www.hartford.com.tw

Website

Facebook

Hartford has sold more than 50,000 machines to all over the world, accumulated more than 37,000 customers, who absolutely affirm Hartford's manufacturing experience and ingenious machine manufacture technology. We insist on providing customers with the best quality machining centers. We will devote more carefully, in order to continuously enhance the technical level of manufacture and applications.

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Hartford
Hartrol · Smartcenter · Robocell
We manufacture intelligent machines only

Hartford innovation

THE NEXT 50 YEARS

MVH/HMC Series
Smartcenter

Intelligent Horizontal Machining Center

- Hartrol plus controller
- 5-year warranty on guideways
- Spindle run-out: 5 micro
- Built-in type spindle torque: 600N-m
- Built-in type spindle shaft with cooling system

Photo show is HMC-10

What is Smartcenter ?

Smartcenter is Smart machine center, an intelligent machine if put it in a simple way.
A Hartford Smartcenter has to include
1.Intelligent operating interface
2.Intelligent machining: Machining accuracy/ surface accuracy/ slef learing / self optimizing
3.Intelligent quality control: Auto compensation for machining accuracy
4.Intelligent maintenance program : Active notification/ Active machine down time schedule also include other intelligent functions, help user reaching the target of Zero Down Time.

The benefits of Hartford smartcenter

+ Intelligent management : Fully aware of the machining status
+ Fully aware of the status of the machine key components.
+ Improving of the machine efficiency
+ Crash protection – Stop the machine immediately to prevent the further damage when alarm occurred .

Hartford Smartcenter
will help you become an intelligent manager

The main technologies of Hartford smartcenter include intelligent managing system, status monitoring, alarm predicting, machine status diagnosis, crash preventing, 3D program simulation, machining efficiency improving...etc.
All the intelligent functions help you control the machine status and assure the job quality.

The Application of LAUREL

Underneath the compact appearance, the robust structure of LAUREL is engineered with the unique Hartford technology to decrease the cycle time and enhance your cutting efficiency.

1. Parts for motorcycle

2.Hydraulic valve

Actual Cutting Test

Model : HMC-6
■ Spindle: 6,000 rpm Gear type, 18.5kW ■ Cutting material : S45C

Face milling

Tool diameter	Ø125 X 7
Feed rate	1,200 mm/min
Cutting depth	4 mm
Cutting volume	480 cc/ mm
CuttingWidth	100mm

End milling

Tool diameter	Ø63 x 3
Feed rate	2,000mm/min
Cutting depth	30 mm
Cutting width	5 mm
Cutting volume	300 cc/min

Tapping

Tool diameter	M30 X3.5 mm
Feed rate	420 mm/min
Cutting depth	40 mm
Speed	120rpm

Drilling

Tool diameter	Ø76 x 2
Feed rate	60 mm/min
Cutting depth	40 mm
Speed	300rpm
Spindle load	100%

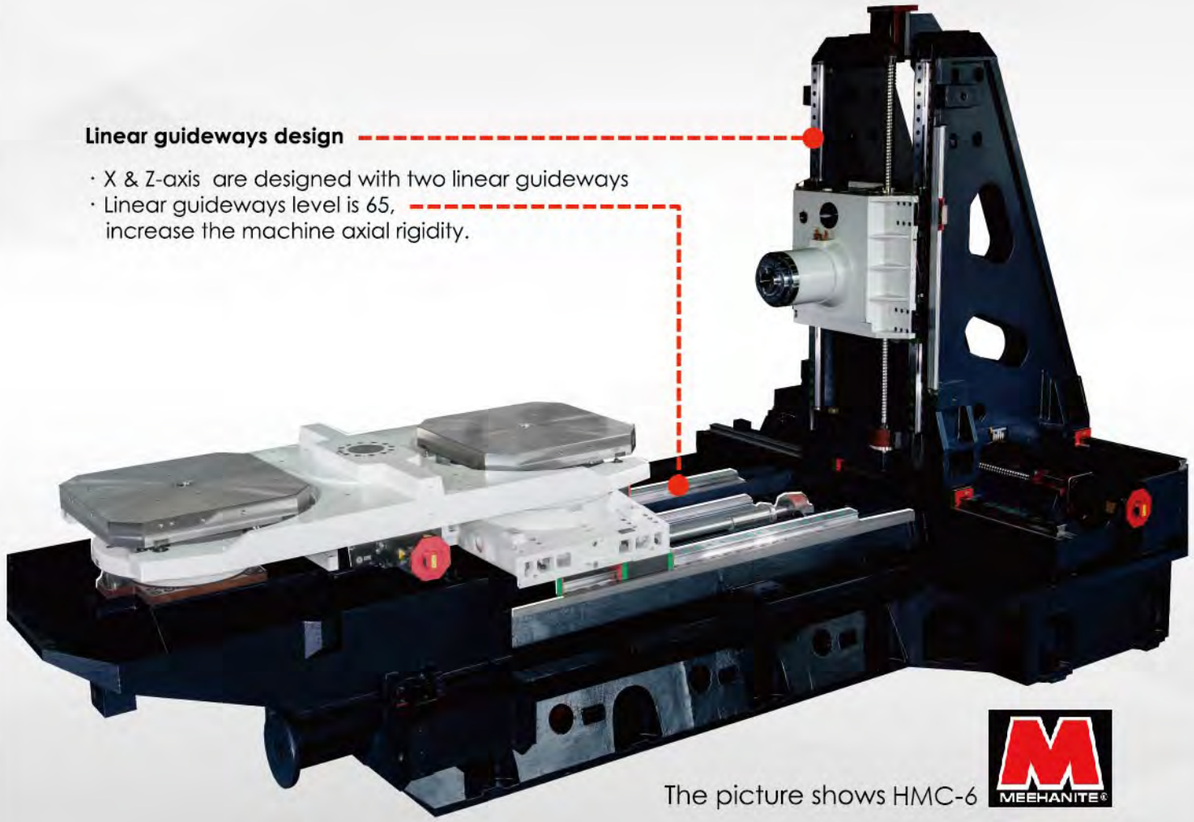
All the test results featured in this catalogue were produced under strict testing condition in a special zed testing environment. Under different testing conditions and in less than ideal testing environments. that the test results may vary from those shown in this catalogue.

