Accessories	HSA-X20 (EA/EAY)	HSA-X23 (EA/EAY)	HSA-X27 (EA/EAY)	HSA-X28 (EA/EAY)	HSA-X32 (EA/EAY)	HSA-X36 (EA/EAY)	HSA-X46 AAC
Item							
1.5 Years Warranty_Linear Guide Way	●	●	●	●	●	●	●
2.Spindle Air Curtain	●	●	●	●	●	●	●
3.Air Blast Through Spindle	●	●	●	●	●	●	●
4.Table Side Air Blast	●	●	●	●	●	●	●
5.Centralized Automatic Lubrication System	●	●	●	●	●	●	●
6.Screw type chip conveyor	●	●	●	●	●	●	●
7.Tool package	●	●	●	●	●	●	●
8.Without Mist coolant system	●	●	●	●	●	●	●
9.Foundation bolt	●	●	●	●	●	●	●
10.Absolute pulse coder	●	●	●	●	●	●	●
11.Spindle Oil Cooler	●	●	●	●	●	●	●
12.Automatic Power off	●	●	●	●	●	●	●
13.Operation Finish Lamp	●	●	●	●	●	●	●
14.Foot Switch For Spindle Clamp/Unclamp	●	●	●	●	●	●	●
15.Remote Manual Pulse Generator	●	●	●	●	●	●	●
16.RS-232 Interface	●	●	●	●	●	●	●
17.Habor Convection Heat Exchanger In Control Box	●	●	●	●	●	●	●
18.Fluorescentx1	●	●	●	●	●	●	●
19.Link-type chip conveyor (0.19 kW, no coolant tank) with 1 portable chip bucket	●	●	●	●	●	●	●
20.Manual x1	●	●	●	●	●	●	●
21.6000RPM Gear Head	●	●	●	●	●	●	●
22.Full-enclosed splash guard	●	●	●	●	●	●	●
23.CTS full splash guard with top cover	○	○	○	○	○	○	○
24.Fluorescent x2/4/6	○	○	○	○	○	○	○
25.X/Y/Z-axis linear scale system_HEIDENHAIN	○	○	○	○	○	○	○
26.Manual x2/3	○	○	○	○	○	○	○
27.Hartford Manual x1/2/3	○	○	○	○	○	○	○
28.Hydraulic Hose Coolant gun	○	○	○	○	○	○	○
29.Air gun	○	○	○	○	○	○	○
30.Oil Fluid Separator	○	○	○	○	○	○	○
31.Hoist Seat	○	○	○	○	○	○	○
32.Maintenance safety guard(Including maintenance ladder)	-	○	○	○	○	○	○
33.X / Y-axis ball screw support device	○	○	○	○	○	○	○
34.Pedal Ladder	○	○	○	○	○	○	○
35.Hybrid Spindle 10000RPM	○	○	○	○	○	○	○
36.ARM Type ATC	○	○	○	○	○	○	○
37.Coolant through spindle_Prepare	○	○	○	○	○	○	○
38.Coolant through spindle	○	○	○	○	○	○	○
39.TOUCH PROBE	○	○	○	○	○	○	○
40.Imitative Mold Cutting System	○	○	○	○	○	○	○
41.Closed Loop Linear Scale Positioning System	○	○	○	○	○	○	○
42.DNC Software	○	○	○	○	○	○	○

Standard ● Optional ○

Hartford

5 Face Double Column Machining Center

HSA Series

HSA-X20EA/EAY
HSA-X23EA/EAY
HSA-X27EA/EAY
HSA-X28EA/EAY
HSA-X32EA/EAY
HSA-X36EA/EAY
HSA-X46AAC

▲ HSA-X46AAC

▲ HSA-X23EAY

Hartford
Hartrol・Smartcenter・Robocell
Only High-Quality Intelligent Machines

SHE HONG INDUSTRIAL CO., LTD.

No.3,Jingke N. Rd.,Nantung District,Taichung City, 40852 Taiwan(R.O.C)
www.hartford.com.tw Tel：886-4-23501980 Fax：886-4-23581793

