

Manufacturer



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Dealer







**PAGE** 

- 1 Cover Page
- 2-3 INDEX/CONTENTS

#### **New Generation Machining Center**

- 4 New Generation Machining Center
- 5 Transmission System
- 6 Structure
- 7 Linear guideway
- 8 Oil/Coolant Separator, Spindle coolant Cooling
- 9 Spindle Unit
- 10 Spindle Specification and Performance
- 11 Tool Changing System -ATC

#### Chip Removal System

- 12 Highly Efficient Chip Removal Mechanism Control System
- 13 Controller
- **14-15 Meet Customer Requirements**

#### Operation

- 16-17 User-friendly, Accessibility, Maintainability
- 18 Convenience
- 19 High Performance Configuration
- 20 Cooling System
- 21 Safety Door

#### **Machine Precision**

- 22 Machine Equipped Measuring Devices
- 23 Advanced Inspection Equipment and Technology
- 24 Machining Performance

#### Production and Wor

25 Workshop Environment and Floor Area

#### **Equipment Specification**

- 26 Outline Dimensions
- 27 Worktable Dimensions
- 28 Machine Specifications
- 29 Equipment List

#### **Business and Service Locations**

30-32 Business and Service Locations

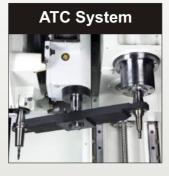
#### **Production Site**





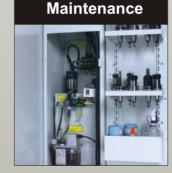


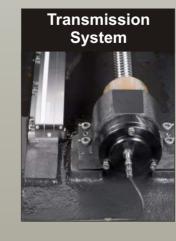


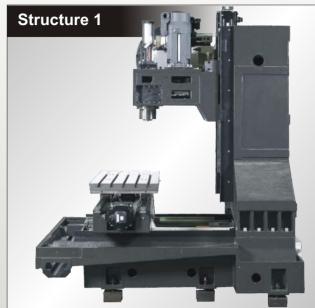


**Contents** 





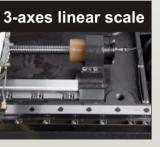




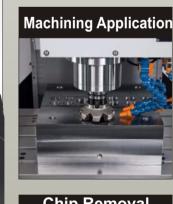






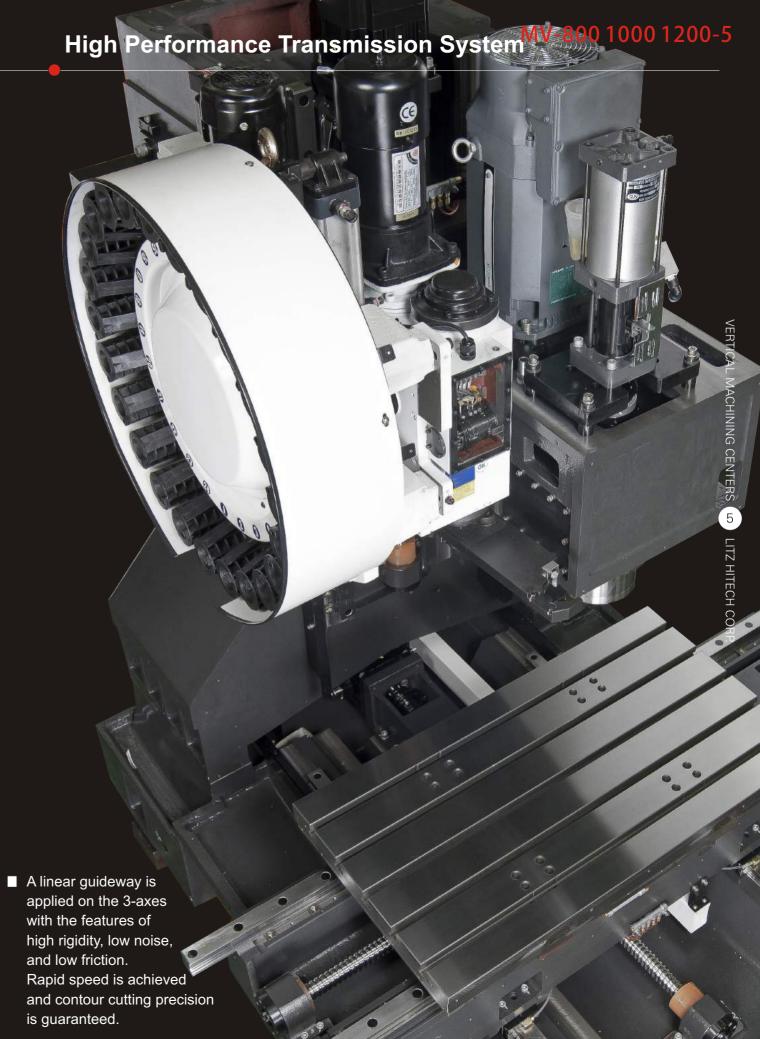












# High Rigidity and High Precision Structure Design



- The major construction parts are based on Meehanite cast iron, which is stable in structure and long-term quality is assured.
- Casting parts are calculated and analyzed by the finite element method. Proper structure strength combined with enhanced ribs provides high rigidity for the machine.
- A linear guideway is applied on the 3-axes, supporting heavy loads, rapid moving, and assuring precise positioning
- A wide base, box-shaped column, enhanced saddle, full span supports for heavy loads, and robust structure all contribute to its ability for heavy duty machining.