Monolithic Machine Base of LAUREL

Hartford horizontal machining center with unique V-ribs delivers solid structure.

Linear guideways design

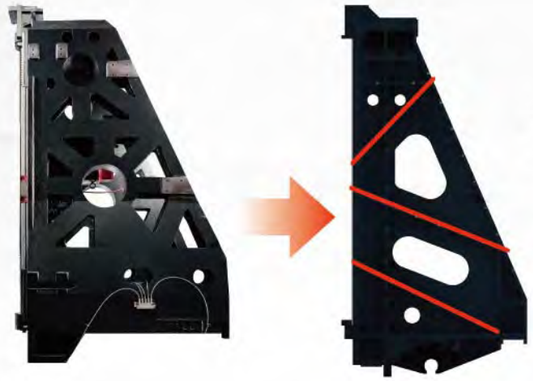
· X & Z-axis are designed with two linear guideways
· Linear guideways level is 65, increase the machine axial rigidity.



The picture shows HMC-6

Full range of box guideway five-year warranty

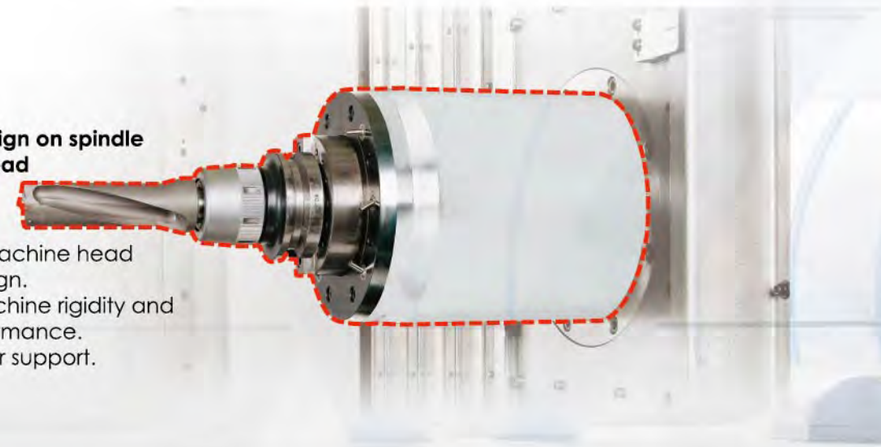
Warranty coverage will not apply under the following conditions,
1.Improper operation (collision)
2.Lack of regular cleaning of accumulated debris causing damaged to the linear rails & carriages.



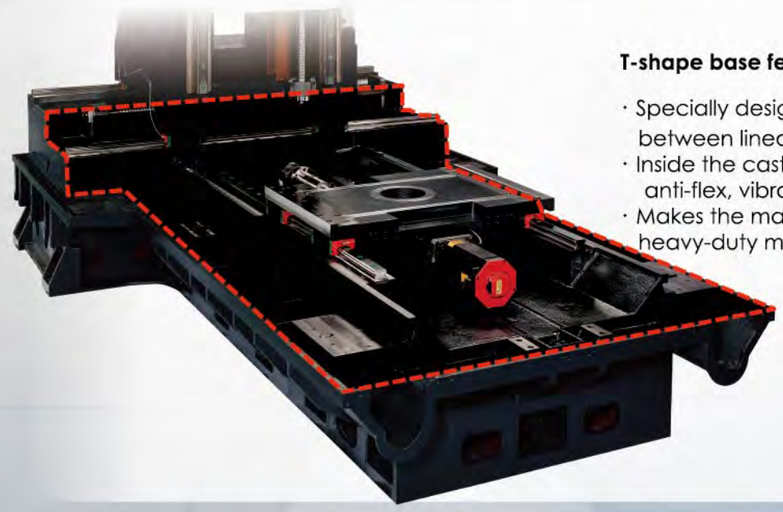
High rigidity column design

· One-piece design on column, increases structure rigidity.
· Two-step design on column, enhances rigidity..
· Chamfer design on inner body increases torsion resistance capability.

