

Accessories

Standard : ● Optional : ★

Description	Model	HMC-6/600	HMC-8/800	HMC-10/1000
1.Full-Enclosed Splash Guard		●	●	●
2. 50 ARM Type ATC		●	●	●
3.Cooling System		●	●	●
4.Coolant Jets Around Spindle		●	●	●
5.Spindle Air Curtain		●	●	●
6.Air Blast Through Spindle		●	●	●
7.Lubrication System		●	●	●
8.Fluorescent Lamp x2		●	●	●
9.Foundation bolt, General		●	●	●
10.Spindle Oil Cooler		●	●	●
11.X, Y, Z-Axis Ball Screw Enforce Pressure		●	●	●
12.Link Type Chip Conveyor & Portable Chip Bucket(1 EA)		●	●	●
13.Screw type chip conveyor		●	●	●
14.Oil Fluid Separator		●	●	●
15.Tool package		●	●	●
16 Individual machine manual		●	●	●
17.Auto Power off		●	●	●
18.B-axis coupling (1 degree)		●	●	●
19.#50 ARM Type ATC(30 PCS)		-	●	●
20.#50 ARM Type ATC(40 PCS)		●	★	★
21.#50 ARM Type ATC(60 PCS)		★	★	★
22.Mist Coolant System		★	★	★
23.Oil Mist Collector System		★	★	★
24.Coolant Through Spindle, Prepare		★	★	★
25.Coolant Through Spindle(20 BAR)		★	★	★
26.Coolant Through Spindle(25 BAR)		★	★	★
27.Coolant Through Spindle(70 BAR)		★	★	★
28.Coolant Through Spindle(40 BAR)		★	★	★
29.Coolant Flushing Device (Power : 1.5 HP)		★	★	★
30.Coiling Tube Coolant gun		★	★	★
31.Air Gun		★	★	★
32.Rotary window		★	★	★
33.Individual machine manual x 2		★	★	★
34.Individual machine manual x 3		★	★	★
35. Individual machine manual x 4		★	★	★
36.Closed Loop Linear Scale Positioning System		★	★	★

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

Website



Facebook



Hartford
EXCLUSIVO
HartfordPlus APD

Intelligent Machining Center

HMC Series

- Hartrol premium controller
- 5-Year warranty on guideways
- One-piece bed design
- Tool change time: 2.9sec
- Oversized column design

HartrolPremium[®]
From tradition to intelligent



Photo show is HMC-10

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Hartford

Hartrol · Smartcenter · Robocell

We manufacture intelligent machines only

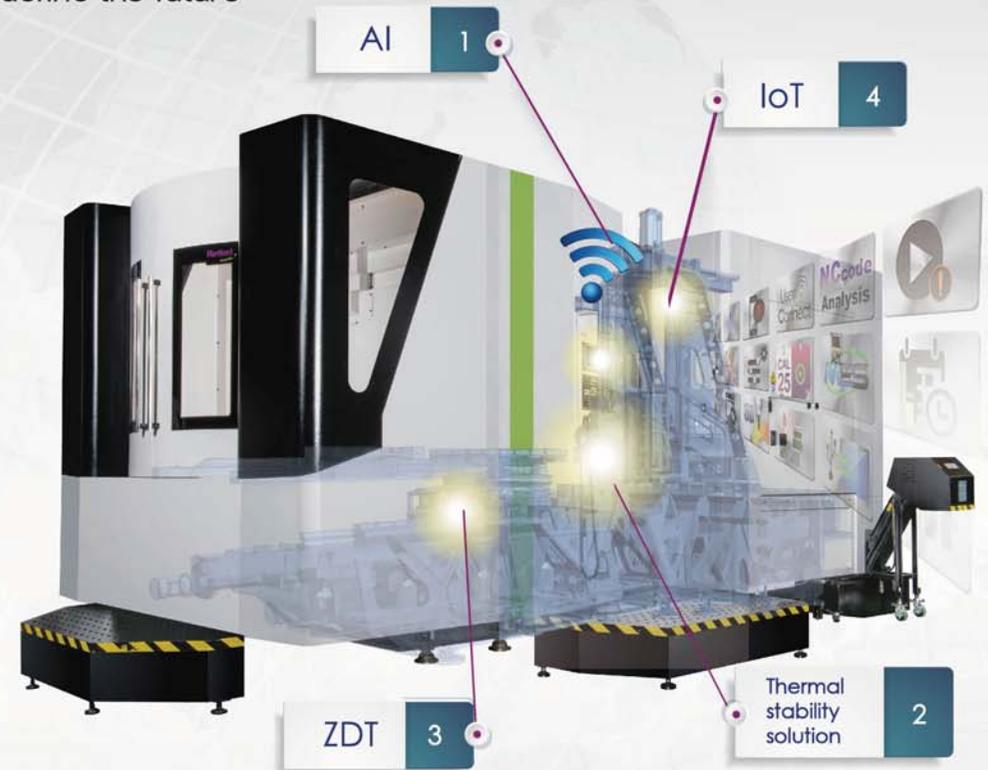
A.I. Applications inside, Hartrol Plus is the control which provides machining status with advanced features.