CAT.No.：20260421 - E11

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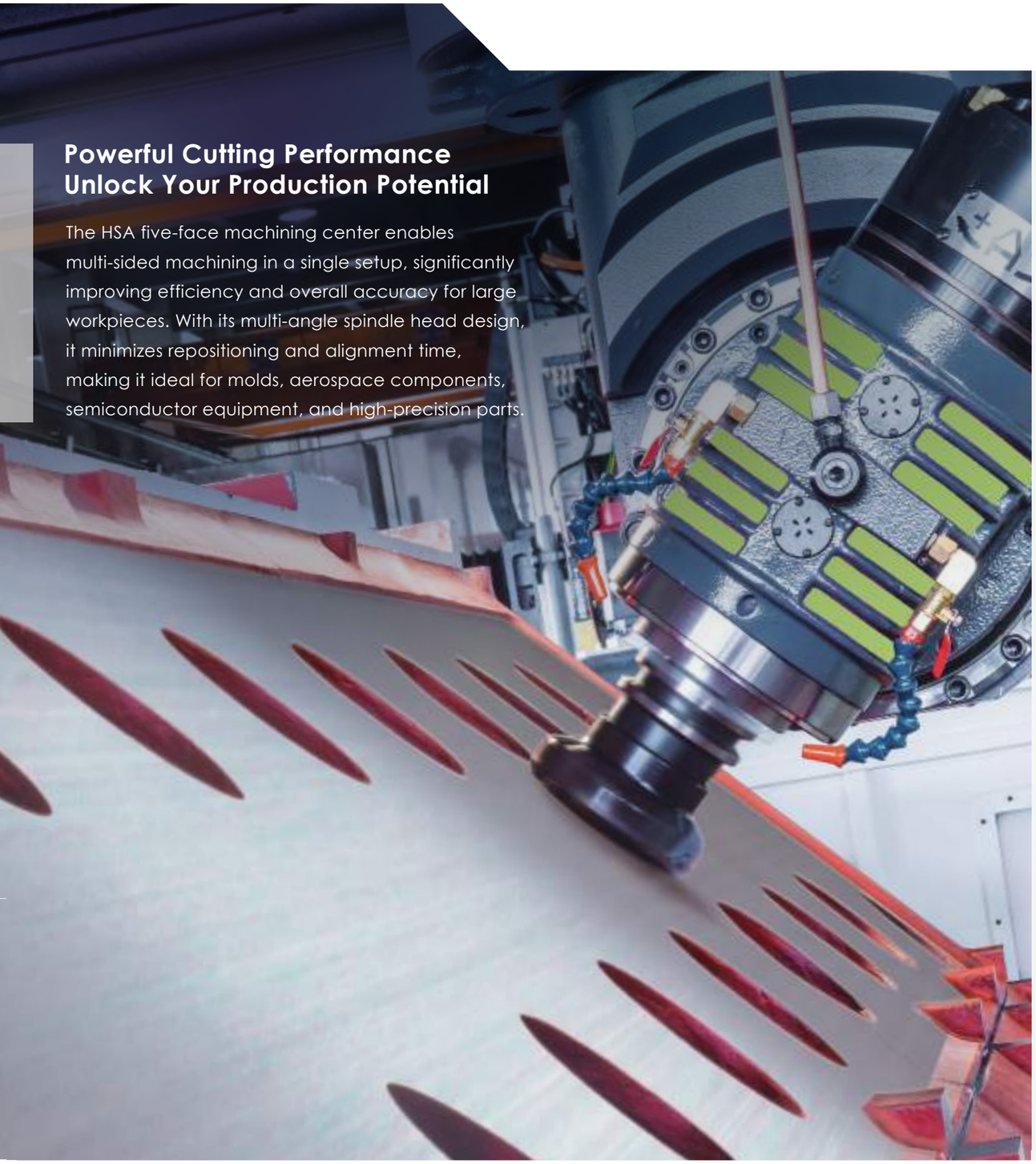
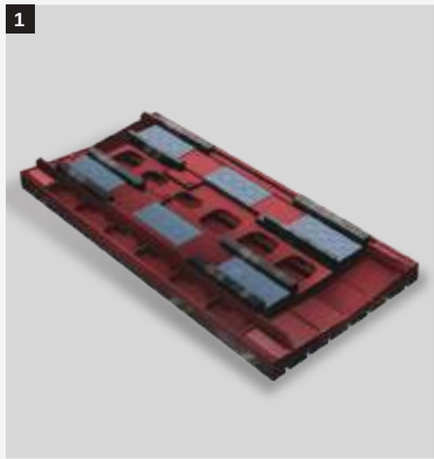
Website

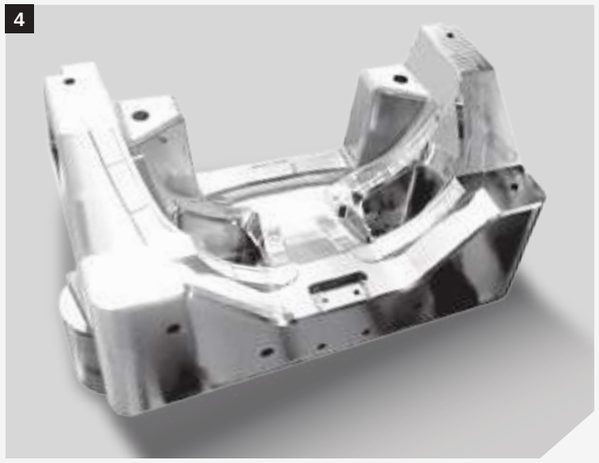
01 Workpiece Machining Applications



Powerful Cutting Performance Unlock Your Production Potential

The HSA five-face machining center enables multi-sided machining in a single setup, significantly improving efficiency and overall accuracy for large workpieces. With its multi-angle spindle head design, it minimizes repositioning and alignment time, making it ideal for molds, aerospace components, semiconductor equipment, and high-precision parts.





1	3
2	4

Casting

1 Vertical worktable
2 Column

Car

3 Sheet metal stamping die

Plastic

4 Injection mold

02 Machine Structure Features

The HSA 5-Face series is built around a unique machine structure and features an in-house manual head-changing mechanism, creating a highly flexible five-face machining solution to meet diverse application needs.

Patented Z-Axis Four-Guideway Three-Surface Constraint Design

The HSA patented four-guideway, three-surface constraint structure features dual-direction support to deliver superior rigidity and outstanding cutting stability.

Patent I264343 – Z-Axis Head Four-Guideway Design

Z-Axis Nitrogen Counterbalance System Opt.

FReduces hydraulic unit operating noise and oil temperature by up to **50**% , achieving energy savings of over **20**% .

(Applicable to HSA-X23 / X27 / X28 / X32 / X36 EA/EAY)

Triple Linear Guideway Design on X-Axis

Triple X-axis guideways increase rigidity by over **50**% by resisting machining torque, with a maximum table load of **30,000** kg.

(Dual guideways on HSA-X20 / X23 / X27 EA/EAY)

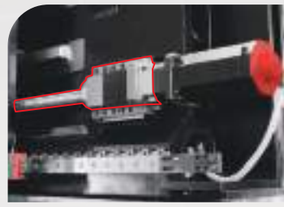
All-New Slant-Back Beam Design

Reduces vibration during machining to enhance accuracy and surface finish.

Patent M435318 – Rear Slant-Back Beam Design

3-Axis Direct-Coupled Drive Advantages

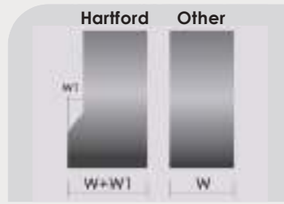
Planetary gear reducers on the X and Y axes increase axial transmission torque and improve overall load capacity.