One-piece design on spindle housing and head



· The all new machine head structure design.
· Increases machine rigidity and cutting performance.
· Delivers higher support.



T-shape base features high stability

· Specially design on guideways, distance between linear guideways is **580mm**
· Inside the casting are the heavy-duty, anti-flex, vibration-absorbing ribs .
· Makes the machines perfect for heavy-duty machining.

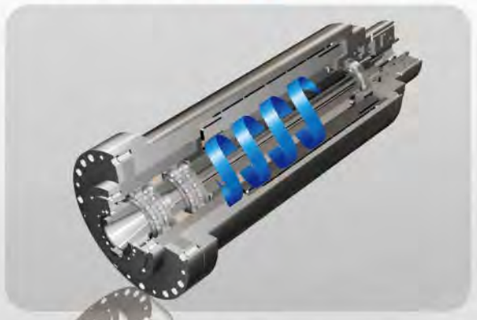
Features Of Hartford Horizontal Machining Center

Auto pallet changer

- Auto pallet changer system is anchored on the base.
- The APC of Laurel is integrated on the machine base, free from an possibility of accuracy deviation.
- Min. indexing angle: **0.001 °** (1 ° opt.)

Air blast in B-axis positioning cones

- Pallets are positioned on 4 taper cones in combination with air blast on cone surface and hydraulic drawbar.
- Provides high rigidity and accuracy of the pallet.
- Prevents the ingress of cutting chip or fluid.



Built-in type spindle 10,000rpm

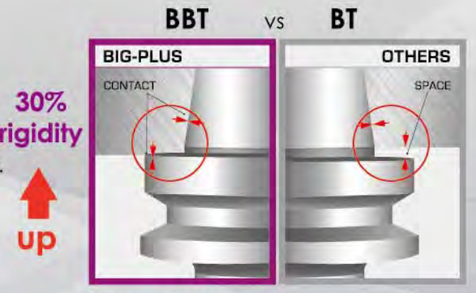
- The built-in type spindle is capable of resisting longtime continuous running at high speeds.
- It features water & dustproof protection for the spindle bearing.
- Spindle thermal problem is controlled by cooler system.
- Spindle runs on special bearings, providing excellent resistance for axial and radial loads.

ISO 50 Gear type spindle

- Two-step transmission
- High torque output in low speed
- Spur gear with big modulus delivers high rigidity and low abrasion.
- Suitable for heavy-load cutting

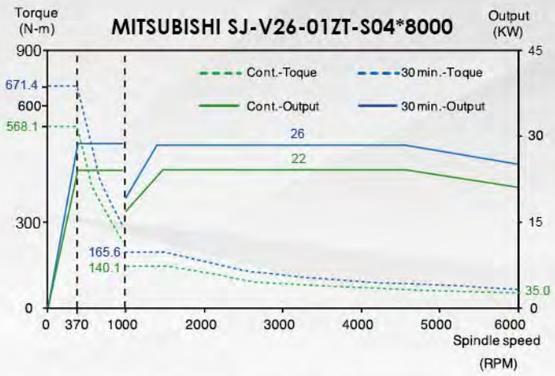
BBT Option

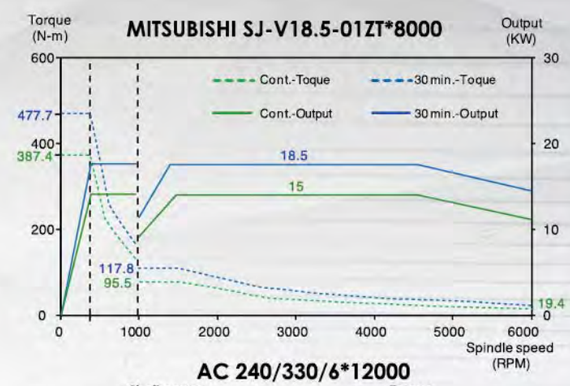
- Dual contact between the taper and the flange.
- Improves the rigidity, accuracy, speed and performance.
- Radial deflection , vibration and deviation are significantly reduced.