Imagine what future machines ought to be outlined.

AiSmartcontrol



Hartford redefine the future



IoT 1

- + Remote Warm-up & Turn-on
- + Hartrol Plus Sync & Update
- + User Connect

Thermal stability solution 2

- + Spindle Thermal Compensation
- + Casting Thermal Compensation
- + Thermal Symmetry / Thermal Balancing

ZDT 3

- + Diagnosis Report on Spindle Operation
- + Alarm Report System

AI 4

- + Facial Recognition System
- + AI Efficient Lubrication Management
- + Smart Efficient Chip Collection

Major functions of Hartford AI controller

- Facial Recognition system-Face ID
- AI Environment Thermal Displacement Compensation
- AI Efficient Lubrication Management
- Highlight on Intelligent Auger
- AI Navi

How to quickly implement automation?

Hartford Robot Production Cell

Easy to get started

Hartford Robocell provides you a professional robot training and rich automation experience, to let you quickly learn and easily operate your automation systems

Quality control monitoring

Automation systems have to pass all the strict Quality Control tests at every stage like design, assembly, testing, final inspection and shipment, complete quality control processes for all the products.

Professional analysis

Robocell Machining optimization service, to let you be on the top by using professional machining methods

What definition of Automation interface only :



- 1. Automatic Door
- 2. Automatic Interface
- 3. Pneumatic/ Hydraulic Interface
- 4. Other options

<h3>1. Automatic Door</h3> <ul style="list-style-type: none"> Pneumatic/Automatic Door System_Operating Door Pneumatic/ Servo Automatic Door System_Right Side Door 	<h3>2. Automatic Interface</h3> <ul style="list-style-type: none"> I/O Preparation Profibus Link Preparation CC-Link Preparation EtherNet/IP Link Preparation 	<h3>3. Pneumatic/ Hydraulic Interface</h3> <ul style="list-style-type: none"> 1/2/3 Cell Automatic Pneumatic/ Hydraulic Interface in the machine
<h3>4. Other options</h3> <ul style="list-style-type: none"> High Pressure Spray Nozzle with Automatic Preparation HStainless Base High-volume chip-removal system comprising dual side augers 		

The Application of LAUREL

A perfect demonstration for machining accuracy and ability.

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 tests

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

<p>Face milling</p> <p>Tool diameter Ø125 mm Feed rate 1,200 mm/min Cutting depth 4 mm CuttingWidth 100mm Cutting volume 480 cc/ mm</p>	<p>End milling</p> <p>Tool diameter Ø63 mm Feed rate 2,000mm/min Cutting depth 30 mm Cutting width 5 mm Cutting volume 300 cc/min</p>	<p>Tapping</p> <p>Tool diameter M30 X3.5 mm Feed rate 120 mm/min Cutting depth 40 mm Speed 120rpm</p>	<p>Drilling</p> <p>Tool diameter Ø76 Feed rate 60 mm/min Cutting depth 40 mm Speed 300 rpm</p>

All the 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 form those shown in this catalogue.