MV-800 1000 1200-6

Enhanced ribs inside the spindle head and a proper contact length ratio between the spindle head and column provide solid support for the spindle.

# Linear Guideway with High Speed and High Precision



- A linear guideway with zero backlash ensures a consistent cutting surface on curved or tilted surfaces.
- Suitable for high speed operation and the horsepower requirement is minimized.
- By using rolling contact instead of sliding contact, the linear guide reduces the friction loss and increases the sensitivity and positioning precision.
- Capable of taking loads from all directions simultaneously. Multiple point contacts of the rail contact surface under loads, the cutting rigidity will not be compromised.
- Easy to assemble with interoperability. The lubrication mechanism is simple.
- Tiny wear and tear of linear guideways, long service time.

#### Collision Protection Device

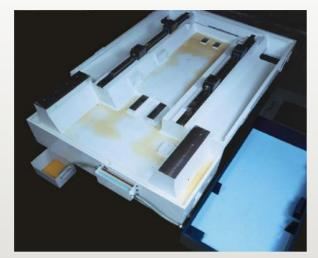


■ The machine is equipped with a collision protection device which can absorb collisions due to machine malfunctions or mistakes made by operators. The damage caused by the collision can be minimized and still maintain the design precision.

#### High Precision Linear Scale OP



- The X/Y/Z-axis can be equipped with a linear scale system to detect thermal displacement due to rapid movement of the machine. The thermal displacement result will be sent to the controller for compensation, suitable for high precision parts machining.
- The linear scale system is designed with a gas protection device to prevent the linear scale from contamination by dust and oil vapor. The precision of the linear scale is assured and the service time can be extended.



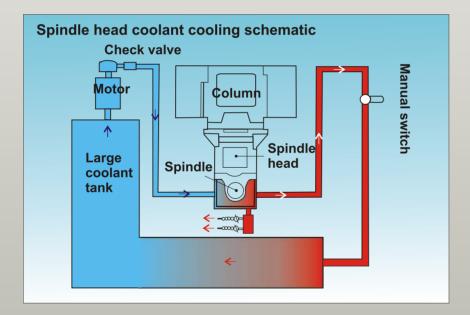
■ The oil/coolant separating design can separate lubricating oil and coolant effectively.

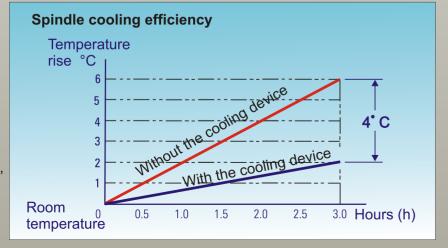
Coolant quality will not be reduced due to mixing and the machining quality can be assured.

Spindle head and spindle coolant cooling system - completely eliminate the thermal displacement of the Z-axis



- The unique and cost-effective
   spindle head cooling system
   will remove the heat generated
   by high speed operation of the
   spindle, eliminating the thermal
   displacement of the spindle head.
- The system can achieve excellent cooling performance without the need of an additional pump, filter, or hydraulic oil.
- Reducing the heat generated by the high speed operation of the spindle, ensuring spindle precision, and extending the service time of the spindle.
- In case of dry cutting, the system is designed with loops to maintain the cooling efficiency.





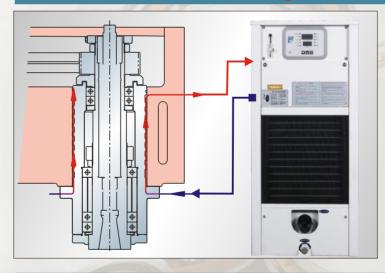
# **High Speed High Precision Spindle Unit**

### **Spindle Unit**



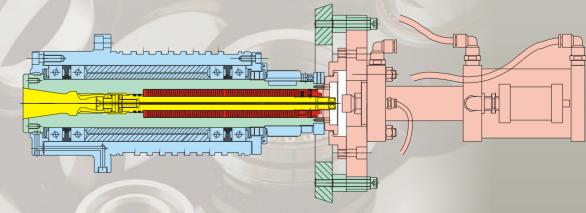
- The spindle uses an angular contact ball bearing with high speed and high precision.
- The four jaw collet provides strong tool holding force, large contact area, low wear on the tool shank, and long service time.
- A high horsepower spindle motor is used for standard machines, suitable for high speed and heavy cutting.
- The spindle is driven by a high torque timing belt, there is no slipping, and the noise and heat generated during transmission are significantly reduced.
- Online spindle dynamic balancing is achieved through an IRD dynamic balancing system, eliminating the resonance caused by a high speed rotating spindle and assuring optimized machining precision.

#### Spindle oil cooling system OP



The high speed rotating spindle with a spindle oil temperature control system can maintain the spindle at constant temperature and control the thermal displacement of the spindle effectively, to assure the high speed and precision of the spindle.

