

Specifications:

High speed Machining Center

MODEL	UNIT	VMC-560AH	VMC-560AP
TRAVEL			
Longitudinal travel (X-axis)	mm	560	
Cross travel (Y-axis)	mm	430	
Vertical travel (Z-axis)	mm	450	
Distance from spindle nose to table	mm	110 ~ 560	
Distance from spindle center to column	mm	475	
TABLE			
Working surface	mm	700 x 430	
T-slots (size x number x pitch)	mm	14 x 4 x 100	
Max. table load	kg	300	
SPINDLE			
Spindle nose taper		#40	
Spindle speed	rpm	12,000	8,000
FEED			
Cutting feedrate X, Y, Z	m/min	1-12	
Rapid feedrate X, Y, Z	m/min	32, 48 (Opt.)	
ATC			
Tool storage capacity	pcs	24	
Max. tool size	kgs	6	
Max. tool size (diameter x length)	mm	Ø80 x 200	
Tool shank		BT 40	
Pull stud bolt		MAT-P40T-1	
MOTOR			
Spindle drive motor (30 min rating)	kW/HP	7.5 / 10	
OTHER			
Position accuracy	mm	±0.005 / 300	
Repeatability	mm	±0.004	
Required air pressure	kg/cm ²	6.5	
Electric power consumption	KVA	21	21
Machine weight	kg	3600	
Floor space (full guarding)	mm	2500 x 2150 x 2690	

■ Design and specifications are subject to change without prior notice.

STANDARD ACCESSORIES

- Cooling system
- Automatic Lubrication equipment
- Air blast through spindle
- Full splash guard
- Work lamp
- Leveling bolts and blocks
- Manual and wiring charts
- Task completion indicator
- Separated MPG
- X, Y, Z axis way covers
- Coolant gun
- Spindle air curtain (more than 10000rpm)
- Auto power shut-down
- Heat exchanger for EC
- Coolant through spindle (VMC-560AH)

OPTIONAL ACCESSORIES

- Cooling through the tool and tool holder system
- Link-type chip conveyor and movable chip cart
- Mist coolant system
- Oil skimmer
- Chip flushing device
- Closed-loop linear scale positioning (standard for models more than 10000 rpm)
- Mist collector
- 10000/12000rpm (VMC-560AH)
- 15000rpm (VMC-560AH)
- Air gun

High speed Engraving Machine

MODEL	UNIT	HSM-560
TRAVEL		
Longitudinal travel (X-axis)	mm	560
Cross travel (Y-axis)	mm	430
Vertical travel (Z-axis)	mm	450
Distance from spindle nose to table	mm	110 ~ 560
Distance from spindle center to column	mm	475
TABLE		
Working surface	mm	700 x 430
T-slots (size x number x pitch)	mm	14 x 4 x 100
Max. table load	kg	300
SPINDLE		
Spindle nose taper		HSK-E40
Spindle speed	rpm	30,000
Spindle motor	kW	6.4
FEED		
Cutting feedrate X, Y, Z	m/min	1-12
Rapid feedrate X, Y, Z	m/min	32, 48 (Opt.)
ATC		
Tool storage capacity	pcs	16
Max. tool size	kgs	3
Max. tool size (diameter x length)	mm	Ø50 x 120
Tool shank		HSK-E40
OTHER		
Position accuracy	mm	±0.005 / 300
Repeatability	mm	±0.004
Required air pressure	kg/cm ²	6.5
Electric power consumption	KVA	20
Machine weight	kg	3600
Floor space (full guarding)	mm	2500 x 2150 x 2690

STANDARD ACCESSORIES

- Cooling system
- Automatic lubrication equipment
- Air blast through spindle
- Full splash guard
- Work lamp
- Leveling bolts and blocks
- Manual and wiring charts
- Task completion indicator
- Separated MPG
- X, Y, Z axis way covers
- Coolant gun
- Spindle air curtain
- Auto power shut-down
- Heat exchanger for EC
- Coolant device for spindle

OPTIONAL ACCESSORIES

- Link-type chip conveyor and movable chip cart
- Mist coolant system
- Oil skimmer
- Chip flushing device
- Closed-loop linear scale positioning
- Mist collector
- Air gun

Hartford

The machining center company

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CAT. NO. Matrix-050610E10

Hartford

The machining center company

MATRIX

VMC-560, HSM-560

12,000 RPM ~ 30,000 RPM



High Speed
Machining Center /
Engraving Machine

See one of the **Fastest** mould-making machining centers in the world here.