Automation/ Intelligent
Application program
Intelligentization
Key technology
Specification parameter

The very first step for fully intelligent machining.

Hartford APP Store

What is Hartrol Premium ?

Hartrol premium is a brand new intelligent controller Hartrol , Hartnet and Hartford electrical function together which developed and made by Hartford.

HMI and operation is user friendly, it can achieve :

1. Internet connection, collect and analyze data, monitoring by portable device
2. Intelligent control: Auto revise human error and operating basis
3. Real time update new APPs

The difference between Hartrol plus and others

Function	Hartrol Premium 	Others
Screen Size	19"Multi-touch Panel	10.4" (OPT:15")
Look Ahead Block	2700(G5P20000)	400(1000 Max.)
Hard Drive	32GB SSD	NO
Smoothing Interpolation	SSS 4G	Option
Industry 4.0	Hartford UserConnect	NO



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 Intelligent Controller You Should Have

With three major solutions, Hartrol Plus takes you machining to the next level.

Highly optimized and intelligent controls bring even more capabilities and productivity to your metal cutting processes.

With ease use, advanced automation, and smart data collection, Hartrol plus is essential tool for enhancing performance on your production floor.

Cost down to 20%

- Multi Touch Screen
- CCD remote management
- E-book
- Remote Management
- Cutting Condition Calculator
- Stand-by Mode

Productivity increased 23%

- HartCAM
- AFC= Automatic Feedrate Control.
- SSS-4G
- Machining Time Countdown for Single Block
- Optimized Machining Program
- Automatic measurement

Efficiency increased 20%

- MES(Manufacturing Execution System)
- Machine Utilization Management
- Operator Performance Management
- 24 Hours a Day Management
- Remote Management
- Hartford Userconnect

Hartford UserConnect

- Alert Notification
- Remote Diagnoses
- Remote Value Enhancement
- Remote Monitoring & Management

Hartford smartcenter APP



The fuctions mentioned above will need to option the Hartrol plus controller or Dual screen with Fanuc controller.

What Hartford APP can do for you?

The integrated intelligent functions of Hartrol plus could achieve your machining requirements.
For more Hartrol Plus functions, please contact our sales person.

AI Environment Thermal Displacement Compensation(opt.)

Vertical machining center : **0.03mm**
Thermal displacement problem is improved up to **60%**
It can achieve good accuracy as in constant temperature room.



AI Facial recognition system(opt.)

Face ID log-in authority
Recognition time: **2 seconds**
Recognition accuracy: **100%**



Highlight on Intelligent Auger(opt.)

50% efficacy increases

- Intelligent auger automatically proceeds cleaning iron chips based on electrical current of spindle.
- Intelligent auger automatically performing reversal mode in case amount of iron chips outnumbers, preventing from machine stop. Auger is overly shielded



AI Efficient Lubrication Management(opt.)

50% lubrication saved.

- Auto-adjustment oil supply base on machining condition.
- 50% oil consumption saved



On line update

With online updating system similar to smart phone will make sure your operating system stays the latest version with Hartford.

- 24hr ➡ Live updating , no boundary no time zone difference.
- NEW ➡ Synchronize with Hartford for the latest information and functions.
- Easy ➡ One key updating, easy and fast !