Extra-Large Column for Maximum Cutting Force Transmission

The joint width between the column base and machine base is increased to 1,250 mm, effectively reducing overall cutting vibration.

Patent M437316 – Anti-Torsion Structural Section
Patent M438938 – Column Anchor Span Design



Warranty on Guideways for All Models

5 YEAR

Warranty coverage will not apply under following conditions :

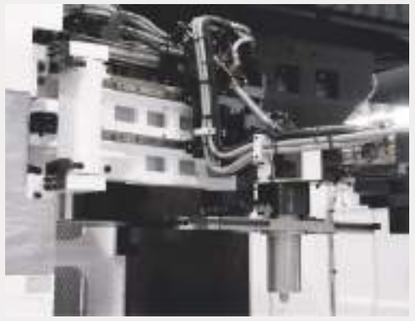
1.Improper operation(collision)

2.Lack of regular cleaningof accumulated debris causing damage to the linear rails &carriages.

02 Machine Structure Features

Build a Stable Machining Core Auto Angle Head Changer

- Supports Auto Universal / 90° / Extension Heads
- With Protective Covers and Independent Head Storage
- Hydraulic-Driven for Fast Head Change
- Storage Doors Prevent Chip Contamination
- Tool Change Fully Monitored and Detected



01

Vertical & Horizontal Tool Magazine Opt.

32 / 40 / 60 / 90 Tools Available

02

Vertical & Horizontal Tool Magazine Opt.

32 / 40 / 60 / 90 Tools Available

03

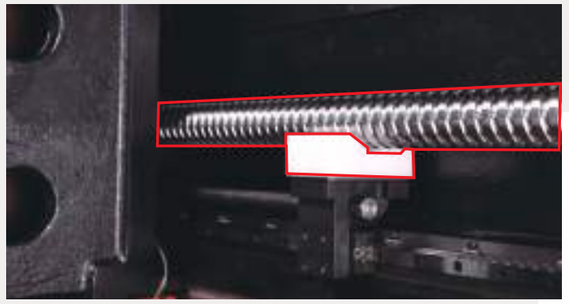
Vertical Tool Magazine Std.

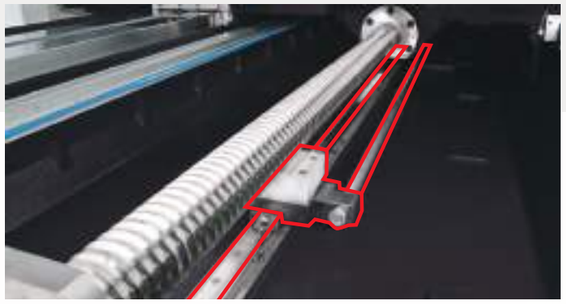
32 / 40 / 60 / 90 Tools Available

Ball Screw Support Structure Ensures Excellent Positioning Accuracy

Maintains stable drive power on X and Y axes, reduces ball screw sag, and improves positioning accuracy and screw life.

(Standard on X-axis for models over 5 m; optional for models under 4 m.Y-axis support is standard on X27EAY / X28EAY / X32EA / X32EAY / X36EA / EAY, and optional on X23 / X27 / X28 / EA.)





Versatile High-Power Spindles to Meet Your Machining Need

Hartford Made Gear-Type 8,000 rpm Two-Stage Spindle Opt.

Selectable high/low gear ratios to suit machining needs.Top-mounted design with thermal isolation effectively controls spindle thermal growth, enhancing stability and accuracy.

(Available for HSA-X20 / X23 / X27 / X28 / X32 / X36 EA / EAY)

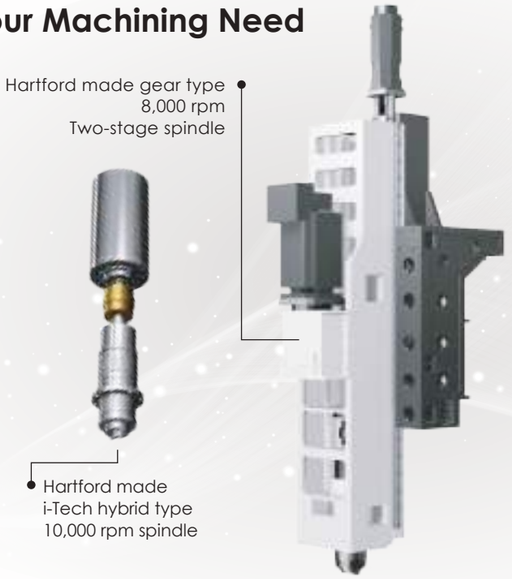
01

Hartford Made i-Tech Hybrid Type 10,000 rpm Spindle Opt.

Built-in motor (max. 35 kW, 600 N·m) with dual cooling for motor and spindle improves heat dissipation and machining stability.

(Available for all EA / EAY models)

02



High-Rigidity Structure
Stable and Reliable for Heavy Cutting

Low-Vibration Design
Improves Surface Finish Quality

In-House Spindle Technology
Precision Assembly with Strict Quality Control

02 Machine Structure Features

The Key to Higher Efficiency and Precision in Large-Part Machining

High-Precision Heavy-Cutting Solution (Opt.)

Z-Axis Dual-Ball Screw Design

The Z-axis features a synchronized dual-ball screw drive design that significantly enhances structural rigidity and load capacity. This design effectively minimizes deformation during long-travel machining, improving stability for large workpiece machining and delivering superior heavy-duty cutting performance.