Unimaginable Performance

Hartford have what no one else does...

12,000 RPM spindle speed(VMC-560AH)

8,000 RPM spindle speed(VMC-560AP)

40 Spindle taper

Fanuc / Mitsubishi spindle speed

48 M/MIN RAPID TRAVERSE(optional)

12 m/min cutting feedrat

3,000 RPM high speed rigid tapping

0 - 12,000 RPM in 5.2 seconds

Fanuc / Mitsubishi CNC controller

HARTROL (HARTFORD NCPC CONTROLLER)

AC digital servo and spindle drives

7.5 KW SPINDLE OUTPUT

SERVO MOTORS WITH

ABSOLUTE ENCODER

Rugged Meehanite casting

Fully-enclosed splash guard

Highly efficient coolant system

Heavy duty linear guideways

PROGRAMMABLE

COOLANT NOZZLE (optional)

PATENT NO. 160723



Extra-high guards and full top enclosure

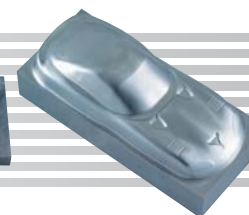
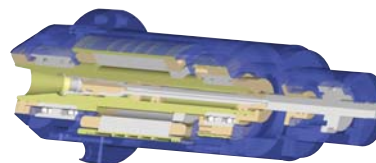
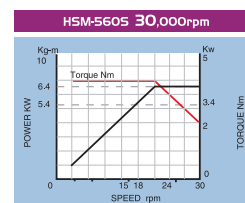
- Extra high machine guard fully prevents cutting fluid from spilling out.
- All mechanisms, including tool magazine, are fully enclosed by the machine guard to significantly reduce noise while operating.
- All accessories are well located at the back of the machine with flat back guard to facilitate production line layout.
- Compact construction
- Easy machine movement

Top Performance Guaranteed! High Speed Mold-making Machining Center

HSM-560

30,000 RPM Extra High Spindle Speed

1. Driven by built-in-type high speed motor.
2. Specially-designed ceramic bearings in spindle fully meet requirements for high speed with minimum heat growth.
3. Special dynamic balance for high speed high precision machining.
4. Some parts are manufactured from aerospace grade aluminum alloy for excellent spindle heat dissipation and reduced weight.
5. Accommodates HSK tool shank for extremely firm clamping and high repeatability accuracy.
6. Totally new dust and chip guard design provides best guard for bearings, especially during operation of cutting light metals.



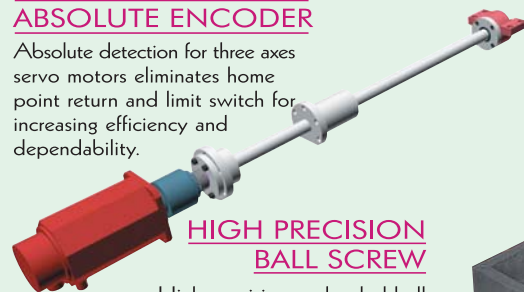
The Heaviest structure among all machines in its class

RUGGED CONSTRUCTION THROUGHOUT ...

1. Oversized base and column, box type structure combined with scientific rib reinforcement to upgrade total structural strength and rigidity.
2. Structure design is analyzed by finite element method (FEM) for high rigidity, high speed, and low weight.
3. Three axes are fully supported with no overhang problems to prevent rib deformation during machining.
4. One piece fabricated base has a tilting backward design, combined with fluid flush and air blast device to facilitate chip and fluid flow to back side of the machine.
5. Oil and fluid separation design prevents cutting fluid deterioration and odors caused by mixture.
6. Y-axis servo motor is located at the back of the machine to reduce distance between operator and table for added operation convenience.

SERVO MOTOR WITH ABSOLUTE ENCODER

Absolute detection for three axes servo motors eliminates home point return and limit switch for increasing efficiency and dependability.