The Hartrol plus NC version must be A6 or above



Graphical user interfaces for part setting, inspection, tool setting

- Ease of use
- Increasing usability
- Eliminating manual set-up tasks
- Increasing efficiency



Hartford ZDT

Eliminate machine down time and increase efficiency.
ZDT –

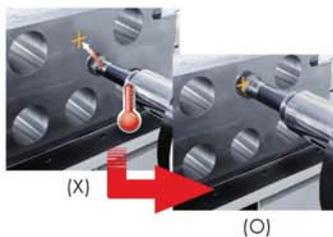
- Ease of use
- Check parts status clearly
- Eliminating unexpected down time
- Instant notification to your machine and your portable device



AFC(opt.)

Machining efficiency is increased by **21%**↑
Controls the feed rate depending on the machining situation

- Adjusting feed rate automatically
- Lengthen your tool life
- Reduce machining time



Thermal compensation on spindle(opt.)

No worries about HEAT!!

- Machine with compensation
#40 spindle thermal extension is within 0.03mm
#50 spindle thermal extension is within 0.02mm
 - Machine without compensation
Spindle thermal extension is around 0.10mm
- Notes: Above test is under room temperature



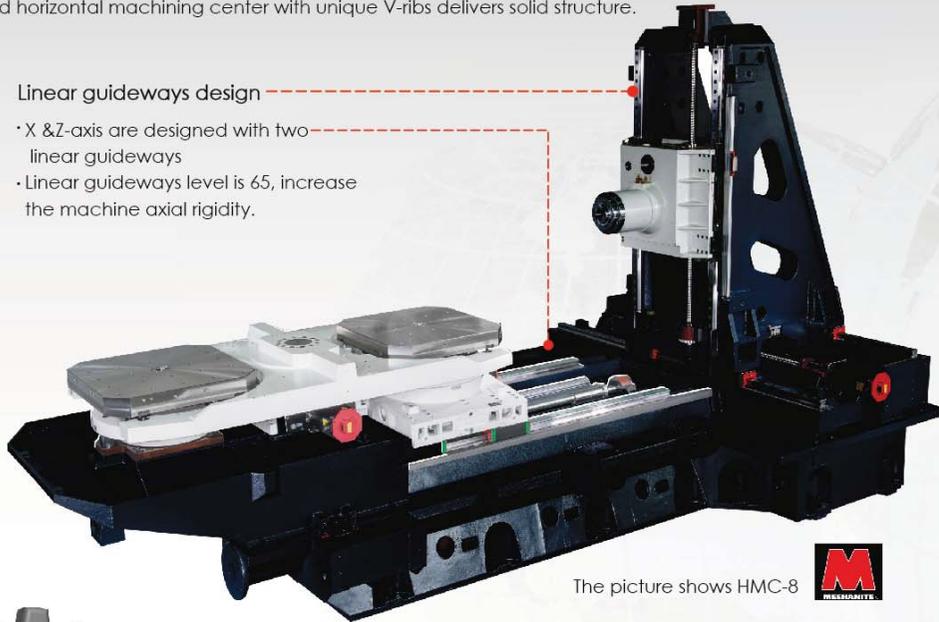
Monolithic Machine Base of LAUREL

Features Of Hartford Horizontal Machining Center

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-8 

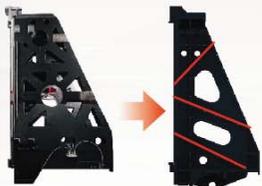


Full range of linear guideway five-year warranty:

- Warranty coverage will not apply under following conditions
- 1.Improper operation (collision)
 - 2.Lack of regular cleaning of accumulated debris causing damage 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.



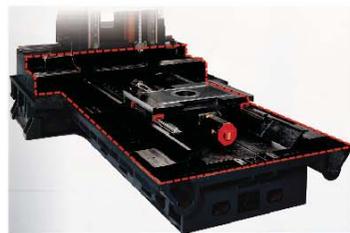
One-piece design on spindle housing and head

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



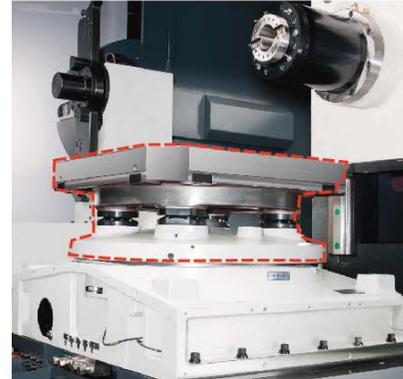
T-shape base features high stability

- 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.