Key Benefits

- Higher rigidity
- Greater load capacity
- Better stability
- Ideal for heavy-duty machining

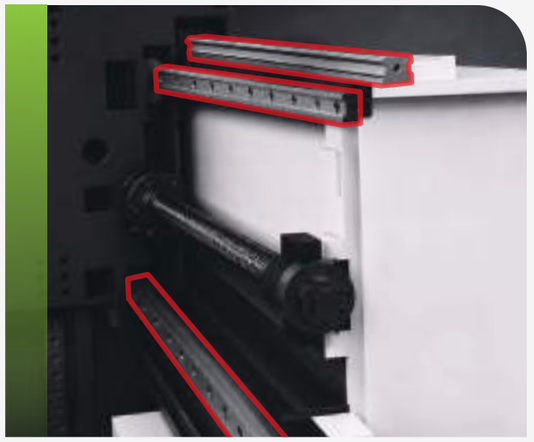
Z-Axis Box Way Design

The fully enclosed box ram design features eight guideways on four sides, providing high rigidity and excellent stability. It offers strong resistance to bending and cutting forces, making it ideal for heavy-duty machining of large workpieces while maintaining high accuracy.

Key Benefits

- High rigidity
- Excellent vibration damping
- Enhanced heavy-duty cutting performance
- Improved surface finish

Suitable for Z-Axis Travel of 1,800–2,000 mm



Y-Axis Triple Linear Guideway Design

The Y-axis features a triple linear guideway configuration that enhances load distribution and structural stability. This design effectively reduces machining deformation, ensuring high accuracy and dynamic stability when machining large workpieces.

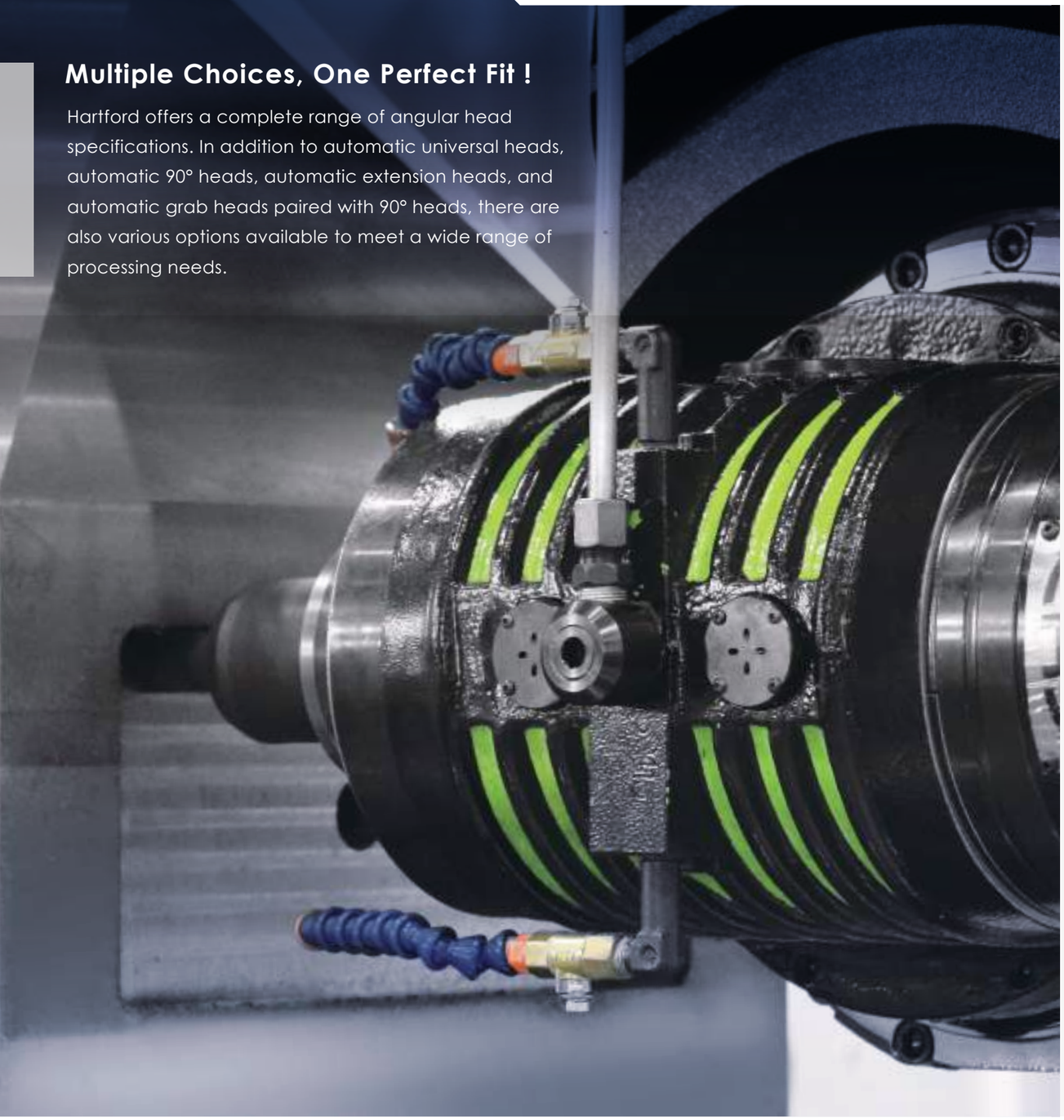
Key Benefits

- Enhanced structural rigidity
- Improved load distribution
- Higher dynamic accuracy
- Ideal for large workpiece machining

Suitable for Z-Axis Travel of 1,800–2,000 mm

Optional Features Overview	Increased Efficiency	Improved Accuracy	Higher Cutting Performance
Z-Axis Dual-Ball Screw Design	★★★	★★★★★	★★★★★
Z-Axis Box Way Design	★★	★★★★	★★★★★
Y-Axis Triple Linear Guideway Design	★★★	★★★★★	★★★★

03 Comprehensive Angular Head Design Solution



Multiple Choices, One Perfect Fit !