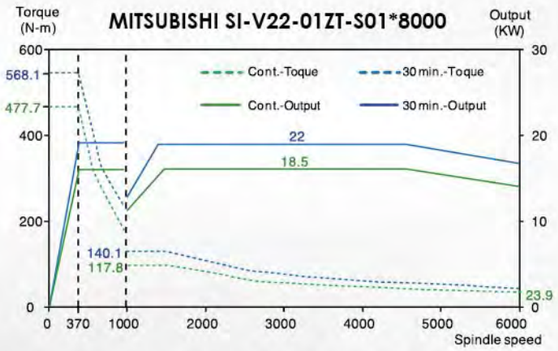


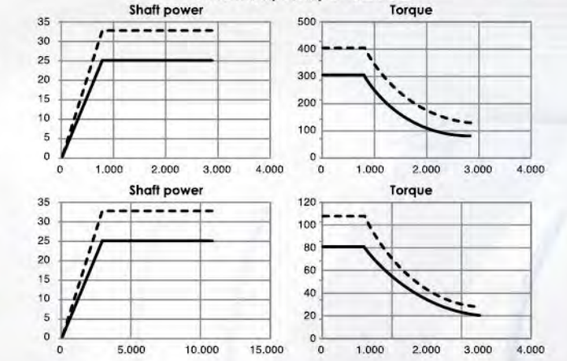
BBT (OPTIONAL)

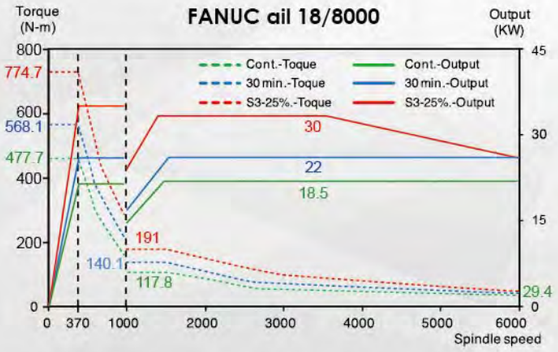
Spindle Diagrams

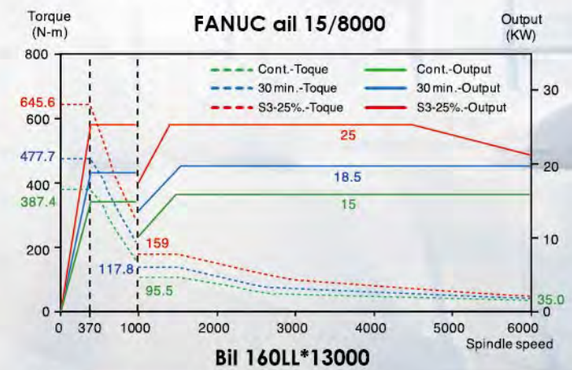


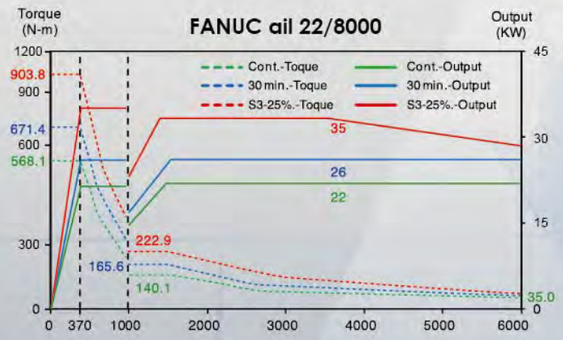


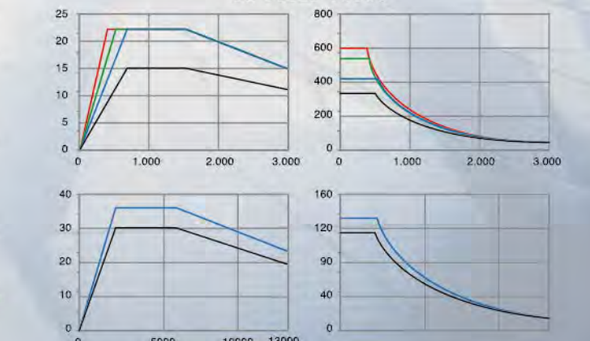












Intelligent Controller-
Hartrol Plus

What is Hartrol plus?

- 19" multi-touch screen
- IPC is equipped with the Windows operating system
- Automatic feed system control function(opt.)

By the use of open architecture, we begin to enter a new era of intelligent processing. In addition to basic functions, we have joined hardware and software exclusively developed by Hartford. Software can be added to and updated at any time with new features.

An Intelligent Controller

With three major solutions, Hartrol plus takes your machining to the next level. Highly optimized and intelligent controls bring even more capabilities and productivity to your metal cutting processes.
With ease of use, advanced automation, and smart data collection, Hartrol plus is an essential tool for enhancing performance on your production floor.

The difference between Hartrol plus and others

Function	**Hartrol plus 2**	Others
Screen Size	19" Multi-touch Panel	10.4"(OPT:15")
Hard Drive	32GB CFast	NO
Smoothing Interpolation	SSS-4G	Option
Look Ahead Block	1350	400(1000 Max.)

