HYUNDAI
MOTOR GROUP

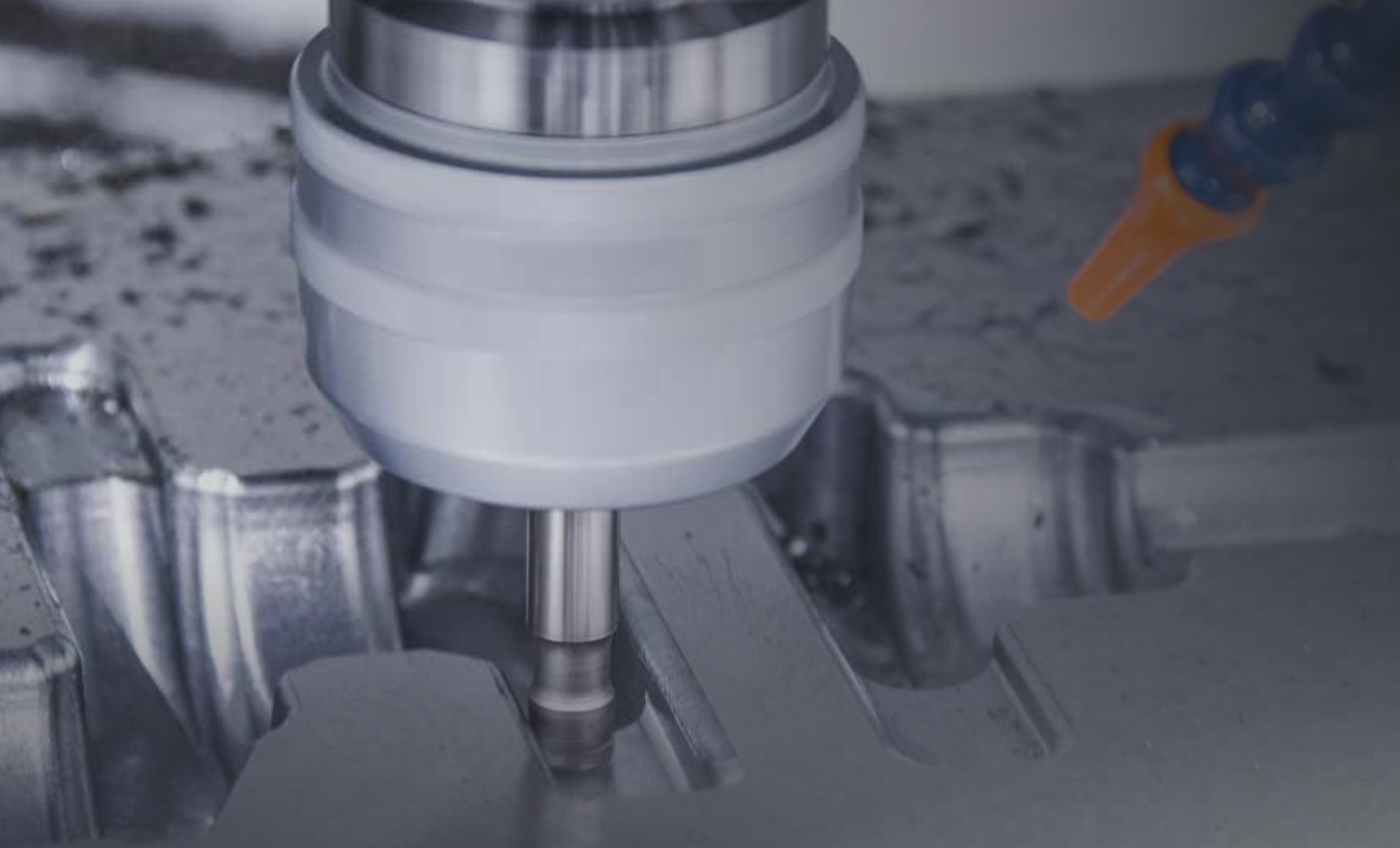
HYUNDAI WIA

High Speed Vertical Machining Center for Mold Machining

Hi-MOLD Series

Hi-MOLD450 | Hi-MOLD560 | Hi-MOLD560/5A | Hi-MOLD750/5A | Hi-MOLD6500

HYUNDAI WIA EXPERIENCE THE NEW TECHNOLOGY



Technical Leader

The Vertical Machining Center Hi-MOLD Series designed by Hyundai WIA with years of expertise and the latest technology, ensures performance requirements of the mold industry.
In addition, Hi-MOLD560/5A & Hi-MOLD750/5A can process products of various shapes with 5-axis table design.

Hi-MOLD		450	560	560/5A	750/5A	6500
Table Size (L×W)	mm(in)	850×500 (33.5″×19.7″)	1,250×600 (49.2″×23.6″)	Ø500 (Ø19.7″)	Ø630 (Ø24.8″)	1,200×650 (47.2″×25.6″)
Max. Load Capacity	kg(lb)	300 (661)	800 (1,764)	250 (551)	500 (1,102)	1,000 (2,205)
Sp. Taper	-	HSK-A63 [HSK-E40]			HSK-A63	BBT40
Sp. Speed	r/min	24,000 [40,000]			15,000	20,000 [24,000]
Sp. Power (Max./Cont.)	kW(HP)	33/25 (44.3/33.5) [26/18 (35/24.1)]			25/22 (33.5/30)	22/18.5 (30/25)
No. of Tools	EA	24			30	
Travel (X/Y/Z)	mm(in)	600/450/450 (23.6″/17.7″/17.7″)	1,000/560/450 (39.4″/22″/17.7″)		650/765/510 (25.6″/30.1″/20″)	1,100/650/550 (43.3″/25.6/21.7″)
Rapid Traverse Rate	m/min	50/50/50				40/40/40

[ ] : Option

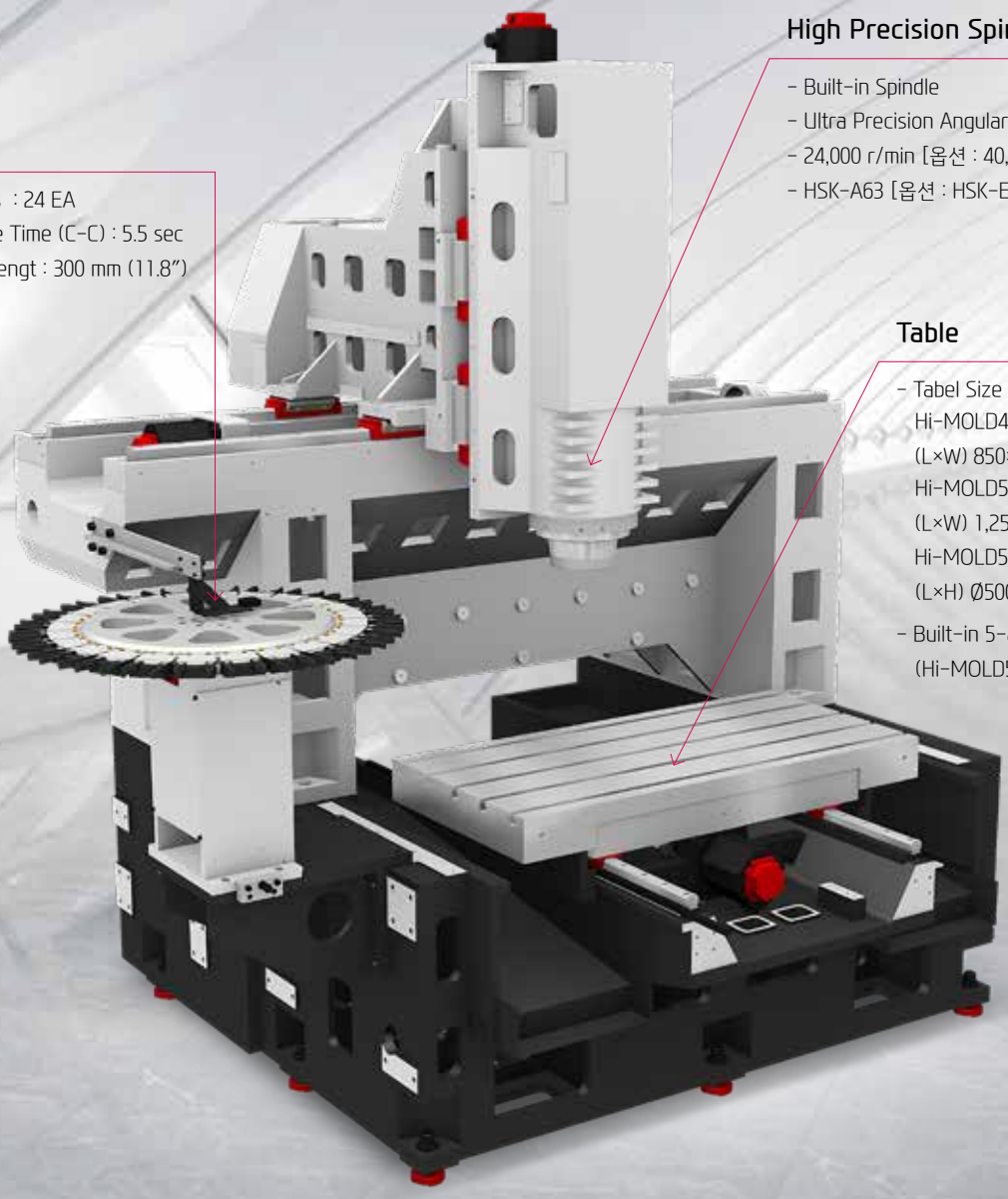
Hi-MOLD Series

Super Quality Mold Machining

- Highly reliable bridge type structure
- Highly accurate main spindles with ultra precision angular contact bearings
- HIgh speed built-in main spindle for the utmost quality of molds
- Built-in 5-axis table to satisfy various processing needs (Hi-MOLD560/5A, Hi-MOLD750/5A)
- Hyundai WIA mold package for optimal processing of mold parts

01 Hi-MOLD450/560

Super Quality & productivity Vertical Machining Center for Mold Machining



Magazine

- No. of Tools : 24 EA
- Tool Change Time (C-C) : 5.5 sec
- Max. Tool Lengt : 300 mm (11.8")

High Precision Spindle

- Built-in Spindle
- Ultra Precision Angular Contact Bearings
- 24,000 r/min [옵션 : 40,000 r/min]
- HSK-A63 [옵션 : HSK-E40]

Table

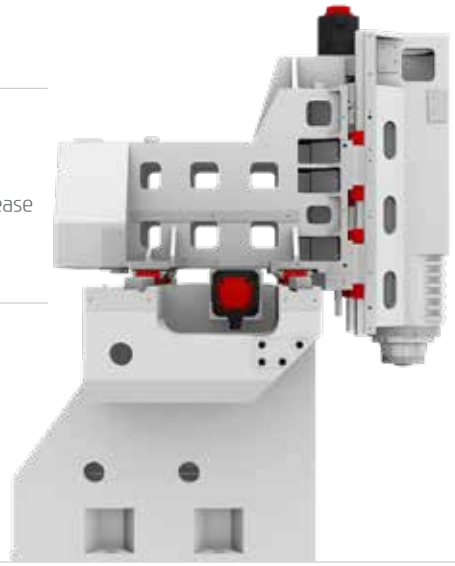
- Tabel Size
  Hi-MOLD450 :
  (L×W) 850×500 mm (33.5"×19.7")
  Hi-MOLD560 :
  (L×W) 1,250×600 mm (49.2"×23.6")
  Hi-MOLD560/5A :
  (L×H) Ø500×270 mm (Ø19.7"×10.6")
- Built-in 5-axis Table
  (Hi-MOLD560/5A)

HIGH PRECISION & HIGH SPEED

HIGH-PRECISION STRUCTURE

Wall Type Column Structure

Hi-MOLD450/560 are built upon a wall type frame.
The biggest benefit of the bridge type machining center is the increase of rigidity and the decrease of heat generation.
Hence, it retains accuracy and repeatability at the highest levels.



GUIDE WAY

LM Guideway

Each axis of the Hi-MOLD450/560 features slideways optimized to the model.
In order to allow for flexible axis movement, ball type LM guides on the X and Y axis as well as roller type guide on the Z axis were implemented within the headstock. This makes the axis travel super fast, reducing idle time tremendously.

Ball Screw

All axes are driven by high precision double anchored ballscrews.
This provides outstanding positioning and repeatability with virtually no thermal growth. All ballscrews are connected directly to the servo drive motors, to eliminate backlash.