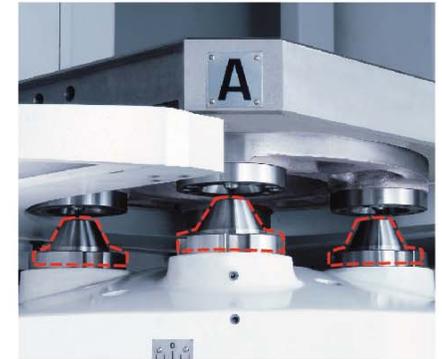
Auto pallet changer

- 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.)



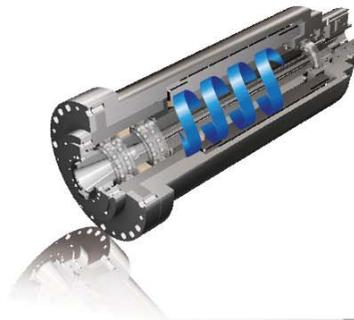
Air blast in B-axis positioning cones

- 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.



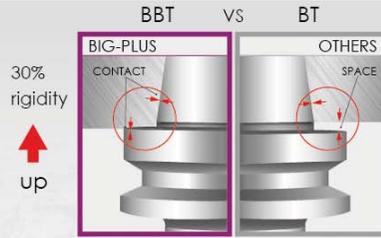
Spindles Manufactured by Hartford

OfferQuality Assurance

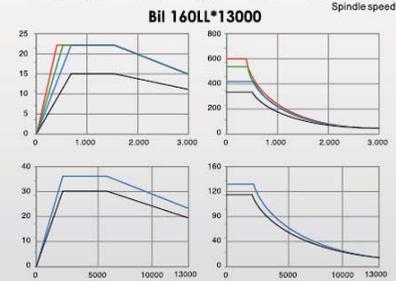
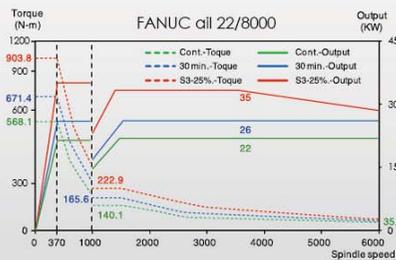
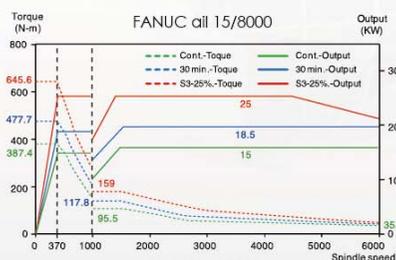
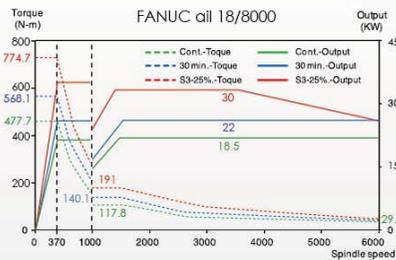
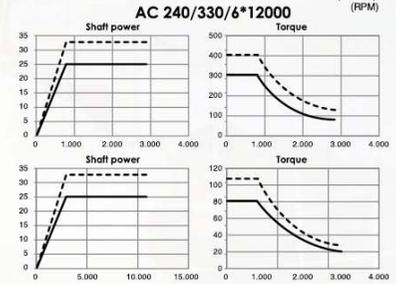
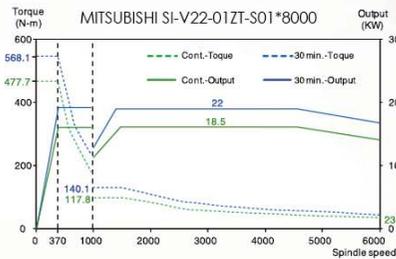
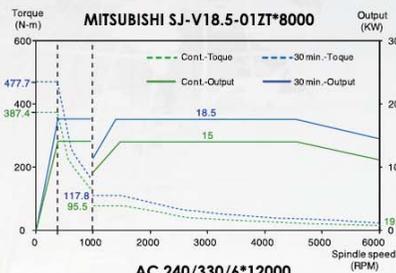
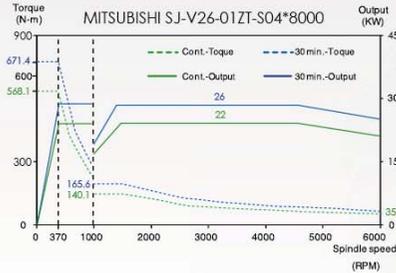
Dimensions Drawing

