

Press release, September 2023

HYPERTURN 65 Powermill HP with Sinumerik ONE at EMO in Hall 13 / B70 - HIGH PERFORMANCE for maximum efficiency and flexibility

Two turning spindles, one milling spindle equipped with a tool changer and a magazine as well as two lower tool turrets with 12 positions each allow for ideal flexibility when it comes to the series production of complex workpieces in the automotive sector (with a focus on E-mobility) and the medical technology, agricultural engineering and aviation industries.

The HT65 PM HP completes the HT65 PM series – as a highlight, this machine offers two additional lower tool turrets incl. milling drive movable in X/Y/Z direction. These allow each turret to perform complex milling operations as well.

Thanks to a total of three tool systems, machining can be performed with three cutters at the same time. The cycle times for workpieces matched with the concept can thus be reduced by up to 35%.

What is more, there are enough tools available in the tool magazine to enable unmanned operation.

The **left-hand lower turret** on the main spindle turns, drills, mills etc. the front of the workpiece. Located on the counter spindle, the **right-hand lower turret** is used to turn, drill, mill etc. the rear face of the workpiece.

Moreover, it is possible to equip the two tool turrets with centring points or steady rests. Long shafts can thus be supported during complete machining.

Thanks to the high-performance milling spindle and the comprehensive tool magazine, both the main spindle and the counter spindle can be used chiefly to perform milling operations in any angular position as well as tothing and deep drilling operations. If required, however, the milling spindle is also able to perform turning operations on both spindles.

In its standard version, the tool magazine comes with up to 40 tools in a maximum length of 250 mm and with weights of up to 12 kg. An expanded version with up to 80 tools is available as an option.

The machine offers a standard bar capacity of 65 mm. If required, it can be offered with BigBore 76 or SuperBigBore 95 spindles.

The counter spindle, too, is available in three different sizes. While the standard spindle comes with a KK6 connection, the BigBore 76 or SuperBigBore 95 versions come with a KK8 connection. High-performance 4-axis machining with two tools performing simultaneously on one spindle is thus possible, which also significantly reduces the total production time per part.

Equipped with a direct drive, the B-axis creates the ideal prerequisites for simultaneous 5-axis machining. It can also be clamped in any position, which is extremely advantageous when it comes to toothing operations.

The machine's new design represents an enhancement from both a functional and a visual point of view. The built-in tool magazine can be accessed and loaded from the front. Apart from that, it is no longer required to remove it when the machine is transported to the customer. Not only does this reduce the commissioning time at the customer's, but it ensures that the machine is ready for operation in even less time.

A new generation of tool turrets featuring BMT interfaces and direct drives increases the machine's stability and precision. The performance data, which resemble those of a milling machine, facilitate the complete machining of turned and milled parts with a predominant share of milling operations.

When using the automated bar processing and/or piece goods infeed features offered by a robot solution or the EMCO gantry loader, tapping into the potentials for improved efficiency in automation becomes very straightforward.

The performance of a machine tool is determined not only by its mechanical and electric performance data, but it increasingly depends on the control unit and the software used. That is why EMCO equips the Hyperturn with the SINUMERIK ONE, Siemens's latest control unit.

The basic machine also includes EMCONNECT, the new process assistant for control and production procedures. A digital process assistant, EMCONNECT is intended to integrate customer- and system-specific applications for controlling the machine and the production process. In order to create more efficient work processes without compromising the machines' well-established reliability in all operating modes, the operating sequences focus on the user and their requirements.

When it comes to increasing productivity, increasing the machine's capacity utilisation is a key aspect. EMCO CPS Pilot makes it possible to save both time and money during machining, as the customer can use this software on their PC to plan, programme, simulate and optimise the production process via a 3-D model of the machine.

The combination of the HYPERTURN and EMCO's new CPS Pilot creates very positive multiplier effects: Thanks to the perfect synergy between CPS Pilot and the HYPERTURN, it is possible to reduce costs and efforts to a significant extent.

Technical Details / The HYPERTURN Machine Concept

Construction

The machine bed is the core of the machine. The extremely rigid and compact welded steel construction is filled with a special, vibration-absorbing concrete material (HYDROPOL®). Reinforcements ensure additional rigidity in heavy-duty zones. Thus, it is possible to fully tap into the high drive power of the main, counter or milling spindles. The result: improved surface qualities, narrower production tolerances and increased tool service lives.

Main Spindle and Drive Technology

The main spindle is available in three different sizes. Featuring a drive rating of 29 kW and a torque of up to 250 Nm, one of the versions is able to handle bar capacities of up to 65 mm. A BigBore 76 and a SuperBigBore 95 spindle are available as an option. Embedded in large precision bearings, built-in highly dynamic spindle motors (ISM) allow for a particularly wide speed range teamed with excellent true running characteristics. Thermostability is achieved by a headstock featuring a symmetrical design as well as by temperature sensors on the bearing points and liquid cooling.

All linear movements occur on pre-stressed high-precision roller guides, which creates enormous advantages when it comes to traverse speeds, zero backlash, service life, lubricant consumption and positioning accuracy.