Travel (X/Y/Z)

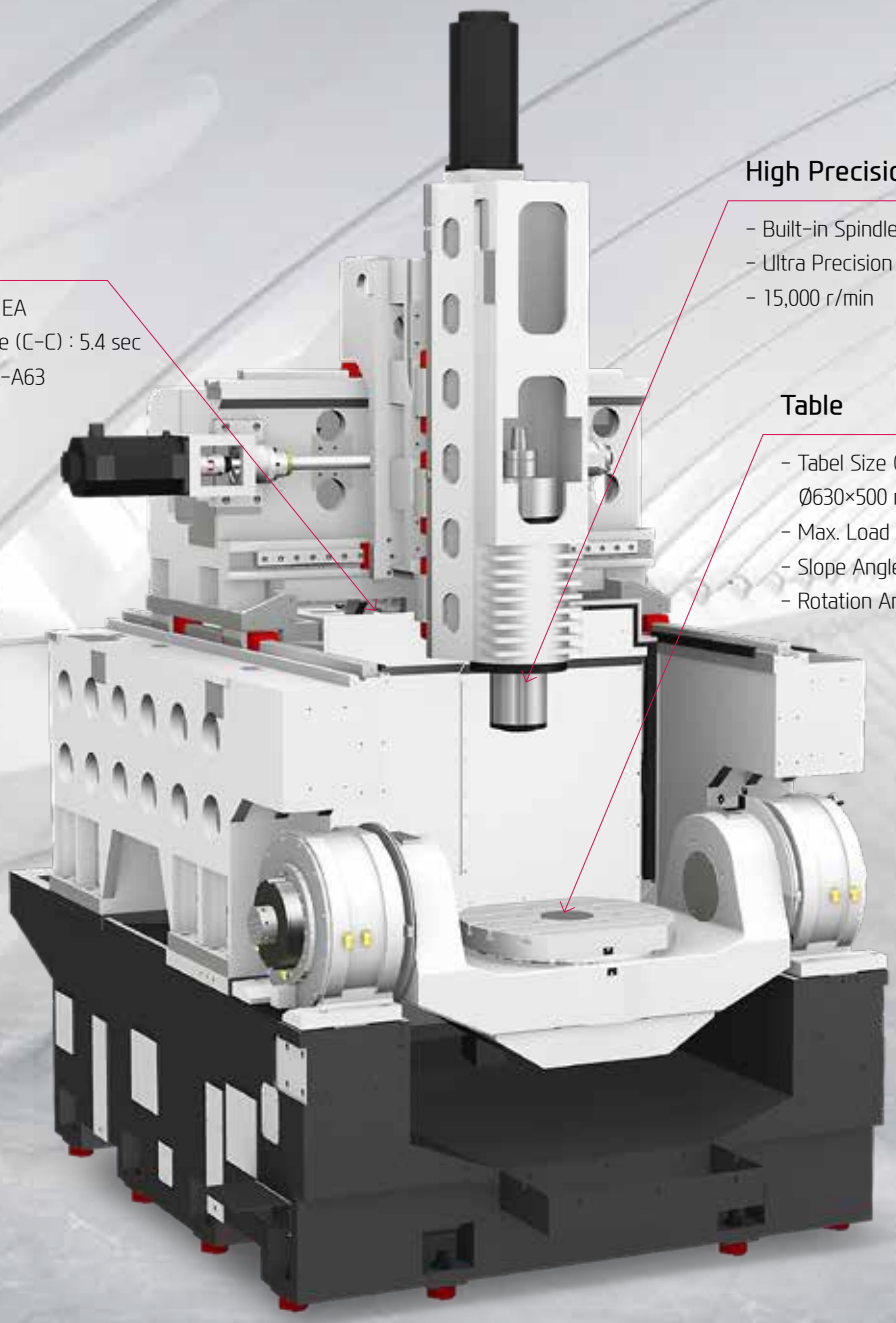
Hi-MOLD450	Hi-MOLD560
600/450/450 mm (23.6"/17.7"/17.7")	1,000/560/450 mm (39.3"/22"/17.7")

Rapid Traverse Rate (X/Y/Z)

50/50/50 m/min (1,969/1,969/1,969 ipm)

02 Hi-MOLD750/5A

5-axis Mold Processing Vertical Machining Center for Mold Machining



Magazine

- No. of Tools : 30 EA
- Tool Change Time (C-C) : 5.4 sec
- Tool Shank : HSK-A63

High Precision Spindle

- Built-in Spindle
- Ultra Precision Angular Contact Bearings
- 15,000 r/min

Table

- Tabel Size (L×H) :
  Ø630×500 mm (Ø24.8"x19.7")
- Max. Load Capacity : 500 kg (1,102 lb)
- Slope Angle : +30° ~ -120°
- Rotation Angle : 360°

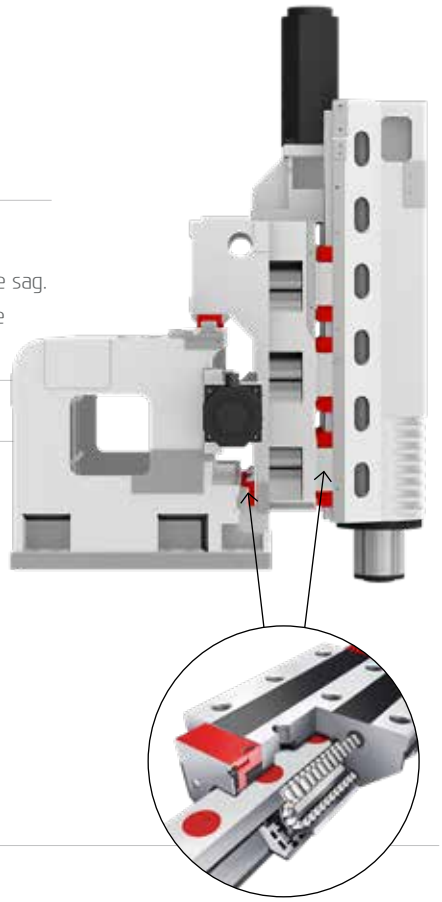
HIGH PRECISION & HIGH SPEED

HIGH-PRECISION STRUCTURE

Super rigid X-Axis Slideway

X-axis slideway is attached on the column's upper surface to minimize sag. Hyundai WIA's double column construction is a superior design for the machining of high quality products.

Floor Space (L×W)	3,380×4,205 mm
	(133.1"×165.6")



GUIDE WAY

Roller Type LM Guideway

For processing the highest quality mold products, the Hi-MOLD750/5A is designed with roller LM guideways for high rigidity and enhanced acc/deceleration.

Ball Screw

All axes are driven by high precision double anchored ballscrews.
This provides outstanding positioning and repeatability with virtually no thermal growth. All ballscrews are connected directly to the servo drive motors, to eliminate backlash.

Travel (X/Y/Z/A/C)

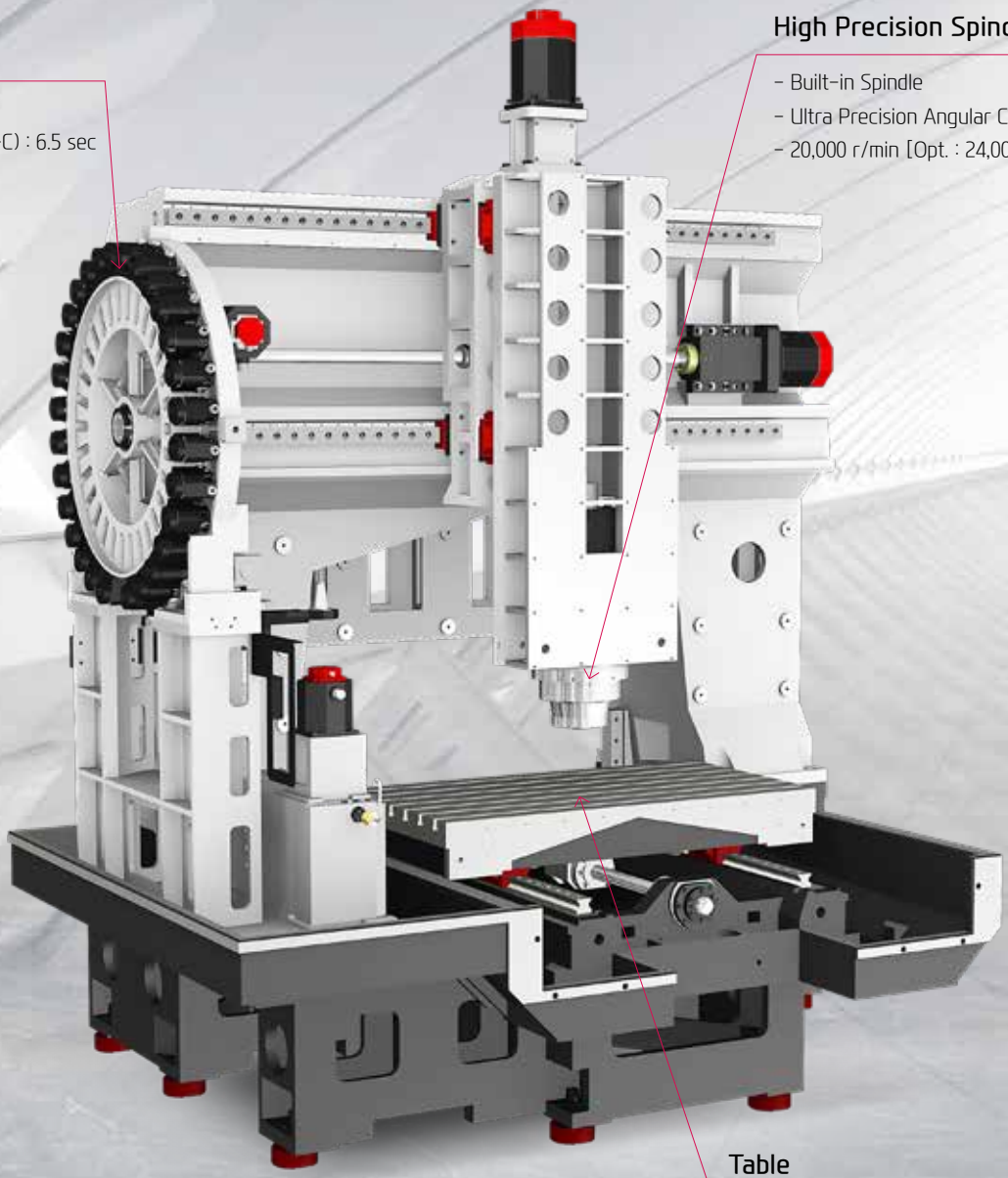
650/765/510 mm (25.6"/30.1"/20") /+30°~-120°/360°

Rapid Traverse Rate (X/Y/Z/A/C)

50/50/50 m/min (1,969/1,969/1,969 ipm)/50/60 rpm

03 Hi-MOLD6500

Super Quality & Productivity Vertical Machining Center for Mold Machining



Magazine

- No. of Tools : 30 EA
- Tool Change Time (C-C) : 6.5 sec
- Tool Shank : BBT40

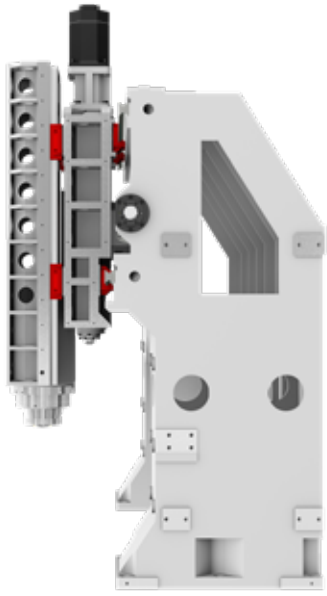
High Precision Spindle

- Built-in Spindle
- Ultra Precision Angular Contact Bearings
- 20,000 r/min [Opt. : 24,000 r/min]

Table

- Tabel Size (L×W) :
  1,200×650 mm (47.2"×25.6")
- Max. Load Capacity : 1,000 kg (2,205 lb)

HIGH PRECISION & HIGH SPEED



HIGH-PRECISION STRUCTURE

Double Column Structure

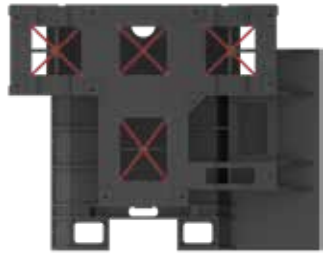
Hi-MOLD6500 is built upon a Double Column Structure frame. The greatest benefit of the double column machining center is the increase of rigidity and the decrease of heat generation. Hence, it retains accuracy and repeatability at the highest levels.

Step Type Column Structure

Since the column's X-axis cross beam has incorporated a 'step type' design, the load that occurs at the front during machining has reduced.

X Type Rib Structure Bed

Hi-MOLD6500 is designed with a highly rigid X type rib structure, showing the best performance in high quality mold machining.
It can also offer powerful cutting and high precision machining due to excellent vibration absorption.



GUIDE WAY

Roller Type LM Guideway

For processing the highest quality mold products, the Hi-MOLD6500 is designed with roller LM guideways for high rigidity and enhanced acc/deceleration.

Grease Lubrication Method

Significant cost savings is achieved by incorporating the grease lubrication system versus the oil lubrication method.