BBT for optional

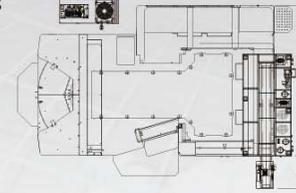
- Dual contact between the taper and the flange.
- Improves the rigidity, accuracy, speed and performance.
- Radial deflection, vibration and deviation are significantly reduced.



Spindle torque diagrams

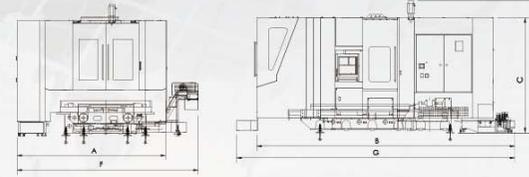


Machine Dimensions

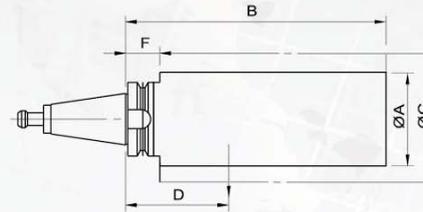


Item	HMC-6	HMC-8	HMC-10	HMC-600	HMC-800	HMC-1000
A	3461	3518	4346	3461	3518	4346
B	5257	5883	7227	5182	5466	5827
C	3000	3032	3282	3000	3040	3282
D	3094	3393	3619	3094	3393	3619
E	3461	3518	4296	3464	3521	3200
F	3817	4727	5284	3835	4966	5284
G	-	6358	7807	-	5987	7322
H	-	-	950	-	-	950

Unit : mm



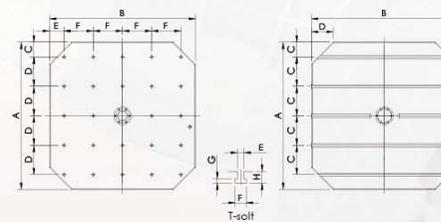
Tool dimension



Item	A	B	C	D	E	F	Max. tool mass moment
HMC-6/600	125	400	250	130	20kg	50	25.5N-m
HMC-8/800	125	500	250	130	20kg	50	25.5N-m
HMC-10	125	600	250	100	20kg	45	24.5N-m
HMC-1000	125	600	250	100	20kg	45	24.5N-m

Unit : mm

Pallet dimension



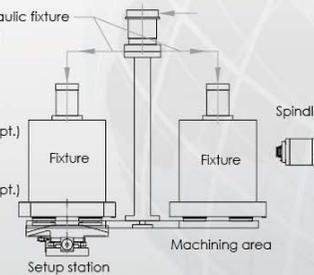
Unit : mm

Item	A	B	C	D	E	F	G	H
HMC-6/600(hole)	630	630	65	125	65	125	-	M16x2Px25L
HMC-8/800(hole)	800	800	80	160	80	160	-	M16x2Px28L
HMC-10/1000(T-slot)	1000	1000	125	125	22	36	16	42

