

Press Release

Oct 15, 2024

 **Matsura**

5-Axis Multi-Tasking Machining Center

「**MX-520T**」 Product Release



Matsura Machinery Corporation is pleased to announce the launch of the newly developed **MX-520T**, a 5-axis multi-tasking machining center. We are accepting orders beginning today.

In response to labor shortages and to maintain cost competitiveness in the manufacturing industry, Matsura launched the **MAM72 Series** in 1991 with an innovative multi-pallet system to enable variable part/variable production and extended unmanned operation. Then, in 2006, Matsura launched the **CUBLEX series**, a 5-axis multi-tasking machining center based on the **MAM72 series** that improved productivity by integrating the processes of milling, turning, and grinding—which previously had to be performed on separate machines—all onto a single machining center.

The **MX-520**, which first hit the market in 2010, was developed using the experience and know-how obtained from the **MAM72 series** with the goal of creating a machine that could offer a reliable and user-friendly 5-axis machining experience to new and experienced 5-axis users alike. Since then, the **MX series** 5-axis vertical machining center lineup has been expanded to include the **MX-850**, **MX-330**, and **MX-420 PC10** (in order of release), and 5-axis machining has become established globally as a means of achieving process integration in manufacturing.

To meet the diverse processing needs of our customers, Matsura has now developed the **MX-520T**, a multi-tasking machining center that combines milling and turning processes, while retaining the user-friendliness of the **MX series**. To further improve productivity, the turning spindle (C-axis) is equipped with a direct drive motor with a maximum rotation speed of 800 RPM and a maximum torque of 500 Nm, ensuring sufficient turning capacity. To support high-precision turning, the spindle uses HSK-T63 for multi-tasking machines and is equipped with a highly rigid brake mechanism as standard, while the spindle nose diameter is kept to the conventional size to ensure access to the workpiece during machining.

For chip removal, a hinge type lift-up chip conveyor is equipped as standard in the space directly below the 4th/5th axis table. Chip removal nozzles with an optimized coolant discharge method are also equipped as standard.

Various support functions for multi-task machining have been added to the new operating system **MiOS 4** to ensure safety during the turning process. The space-saving automated system, which combines a floor pallet system (PC4) and a magazine with up to 120 tools, achieves further productivity improvement by adding the capacity for unmanned operation on top of milling/turning process integration.

Matsura will exhibit the **MX-520 PC4** at JIMTOF2024, the 32nd Japanese International Machine Tool Fair, November 5-10 at Tokyo Big Sight.

MX-520T Features

1. Milling and Turning integrated into one machine (process integration by one chucking)
2. Specially designed 4th/5th-axis table that combines machining and turning functions
 - 2.1. Max. rotation speed: 800 min⁻¹ (turning mode) / 100 min⁻¹ (machining mode)
 - 2.2. By rotating the A-axis, it can be used as both vertical turning and horizontal turning.
 - 2.3. High resolution scale as standard (A/C axis)
 - 2.4. Scatter prevention function and imbalance check function to ensure turning safety
3. **MAXIA** Spindle (from heavy duty machining to high speed machining)
 - 3.1. 12,000 min⁻¹ (11/11kW, 159Nm) [Standard], 12,000 min⁻¹ (18.5/22kW, 191Nm) Power-up type [Option], 15,000 min⁻¹ (18.5/22kW, 150Nm) [Option], 20,000 min⁻¹ (15/18.5kW, 108Nm) [Option]
 - 3.2. High-rigidity brake mechanism on the spindle as standard for turning operations
 - 3.3. The spindle end is HSK-T63 and can use both machining tools and turning tools.
4. Simple Automation System
 - 4.1. PC4 (Floor Pallet System) + 90/120 tool magazine [Option]
 - 4.2. Robot interface + Automatic door (Not available with PC4) [Option]
5. Operability / Accessibility
 - 5.1. **Matsuura G-Tech 31i** (iHMI, 15-inch touch panel screen)
 - 5.2. New operating system “**Matsuura integrated Operating System : MiOS 4**”
 - 5.3. Collision prevention function “Intelligent Protection System” [Standard]
 - 5.4. Distance from floor to table top surface : 950mm [37.40in.] (with table)
970mm [38.19in.] (with pallet)
 - 5.5. Distance from machine front to table center : 385mm [15.15in.]
 - 5.6. A sliding roof cover designed for easy crane access in changeover
 - 5.7. Hinge lift-up conveyor equipped as standard for extended unmanned operation

Main Specification

Item	Unit	<New>	<Reference>
		MX-520T	MX-520
Travel (X/Y/Z axis)	Mm [in.]	630/560/510 [24.80/ 22.04 /20.07]	630/560/510 [24.80/ 22.04 /20.07]
Travel (A/C axis)	deg	-125 ~ +10/360	-125 ~ +10/360
Rapid traverse rate (X/Y/Z axis)	m/min [ipm]	40/40/40 [1574.8]	40/40/40 [1574.8]
Rapid traverse rate (A/C axis)	min ⁻¹	33/100(Turning mode: 800)	33/50
Spindle speed	min ⁻¹	12,000	12,000
Spindle motor power · torque	kW · Nm	11/11 · 159	11/11 · 159
Turning Spindle torque (C-axis)	Nm	500	—
Pallet type	pallets	PC4(opt)	PC4(opt)
Working Surface (with PC4)	mm [in.]	D300 [D11.81] (D400) [D15.75]	D300(std) [D11.81] D500(opt) [D19.68] (D400) [D15.75]
Max. workpiece size (with PC4)	mm [in.]	D520 x H350 [D20.47 x H13.77] (D520 x H330) [D20.47 x H12.99]	D710 x H350 *with restrictions [D27.95 x H13.77] (D520 x H330) [D20.47 x H12.99]
Loading capacity (with PC4)	kg [lb.]	200 [440] (175) [385]	200 [440] (175) [385]