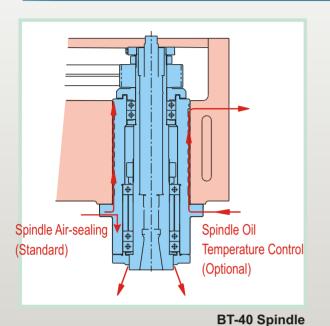
# Floating Unclamping Tool Mechanism (MV-1200A)

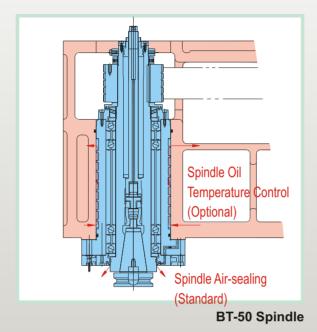


A floating tool unclamping mechanism is applied and the force generated by tool releasing will not be transmitted to the spindle bearing. Thus the life of the spindle bearing is extended.

# **Spindle Specification and Performance**

# **Spindle Dust-proof Air-sealing System**





■ The spindle air-sealing system can control the high-speed of the spindle to generate vacuum and suck up dust, which assures the precision of the spindle and thus extends the service life of the spindle.

#### **Spindle Pull Force**



■ The high tensile spindle provides high rigidity for tool clamping and enhances the cutting rigidity.

**Arm-type Tool Changing Mechanism** 

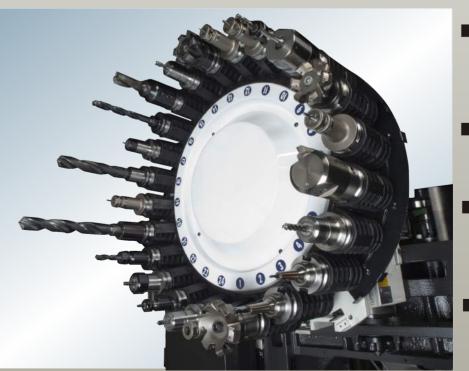
Stable and Reliable ATC



Arm-type Tool Changing Mechanism

- A fast, simple, reliable, and durable tool exchange device, providing stable and reliable exchange of tools.
- A unique tool exchange device design, an advanced cam-drive mechanism capable of random tool selection can be achieved using the PLC software control.

### **Tool Magazine Unit**



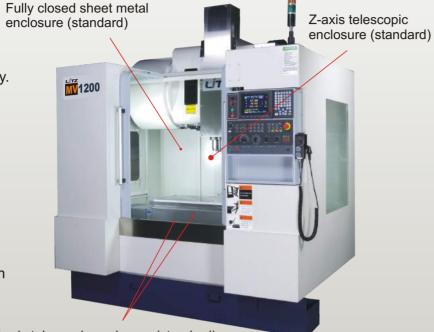
**Tool Magazine stations: 24 tools** 

- The tool changer mechanism has been subject to a million times of operating tests to satisfy the requirements of high reliability.
- The rapid tool changer mechanism saves non-cutting time, and therefore increases production efficiency.
- The cam drive mechanism of the magazine ensures precise rotation and smooth operation of the magazine, even for heavy tools.
- Tool magazines with 24 stations and 32 stations are available for selection.

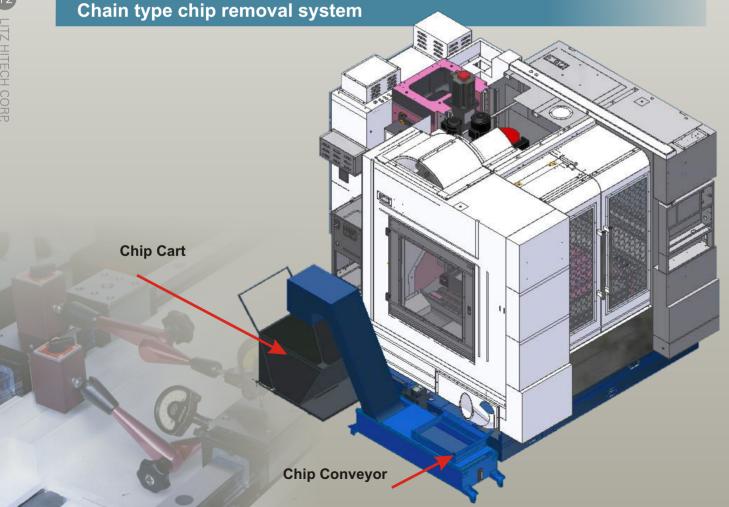
■ Fully enclosed sheet metal for the machining area prevents dust and oil mist from spreading into the workshop and reducing the air quality.

■ Simple and efficiently design of the chip removal mechanism is applied. Chips are transported by a large amount of cutting coolant from the chip cleaning device to the screw type chip auger located on the front of the machine. The screw-type chip auger will transport the chips to the chip cart located on the left side of the machine. The Operator can clean up the chips easily and simply.