Pneumatic/Hydraulic fixture control package

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

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



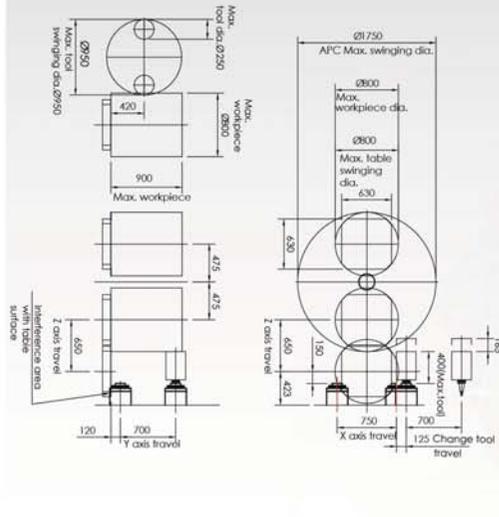
Item	A	B	C	D	E	F	H
HMC-10	1000	1000	125	125	22	38	42

Unit : mm

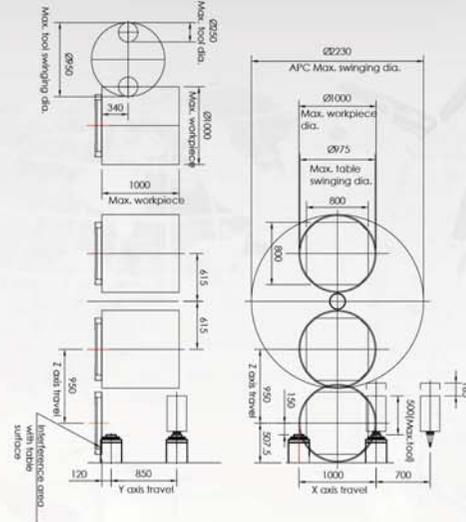
Interference Drawing

Specifications

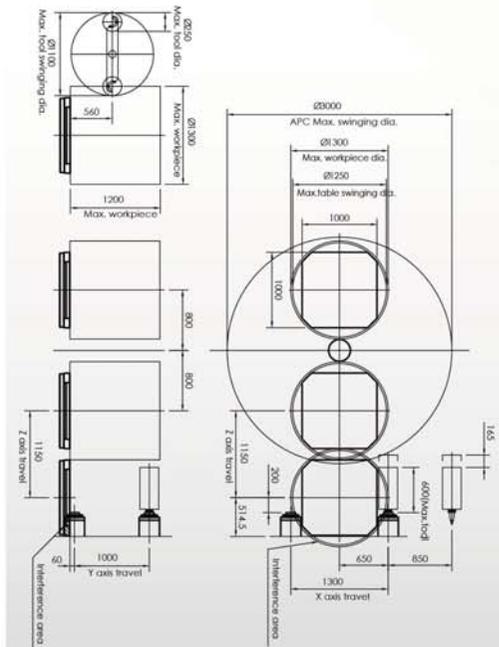
HMC-6



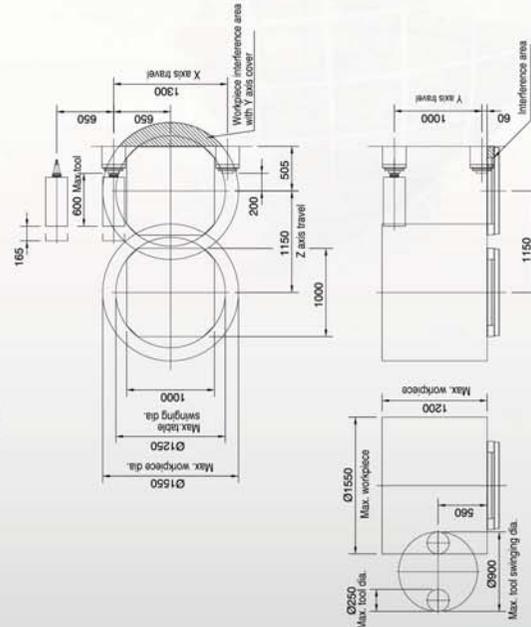
HMC-8



HMC-10



HMC-1000



Item	Model Unit	HMC-6/600	HMC-8/800	HMC-10/1000
Table	Working surface	630x630	800x800	1000 x 1000
	Working surface	6 : Ø800x900 600 : Ø900x900	8 : Ø1000x1000 800 : Ø1350x1000	10 : Ø1300x1200 1000 : Ø1550x1200
Travel	Max. load (Average)	600	1500	2000
	Indexing type	0.001 opt.1	0.001 opt.1	0.001 opt.1
	Max speed of pallet top	22.2	11.1	11.1
	X-axis travel	750	1000	1300
	Y-axis travel	700	850	1000
	Z-axis travel	650	950	1150
Spindle	Distance from spindle center to table surface	6 : 120~820 600 : 150~850	8 : 110~960 800 : 120~970	10 : 60~1060 1000 : 100~1100
	Distance from spindle end to table center	150~800	150~1100	200~1350
Spindle	Spindle nose taper	#50	#50	#50
	Spindle speed(Gear)	6000	6000	6000
Spindle	Spindle speed(Built-in)	-	10000 (BBT)	10000 (BBT)
	Cutting feedrate(X/Y/Z)	12/12/12	12/12/12	12/12/12
Feed	Rapid traverse rate(X/Y/Z)	40/30/40	30/30/30	30/30/30
	Capacity	40/60	30/40/60/90	30/40/60
ATC	Max. tool weight	20	20	20
	Max. tool size(dia.X length)	Ø125 x 400L	Ø125 x 500L	Ø125 x 600L