Nut Cooling Ball Screw

HI-MOLD6500 has also adopted ball screw nut cooling system which protects travel axes from thermal displacement.

Travel (X/Y/Z)

1,100/650/550 mm
(43.3"/25.6"/21.7")

Rapid Traverse Rate (X/Y/Z)

40/40/40 m/min
(1,575/1,575/1,575 ipm)

04 SPINDLE & ATC

Excellent Machining Performance with High-precision Spindle & ATC

SPINDLE

Built-in Spindle

The built-in spindle is designed to minimize vibration and heat, as well as deliver rapid acc/deceleration. Stable precision is maintained even under high speed and heavy duty operations.

Spindle Cooling

The spindle cooling system minimizes thermal displacement which can happen during lengthy machining operations, and offers continued accuracy based on the thermal stability.

Through Spindle Coolant (20/30/70 bar) OPTION

Through Spindle Coolant is exceedingly useful when drilling deep holes. It helps increase the lifetime of the tool, while decreasing cycle time.

HSK Tool Holder

The HSK spindle offers the fastest material removal rates, highest accuracy and rigidity.

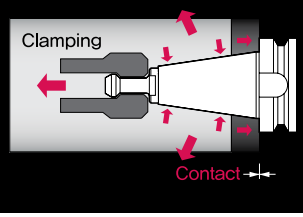
It guarantees stability at high speed which is excellent for mold machining.

(Hi-MOLD6500 : BBT40)

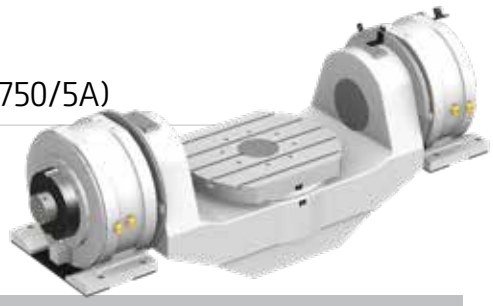
DUAL CONTACT SPINDLE (Hi-MOLD6500)

The Big Plus spindle system (BBT40) provides dual contact between the spindle face and the flange face of the tool holder. This greatly increases tool rigidity, reduces run out and adds significant productivity to machining applications.

Hi-MOLD6500 : BBT40

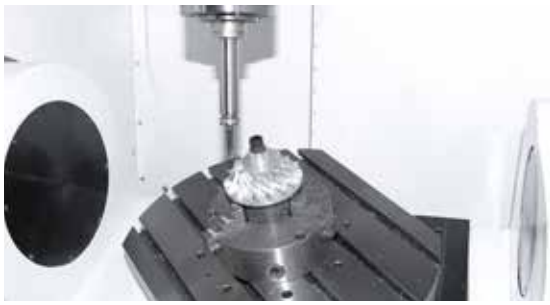


5-AXIS ROTATE TABLE (Hi-MOLD560/5A, Hi-MOLD750/5A)



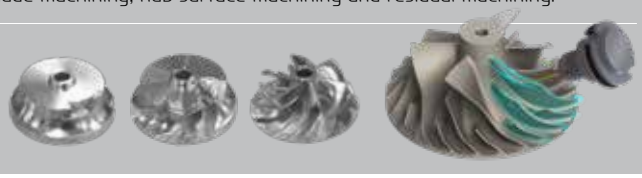
5-axis Tilting Rotary Table

The rotary table allows users to produce a wide range of complicated work pieces.
It is possible to clamp each axis for extra rigidity and accuracy when machining.



Impeller Machining

The impeller 5-axis machining step consists of roughing, tip machining, blade machining, hub surface machining and residual machining.

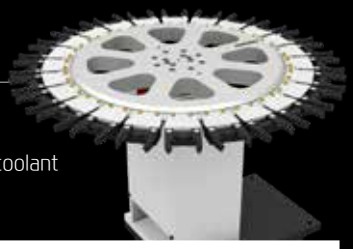


5-axis Table Specifications

Model	Table Size	Max. Load Capacity	Tilting Angle	Min. directive Angle	Type
Hi-MOLD560/5A	Ø500 mm (Ø19.7")	250 kg (551 lb)	+30° ~ -120°	0.001°	Built-in
Hi-MOLD750/5A	Ø630 mm (Ø24.8")	500 kg (1,102 lb)	+30° ~ -120°	0.001°	DDM

MAGAZINE

Hi-MOLD450/560 ››



Tool Magazine

The tool magazine and machining area are completely separated by a shutter so that chip, coolant and dust particles can be blocked. This helps to maintain high precision and cleanliness.

Model	No. of Tools	Tool Shank	Tool Change Time	Max. Tool Dia. (W.T/W.O)
Hi-MOLD450/560	24 EA	HSK-A63 [HSK E40]	5.5 sec (C-C)	HSK-A63 : Ø100/Ø140 (Ø3.9"/Ø5.5") HSK-E40 : Ø70/Ø140 (Ø2.7"/Ø5.5")
Hi-MOLD750/5A	30 EA	HSK-A63	5.4 sec (C-C)	Ø90/Ø150 (Ø3.5"/Ø5.9")
Hi-MOLD6500	30 EA	BBT40	6.5 sec (C-C)	Ø80/Ø150 (Ø3.1"/Ø5.9")

05 MOLD PACKAGE

Powerful Mold Package, HYUNDAI-WIA Mold All in One

Mold Package Specifications

HWM ALL IN ONE		1 Package	2 Package	3 Package	4 Package	SIEMENS
AICC II Package	200 block	•	•			
	600 block			•		
	1,000 block				•	
Advanced surface						•
S/W : HW-MCS, HW-AFC		•	•	•	•	
Auto Power Off		•	•	•	•	•
Sp. Heat Distortion Compensation Device		•	•	•	•	•
Cutting Air Blow		•	•	•	•	•
Auto Tool Measuring Device		•	•	•	•	•
Data Server 1GB			•	•	•	

- Hi-MOLD450/560 - SIEMENS Package
- Hi-MOLD750/5A - Standard : 1 Package, Option : 2 Package, 3 Package, 4 Package
- Hi-MOLD6500 - Standard : 3 Package, Option : 4 Package

HWM ALL-IN-ONE

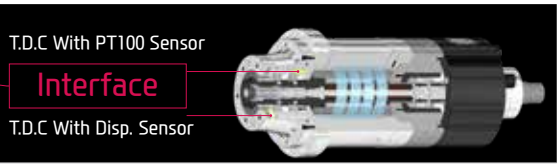
To enhance mold machining, the "HWM ALL-IN-ONE" is provided as a standard feature for Hi-MOLD Series machines. This ensures accurate and high quality surface finishing and contouring.

1. High Speed Contouring Control (AICC II)
2. Development S/W
   HW-MCS (Selectable Process Conditions), HW-AFC (Adapive Feed Control)
3. Main Spindle Cooling Device (8-channel) - Maintain spindle temperature (heat sensor)
4. Cutting Air Blow - Cutting air blow is provided for mold machining.
5. Auto Tool Measuring Device - Detects and sets tool length, and attrition (Graphic User Interface included)

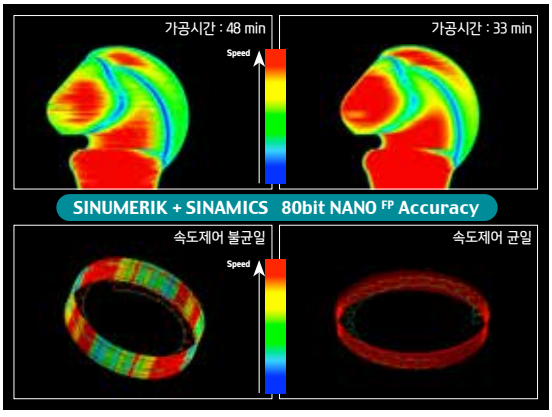
Thermal Displacement Compensation Device

Cooling system & Lubrication system

Thermal displacement of the spindle is minimized by the use of cooling techniques. This provides high accuracy when machining at high speed.



ADVANCED SURFACE



- Advanced Surface software for high speed, high accuracy mold processing
- 80-bit floating-point calculation enable to calculate numbers less than a nanometer
- A brand new filter for speed and acceleration control - Improves upon the problems of intensity of illumination due to irregular CAM data
- Standard jerk-restriction function to ease deceleration impact - Minimized vibration and high-speed deceleration
- Standard feed-forward function for speed control - Improves contouring accuracy by correcting the following error before setting point output

SPECIFICATIONS

Hi-MOLD Series Standard & Optional

● : Standard ○ : Option ☆ : Prior Consultation – : Non Applicable

Spindle		450	560	560/5A
24,000rpm (33kW [44.3HP])	Bulit-in	●	●	●
40,000rpm (26kW [35HP])	Bulit-in	○	○	○
Spindle Cooling Device		●	●	●
ATC				
ATC Extension	24	●	●	●
Tool Shank Type	24K : HSK A63	●	●	●
	40K : HSK E40	●	●	●
U-Center	D'andrea	–	–	–
Table & Column				
APC	Rotary Turn	–	–	–
Tap Type Table		–	–	–
T-Slot Table		●	●	●
NC Rotary Table		–	–	●
High Column	180mm (7")	○	○	–
Coolant System				
Std. Coolant (Main Spindle Nozzle)		●	●	●
Bed Flushing Coolant		●	●	●
Through spindle coolant*	20bar	○	○	○
	30barr, 20 ℓ	○	○	○
	70bar, 15 ℓ	○	○	○
	70bar, 30 ℓ	–	–	–
Top Cover		●	●	●
Shower Coolant		○	○	○
Gun Coolant		○	○	○
Side Oil Hole Coolant		–	–	–
Air Gun		○	○	○
Cutting Air Blow		●	●	●
Tool Measuring Air Blow (Only for TLM)		●	●	●
Air Blow for Automation		☆	☆	☆
Thru MQL Device (Without MQL)		☆	☆	☆
Coolant Chiller (Sub Tank)		☆	☆	☆
Power Coolant System (For Automation)		☆	☆	☆
Chip Disposal				
Coolant Tank	350 ℓ	●	–	–
	450 ℓ	–	●	●
Interior Screw Chip Conveyor		–	–	–
Chip Conveyor	Left (Left)	○	○	○
(Hinge/Scraper)	Left (Rear)	–	–	–
Special Chip Conveyor (Drum Filter)		☆	☆	☆
Chip Wagon	Standard (180 ℓ)	○	○	○
	Swing (200 ℓ)	○	○	○
	Large Swing (290 ℓ)	○	○	○
	Large Size(330 ℓ)	○	○	○
	Customized	☆	☆	☆
Safety Device				
X Axis Javara Cover (TOp)		○	○	○
S/W				
DNC software (HW-eDNC)		○	○	○
Machine Monitoring System (HW-MMS Cloud/Edge/Remote)		○	○	○
Machine Monitoring System & Analysis (HW-MMS Edge Plus)		☆	☆	☆
Automation CAM program (HW-ACAM)		○	○	○
Conversational program (HW-DPRO)		○	○	○ (3+2 Axis Support)
Thermal Displacement Compensation (HW-TDC)		●	●	●
Spindle Warm up Function (HW-WARMUP)		●	●	●
Machining Condition Selection (HW-MCS)		●	●	●

Electric Device		450	560	560/5A
Call Light	1 Color : ■	●	●	●
Call Light & Buzzer	3 Color : ■ ■ ■ B	○	○	○
Work Light		●	●	●
Electric Cabinet Light		○	○	○
Remote MPG		●	●	●
3 Axis MPG		☆	☆	☆
Work Counter	Digital	○	○	○
Total Counter	Digital	○	○	○
Tool Counter	Digital	○	○	○
Multi Tool Counter	6 EA	○	○	○
	9 EA	○	○	○
Electric Circuit Breaker		○	○	○
AVR (Auto Voltage Regulator)		☆	☆	☆
Transformer	220V : 50kVA	●	●	–
	220V : 60kVA	–	–	●
	400V : 25kVA	●	●	●
Auto Power Off		●	●	●
Back up Module for Black out		–	–	–
Measuring Device				
Air Zero	TACO	○	○	○
	SMC	○	○	○
Work Measuring Device		○	○	○
TLM	Touch	●	●	●
	Laser	○	○	○
Tool Broken Detective Device		○	○	○
Linear Scale	X/Y/Z	○	○	○
Rotary Scale	A/C	–	–	●
Coolant Level Sensor (Only for Chip Conveyor, Bladder Type)		☆	☆	☆
Enviornment				
Air Conditioner		○	○	○
Dehumidifier		○	○	○
Oil Mist Collector		☆	☆	☆
Oil Skimmer (Only for Chip Conveyor)		○	○	○
MQL (Minimal Quantity Lubrication)		○	○	○
Fixture & Automation				
Auto Door	Std.	☆	☆	○
	High Speed	○	○	○
Auto Shutter (Only for Automatic System)		–	–	–
Sub O/P		☆	☆	☆
NC Rotary Table I/F	Single	○	○	–
	Channel	☆	☆	–
Control of Additional Axis	1Axis	☆	☆	–
	2Axis	☆	☆	–
External M Code 4ea		○	○	○
Automation Interface		☆	☆	☆
I/O Extension (In & Out)	16 Contact	○	○	○
	32 Contact	○	○	○
Hyd. Device				
Std. Hyd. Unit	65bar/30 ℓ	●	●	●
Fixture Hyd. Unit	45bar	○	○	○
	70bar	○	○	○
	100bar	☆	☆	☆
	Customized	☆	☆	☆
ETC				
Tool Box		●	●	●
Customized Color	Need for Munsel No.	☆	☆	☆
CAD&CAM Software		☆	☆	☆

* Through Spindle Coolant* : please check the filter types with sales representative.