Hartford offers a complete range of angular head specifications. In addition to automatic universal heads, automatic 90° heads, automatic extension heads, and automatic grab heads paired with 90° heads, there are also various options available to meet a wide range of processing needs.

Suitable for Various Applications

Automatic Heads with Automatic Clamping

Automatic universal head (2.5°/1°)	Axis	A / C Axis Division Angle Configuration Table								
A/C axis automatic rotation angle Maximum speed : 5,000 rpm Maximum power : 26 kW Maximum torque : 930 N-m Opt: maximum pressure 70 BAR CTS	C-axis	5°	2.5°	1°	5°		2.5°		1°	
	A-axis	5°	2.5°	1°	2.5°	1°	5°	1°	5°	2.5°
	Note	Standard Feature			Opt. Customized Specifications					

Automatic 90° Head (2.5°/1°)

Maximum speed : 5,000 rpm / 2,500 rpm (optional)
Maximum power : 26 kW
Maximum torque : 930 N-m
Optional configuration : maximum pressure 70 BAR CTS
Minimum optional configuration: C-axis positioning indexing at 1°

Automatic Extension Head (350 / 500 mm)

Maximum speed : 5,000 rpm
Maximum power : 26 kW
Maximum torque : 750 N-m
Optional configuration: maximum pressure 70 BAR CTS
Automatic tool change function

Automatic Clamp / Unclamp + Manual 90° Head

Maximum speed : 2,000 rpm
Maximum power : 18.5 kW
Maximum torque : 650 N-m
External guide pins enhance the positioning accuracy of the exchangehead, featuring an automatic grab head function and manual rotation angle function.

03 Comprehensive Angular Head Design Solution

Create Customized Machining Plans

The Machining Methods Of The Full Auto Head

Product Types	Composite Angular Milling	90° Side Milling	Extension Side Milling
Model number	AC universal head	90° side milling head	350/500mm extension head
Max. speed (rpm)	HF-AU360H	HF-AU90L / H	HF-AE35 / 50L
Tool type	5,000	5,000	5,000
Automatic indexing	BT50	BT50	BT50
Auto head	5° / 2.5° / 1°	5° / 2.5° / 1°	-
Automatic tool	Auto	Auto	Auto
Switch	Auto	Auto	Auto
Rotary angle	C : ±180° A : ±110°	±180°	-

Note : Applied to the auto 90° head

Spindle motor specifications : a30 / 7000rpm / 37kW(gear type)

Angular Head Cutting Ability Actual Test Data

Angle Head	Auto AC Universal Axis (1°)		
Test models	HSA-428EAY	HSA-428EAY	HSA-428EAY
Angle	A-90/C90	C0 / A90	C0 / A0
Test item	Face milling/end milling	Face milling/end milling	Face milling/end milling
Test Results	1200(32.4cc/kw) 792(21.4cc/kw)	1200 (32.4cc/kw) 792 (21.4cc/kw)	1200 (32.4cc/kw) 456 (12.3cc/kw)
The maximum depth of cut(mm)	5/10 x 40	5 / 10 x 40	5 / 10 x 40

Test Item	The Maximum Test Size (mm)	Spindle Current Ratio(%)
Drilling (violent drilling)	ø76	38
Tapping	M32	16

03 Comprehensive Angular Head Design Solution

Patented Technology

Angular Head C-axis 1° positioning mechanism (TWC)

Features 1° indexing positioning for the angular head. The fully closed-loop transmission system effectively eliminates mechanical backlash for higher positioning accuracy.

Optional functions

The Clutch-Type Vertical Skew Angular Axis Head Features a Clutch Lock on the Horizontal Axis (CHE)

During clutch engagement, the electromagnetic brake activates on both the rotating and linkage shafts.

The slanting swing is generated by gravity. Reduce the amount of slanting swing while in clutch to avoid tooth jamming.

Optional functions

Angular Head Center Coolant Mechanism (UAC)

All automatic heads are equipped with CTS functionality, providing maximum tool life and enhanced machining performance.

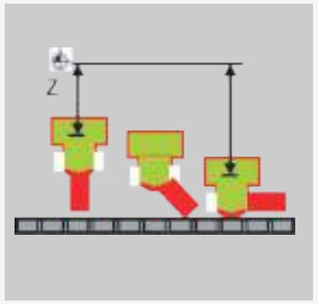
Optional functions

Intelligent Technology

Minimum Optional Configuration

A/C-axis positioning indexing at 1° supports arbitrary integer angular inclined surface processing during A/C travel.

Optional accessory



Auto Angular Head Travel Intelligent switching

Solves the problems of switching between travel and protected areas by automatically adjusting the travel limits (Y-axis & Z-axis) according to the universal head angle.

Standard accessory

AC Universal Head Rotation Center + Tool Tip Automatic Error Measurement Function

Improves processing accuracy, reduces manual measurement errors, and shortens measurement time.

By measuring heat deflection of the angle head in real time, it is possible to further improve accuracy.

Optional accessory

04 Smart Factory / Intelligent Automation

One unit capable of connectingup to 10 or 20 machines

Smart i-Factory System with Superbox (Opt.)

Through i-Factory, all machinery and equipment in the factory can be connected, and the machine connections are no longer limited to Hartford. Machines from other manufacturers can also be connected for real-time visualization and management. The system is composed of five key components: real-time monitoring, production planning, alert notifications, data analysis, and remote connectivity, allowing you to move away from traditional management models and embrace a simpler and more convenient approach to factory management.

Tailored one-to-many automation planning

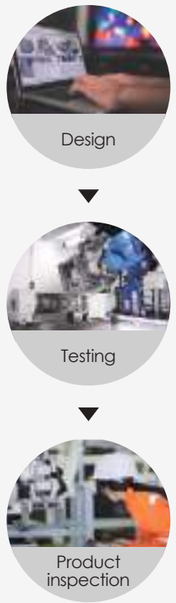
Intelligent Automated Production Line Unit (Opt.)