Fully closed sheet metal



X/Y-axis telescopic enclosure (standard)



#### **FANUC (Japan) Controller Series**



CNC FANUC Series 0i-MF with Outstanding Reliability and Cost Performance

○:Basic ☆:Option -:Not available

	Model				
	1	2	3	5	
Max. number of axes controlled	11	9	6	6	
Max. number of paths controlled	2	1	1	1	
Display	15/10.4/8.4	10.4/8.4	10.4/8.4	10.4/8.4	
Max. cutting feed speed for 1mm-long path			_	_	
program: 60m/min, Max. number of preview blocks: 400	☆	_		_	
Separated Control Unit	☆	-	-	-	
Working network	☆	☆	-	-	
High quality machining software packages	☆	☆	☆	-	
Large capacity program operation (copy to CF card from USB/ethernet)	0		0		
Preparation and supports before machining	0		0		
Multi-language (Vietnamese, Indonesian, Tamil)	Ó				

#### **Mitsubishi Controller Series**

High end controller from Mitsubishi achieves higher productivity and comfort



CNC M800/M80 Series

#### **CNC dedicated CPU**

#### Fine segment processing capacity

High capability in program processing enables a shorter cycle time .

#### PLC process capability (PCMIX value)

High processing capability of the PLC enables large-scale ladder logic to be processed at high speed.

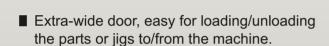
#### **NC-to-drive communication capability**

Optical communication speed between NC and drive has been increased. This improves the system responsiveness, leading to more accurate machining.



#### Extra-wide front door





Wide door opening distance

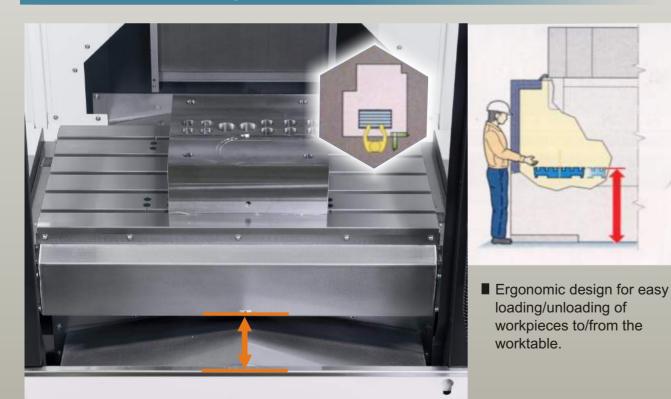


Extra-large side window

MV-800 1000 1200 - 16

■ Wide windows on both sides of the machine. easy for installation and cleaning.

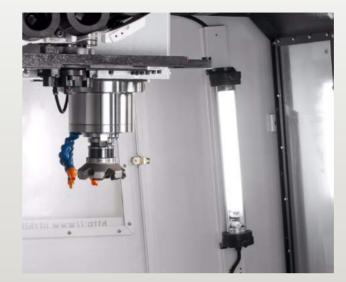
# **Worktable Accessibility**



#### Easy access to the worktable

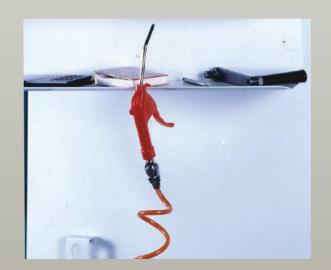
- Short distance between the operator and worktable, easy for operation inside the machine.
- Shortens the distance between the front of the machine and the worktable.

#### Light inside the machine



- Bright in the working area and tip of the tool.
- 2 high brightness fluorescent lamps are equipped inside the machine.

#### Easy-to-use Air Gun



- A tube from the air compressing system is installed on the right-front of the machine with quick couplings for a compressed air tube and air gun.
- Operators can use the air gun to clean the residual chips on jigs or workpieces, simple and easy.

#### **Convenient storage compartment**



- A compartment is located under the operation cabinet to store items such as calculators, keys and pens. Very convenient.
- A hook is installed on the front edge of the storage compartment to place tools such as air guns and pliers.

## Coolant gun for machine cleaning



■ The Coolant gun for machine cleaning can remove the residual chips attached to the machine, keep the cleanness of the machine and facilitate the maintenance works.



#### Convenient document clip and stationery drawer



- Document folder and notepads are attached on the side of the operation cabinet. Operators can put the work order or important data on the folder.
- The stationery drawer is located on the back of the document folder. Operators can put the stationery, discs, or IC card inside for easy management.

#### Convenient service access



■ Centralized air compressing system and lubricating system is easy for repair and maintenance.

#### Disc type oil/coolant separator





■ The disc-type oil/coolant separator can be attached easily without taking up space. The disc-type oil/coolant separator can separate the oil from coolant tank effectively. to assure the coolant quality, extend the life of the coolant, and guarantee the machining quality.

#### Tool shelf and tool cabinet op



- Operators can use the tool shelf attached on the side or back of the machine to store the tools temporarily.
- A tool box is placed under the tool shelf to store the material for machine maintenance.