Specifications are subject to change without notice for improvement.

Hi-MOLD Series Standard & Optional

● : Standard ○ : Option ☆ : Prior Consultation – : Non Applicable

Spindle		750/5A	6500
15,000rpm(25/22kW)	Bulit-in	●	–
20,000rpm (22/18.5kW)	Bulit-in	–	●
24,000rpm (22/18.5kW)	Bulit-in	–	○
Spindle Cooling Device		●	●
ATC			
ATC Extension	30	●	●
	40	☆	–
Tool Shank Type	HSK A63	●	–
	BT40	☆	●
U-Center	D'andrea	☆	–
Pull Stud	45°	☆	●
	60°	–	–
	90°	–	–
Table & Column			
APC	Rotary Turn	–	–
Tap Type 테이블		☆	–
Tap Type Table		●	●
T-Slot Table		○	–
NC Rotary Table		●	☆
High Column		–	–
Coolant System			
Std. Coolant (Main Spindle Nozzle)		●	●
Bed Flushing Coolant		●	●
Through spindle coolant*	20bar	○	○
	30bar, 20ℓ	○	○
	70bar, 15ℓ	○	○
	70bar, 30ℓ	–	–
Top Cover		●	●
Shower Coolant		○	○
Gun Coolant		○	○
Side Oil Hole Coolant		–	–
Air Gun		●	○
Cutting Air Blow		●	●
Tool Measuring Air Blow (Only for TLM)		○	●
Air Blow for Automation		☆	☆
Thru MQL Device (Without MQL)		☆	☆
Coolant Chiller (Sub Tank)		☆	☆
Power Coolant System (For Automation)		☆	☆
Chip Disposal			
Coolant Tank	400ℓ	–	●
	600ℓ	●	–
Interior Screw Chip Conveyor		–	–
Chip Conveyor (Hinge/Scraper)	Right (Right)	○	–
	Left (Left)	–	○
스페셜 칩컨베이어 (Drum Filter)		☆	☆
Chip Wagon	Standard (180ℓ)	○	○
	Swing (200ℓ)	○	○
	Large Swing (290ℓ)	○	○
	Large Size(330ℓ)	○	○
	Customized	☆	☆
S/W			
DNC software (HW-eDNC)		○	○
Machine Monitoring System (HW-MMS Cloud/Edge/Remote)		○	○
Machine Monitoring System & Analysis (HW-MMS Edge Plus)		☆	☆
Automation CAM program (HW-ACAM)		–	○
Conversational program (HW-DPRO)		○ (3+2 Axis Support)	●
Machine Guidance (HW-MCG)		●	●
Tool Monitoring (HW-TM)		○	○
Thermal Displacement Compensation (HW-TDC)		●	●
Spindle Warm up Function (HW-WARMUP)		●	●
Energy Saving System (HW-ESS)		●	●
RENISHAW GUI		●	●
Machining Condition Selection (HW-MCS)		●	●
Adaptive Feed Control (HW-AFC)		●	●

Electric Device		750/5A	6500
Call Light	1 Color : ■	●	●
Call Light & Buzzer	3 Color : ■ ■ ■ B	○	○
Work Light		●	●
Electric Cabinet Light		○	○
Remote MPG		●	●
3 Axis MPG		○	○
Work Counter	Digital	○	☆
Total Counter	Digital	○	☆
Tool Counter	Digital	○	☆
Multi Tool Counter	6 EA	○	☆
	9 EA	○	☆
Electric Circuit Breaker		○	○
AVR (Auto Voltage Regulator)		☆	○
Transformer	70kVA	○	○
Auto Power Off		●	●
Back up Module for Black out		●	○
Measuring Device			
Air Zero	TACO	☆	○
	SMC	☆	○
Work Measuring Device		○	○
TLM	Laser	●	●
Tool Broken Detective Device		☆	○
Linear Scale	X/Y/Z	○	☆
Rotary Scale	A/C	●	○
Coolant Level Sensor (Only for Chip Conveyor, Bladder Type)		☆	☆
Enviornment			
Air Conditioner		○	○
Dehumidifier		○	○
Oil Mist Collector		☆	☆
Oil Skimmer (Only for Chip Conveyor)		○	○
MQL (Minimal Quantity Lubrication)		☆	☆
Fixture & Automation			
Auto Door	Std.	○	○
	High Speed	○	☆
Auto Shutter (Only for Automatic System)		–	☆
Sub O/P		☆	☆
NC Rotary TableI/F	Single	–	☆
	Channel	–	☆
Control of Additional Axis	1Axis	–	○
	2Axis	–	☆
External M Code 4ea		○	○
Automation Interface		☆	☆
I/O Extension (In & Out)	16 Contact	○	○
	32 Contact	○	○
Hyd. Device			
Std. Hyd. Unit	70bar/14ℓ	–	●
	70bar/60ℓ	●	–
Center Type Hyd. Supply Unit	2×3 (6port)	○	☆
	2×5 (10port)	–	☆
Fixture Hyd. Unit	50bar	☆	–
	70bar	–	○
	100bar	–	☆
	Customized	☆	☆
ETC			
Tool Box		●	●
Customized Color	Need for Munsel No.	☆	☆
CAD&CAM Software		☆	☆

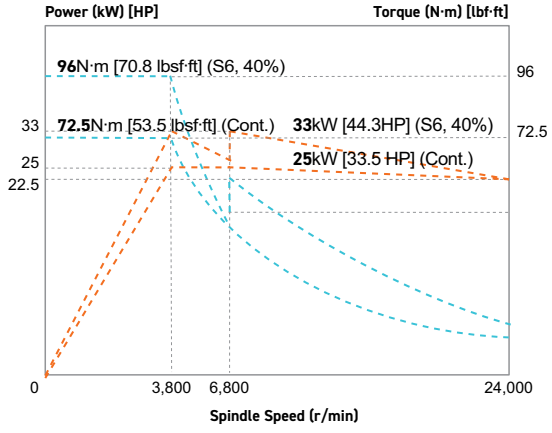
* Through Spindle Coolant* : please check the filter types with sales representative.

Specifications are subject to change without notice for improvement.

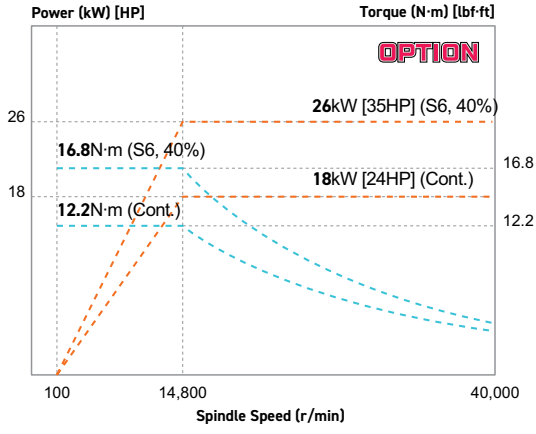
SPECIFICATIONS

Spindle Output/Torque Diagram

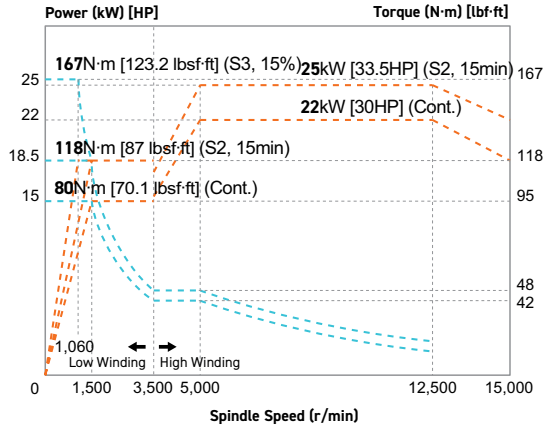
Hi-MOLD450/560 24,000rpm



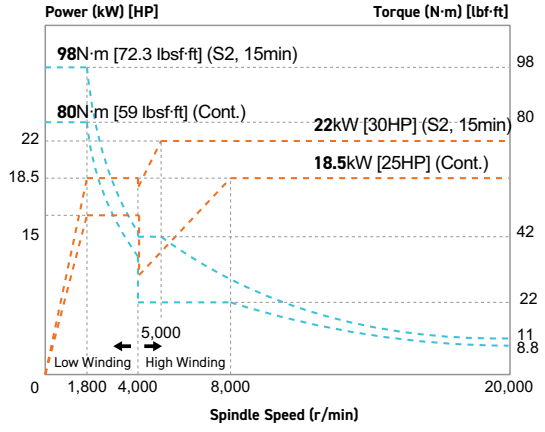
Hi-MOLD450/560 40,000rpm



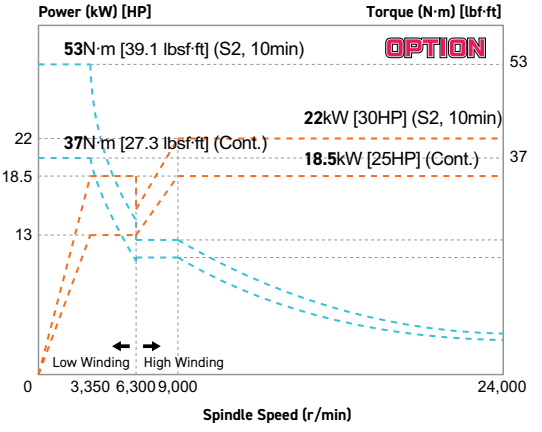
Hi-MOLD750/5A 15,000rpm



Hi-MOLD6500 20,000rpm



Hi-MOLD6500 24,000rpm

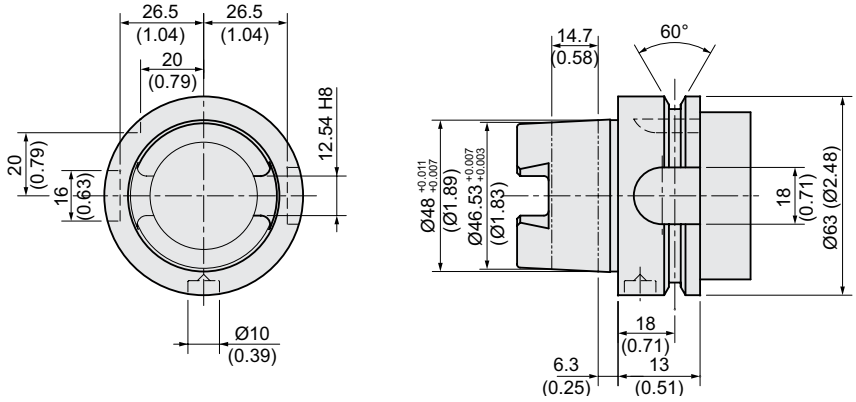


SPECIFICATIONS

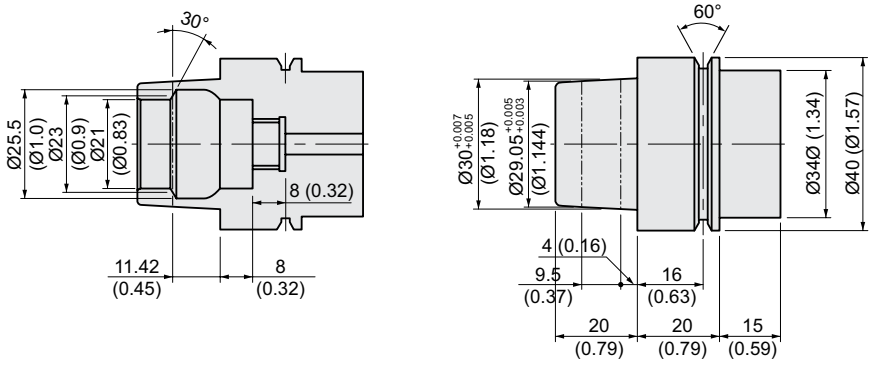
Tool Shank

unit : mm(in)