Thanks to the guide shoe's unique sealing system, the path has been cleared for use in heavily soiled environments. In order to achieve a closed sealing surface, spring steel cover plates have been attached to the guide rails.

C-Axis

From a technological point of view, each spindle is also an axis. It can be moved into any position with a defined feed rate. Complex contours around the circumference or on the face side can thus be easily implemented. The software for programming these movements (cylinder interpolation and/or Transmit) is included in the scope of delivery. Synchronised thread cutting and polygonal turning are among the machine's standard features.

“Powermill” Turning & Milling Spindle

Equipped with an HSK-T63 tool interface, the high-performance milling spindle can be used for turning, drilling and milling operations. When doing so, the milling spindle can be swivelled continuously within a range of $\pm 110^\circ$ and clamped in any position. Featuring a usable Y-stroke of +120/-100 mm, it is possible to perform even the most demanding and complex machining processes, such as gear cutting, turning/milling of crankpins, 5-axis machining, and much more.

Depending on the customer preferences, the tools can be provided by a 40 or 80-station tool magazine.

Technical Key Data:

HYPERTURN 65 Powermill HIGH PERFORMANCE	
Max. bar capacity [mm]	Ø 65 (76,2/95)
Max. speed [rpm]	
Main spindle Ø 65 (76 / 95)	0 – 5000 (4000/3500)
Counter spindle Ø 65 (76 / 95)	0 – 5000 (4000/3500)
Milling spindle	0 – 12000
Tool turret BMT55 (BMT45)	0 – 12000 (12000)
Max. drive power [kW]	
Main spindle Ø 65 (76 / 95)	29 (29 / 37)
Counter spindle Ø 65 (76 / 95)	29 (29 / 29)
Milling spindle	22
Tool turret BMT55 (BMT45)	11,7 (11,7)
Max. torque [Nm]	
Main spindle Ø 65 (76 / 95)	250 (250 / 360)
Counter spindle Ø 65 (76 / 95)	250 (250 / 250)
Milling spindle	60
Tool turret BMT55 (BMT45)	28 (25)
Max. travelling distance [mm]	
Travels in X1 / Y1 / Z1 (milling spindle)	405 / 220 / 1040
Travels in X2 / Y2 / Z2 (turret 1)	210 / 100 / 850
Travels in X4 / Y4 / Z4 (turret 2)	210 / 100 / 800
Travels in Z3 (counter spindle)	1045
Rapid traverse speed X / Y / Z [m/min]	30 / 12 / 30
Number of tools in the magazine	40 (80)
Number of driven stations	2x 12 (2x 16)



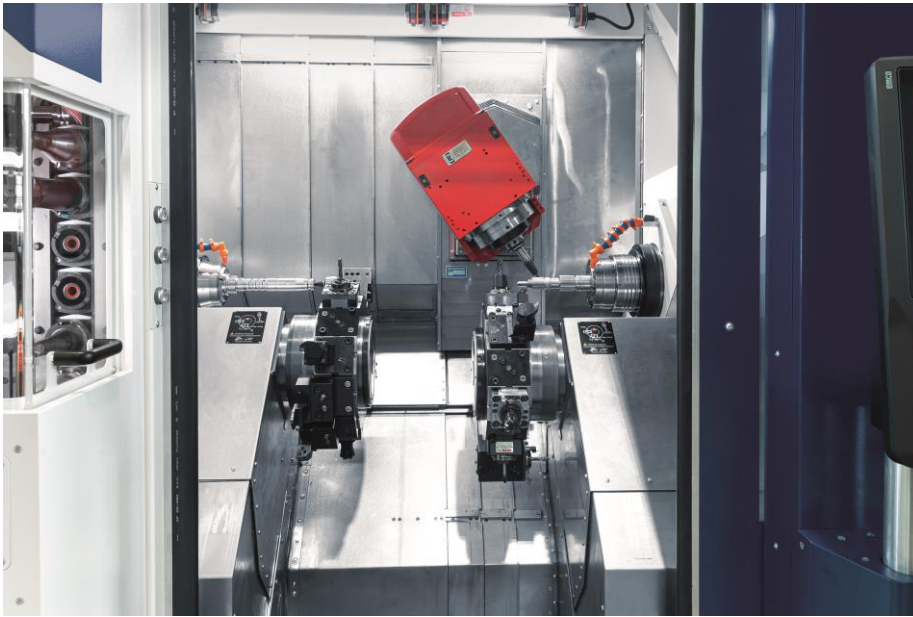
The new Hyperturn 65 Powermill HP turning & milling centre



New operating panel with touch screen and EMCONNECT



a company of the **Kuhn** Holding



HYPERTURN 65 POWERMILL High Performance work area

About EMCO

One of Europe's leading machine tool manufacturers, the Salzburg-based machine builder EMCO currently employs around 800 people at a total of 5 production sites in Austria, Germany and Italy. The key to the success of the international, family-owned company lies in the expertise and experience gathered over 75 years of activity in the machine tool industry. That is why EMCO stands for leading-edge, customised, automated complete solutions for both turning and milling. Visit our website at www.emco-world.com to learn more.

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