Cost Down 20%

- Multi-touch screen
- E-book
- Remote control
- Cutting condition calculator
- Stand-by Mode
- Hartford User Connect

Productivity Increased by 18%

- AFC (Automatic feedrate control)
- SSS-4G high speed high accuracy control
- Machining time countdown for single block
- Optimized machining program

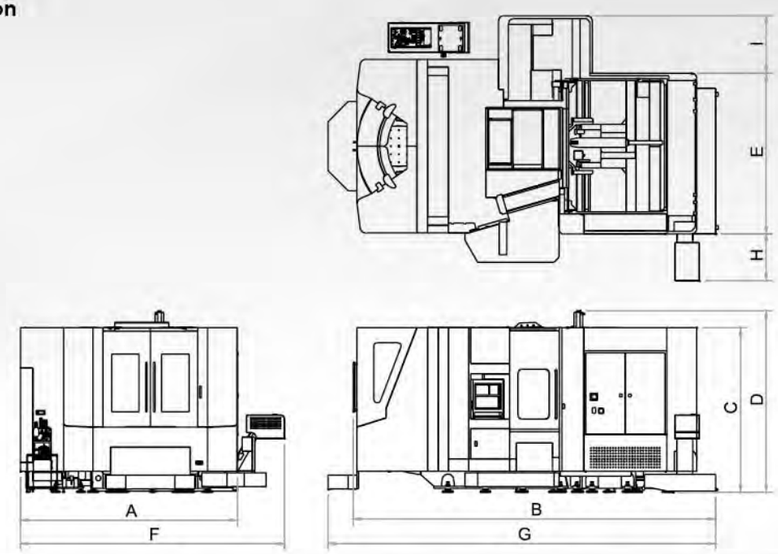
Efficiency Upgraded by 20%

- Machine utilization management
- operators performance management
- 24 hours a day management
- Remote management

For more information of Hartrol plus, please check with sales person.

Dimension Drawing

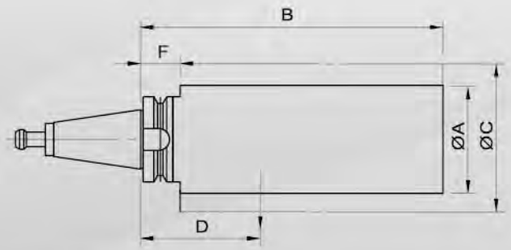
Machine dimension



Unit: mm

Model	A	B	C	D	E	F	G	H	I
MVH-5 (#50)	3461	5257	3000	3094	3461	3817	-	-	-
HMC-6	3461	5257	3000	3094	3461	3817	-	-	-
HMC-600	3518	4707	3000	3094	3461	4115	-	-	-
HMC-8	3518	5883	3032	3393	3518	4727	6358	-	-
HMC-10	4346	7227	3282	3619	3196	5284	7807	950	1150
HMC-800	4103	5466	3016	3393	3518	5012	5987	-	-
HMC-1000	4346	5827	3282	3619	3200	5284	7322	950	1150

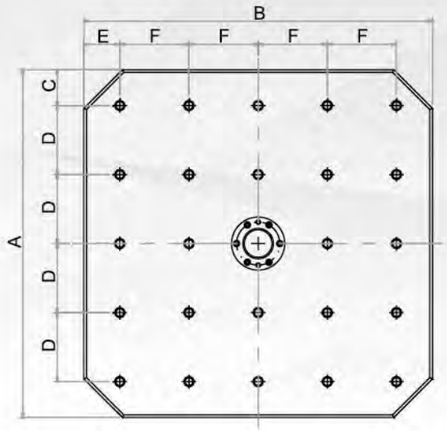
Tool dimension

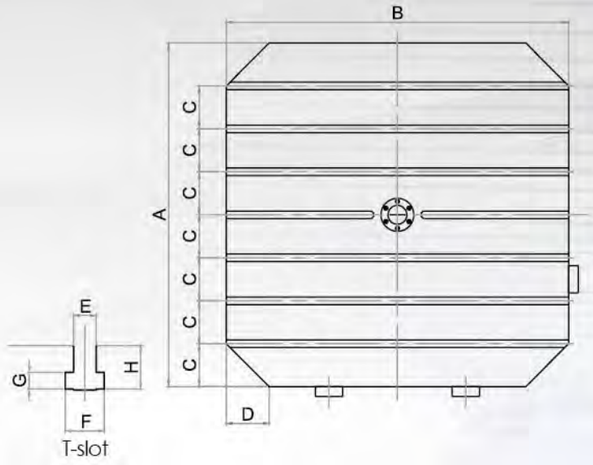


Unit: mm

Model	A	B	C	D	E	F	Max. tool mass moment
MVH-5 (#50)	125	400	250	130	20kg	50	25.5N-m
HMC-6	125	400	250	130	20kg	50	25.5N-m
HMC-600	125	400	250	130	20kg	50	25.5N-m
HMC-8	125	500	250	130	20kg	50	25.5N-m
HMC-10	125	600	250	100	25kg	45	24.5N-m
HMC-800	125	500	250	130	20kg	50	25.5N-m
HMC-1000	125	600	250	100	25kg	45	24.5N-m