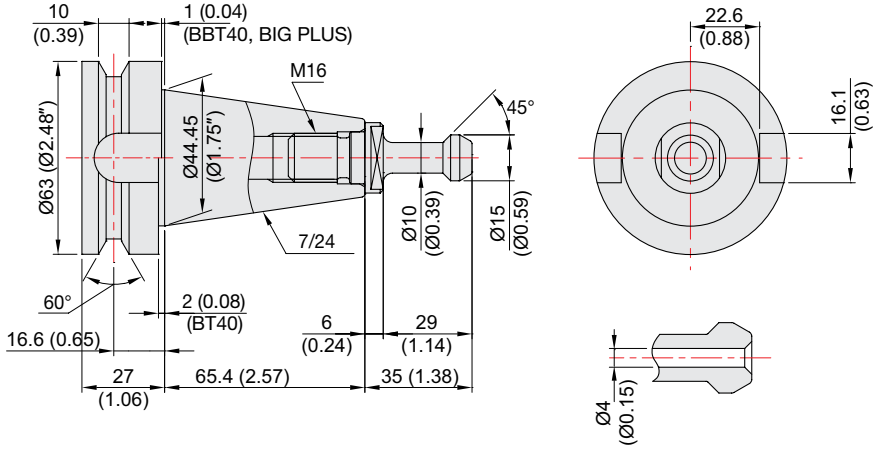
HSK-A63
Hi-MOLD450
Hi-MOLD560
Hi-MOLD750/5A



OPTION
HSK-E40
Hi-MOLD450
Hi-MOLD560



BBT40
Hi-MOLD6500

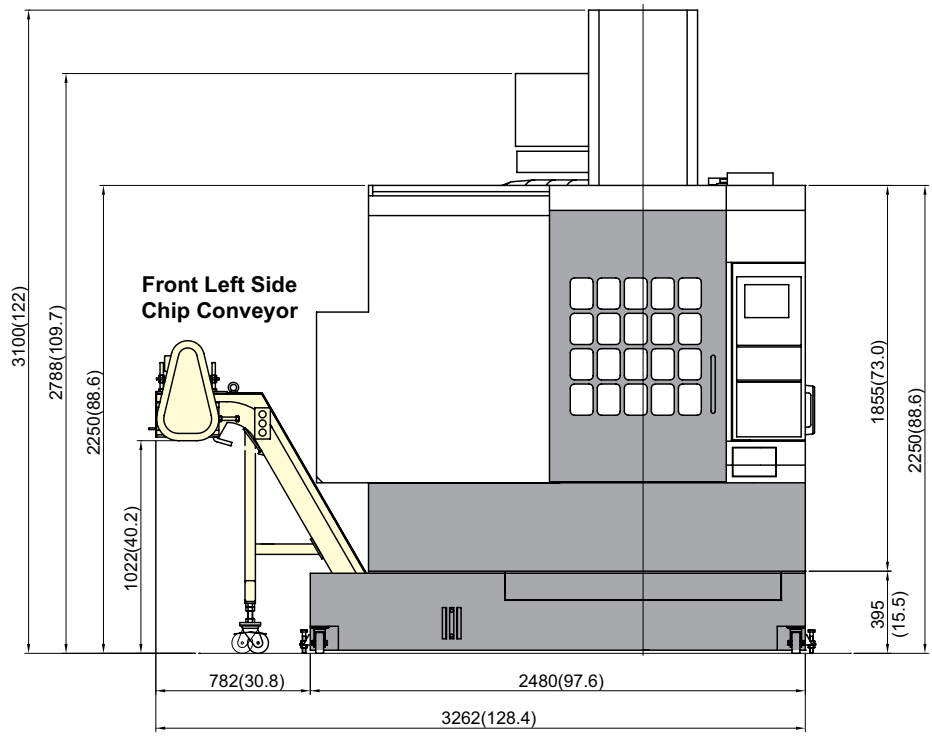


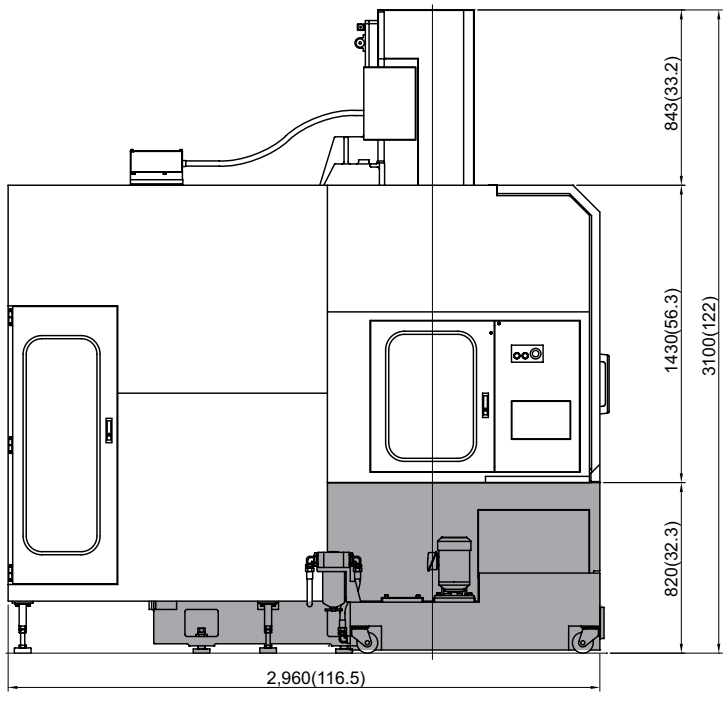
SPECIFICATIONS

External Dimensions

unit : mm(in)

Hi-MOLD450

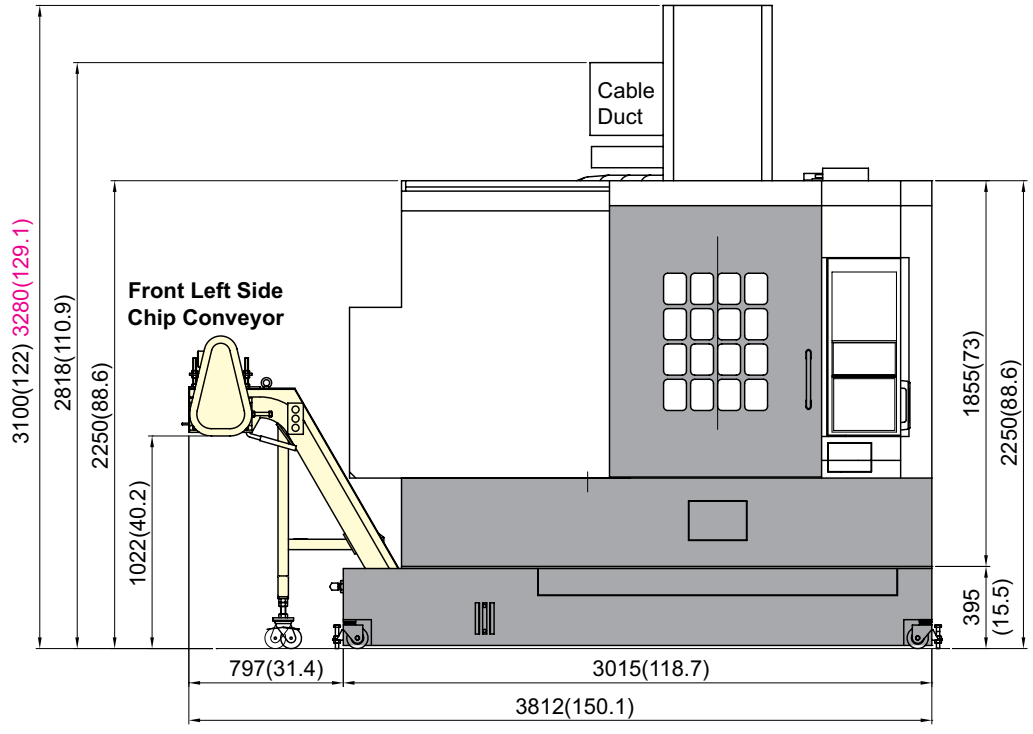


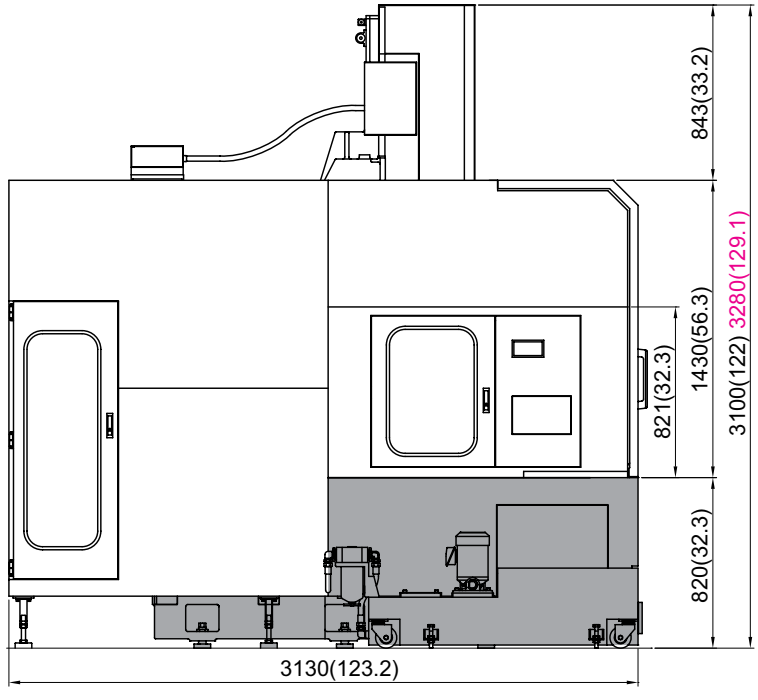


External Dimensions

unit : mm(in)

Hi-MOLD560 I 560/5A



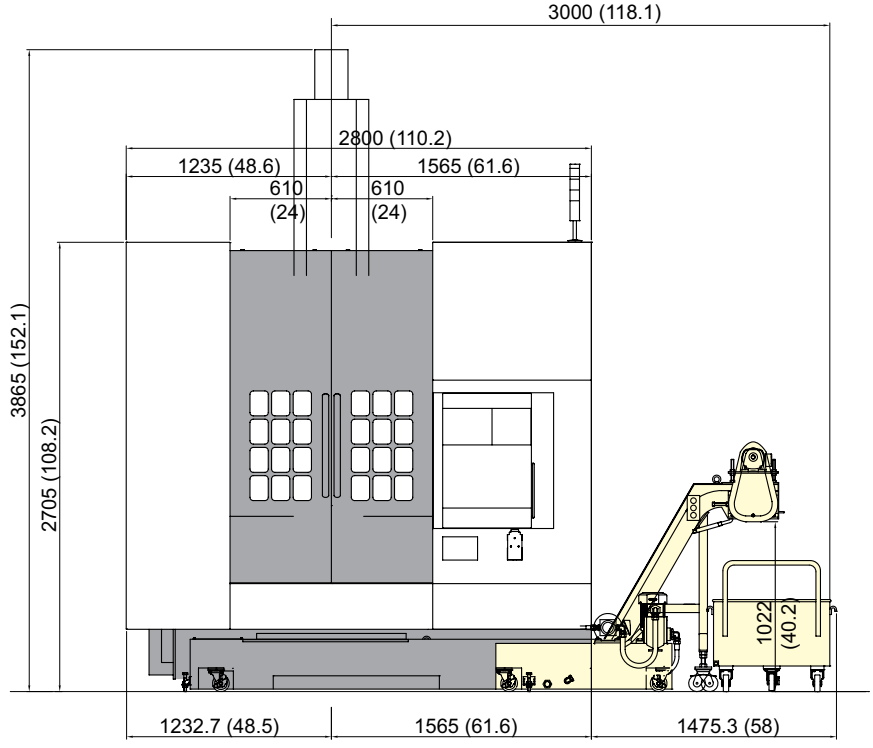


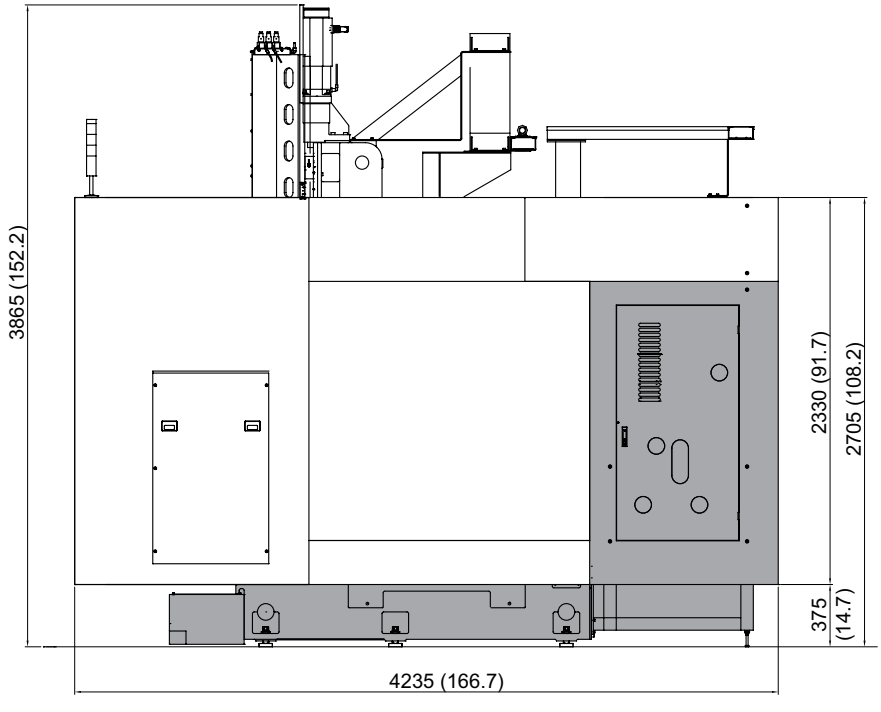
SPECIFICATIONS

External Dimensions

unit : mm(in)