Customizing an automated factory just for you, effectively reducing costs and enhancing competitiveness.

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.



Detailed specifications please contact our sales staff.

Hartrol Premium

Hartford Smartcenter APPS

1 Automation & Smart Factory

- Autopilot V2 Package
- Real-time Monitor Package
- Efficiency Improvement Package
- Smart Lubrication System
- Machine Play – Smartphone Remote Operation
- Wireless Network Function (Wi-Fi)

2 Monitoring & Energy Management

- Real-time Monitor Package (CCD Monitor / IP Camera)
- Energy Monitoring

3 Tool Protection & Machining Stability

- Tool Protection Suite (TPS)
- AFC – Automatic Feed Control
- Rigid Tapping Automatic Learning

4 CNC Control & Operation Enhancement

- Handwheel Simulation Mode
- HP Level R1–R10 Parameter Package

5 High-Speed / High-Accuracy Machining

- SSS High-speed High-accuracy Control
- High-speed High-accuracy Control III (G5P20000)
- High Speed Milling

6 Programming & User Interface

- Conversational Programming (HCP)

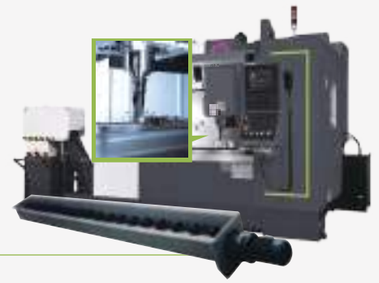
24 HR

Online Update System
Keep your operating system in optimal condition and stay up to date with the latest features from Hartford.

Hartford ZDT
Early warning before machine failure helps reduce unexpected downtime, minimizing productivity loss and cost.

Chip Conveyor Opt.

Smart detection based on spindle current clears chips only when needed. The system runs on a 50% on/off cycle during cutting to save up to 50% motor power, and automatically reverses when chips build up to prevent overload and protect the conveyor.



Lubrication Opt.

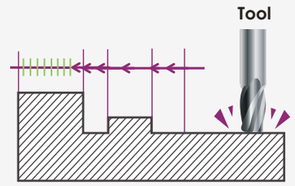
The system smartly delivers oil based on machine and cutting conditions, saving up to 50% oil and reducing costs while supporting eco-friendly operation.

Position Opt.

When performing workpiece measurement with Hartrol Premium and Fanuc 15" IPC, operators can simply enter values through the intuitive guided interface—no need to memorize complex measurement commands, making the process effortless.

AFC Opt.

Spindle load monitoring allows users to set tool-specific load limits, boosting efficiency by up to 21% in heavy operations like face and side milling.

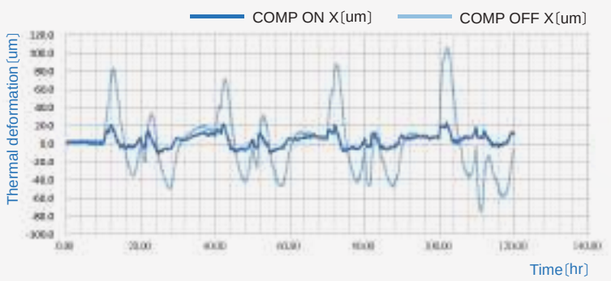


No More Thermal Drift –
Precision Machining, Zero Defects

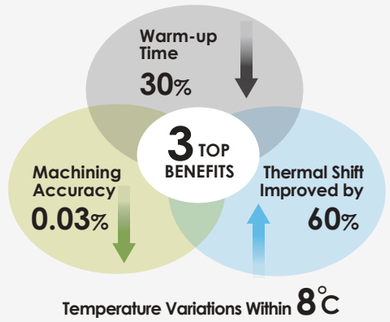
Thermal Compensation System (Opt.)

During prolonged machining or ambient temperature changes, thermal expansion can cause structural deformation and dimensional errors.

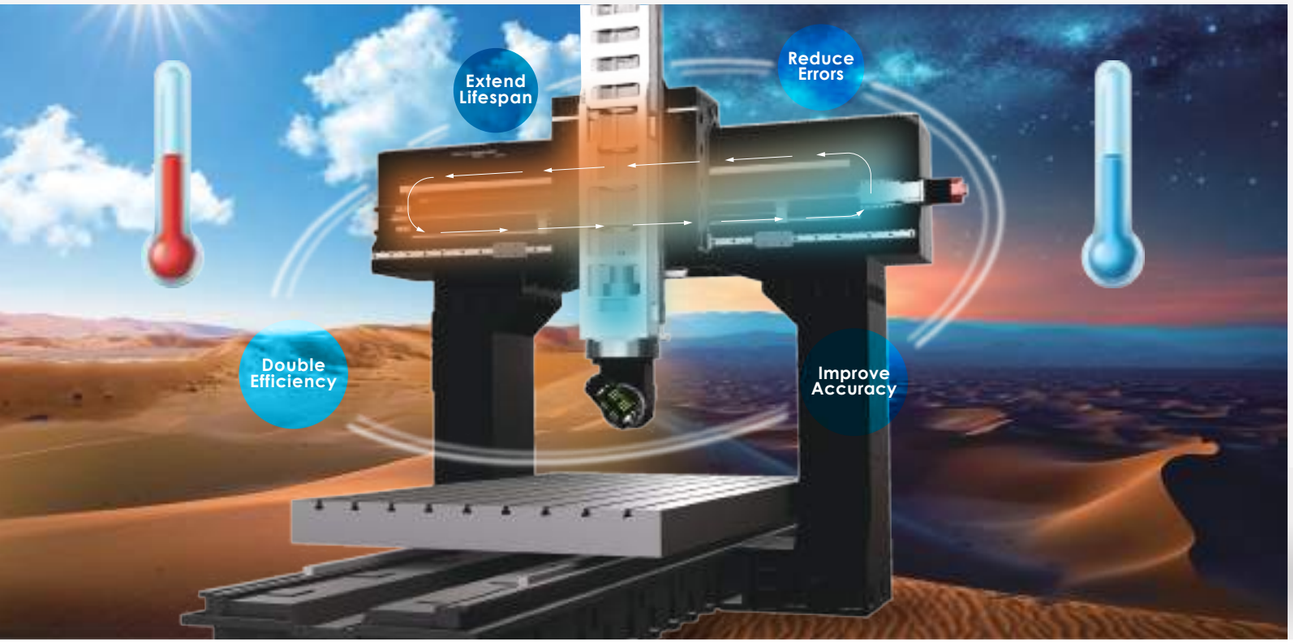
Hartford's exclusive Whole-Machine Ambient Thermal Deformation Compensation Technology uses high-precision sensing and smart algorithms to suppress thermal distortion, ensure machining accuracy, and significantly reduce warm-up and modeling time—boosting both production efficiency and yield.