# **ZF** (German) Gearbox and Cooler

**High Performance Configuration** 







- A high horsepower motor with a ZF (German) Gearbox can provide high torque output at low speed, suitable for heavy cutting.
- The ZF gearbox is stable, smooth and low noise, even at high speed.
- The ZF gearbox is equipped with an oil cooler to remove the heat generated due to high speed operation of the gearbox, to ensure the transmission performance, and extend the service life of the gearbox.

# DDR Motor OP





#### (4th axis, embedded rotating shaft)

■ The embedded rotating 4th axis has the features of high rotating speed, high precision, high maximum torque, high braking torque and zero backlash, suitable for precision parts machining with high performance.

# Spindle external programmable air blowing system



- The programmable air blowing system outside the spindle device is used during dry cutting to reduce the chips on the workpiece surface, which may otherwise compromise the quality of the machining surface.
- It is possible to input specific commands into the programmable air blowing system outside the spindle to use the NC to control the air blowing.

# Programmable coolant nozzle op





- The programmable coolant nozzle can input a specific M code into the commands of the machining programs. The nozzles will adjust the angles automatically based on the length of the tools during machining.
- Simpler and more accurate control of the coolant cools the contact point between the tool tip and workpiece and removes the heat generated during machining effectively. The machining quality is improved.

# **Spindle Splash Ring**



■ 6 nozzles are installed around the spindle to provide the optimized cooling results for tools and workpieces and improving the machining quality.

#### Deep drilling stop block and oil-feed tool holder





- A deep drilling stop block and oil-feed tool chuck are suitable for the drilling of deep hole parts.
- The oil-feed tool chuck can be equipped with various types of coolant sprays to meet different cooling requirements.

# Wash Down System OP



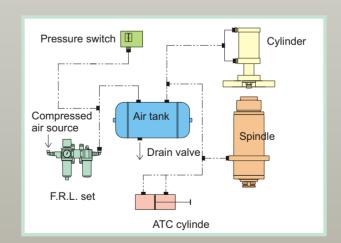


■ The highly efficiently strong wash down system moves the chips to the screw-type chip auger, which is transported to the chip cart outside the machine, to maintain the tidiness of the working environment and the safety of the operators.

# CE Specification OP

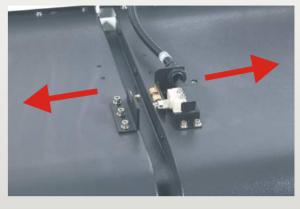


# Air tank system



- To avoid several machines using the same compressed air source simultaneously, which will cause a sudden significant pressure drop or insufficient pressure of the air compressing system and result in abnormal machine operation.
- The gas tank is capable of water draining manually.

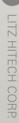
### **Standard Specification**



- When door is open, the machining programs will not start, ensuring the safety of the operators.
- For the safety of the operators, opening the door during machining will stop the program.

#### Filtering and Detecting of the **lubricating system**





MV-800 1000 1200 - 23

# **Machine Equipped Measuring Devices**

# Workpiece Measurement System op

- The Renishaw workpiece measuring system is installed.
- New generation OMP 60 optical probing system.
- The OMP 60 provides simple measurement, which can reduce the time for setting up the machine by up to 90%. reduce the reject rate, and fixture costs and improve the process control.
- The OMP 60 uses microelectronics and components, thus providing a compact structure.
- Optionally, the probe can be equipped with an OMI-2 interface receiver. The system uses state-of-the-art modulated optical transmission with excellent light interference resistance capability.
- The probe is equipped with a 360° infrared optical transmission system. The transmission distance is up to 6m and the probe can perform measurement from any direction.



### Tool Length Measurement op



- The automatic tool measuring system will measure the tool length and input the result into the controller automatically for compensation.
- Automatic tool measuring is controlled by macros, which can perform the measurement automatically and are easy to operate.

# 4th Axis (Rotating Worktable) OP



- With the 4th axis rotating worktable, it is possible to perform multi-surface machining simultaneously which can reduce the non-production time of loading/unloading workpieces.
- A worm gear and worm transmission are used for precise positioning. High precision can be maintained even during a long time of operation.
- High precision bearings are used for spindle rotating, ensuring the stability of the rotation center.
- The smallest division precision, which is frequently used in spiral cuttings and precision-required aerospace industry.

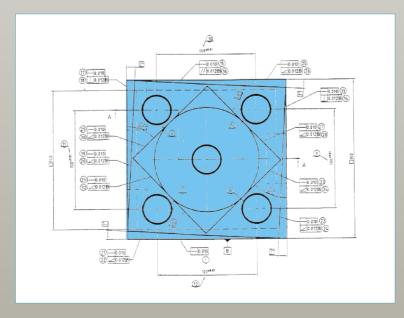
# Circular Test, Laser Inspection, Dynamic Spindle Balancing

**High Performance Inspection System** 

Renishaw Ballbar System



#### **Standard Specimen Test**



■ In addition to the tests and inspections performed with precision instruments, each machine is subject to dynamic cutting tests in accordance with international standards.



■ Upon the completion of cutting, the standard specimen shall be inspected with a 3D coordinate measuring machine (CMM) to ensure the required precision.