Hi-MOLD750/5A

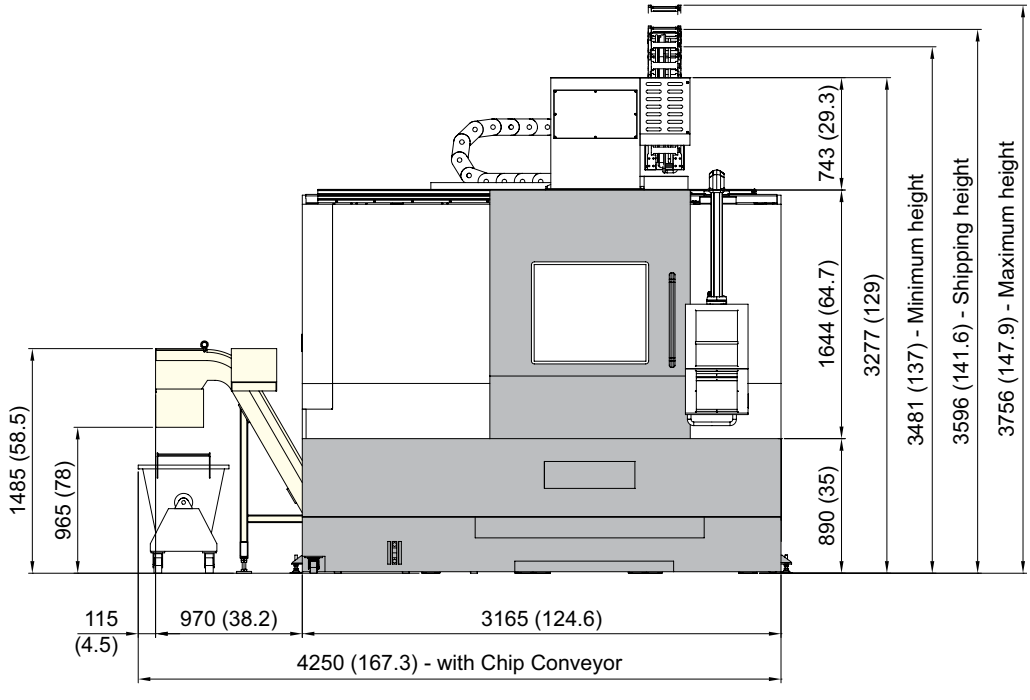


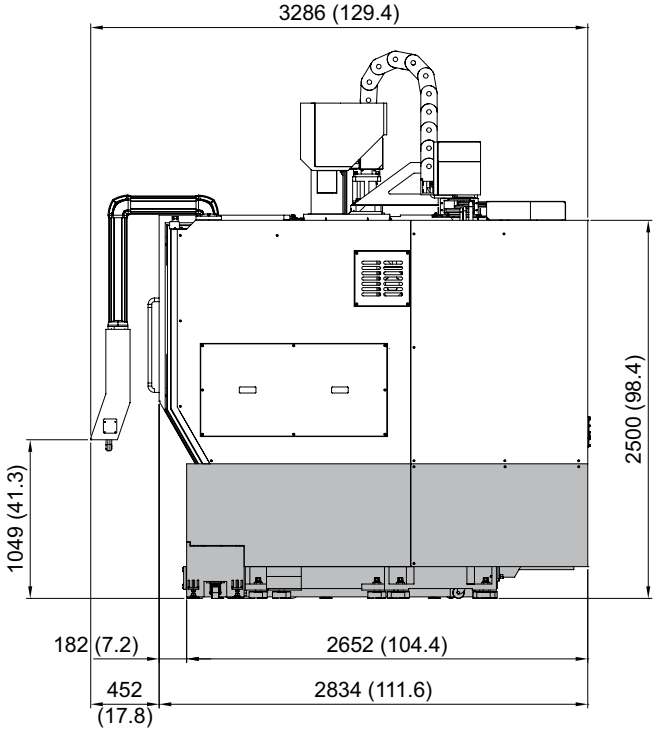


External Dimensions

unit : mm(in)

Hi-MOLD6500

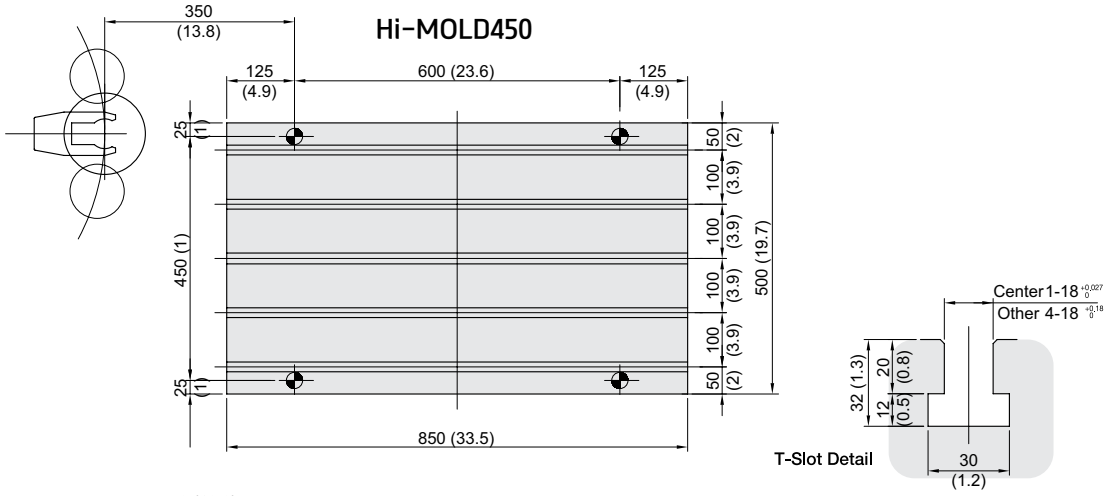


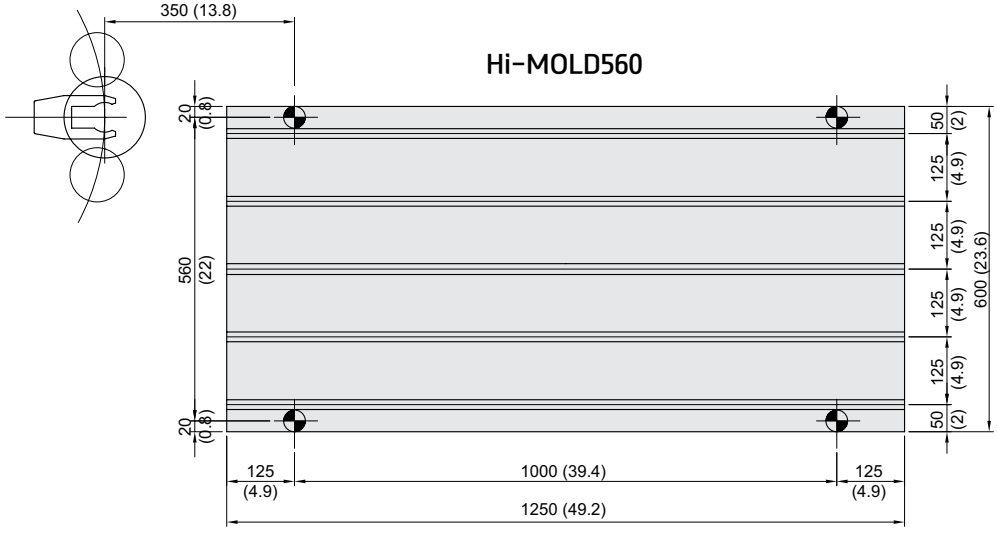


SPECIFICATIONS

Table Dimensions

unit : mm(in)





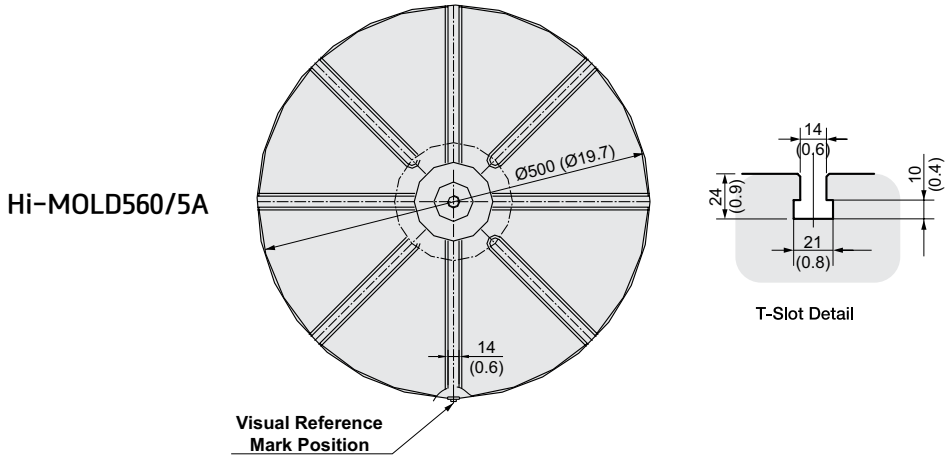
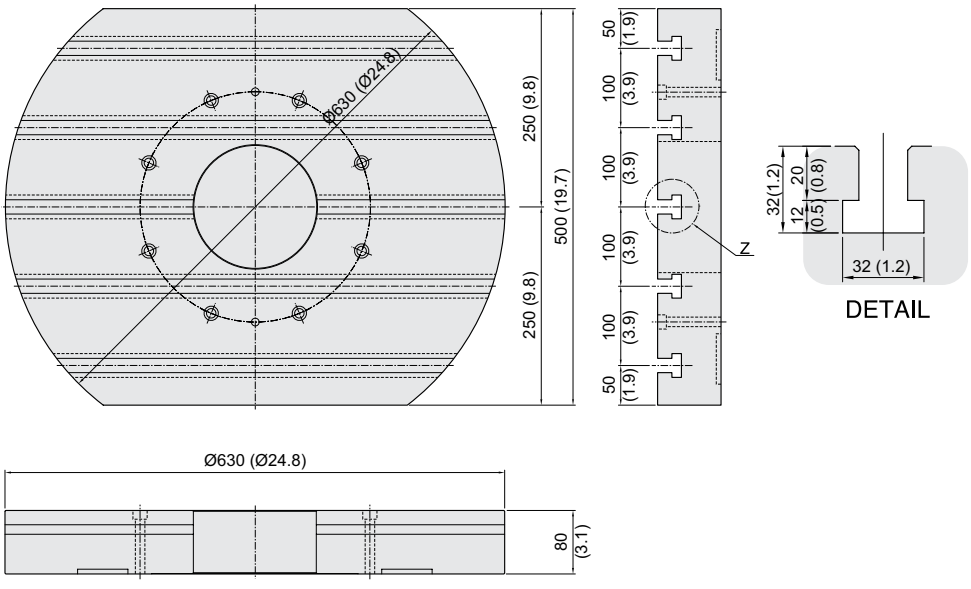


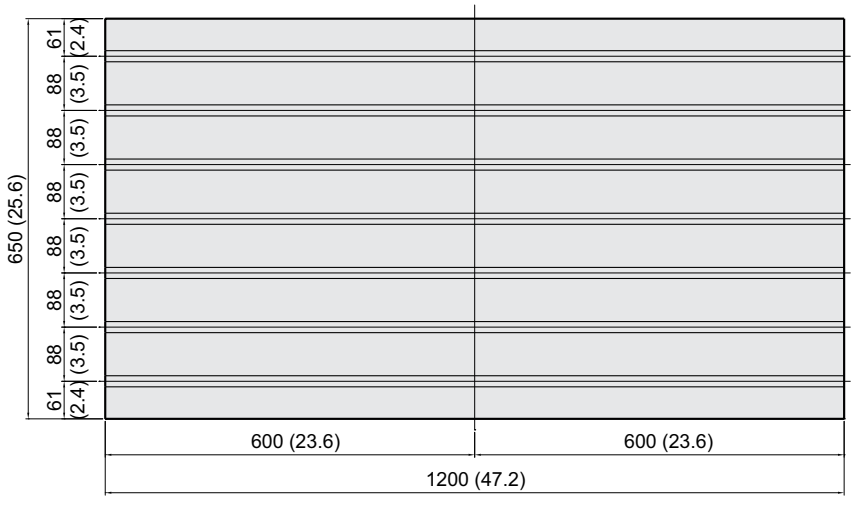
Table Dimensions

unit : mm(in)