Pallet dimension





Unit: mm

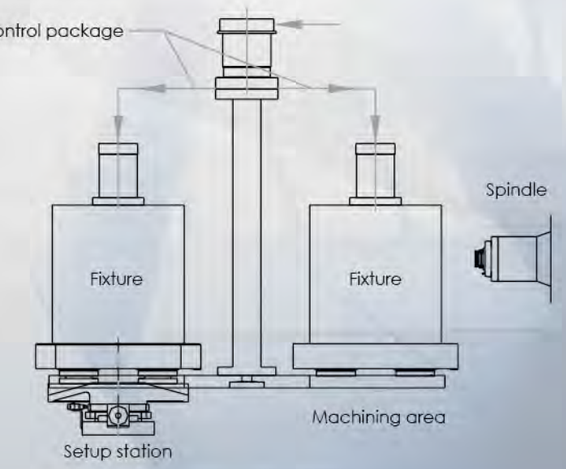
Model	A	B	C	D	E	F	H
MVH-5 (#50)	500	500	50	100	50	100	M16x2Px25L
HMC-6	630	630	65	125	65	125	M16x2Px25L
HMC-600	630	630	65	125	65	125	M16x2Px25L
HMC-8	800	800	80	160	80	160	M16x2Px28L
HMC-800	800	800	80	160	80	160	M16x2Px28L

Unit: mm

Model	A	B	C	D	E	F	G	H
HMC-10	1000	1000	125	125	22	38	16	42
HMC-1000	1000	1000	125	100	22	38	16	42

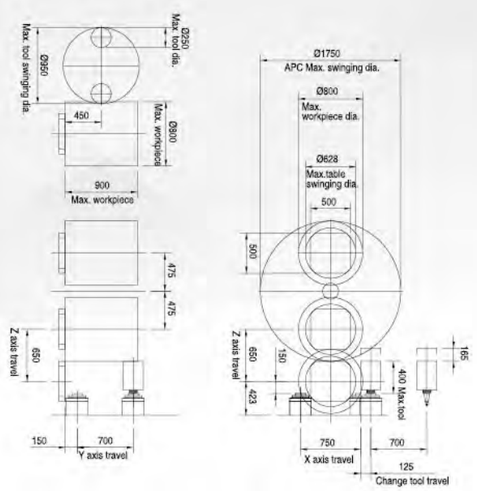
Pneumatic/Hydraulic fixture control package: 2+2 ports (opt.)

Pneumatic/Hydraulic fixture control package: 4+4 ports (opt.)