#### **Machining Accuracy**

level Accuracy Experience -Highly accurate parts and molds machining solution **Machining Accuracy** (the height of letters)



Machining example: embossed letter machining

Machine used: MV-1200A

Material: NAK80

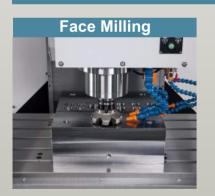
Dimension: 90x40x30mm Machining duration :1 h 52 min

Tools: rough machining: R2 CBD ball end mill finish machining: R1 CBD ball end mill

Cutting specifications: Rough machining: 8000rpm

Feed rate: 1600mm/min Fine machining: 8000rpm Feed rate: 1600mm/min

#### **Cutting Performance**







		~~~	D.:II. O	Y 0 0	T MO4 DO 0			
	Face Mil	Ø80mm	Drill Ø	536 mm	Tap M24xP3.0			
	120	ml/min	35 n	nl/min	M24xP3.0			
MV-800	Spindle Speed	Feed Rate	Spindle Speed	Feed Rate	Spindle Speed	Feed Rate		
	1000 min <sup>-1</sup>	1000 mm/min	230 min <sup>-1</sup>	35mm/min	100 min <sup>-1</sup>	300 mm/min		
	Face Mil	Ø80mm	Drill Ø	040 mm	Tap M24 xP3.0			
MV-1000		nl/min	25m	l/min	M24 xP3.0			
	Spindle Speed	Feed Rate	Spindle Speed	Feed Rate	Spindle Speed	Feed Rate		
	900 min	900 mm/min	160 min <sup>-1</sup>	20mm/min	100 min <sup>-1</sup>	300 mm/min		
	Face Mil Ø80mm		Drill Ø	040 mm	Tap M27xP3.0			
	320r	nl/min	50m	I/min	M27xP3.0			
MV-1200	Spindle Speed	Feed Rate	Spindle Speed	Feed Rate	Spindle Speed	Feed Rate		
	1000 min <sup>-1</sup>	1140 mm/min	207min <sup>-1</sup>	40mm/min	100 min <sup>-1</sup>	300 mm/min		

#### Oil Mist Removal

Remove the oil mist of the coolant from the machine to keep a clean and healthy working environment, increase working performance and achieve energy saving and environmental protection.

#### Oil Mist Collector OP



#### **Advantages of the Oil Mist Collector**

- Extend machine life- oil mist spreads quickly and widely. Reducing the damage of mechanical parts and components inside the electrical and control cabinet caused by oil contamination.
- Reduce the hazards to health- any form of oil mist, smoke, or pollution may be harmful to the lungs, throat, and skin and can be a risk to health.
- Reduce accidents- Spread oil mist may cause slippery floors and result in danger and accidents.
- Reduce fire risks- The accumulation of oil mist may cause a fire or make the fire more serious.
- Save production costs- Oil mist can be collected and recycled back to the machine for reusing.
- Reduce the requirements for compensation- In case the air is polluted, employees would request an increase in their salary as compensation.
- Increase the employee morale- improving the polluted environment will increase the enthusiasm and passion of the operators.

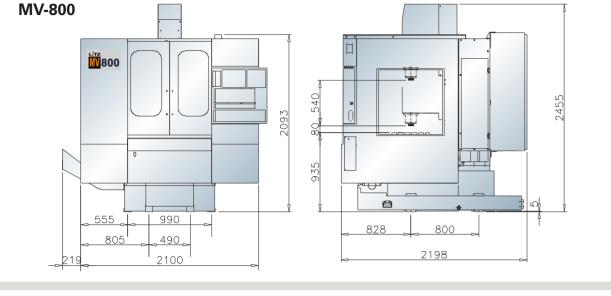
## Safe metal skid packing and smallest footprint

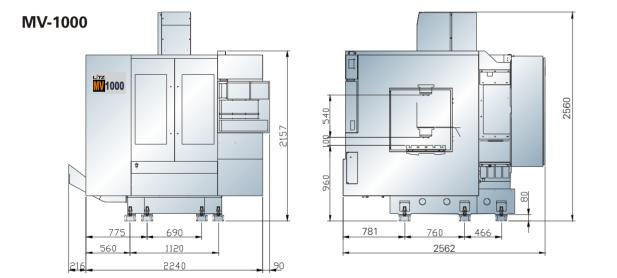


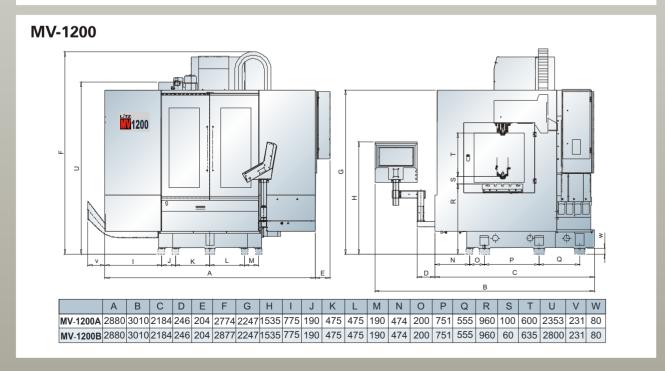
- Simple and compact design of the machine saves the space required, maximizing the utilization of limited space.