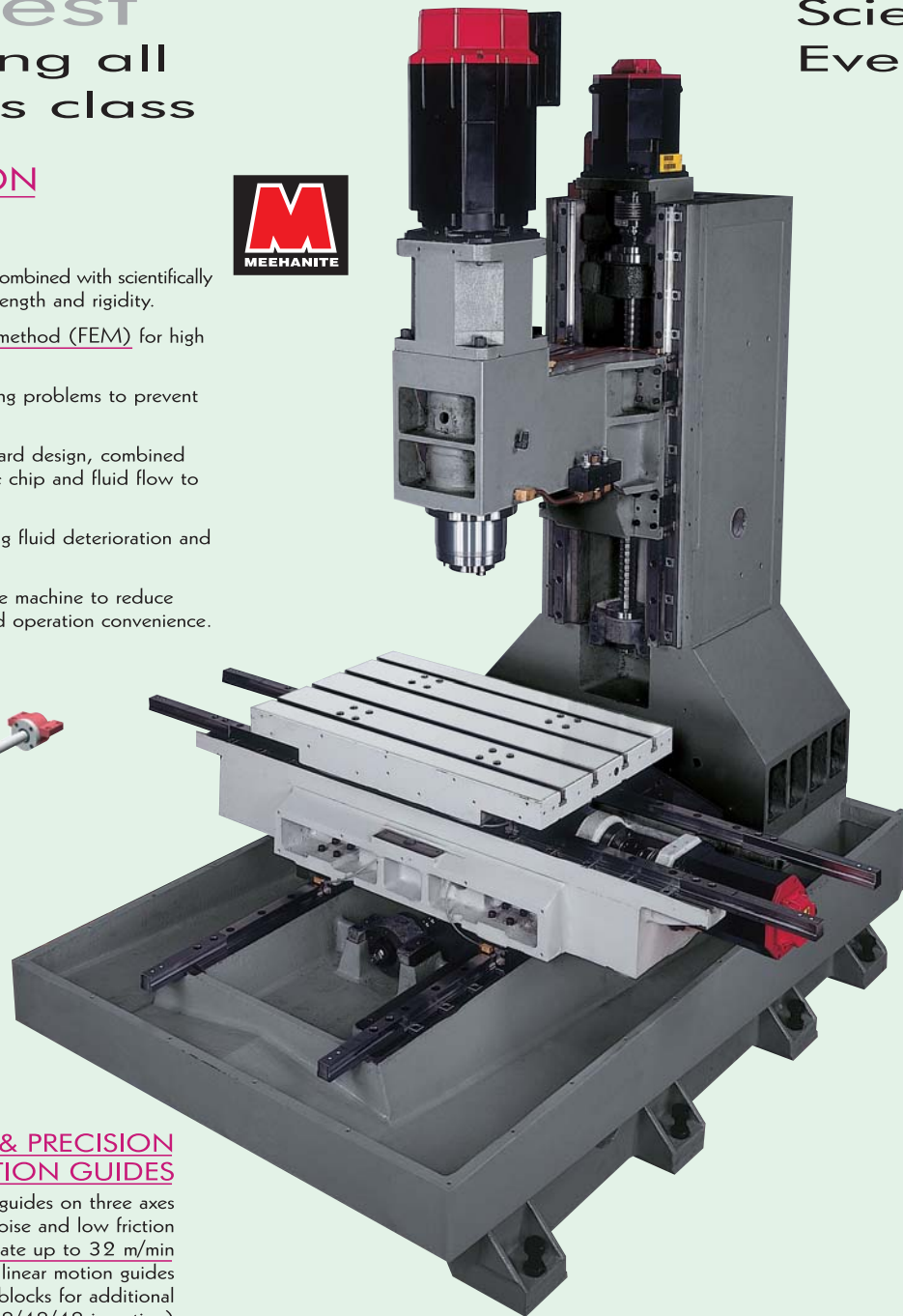
HIGH PRECISION BALL SCREW

High precision preloaded ball screws on three axes are hardened, and precision ground assuring superior feed accuracy.

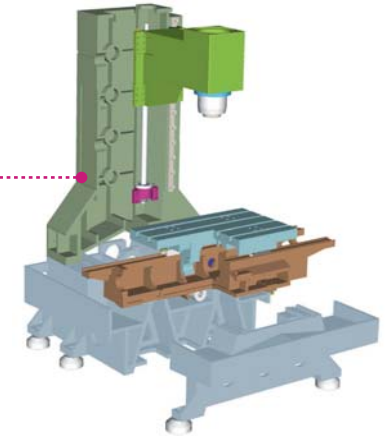


HEAVY DUTY & PRECISION LINEAR MOTION GUIDES

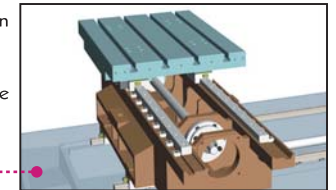
Linear motion guides on three axes feature high rigidity, low noise and low friction coefficient. Rapid traverse rate up to 32 m/min. Guaranteed performance. The linear motion guides are fixed by wedge type blocks for additional rigidity for circular machining. (48/48/48 is option)



Scientific Design on Every Detail



Box type structure on column, saddle and base for maximum structural stability. Scientific rib reinforcement assures lifetime accuracy.



