Press Release

June 21, 2011

High Grade Linear Motor Machine

"*LX-160*" Order Intake Start

LF-160, *LS-160* and *LV-500* : Four models made debuts

Matsuura Machinery Corporation has developed a high grade linear motor machine model, ***LX-160***, and starts to accept orders from today.

The existing LX Series (three models: ***LX-1***, ***LX-0***, ***LX-0 5AX***), ultra high speed high precision vertical machine equipped with linear motors for driving the axes, enjoys a high reputation for machining with high speed and high precision. Since its debut in 1998, more than 130 machines have been delivered to various industrial fields including precision molding, medical equipment, engine peripheral equipment, and others.

The ***LX-160***, fully model changed from the ***LX-0 5AX***, is the core machine model capable of achieving both high speed and high precision.

In response to requests from the market for super precision machining or ultra high speed machining, which was hard to achieve with the ***LX-0 5AX***, new three models (***LF-160***, ***LS-160***, ***LV-500***) are developed at the same time as derivative machines of the ***LX-160***, each of which is tailored to the specific market demand. The high precision linear motor equipped ***LF-160*** or ***LV-500*** machine is designed specifically for super precision machining fields, such as precision molding or optical parts while the high speed linear motor equipped ***LS-160*** machine is tailored for ultra high speed machining fields, such as impeller machining, dental or medical applications. The dedicated machine specifications will deliver the machining performance that best suits the customer's needs.

The ***LX-160*** is structurally optimum designed according to FEM analysis, fully utilizing the quality engineering concept, so that its rigidity is increased to a maximum of 80%, compared with conventional models. The spindle employs a unique balancing method to enable a high spindle speed of 46,000 min^{-1} (conventional speed + 3,000 min^{-1}) as well as low noise and low vibration. The rotation center of the tilting axis (B) is lowered to a position below the pallet surface to reduce each axis movement during simultaneous 5-axis machining, thus shortening the cycle time. The tool change method is also reviewed so that the tool change time can successfully be shortened 65% from that of our conventional models. Useful ATC/APC options are available for expansion on request to enable extended unmanned operation or varied-type varied-lot production according to the customer's applications.

In addition, the next generation operating system "MIMS: Matsuura Intelligent Meister System" is provided as a standard feature to help the operator carry out the setup, operation and maintenance while saving labor and energy.

Matsuura is planning to exhibit the ***LX-160*** at EMO2011 (European International Machine Tools Fair) that will be held from September 19 in Hannover, Germany.

LX-160 Features

1. Spindle speed : 46,000 min^{-1} [conventional speed +3,000 min^{-1}]
2. High speed high precision B-/C-axis table of dedicated design
   2.1. Direct drive motor
   2.2. Rapid traverse rate (B/C axis): 100 min^{-1} (B-axis/tilting axis), 200 min^{-1} (C-axis/rotating axis)
3. Tool change time shortened : 3.5 sec (Chip-to-Chip)
   [65% shortened from the conventional model]
4. Maximum workpiece size : D160mm x H230mm*
   [70% increased from the conventional model]
5. Floor space : 3.96 m^2 [15% smaller than the conventional model]
6. Expandability (abundant options)
   6.1. Tool storage capacity : 10 tools (standard)
   : 30 tools, 50 tools Chain type magazine (option)
   : 130 to 330 tools Matrix magazine (option)
   6.2. Pallet changer : Table specifications (standard)
   : PC2 (option)
   : PC40/PC90 multi-pallet system (option)
7. Collision avoidance system "Intelligent Protection System": Standard
8. Next generation operating system "MIMS (Matsuura Intelligent Meister System)": Standard
   8.1. Operator support with Meister's (skilled expert's) know-how, skills, and ideas collectively
   8.2. Four keywords

1.	Reliability Meister	[Security]	To shorten machine down time
2.	Operability Meister	[User friendly]	To shorten setup time
3.	Thermal Meister	[Accuracy]	Stable accuracy due to thermal displacement compensation
4.	Eco Meister	[Environment]	To reduce standby energy

Main Specifications

Item		***LX-160***	***LF-160***	***LS-160***	***LV-500***
Travel (X / Y / Z axis)	**mm (In.)**	**500/250/300 (19.68/9.84/11.81)**	500/250/300 (19.68/9.84/11.81)	500/250/300 (19.68/9.84/11.81)	500/350/300 (19.68/13.78/11.81)
Travel (B / C axis)	**deg**	**-125 ~ +125/360**	-125 ~ +125/360	-125 ~ +125/360	—
Rapid traverse rate (X / Y / Z axis)	**mm/min (ipm)**	**90,000 (3,543.3)**	90,000 (3,543.3)	90,000 (3,543.3)	90,000 (3,543.3)
Rapid traverse rate (B / C axis)	**min^{-1}**	**100/200**	100/200	100/200	—
Spindle speed range	**min^{-1}**	**46,000**	46,000	40,000	46,000
Spindle nose type		**BT30/HSK-E40**	BT30/HSK-E40	HSK-E40	BT30/HSK-E40
Maximum workpiece size	**mm (In.)**	**D160 x H230* (D6.29 x H9.05*)**	D160 x H230* (D6.29 x H9.05*)	D160 x H230* (D6.29 x H9.05*)	—
Loading capacity	**Kg (lb.)**	**20 (44)**	20 (44)	20 (44)	100 (220)

* Bullet shaped