Hi-MOLD750/5A



Hi-MOLD6500



SPECIFICATIONS

Specifications

[ ] : Option

ITEM				Hi-MOLD450	Hi-MOLD560	Hi-MOLD560/5A
TABLE	Table Size (L×W)		mm(in)	850×500 (33.5″×19.7″)	1,250×600 (49.2″×23.6″)	(L×H) Ø500x270 (Ø19.7″x10.6″)
	Maximum Load Capacity		kg(lb)	300 (661)	800 (1,764)	250 (551)
	Table Change Time		sec	–		
	Change Method		–	–		
	Table Driving Method		–	–		BUILT-IN
SPINDLE	Spindle Taper		–	HSK-A63 : 24,000 [HSK-E40 : 40,000]		
	Spindle Speed		r/min	24,000 [40,000]		
	Spindle Power (Max./Cont.)		kW(HP)	33/25 (44.3/33.5) [26/18 (35/24)]		
	Spindle Torque (Max./Cont.)		N·m(lbf·ft)	96/72.5 (70.8/53.5) [16.8/12.2(12.4/9)]		
	Spindle Driving Method		–	BUILT-IN		
FEED	Travel	X/Y/Z Axis	mm(in)	600(+350 ATC)/450/450 (23.6″/17.7″/17.7″)	1,000(+350 ATC)/560/450 (39.4″/22″/17.7″)	
		A/C Axis	deg	–		+30° ~ -120°/360°
	Distance from Table Top to SP. Nose		mm(in)	160 ~ 610 (6.3″~24″)		60~510 (2.4″~20″)
	Distance from Column to SP. center		mm(in)	370 (14.6″)		
	Rapid Traverse Rate	X/Y/Z Axis	m/min(ipm)	50/50/50 (1,969/1,969/1,969)		
		A/C Axis	r/min	–		70/150
	Slide Type		–	X/Y-Axis : LM GUIDE, Z-Axis : ROLLER GUIDE		
ATC	Number of Tools		ea	24		
	Tool Shank		–	HSK-A63 : 24,000 [HSK-E40 : 40,000]		
	Max. Tool Dia. (W.T / W.O)	24,000rpm	mm(in)	HSK-A63 : Ø100/Ø140 (Ø3.9″/Ø5.5″)		
		40,000rpm	mm(in)	HSK-E40 : Ø70/Ø140 (Ø2.7″/Ø5.5″)		
	Max. Tool Length		mm(in)	300 (11.8″)		
	Max. Tool Weight	24,000rpm	kg(lb)	HSK-A63 : 8 (17.6)		
		40,000rpm	kg(lb)	HSK-E40 : 1.5 (3.3)		
	Tool Selection Method		–	Fixed Address		
TANK CAPACITY	Coolant Tank		ℓ (gal)	350 (92.5)	450 (118.9)	
	Lubricating Tank		ℓ (gal)	3 (0.8)		
	Hydraulic Tank		ℓ (gal)	30 (8)		
POWER SUPPLY	Air Consumption (0.5MPa)		ℓ /min(gal)	500 (132)		
	Electric Power Supply		KVA	45		60
	Thickness of Power Cable		Sq	Over 35		
	Voltage		V/Hz	220/60 (200/50*)		
MACHINE	Floor Space (L×W)		mm(in)	2,480×2,960 (97.6″×116.5″)	3015×3,130 (118.7″×123.2″)	
	Height		mm(in)	3,100 (122″)		3,280 (129.1″)
	Weight		kg(lb)	8,500 (18,739)	10,000 (22,046)	12,000 (26,455)
NC	Controller		–	SIEMENS 840D sl		

*) Using 50Hz voltage instead of 60Hz may lower the output of motors. (excluding servo motors and inverter motors)

Specifications are subject to change without notice for improvement.

SPECIFICATIONS

Specifications

[ ] : Option

ITEM				Hi-MOLD750/5A	Hi-MOLD6500
TABLE	Table Size (L×W)		mm(in)	Ø630×500 (Ø24.8″×19.7″)	1,200×650 (47.2″×25.6″)
	Maximum Load Capacity		kg(lb)	500 (1,102)	1,000 (2,205)
	Table Change Time		sec	-	-
	Change Method		-	-	-
	Table Driving Method		-	DDM	-
SPINDLE	Spindle Taper		-	HSK-A63	BBT40
	Spindle Speed		r/min	15,000	20,000 [24,000]
	Spindle Power (Max./Cont.)		kW(HP)	25/22 (33.5/30)	22/18.5 (30/25) [22/18.5 (30/25)]
	Spindle Torque (Max./Cont.)		N·m(lbf·ft)	167/95 (123.2/70.1)	98/80 (72.3/59) [53/37 (39.1/27.3)]
	Spindle Driving Method		-	BUILT-IN	
FEED	Travel	X/Y/Z Axis	mm(in)	650/765(+350ATC)/510 (25.6″/30.1″/20″)	1,100/650/550
		A/C Axis	deg	150°(+30°~-120°)/360°	-
	Distance from Table Top to SP. Nose		mm(in)	220~730 (8.7″~28.7″)	150 ~ 700 (5.9″ ~ 27.6″)
	Distance from Column to SP. center		mm(in)	-	260 (10.2″)
	Rapid Traverse Rate	X/Y/Z Axis	m/min(ipm)	50/50/50 (1,969/1,969/1,969)	40/40/40 (1,575/1,575/1,575)
		A/C Axis	r/min	50/60	-
	Slide Type		-	ROLLER GUIDE	
ATC	Number of Tools		EA	30	
	Tool Shank		-	HSK-A63	BBT40
	Max. Tool Dia. (W.T / W.O)		mm(in)	Ø90/Ø150 (3.5″/5.9″)	Ø80/Ø150 (Ø3.1″/Ø5.9″)
	Max. Tool Length		mm(in)	300 (11.8″)	
	Max. Tool Weight		kg(lb)	8 (17.6)	
	Tool Selection Method		-	Fixed Adress	RANDOM
	Tool Change Time	T-T	sec	1.2	2
		C-C	sec	5.4	6.5
TANK CAPACITY	Coolant Tank		ℓ (gal)	600 (158.5)	400 (105.7)
	Lubricating Tank		ℓ (gal)	0.7 (0.2)	3 (0.8)
	Hydraulic Tank		ℓ (gal)	60 (15.8)	15 (4)
POWER SUPPLY	Air Consumption (0.5MPa)		ℓ /min(gal)	500	
	Electric Power Supply		KVA	63	40
	Thickness of Power Cable		Sq	Over 50	
	Voltage		V/Hz	220/60 (200/50*)	
MACHINE	Floor Space (L×W)		mm(in)	3,380×4,205 (133.1″×165.6″)	3,165×2,652 (124.6″×104.4″)
	Height		mm(in)	3,685 (145.1″)	3,619 (142.5″)
	Weight		kg(lb)	18,000 (39,683)	11,000 (24,251)
CNC	Controller		-	FANUC 31i-B5	FANUC 31i-B

*) Using 50Hz voltage instead of 60Hz may lower the output of motors. (excluding servo motors and inverter motors)

Specifications are subject to change without notice for improvement.

CONTROLLER

SIEMENS 840D sl : Hi-MOLD460/560

[ ] : Option ☆ Needed technical consultation

Controlled axis / Display / Accuracy Compensation	
Control axes	4 axes (X1, Y1, Z1, MAG)
	6 axes (X1, Y1, Z1, A1, C1, MAG)
Simultaneously controlled axes	Max. 5 axes
Least setting Unit	X, Y, Z axes : 0.001 mm (0.0001 inch),
	B axes : 1 deg
Least input increment	X, Y, Z axes : 0.001 mm (0.0001 inch),
	B axes : 1 deg
Inch / Metric changeover	G70 (inch) / G71 (metric)
Interlock	All axes / Each axis
Machine lock	All axes
Pitch error compensation	
Feedforward control (Torque control)	
LCD / MDI	10 inch color LCD
Keyboard	ABCD Type
Stored stroke check	Over travel
Operation	
Automatic operation (Memory)	
MDI operation	
Program restart	
Program check function	Dry run / Program check / Machine lock
Single block	
Block search	Block search
Reposition	
Working area limit	Working area limitations
Interpolation functions	
Positioning	G00
Linear interpolation	G01
Circular interpolation	Circular Interpolation CW (G02)
	Circular Interpolation CCW (G03)
Exact position stop	Single block exact stop (G09)
	Exact stop G60 (G601, G602, G603)
Dwell	Dwell (G04)
Reference position return	Return to reference point
	Return to 2nd reference point
Helical interpolation	
Spline interpolation	Non-uniform rational B splines
Compressor (Improving machining quality)	Compcad / Compcurv (Cycle 832)
Feed function / Acc. & Dec. control	
Manual feed	Rapid traverse
	Jog
	Manual handle
	Reference position return
Cutting Feed command	Direct input F code
Feedrate override	0 ~ 120%
Rapid traverse override	1%, 25%, 50%, 100%
Feed per minute	G94
Feed per revolution	G95
Look-ahead block	3,000 block (With Mdynamics)
Program input	
ISO correspondence	G291(ISO)/G290 (SIEMENS)
	(ISO G Code system-A)
Optional block skip	8개 (0~7)
Program stop / end	G90 / G91
Absolute / Incremental program	M00, M01 / M02, M30
Maximum command unit	± 999,999.999 mm, ± 99,999.9999 inch
Plane selection	X-Y : G17, X-Z : G18, Y-Z : G19
Workpiece coordinate system	G54 ~ G57, G505~G549
	G500 (Basic frame - setable zero offset)
	G53 (Work offset non modal)
	G153 (basic frame non modal)
Sub program call	16 folds nested
G code preventing buffering	STOPRE
Drilling/Milling cycle	with programing support
User cycle	

Auxiliary function / Spindle speed function	
Auxiliary function	M Code 4 digit
Spindle speed function	S Code 5 digit
Spindle override	0% ~ 120%
Spindle orientation	SPOS
Rigid tapping	
Autometic mode Interchange	Spindle / Axis mode
Constant surface speed control	G96, G97
Spindle speed limitation	LIMS
Tool function / Tool compensation	
Tool function	Tool number & Tool name
Tool life management	
Tools in tool list	1,500 ea
Cutting Edges in tool list	3,000 ea
Tool radius compensation	ISO (G40, G41, G42)
Geometry / Wear compensation	
Measurement of tool length	
Tool management function	
Editing function	
Part program storage size	10MB
External Strorage devices	USB
Background editing	
Extended part program editing	Copy, move and change of NC program
Memory card program edit	
Data input / output & Interface	
I/O interface	USB memory interface
	Embedded Ethernet memory interface
Screenshot	
Setting, display and diagnosis	
Self-diagnosis function	
History display & Operation	Alarm & Operator message & Operation
Run hour / Parts count display	
Actual cutting feedrate display	
Display of spindle speed / T code	
Graphic display	
Operating monitor screen	Spindle / Servo load etc.
Multi language display	Support 7 languages Chinese, English, French, German, Italian, Korean, Spanish
LCD Screen Saver	Screen saver & Motion sensing
Function	
ShopMill	Machining step programming for milling
3D simulation	
Real time simulation	

Option	
Built-in PC	Industrial PC (IPC427E)
Multi language display	☆ 20 Support languages : Inquiry need