Motor and bearing support on saddle is one-piece cast for firm support at all times. Surrounding ribs on the saddle upgrade rigidity to the maximum.



Telescopic guards on X, Y, Z-axes prevents chips from damaging the slideways.



Double filters on the fluid tank assure that the circulating fluid remains free of contamination. Built-in oil and fluid separation device prevents cutting fluid deterioration.

HIGH SPEED TOOL CHANGE(Opt.)



TOOL CLAMPING AND UNCLAMPING MECHANISM

Synchronized fast tool unclamping features extremely smooth motion.



ARM TYPE TOOL MAGAZINE

The arm type tool magazine has 24 tool loading capacity. The magazine features bi-directional random tool selection.



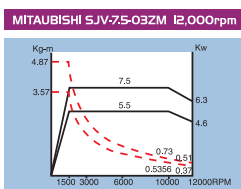
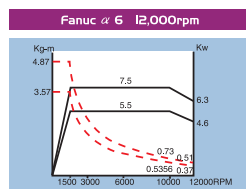
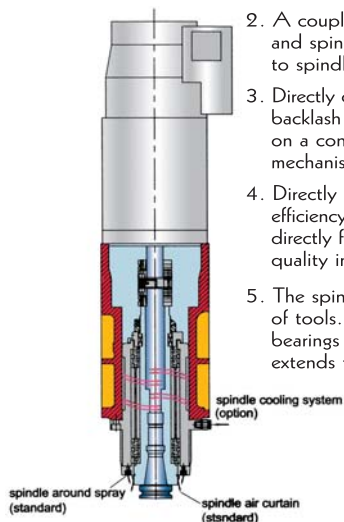
ERGONOMICALLY DESIGNED OPERATION PANEL

The operation panel has a proper degree of slant to enhance operators comfort.

VMC-560AH

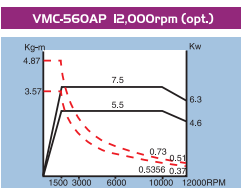
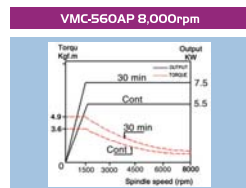
12,000 RPM HIGH SPEED SPINDLE

1. The heat-isolated spindle minimizes thermal displacement while assuring superior spindle accuracy and service life.
2. A coupler provided between the motor and spindle eliminates heat transmission to spindle for guaranteed accuracy.
3. Directly coupled spindle eliminates noise, backlash and vibration that usually occur on a conventional belt or gear drive mechanism.
4. Directly coupled spindle increases motor efficiency. Spindle speed can be checked directly from the motor to assure superior quality in rigid tapping.
5. The spindle features floating unclamping of tools. The absence of collision to the bearings when the tool is unclamped extends the life of the spindle.



VMC-560AP PULLEY HEAD

The pulley head features maximum rigidity. Forced lubrication system upgrades machine performance. Spindle speed 8000 rpm is standard, 12000 rpm is option.



HARTROL Enhanced CNC Control

The Hartford self-developed CNC control greatly upgrades operational convenience. It provides unmatched performance compared with competitive models.

HARTROL Have various patents

1. Tool presetter and two steps warning system (No. 213692)
2. Spindle servo heat exchanger (No. 213743)
3. AICC/HPC Function



SPECIAL CANNED CYCLES

- Hole-Patterns
- Face Milling
- Side Milling
- Pocketing



WORK PIECE CALIBRATION

- X Center
- Y Center
- Center of Circle
- Rotation Angle
- Rotation Angle and Center



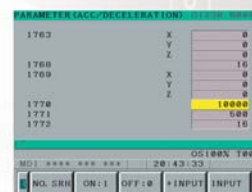
TOOL REGISTER

- Edit comment freely
- Tool shape display on offset screen
- Visual tool magazine



SPINDLE LOAD MONITOR

- Stage 1:Warning, but keep cutting
- Stage 2:Alarm and feed hold
- Both warning and alarm level adjustable
- Distinguish by tool number



HPC PARAMETER TUNER

- Reduce cutting time
- Enhance tool life
- Easy tuning

