

Press Release

September 16, 2011

Compact, High-Efficiency Multi-Axis Turning Center for Shafts NZX-S1500 Launched!

Mori Seiki Co., Ltd. starts taking orders for the **NZX-S1500**, a compact, high-precision, high-efficiency multi-axis turning center for shafts, from September 16 2011. This machine is a new model in the **NZX Series**, the newest series in the X-class.

The NZX-S1500 specializes in shaft machining. By combining two turrets with the optional milling function, the NZX-S1500 achieves high-efficiency machining of small-diameter shafts, which are mainly used in the automobile, electronics, and hydraulic industries. Designed for high-efficiency, mass production machining, the NZX-S1500 provides ideal axis travels, spindle output and feed thrust force for manufacturing shafts. The NZX-S1500 offers extensive features including (1) High precision (2) Space saving (3) High reliability (4) A variety of shaft machining options and (5) Compliance with safety standards.

(1) High Precision

The NZX-S1500 uses a vertical bed for better operability and higher efficiency. The machine features a construction that is highly resistant to heat. This construction, in which the two turrets are placed symmetrically in relation to the headstock mounted on the vertical bed, allows heat to be dispersed evenly. As a result, the machine achieves thermal displacement of less than 7 μm with an ambient temperature change of 8 $^{\circ}\text{C}$, ensuring high-precision machining even for continuous, long-term operation.

(2) Space saving

The NZX-S1500 is a compact machine. Even the specification suitable for machining long workpieces with the maximum turning length of 1,055 mm has a footprint as small as 4.5m². It provides significant space savings and increased productivity per unit area. The lower height of 1,500 mm allows users to see the whole factory over the top of it. Additionally, the machine uses the three-point support for quick and easy installation, taking frequent line changes in the automobile industry into consideration. It takes only 10 minutes to install one machine, keeping non-operating time to the minimum.

(3) High reliability

Thanks to the vertical bed, chips fall straight down into the chip pan, so they do not accumulate inside the machining chamber. Furthermore, the X-axis guideway is completely covered with a highly reliable protector which does not clog to prevent chips from infiltrating into the guideway of Turret 2 and ball screws, thereby improving the reliability for long hour operation.

(4) A variety of shaft machining options

There are 2 types, NZX-S1500/500 with the maximum turning length of 535 mm suitable for machining short shafts, such as camshafts for automobiles, and NZX-S1500/1000 with the maximum turning length of 1,055 mm suitable for machining long shafts, such as drive shafts, are available. That allows customers to choose the best one that suits their workpieces. The optional loader, designed specifically for shafts, enables the workpiece to make a 180-degree turn without using a turnover unit before starting Process 2. This allows shorter cycle times for production lines. The optional workpiece remover and workpiece rest, on which the workpiece can be temporarily placed during automatic workpiece change, also support long-term, automatic machining. Other useful options for high-precision shaft machining include the hydraulic steady rest, which minimizes chatter and bending of shafts, and specifications for crankshaft machining.

(5) Compliance with Safety Standards

The NZX-S1500 complies with safety standards all over the world, including IEC Standards, UL Standards and JIS Standards.

Mori Seiki will continue to improve our product line-up and create machines which will satisfy the needs of our customers.

Type	High-Precision, High-Efficiency Multi-Axis Turning Center
Model	NZX-S1500
Market	Automobile parts, electrical equipment, hydraulic/pneumatic equipment, etc.
Orders start	September 16, 2011
Production	15 units/month

Major specifications

item		NZX-S1500/500	NZX-S1500/1000
Max. turning diameter (mm)		ϕ 120	
Max. turning length (mm)		535	1,055
Bar work capacity (mm)		ϕ 33 [51]	
X-axis travel (mm)		60	
Z-axis travel (mm)		580	1,100
Rapid traverse rate (mm/min)	X axis	20,000	
	Z axis	30,000	36,000
Max. spindle speed (min ⁻¹)		3,500 [6,000] ^{*1}	
Spindle drive motor (15min. /60 min./Cont.) (kW)		5.5/3.7/3.7 [7.5/5.5/5.5] [11/7.5/5.5/5.5 (1min. /15min. /60min. /Cont.)] [15/11/11] ^{*2}	
Max. rotary tool spindle speed (min ⁻¹)		[4,500]	
Rotary tool spindle drive motor (30 min. /cont.) (kW)		[0.75]	
Number of tool stations on the turrets		6 [5]×2	
Floor space (width x depth) (mm)		1,665 × 1,710	2,500 × 1,823

[] option

*1 For spindle nose shape JIS A₂-5 only

*2 When selected spindle nose shape JIS A₂-6 and Max. spindle speed 3,500 min⁻¹



Fig. 1. Exterior
(NZX-S1500/500)



Fig. 2. Loader System
(2 machines combined)