- Small footprint of the machine.
- The machine can be fitted into a 20 ft high cubicle container. Each container can accommodate 2 machines, saving the cost for packing and shipping.
- The machine is shipped with an iron pallet, easy and safe.
- The forklift can be applied from 4 directions to the iron pallet, easy for handling. All the accessories are mounted and fixed, ensuring the handling quality.

# **Worktable Dimensions**

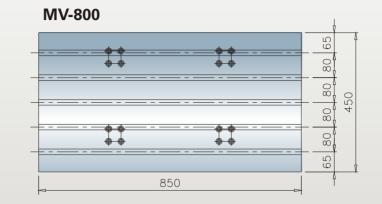
MV-800 T-slot dimensions



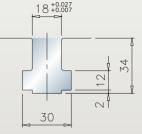


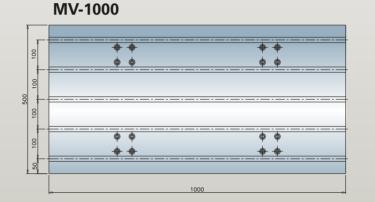


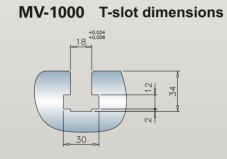
## **Worktable Dimensions**

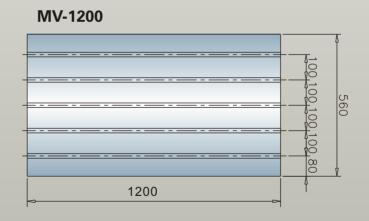


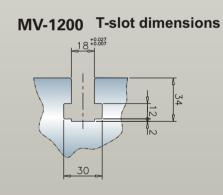




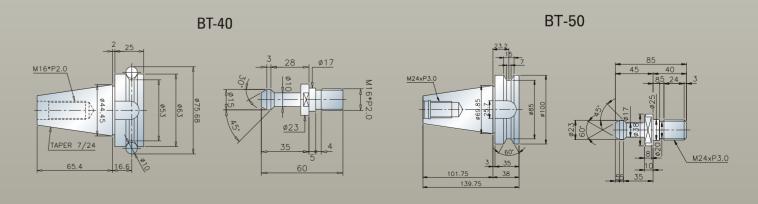








# **Tool Shank and Pull Stud**



#### MV-800 MV-1000 MV-1200A MV-1200B Model Travels for 3-axes 800 1000 1200 1200 X-axis Travel mm 560 Y-axis Travel 450 560 500 mm **Z-axis Travel** 540 600 635 540 mm Spindle nose to worktable surface mm 80-620 60~695 100~700 100-640 Spindle 6000 10000 8000 Spindle Speed rpm 8000 Automatic Tool Changing System 24 24 24 24 Number of Tools pcs 80/125 125/225 80/125 80/125 Max. tool diameter mm 270 300 350 Max. tool length 300 mm 8 Max. tool weight kg 8 8 15 Tool changing method ARM ARM ARM ARM BT-40 Tool specification BT-40 BT-40 BT-50 Motor 5.5/7.5(7.5/10) 7.5/11(11/15) 7.5/11(10/15) 11/15(15/20) Spindle motor (continuous/30min. rated) kw(HP) 1.5/1.5/2.0 2.0/2.0/3.5 2.0/2.0/3.5 2.0/2.0/3.5 Motors on X/Y/Z-axis kw Worktable 850x450 Worktable area 1000x500 1200x560 1200x560 mm 750 350 500 750 Worktable max. load capacity kg 5x18x80 5x18x100 5x18x100 5x18x100 T-slot (No. x Width x Distance from the center) mm Rapid Speed 36 36 36 36 X-axis rapid speed M/min 36 36 36 36 Y-axis rapid speed M/min 24 24 24 24 Z-axis rapid speed M/min 1-20000 1-20000 1-20000 Cutting feed rate mm/min 1-20000 Controller M80 M80 M80 Mitsubishi M80 Miscellaneous ka 4500 5800 8000 8500 Machine Weight 25 25 15 Power Consumption KVA 20 290 290 Coolant Tank Capacity 200 240 6 6

6

kg/cm2

Compressed air source

6

# **Equipment List**

Human-Machine Interface - intelligent machine

Oil mist Collector

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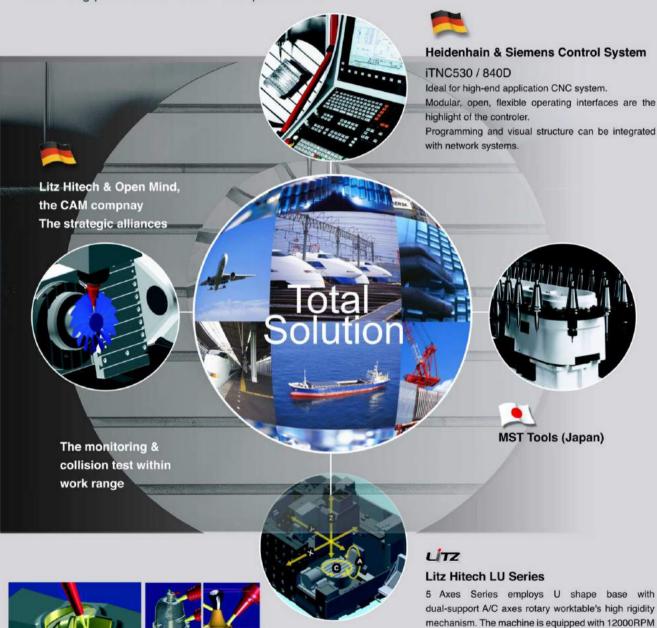
Equipment List					■ Standard ○Options ☆ Upon reques				
ъ,	ML. 1800	Mr.	Mr.		4,	3/L	Mr.	ML. 7.008	
indle	800	000	008	000	Oil/coolant separator	800	1000	300A	000
indle speed: 6000 RPM	_				Disc type oil/coolant separator				
indle speed: 8000 RPM					Machine oil/coolant separation system				
indle speed: 10,000 RPM				$\bigcirc$					
indle speed: 12,000 RPM		0	0		ATC System				
indle oil cooling system		$\bigcirc$	$\bigcirc$	$\bigcirc$	Automatic Tool Changer Mechanism (A	ATC)			