HSA423-FANUCAI Thermal Compensation System X-axis



Temperature Variations Within 8℃



Eco-Friendly Solutions for Energy Management

ECO and Energy Monitoring Dashboard (Opt.)

Gas-based weight replacement instead of hydraulic
All lighting equipment is LED
FEM analysis for structural lightweight design

Energy Monitoring Dashboard

Real-time monitoring of energy consumption for each electrical component of the machine, with the ability to query historical energy consumption data and generate reports.

Eco Mode

Helps you control five peripheral devices, including the hydraulic motor, oil cooler, mist collector, work lights, and chip conveyor, to prevent unnecessary energy consumption when the machine is idle.

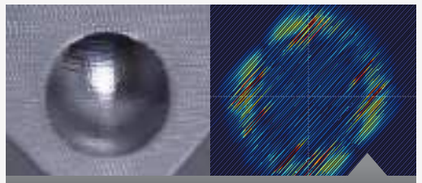
Eliminate interference and mechanical collision issues during the machining process

Digital Transformation (Opt.)

Digital Twin-NCVS software combines workpiece CAD, tools, and machine parameters to simulate the machining process in advance. It accurately reflects real conditions, going beyond traditional CAD/CAM by including machine data. The system verifies CNC parameter settings, analyzes part geometry and machine travel limits, and ensures alignment between programmed data and actual machine performance.. This helps prevent interference and collisions, ensuring safe, stable machining and better productivity.

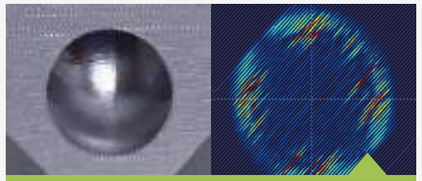
▪ Simulation vs. Actual Machining Results

OFF



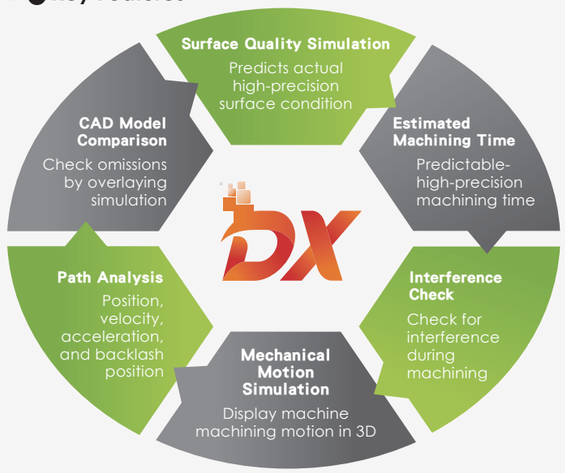
The shape change is not obvious

NO



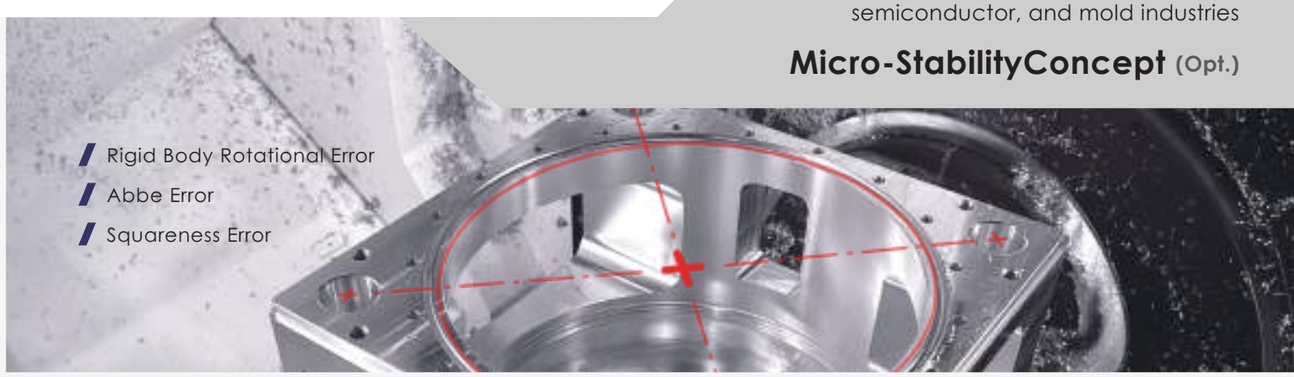
The shape can be clearly identified

▪ 6 Key Features



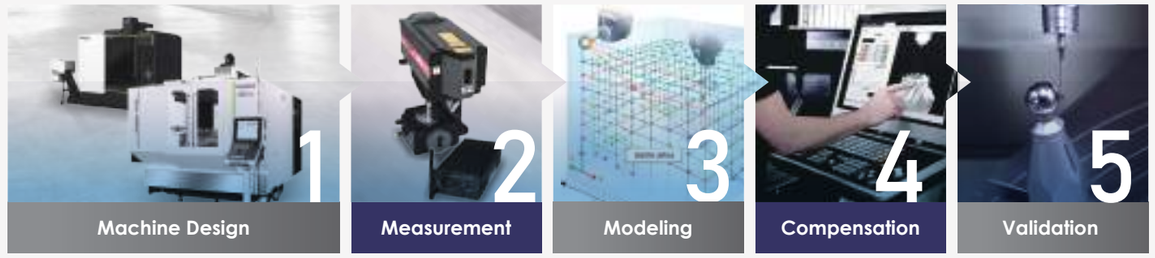
High-precision technology for precision parts, semiconductor, and mold industries

Micro-StabilityConcept (Opt.)