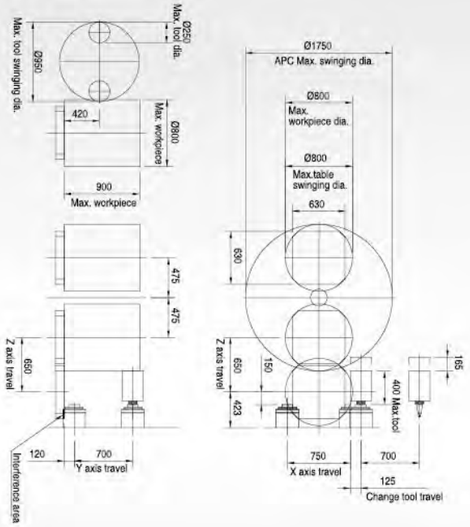


Interference Drawing

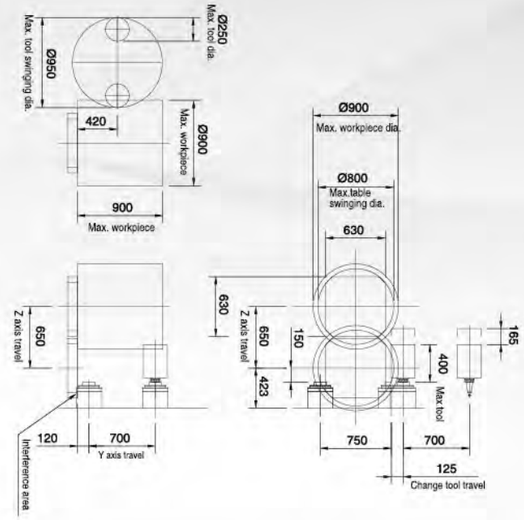
MVH-5 #50



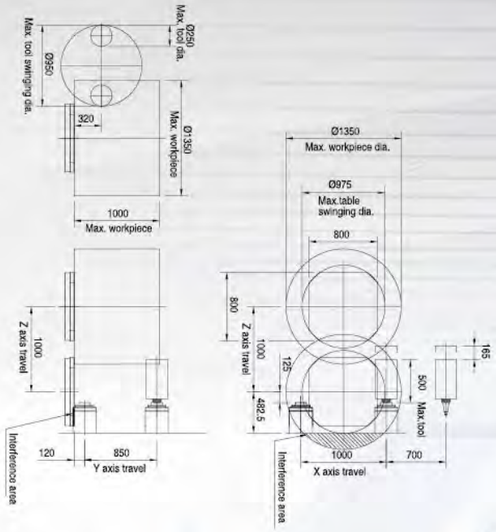
HMC-6



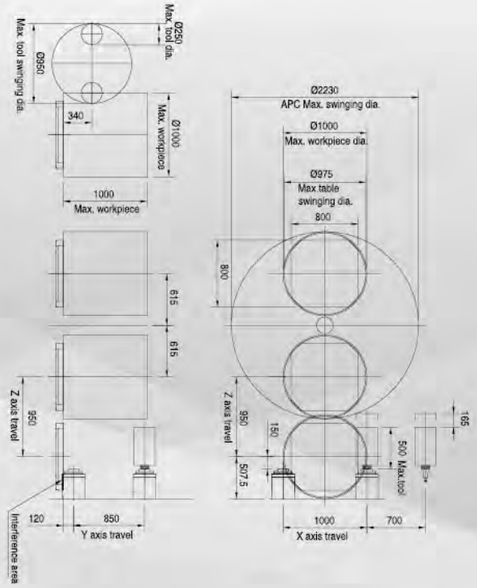
HMC-600



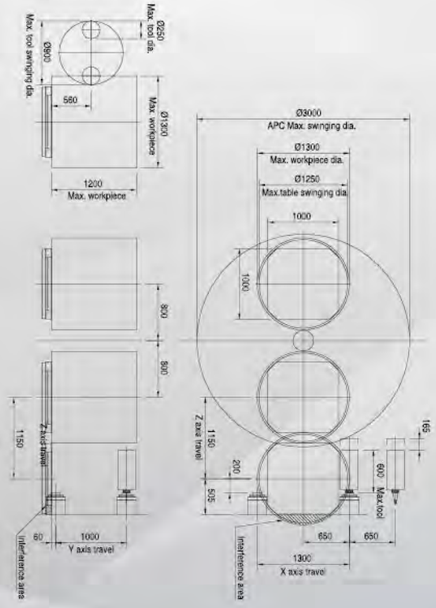
HMC-800



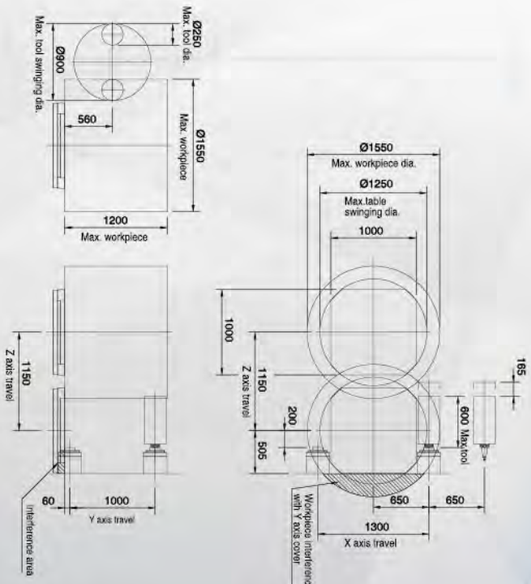
HMC-8



HMC-10



HMC-1000



Specifications

Model	Unit	MVH-5(#50)	HMC-6	HMC-8	HMC-10	HMC-600	HMC-800	HMC-1000
Table								
Working surface	mm	500x500	630x630	800x800	1000x1000	630x630	800x800	1000x1000
Max. workpiece swing diameter	mm	φ800x900	φ800x900	φ1000x1000	φ1300x1200	φ900x900	φ1350x1000	φ1550x1200
Max. table load	Kg	600	600	1500	2000	600	1500	2000
Indexing type	deg.	0.001(1)	0.001(1)	0.001(1)	0.001(1)	0.001(1)	0.001(1)	0.001(1)
Max. speed of pallet top	rpm	22	22	11	11	22	11	11
Travel								
Longitudinal travel (X-axis)	mm	750	750	1000	1300	750	1000	1300
Cross travel (Y-axis)	mm	700	700	850	1000	700	850	1000
Vertical travel (Z-axis)	mm	650	650	950	1150	650	1000	1150
Distance from spindle center to table surface	mm	150-850	120-820	110-960	60-1060	150-800	120-970	100-1100
Distance from spindle end to table center	mm	150-800	150-800	150-1100	200-1350	150-800	125-1125	200-1350
Spindle								
Spindle nose taper	rpm	ISO 50	ISO 50	ISO 50	ISO 50	ISO 50	ISO 50	ISO 50
Spindle speed (Gear type)	rpm	6000	6000	6000	6000	6000	6000	6000
Spindle speed (DDS)	rpm	-	-	-	-	-	-	-
Spindle speed (Built-in)	rpm	(10000 opt.)	(10000 opt.)	(10000 opt.)	(10000 opt.)	-	(10000 opt.)	(10000 opt.)
Feed								
Cutting feed rate (X、Y、Z axis)	m/min	12/12/12	12/12/12	12/12/12	12/12/12	12/12/12	12/12/12	12/12/12
Rapid traverse (X、Y、Z axis)	m/min	40/30/40	40/30/40	30/30/30	30/30/30	40/30/40	30/30/30	30/30/30
ATC								
Tool storage capacity	Pcs	40(60/90 opt.)	40(60/90 opt.)	40(60/90 opt.)	40(60/90 opt.)	40(60/90 opt.)	40(60/90 opt.)	40(60/90 opt.)
Max. tool weight	Kg	20	20	20	25	20	20	25
Max. tool size (diameter×length)	mm	φ125x400L (φ250x400 Lneighbor empty)	φ125x400L (φ250x400L neighbor empty)	φ125x500L (φ250x500L neighbor empty)	φ125x600L (φ250x600L neighbor empty)	φ125x400L (φ250x400L neighbor empty)	φ125x500L (φ250x500L neighbor empty)	φ125x600L (φ250x600L neighbor empty)
Tool selection		Random	Random	Random	Random	Random	Random	Random
Tool shank		BT50(BBT/CAT/DIN)	BT50(BBT/CAT/DIN)	BT50(BBT/CAT/DIN)	BT50(BBT/CAT/DIN)	BT50(BBT/CAT/DIN)	BT50(BBT/CAT/DIN)	BT50(BBT/CAT/DIN)
Pull stud bolt		P50T-1/CAT-50/DIN69872	P50T-1/CAT-50/DIN69872	P50T-1/CAT-50/DIN69872	P50T-1/CAT-50/DIN69872	P50T-1/CAT-50/DIN69872	P50T-1/CAT-50/DIN69872	P50T-1/CAT-50/DIN69872
Spindle motor								