olant through the spindle system (CTS)		$\bigcirc$	$\bigcirc$	$\bigcirc$	BT-40 tool specification				
indle dust-proof air-sealing system					BT-50 tool specification				
indle head coolant cooling system	_	_	•		Arm type tool magazine 24T				
gearbox + cooling system		$\bigcirc$	$\overline{}$		Arm type tool magazine 32T	_	$\circ$		—
0 7					Arm type tool magazine 40T		☆	☆	
oling System									
indle external programmable air blow sys	stem				3-Axes Transmission System				
op block for oil feed tool holder		$\overline{}$	$\overline{}$		3-axes coolant thru ballscrew (CTB)	—	$\Rightarrow$	☆	☆
grammable coolant nozzle	☆	☆	☆	☆	3-axes linear roller guideway	$\bigcirc$	$\circ$	$\circ$	$\bigcirc$
lash ring (arm type only)	☆	☆	☆	₩	3-axes linear scale	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$
olant cooling system		$\bigcirc$			Z-axis brake motor system				
0.12.2									
ip Removal System					Controller				
ip auger inside the machine			•	•	Mitsubishi M80				
ip conveyor		0	0		FANUC OIMF		0	0	$\bigcirc$
ip cart			•		Siemens 828D		0	0	0
olant gun for machine cleaning									
gun for machine cleaning		•	•	•	Electrical Parts				
ash down device			0		Work light				
od for the top of the machine					Alarm indicator				
ly-covered sheet metal					M30 automatic power off system				
.,, 0010104 011001 111014					Heater exchanger for electrical cabinet	0		0	
easurement System					Air-conditioner for electrical cabinet				
rared tool breakage detection					A 4' II				
ol length measurement system			0		Miscellaneous				
orkpiece measurement system					4th Axis (rotating table)				
D measurement system	☆	☆	☆		Tooling				
D modulumont system	W	W	W	- N	DDR embedded motor	☆	☆	☆	☆
oduction and Workshop					(Mitsubishi system only)				
nduction management and network service	20								
JUDICHUM MANAGEMENT AND NEIWORK SELVIC	of C								

All the photos contained herein are for reference only. In case of any discrepancy with the actual machine parts, the actual machine shall prevail.

<sup>■</sup> LITZ reserves the right to modify the product specifications, appearance, equipment or discontinue the products.

# **Total Production Solution**

Highly efficient manufacturing fashion, equipped with high performance control system. The high speed contouring capability can achieve best possible surface quality under most demanding machining cycle time. Highly dynamic five axes machining provides solution for complex tasks.

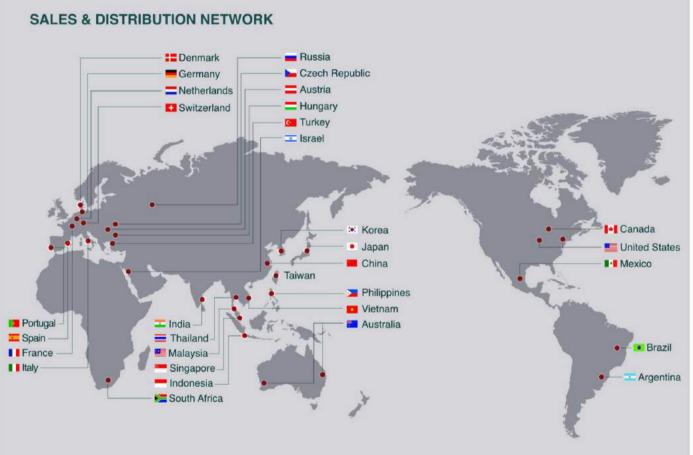


direct-drive high speed spindle. High durable roller type linear guideways, 3 axes high precision linear scales along with other high quality components brings out the excellences of the 5 axes simultaneous control. Mill, drill, tap, spiral, irregular and other complex

machining can be easily achieved.

# Technical Support Global Presence





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