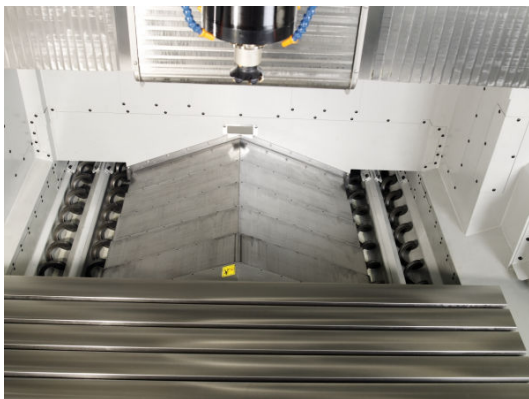
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Picture 3



Picture 4

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