Motor (Cont./30 min)	kw	15/18.5(18.5/22, 22/26 opt.)	15/18.5(18.5/22, 22/26 opt.)	15/18.5(18.5/22, 22/26 opt.)	15/18.5(18.5/22, 22/26 opt.)	15/18.5(18.5/22, 22/26 opt.)	15/18.5(18.5/22, 22/26 opt.)	15/18.5(18.5/22, 22/26 opt.)
Positioning accuracy								
3-axes laser positioning accuracy (JIS B6336)								
Positioning accuracy/Full travel	mm	±0.008	±0.008	±0.008	±0.008	±0.008	±0.008	±0.008
Repetitive positioning accuracy	mm	±0.002	±0.002	±0.002	±0.002	±0.002	±0.002	±0.002
3-axes laser positioning accuracy (JIS B6336)								
Positioning accuracy	mm	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Repetitive positioning accuracy	mm	0.007	0.007	0.007	0.007	0.007	0.007	0.007
Other								
Required Air Pressure	kg/cm2	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Electric power consumption	KVA	60	60	60	58.3	60	60	58.3
Floor space (Full Guarding)	mm	7791x5572	7791x5572	8430x5635	9680x7400	7180x6290	8100x6470	9630x7400
Machine Weight	kg	16500	17000	21000	25000	16000	18000	22500
Coolant Capacity (Standard)	L	500	500	650	1100	500	580	1100

Standard & Optional Electrical Functions

Standard-Mechanical

- Full-enclosed guard
- Spray around spindle
- Lubrication system
- Spindle oil cooler
- Spindle air curtain
- Oil flaud separation system on base
- Fluorescent lamp x2
- Air blast through spindle
- Tri-Lamp Device
- Screw type chip conveyor
- Link type chip conveyor & portable chip bucket(1 EA)
- Convection heat exchanger in control box
- Coolant tank
- Automatic Power OFF
- MPG
- Absolute pulse coder on 3-axis
- Foundation bolt, Concrete
- Hartford manual x1

Optional-Mechanical

- X, Y, Z-axis linear scale system(Heidenhain)
- Coolant through system(20/25/40/70 BAR)
- Auto. Workpiece measurement
- Auto. length measurement
- Coolant shower device of roof

Optional-Mechanical

- Auto. Pallet changer (Driven by servo system)
- Single working table (HMC-500#40/HCM-600/HMC-800/HMC-1000)
- Pneumatic/Hydraulic fixture control package (2+2 ports)
- Pneumatic/ Hydraulic fixture control package (4+4 ports)
- Mist coolant system
- Oil mist collector system
- Air gun
- Wash down hose
- Rotary window
- Oil skimmer
- Hoist Seat

Electrical

Standard-Electrical

- M code display
- PLC bit setting screen
- Tool comment
- Hole pattern
- Face milling cycle
- Side milling cycle
- Pocketing cycle
- Round cutting
- Workpiece calibration (Manually)
- Spindle load monitor
- High speed, high accuracy parameter screen
- Tool magazine display

Optional-Electrical

- DNC software
- Lifting function against gravity
- Intelligent MPG

Specifications of the machine are subject to be modified without prior notice, please refer to the shipping document for the precise machine weight.