Motor	Tool shank	BBT50(CAT50/DIN69871)	BBT50(CAT50/DIN69871)	BBT50(CAT50/DIN69871)
	Pull stub bolt	P50T-1(CAT50/DIN69872)	P50T-1(CAT50/DIN69872)	P50T-1(CAT50/DIN69872)
Motor	Spindle drive motor (cont./30 min)	15/18.5 opt. 18.5/22, 22/26	15/18.5 opt. 18.5/22, 22/26	15/18.5 opt. 18.5/22, 22/26
	3-axis laser positioning accuracy(JIS B6330), without linear scale			
Positioning Accuracy	Positioning accuracy	±0.008	±0.008	±0.008
	Repeatability	±0.002	±0.002	±0.002
	3-axis laser positioning accuracy(JIS B6330), with linear scale			
	Positioning accuracy	±0.006	±0.006	±0.006
	Repeatability	±0.002	±0.002	±0.002
	3-axis laser positioning accuracy(VDI3441)repeat 5 time			
other	Positioning accuracy	0.010	0.010	0.010
	Repeatability	0.007	0.007	0.007
other	Required air pressure	6.5	6.5	6.5
	Electric power requirement	6 : 40-60 600 : 40-70	8 : 40-60 800 : 40-70	10 : 45-70 1000 : 40-70
Machine weight	Machine weight	6 : 17000 600 : 16000	8 : 21000 800 : 18000	10 : 25000 1000 : 22500
	Floor space	6 : 7791x5572 600 : 7810x6290	8 : 8430 x 5635 800 : 8100 x 6470	10 : 10330 x 6997 1000 : 9630 x 7400
Machine dimension	Machine dimension (L x W x H)	6 : 5257x3817x3094 600 : 5197x4127x3278	8 : 6694 x 4814 x 3337 800 : 5987 x 4995 x 3518	10 : 7998 x 5215 x 3759 1000 : 7948 x 5415 x 3759

VDI 3441 accuracy available upon order request.

Specifications & dimensions are subject to change without notice (for actual weight, shipped product shall prevail.)