CONTROLLER

FANUC 31i-B5 : Hi-MOLD750/5A

Axis control / Display unit	
Controlled axis	5 axis (X, Y, Z, A, C)
Simultaneous controllable axis	5 axis (X, Y, Z, A, C)
Least input increment	X, Y, Zaxis : 0.001 mm (0.0001")
	A, C axis : 0.001°
Least command increment	X, Y, Zaxis : 0.001 mm (0.0001")
	A, C axis : 0.001°
Inch / Metric conversion	G20 / G21
Interlock	Each axis / All axis
Machine lock	All axis
Stored stroke check 1	
Mirror image	
Follow-up	
Servo off	
Backlash compensation	+/- 0~9999 pulse (rapid traverse & cutting feed)
Position switch	
Stored pitch error compensation	
LCD/MDI	10.4" color LCD
Operation	
DNC operation by the memory card	
Program restart	
Program check function	Dry run, program check
Single block	
Feed functions	
Manual jog feed	Rapid, Jog, handle
Manual handle feed-rate	x1, x10, x100
Feedrate override	0~200% (10% Unit)
Jog feed	0~5,000mm/min (197ipm)
Rapid traverse override	F1, F25%, F50%, F100%
Override cancel	
Rapid traverse bell-shaped acceleration/ deceleration	
Auto corner override	
Program input & Interpolation functions	
Interpolation Function	Positioning/Linear/Circular (G00/G01/G02/G03)
Exact stop mode/Exact stop	G61 / G09
Dwell	G04, 0~9999.9999 sec
Helical interpolation	
Threading/synchronous feed	
Manual reference point return	
Reference point return	G28
Reference point return check	G27
2nd Reference point return	G30
Program stop/end	M00, M01 / M02, M30
Optional block skip	1 ea
Max. programmable dimensions	+/- 9999.9999" (+/- 8 digits)
Program number / Sequence number	O4 / N8 digit
Absolute/incremental command	G90 / G91
Plane selection	G17, G18, G19
Work coordinate preset	G52~G59
Manual absolute	"On" fixed
Programmable data input	G10
Sub program call	10 Step
Custom macro	
Circular interpolation	G02, G03
Canned cycle	G73, G74, G76, G80 ~ G89
Optional chamfering/corner R	
Skip function	G31
Automatic coordinate system setting	
Coordinate system rotation	G68, G69
Programmable mirror image	G50.1, G51.1
Bidirectional pitch error compensation	
AI contour control(AICC) II	200 Block

Sub / Spindle functions	
Miscellaneous function	M 4 digit
Spindle speed command	S 5 digits, binary output
Spindle speed override	50% ~ 120% (10% Unit)
Spindle orientation	
Rigid tapping	
Tool functions / Tool compensation	
Tool function	Max. T8 digits
Cutter compensation C	G40~G42
Tool length compensation	G43, G44, G49
Tool length measurement	Z axis INPUT C
Tool offset pairs	64 pair
Tool life management	
Data input / Output & Editing functions	
Input/output interface	RS232C, Memory card
Embeded Ethernet	100 Mbps
Part program storage length	128 Kbyte (320m)
Registered programs	250 ea
Memory lock	
Back ground editing	
Extended part program editing	Copy, move, change of NC program
Setting, display, diagnosis	
Self-diagnosis function	
History display	Alarm & operator message
Run hour/Parts count display	
Actual cutting feedrate display	
Graphic display	
Spindle/Servo setting screen	
Multi-language display	Selection of 5 optional language
Screen Saver	
Auto Data Backup	

Option	
Additional work coordinate system	G54.1 P1~P48 (48 pair)
	G54.1 P1~P300 (300 pair)
Additional custom micro change	#100 ~ #199, #500 ~ #999
Work coordinate Command	G15, G16
Work coordinate Interpolation	G12.1, G13.1
Helical interpolation	G07.1
Single direction positioning	G60
Scaling	
Manual handle interupt	
Additional optional Blockskip	9 ea
AI contour control(AICC) 1	200 Block/Select processing conditions/
	Auto power off
AI contour control(AICC) 2	200 Block/Select processing conditions/
	data server/Auto power off
AI contour control(AICC) 3	600 Block/Select processing conditions/
	data server/Auto power off
AI contour control(AICC) 4	1000 Block/Select processing
	conditions/data server/Auto power off
Tool offset number	200 pair
Program registration number	Max. 1000 ea *(Note 1)
Part program storage length	256Kbyte (640m) ~ 2Mbyte (5120m)
Data server	1GB
High speed ethernet	100 Mbps
Manual Guide i	Interactive automatic program
Dynamic graphic display	
Tool load monitoring function	HWTM (Mounted)

*Note 1) The program registration number may vary depending on the part program storage capacity.

Figures in inch are converted from metric values.
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CONTROLLER

FANUC 31i-B : Hi-MOLD6500

[ ] : Option ☆ Needed technical consultation

Controlled axis / Display / Accuracy Compensation	
Control axes	3 axes (X, Y, Z) 4 axes (X, Y, Z, B)
Simultaneously controlled axes	3 axes [Max. 4 axes]
Least setting Unit	X, Y, Z axes : 0.001 mm (0.0001 inch)
	B axes : 1 deg [0.001] deg
Least input increment	X, Y, Z axes : 0.001 mm (0.0001 inch)
	B axes : 1 deg [0.001] deg
Inch / Metric conversion	G20 / G21
High response vector control	
Interlock	All axes / Each axis
Machine lock	All axes
Backlash compensation	± 0 ~ 9999 pulses (Rapid traverse / Cutting feed)
Position switch	
LCD / MDI	10.4 inch color LCD
Feedback	Absolute motor feedback
Stored stroke check 1	Over travel
Stored pitch error compensation	
Operation	
Automatic operation (Memory)	
MDI operation	
DNC operation	Needed DNC software / CF card
Program restart	
Wrong operation prevention	
Program check function	Dry run, Program check
	Z axes Machine lock, Stroek check before move
Single block	
Search function	Program Number / Sequence Number
Interpolation functions	
Nano interpolation	
Positioning	G00
Linear interpolation	G01
Cylinderical interpolation	G02, G03
Exact stop mode	Single : G09, Continuous : G61
Dwell	G04, 0 ~ 9999.9999 sec
Skip	G31
Reference position return	1st reference, G28
	2nd reference, G27
	Ref. position check, G30
Thread synchronous cutting	G33
Helical interpolation	Circular + Linear interpolation 2 axes(max.)
Feed function / Acc. & Dec. control	
Manual feed	Rapid traverse
	Jog : 0~5,000mm/min (197 ipm)
	Manual handle : x1, x10, x100 pulses
	Reference position return
Cutting Feed command	Direct input F code
Feedrate override	0 ~ 200% (10% Unit)
Rapid traverse override	F0% (F1%), F25%, F50%, F100%
Override cancel	
Feed per minute	G94
Feed per revolution	G95
Look-ahead block	40 Block
	200 Block (Mold)
Program input	
Tape Code	EIA / ISO
Optional block skip	1 ea
Absolute / Incremental program	G90 / G91
Program stop / end	M00, M01 / M02, M30
Maximum command unit	± 999,999.999 mm (± 99,999.9999 inch)
Plane selection	X-Y, G17 / Z-X, G18 / Y-Z, G19
Workpiece coordinate system	G52, G53, 6 pairs (G54 ~ G59)
Manual absolute	Fixed ON
Programmable data input	G10
Sub program call	10 folds nested
Custom macro	#100 ~ #149, #500 ~ #549
G code system	A
Programmable mirror image	G51.1, G50.1
G code preventing buffering	G4.1
Including Chamfering / Corner R	
Canned cycle	G73, G74, G76, G80 ~ G89
Coordinate rotation	G68, G69

Auxiliary function / Spindle speed function	
Auxiliary function	M 4 digit
Level-up M Code	Multi / Bypass M code
Spindle speed command	S 5 digit , Binary output
Spindle override	0% ~ 150% (10% Unit)
Spindle orientation	M19
FSSB high speed rigid tapping	
Tool function / Tool compensation	
Tool function	Max. T 8 digit
Tool life management	256 pairs ☆
Tool offset pairs	64 pairs
Tool nose radius compensation	G40, G41, G42
Tool nose length compensation	G43, G44, G49
Tool offset memory C	Tool length, diameter, abrasion(length, diameter)
Tool length measurement	Z axes Input C
Editing function	
Part program storage size	640m (256KB)
No. of registerable programs	500 ea
Program protect	
Background editing	
Extended part program editing	Copy, move and change of NC program
Memory card program edit	
Data input / output & Interface	
I/O interface	RS 232C serial port, CF card, USB memory
	Embedded Ethernet interface
Screen hard copy	
External message	
External key input	
External workpiece number search	
Automatic data backup	
Setting, display and diagnosis	
Self-diagnosis function	
History display	Alarm & Operator message & Operation
Run hour / Parts count display	
Maintenance information	
Actual cutting feedrate display	
Display of spindle speed / T code	
Graphic display	
Operating monitor screen	Spindle / Servo load etc.
Power consumption monitoring	Spindle & Servo
Spindle / Servo setting screen	
Multi language display	Support 20 languages
Display language switching	Selection of 5 optional Languages
LCD Screen Saver	Screen saver
Processing select	Speed/ridigity setting

Option	
Additional optional block skip	9 ea ☆
Fast ethernet	Needed option board
Data server	Needed option board
Protection of data at 8 levels	
Sub Spindle control	
Polar coordinate command	G15, G16
Polar coordinate interpolation	G12.1, G13.1
Cylinderical interpolation	G07.1
One-way positioning	G60
Stored stroke check 2, 3	
Inverse-time feed	G93
Scaling	G50, G51
Manual guide i	Conversational auto program
Handle interrupt	
Manual handle feed	2/3 units
Additional custom macro variables	#100~#199, #500~#999
	#100~#199, #500~#999, #98000~#98499
Retraction for rigid tapping	
Tool management function	
Tool offset number	Max. 2000 pair ☆
Program storage capacity	512KB ~ 8MB ☆
Program registration number	Max. 4000 ea ☆
Additional work coordinate	48 pair (G54.1 P1 ~ P48)
AICC II	200 block
	400 / 600 / 1000 block ☆

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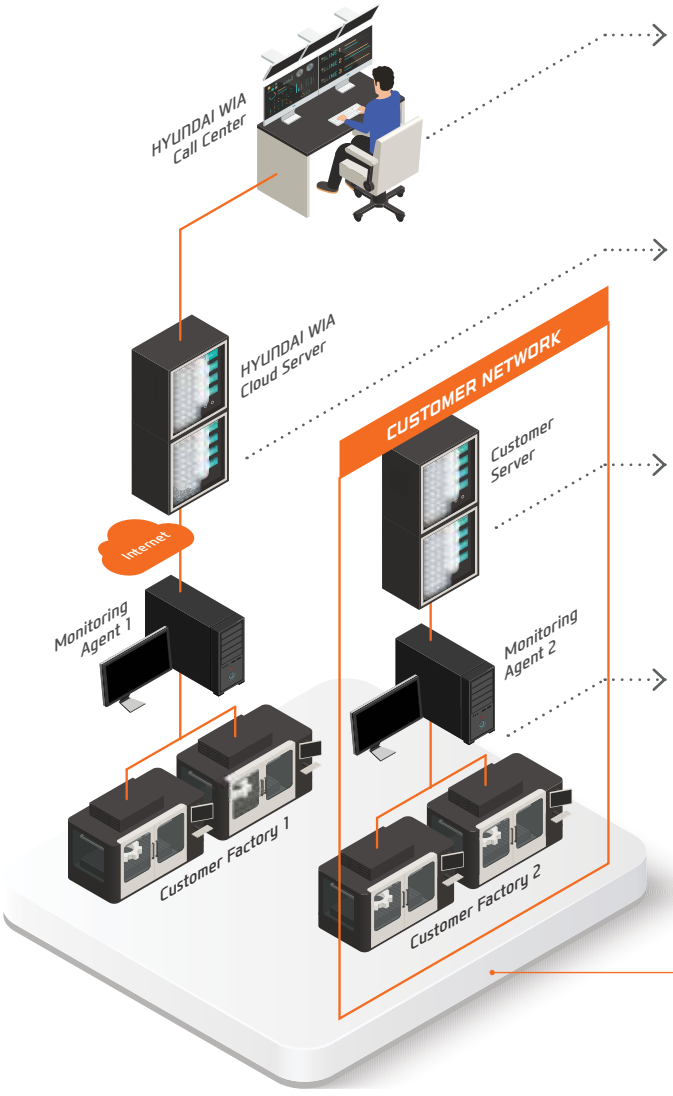
HW-MMS

HYUNDAI WIA Machine Monitoring System

A manufacturing machine self-developed by Hyundai Wia, HW-MMS is a unique software capable of monitoring the operation status of manufacturing machines in factories, a smart solution to improve manufacturing conditions of customers



HW-MMS Remote

Hyundai Wia Call Center's remote diagnosis service provides a HMI/video diagnostic function.

HW-MMS Cloud

A cloud server-based equipment monitoring system for collecting and analyzing facility operation data.

HW-MMS Edge

A client server-based tool monitoring system for collection/analysis of facility operation data. (Compatible with client MES / ERP interface)

HW-MMS Edge Plus

This is a facility big data-based smart factory solution that collects and analyzes spindle/feed data, tool lifespan, NC processing files, etc. in real time

HYUNDAI WIA
Smart Factory Solution

Hi-MOLD560/5A
Movie 1

Hi-MOLD560/5A
Movie 2

Hi-MOLD750/5A
Movie

Hi-MOLD6500
Movie 1

Hi-MOLD6500
Movie 2

Hi-MOLD6500
3D Movie

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