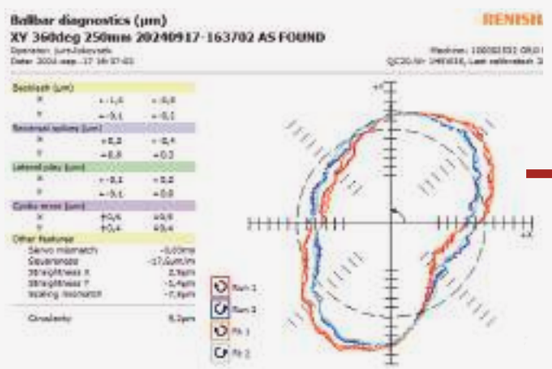
Using the XD6 measurement system to correct 3D position and angular errors caused by manufacturing and assembly deviations significantly improves machine accuracy. Volumetric diagonal error within a 1 m workspace can be reduced by up to 77%, while DBB circularity is maintained within 5 µm for ultra-high precision machining.

▪ Operating Procedure

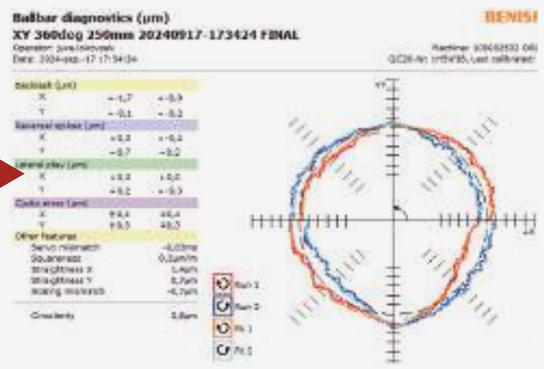


▪ Circularity Accuracy Verification

Before Circularity **9.2** µm



After Circularity **3.8** µm



Spindle Type

- #50 Gear 6,000 / 8,000 rpm
- #50 Hybrid 10,000 rpm

BBT Spindle System (Opt.)

- Features a dual-contact (taper and face) design for superior cutting performance and high-precision machining.
- Suppresses vibration and minimizes runout errors to ensure consistent quality.

Not suitable for DDS 20,000 rpm spindle

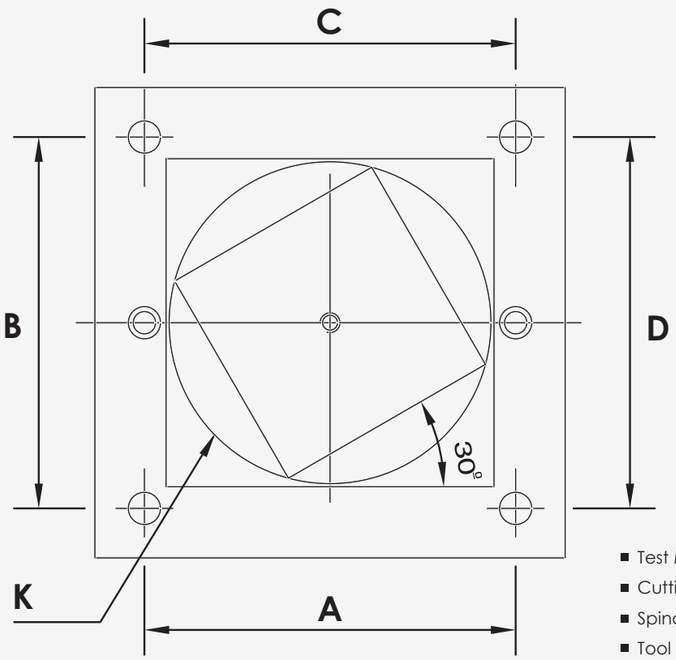
Optimized Performance for Speed and Cutting Efficiency

Model：HSA-423EA

- Spindle：6,000 rpm Gear 37 kw
- Cutting material：S45C

Face milling		End Milling		Tapping		Drilling	
Tool diameter	Ø125 mm	Tool diameter	Ø63 mm	Tool diameter	M36 x P4 mm	Tool diameter	Ø76 mm
Feed rate	2,000 mm/min	Feed rate	2,000mm/min	Feed rate	480 mm/min	Feed rate	60mm/min
Cutting depth	5 mm	Cutting depth	40 mm	Cutting depth	40 mm	Cutting depth	50 mm
Cutting width	100mm	Cutting width	10 mm	Spindle speed	120rpm	Spindle speed	300 rpm
Cutting volume	1000cc/min	Cutting volume	800cc/min				

■ **HSA-423 Mold Trial**



- Test Material: F25C
- Cutting Feedrate: F200 – 500 mm/min
- Spindle Speed: S500 – 800 rpm
- Tool Diameter: Ø25 mm

Positioning Accuracy **Contouring Accuracy**

	A	B	C	D	K
Error Value	0.020	0.020	0.020	0.020	0.015
Actual Value	0.0016	0.0015	0.0070	0.0019	0.0037
	⊕	⊕	⊕	⊕	◯

Unit(mm)

Item	Error Value	Actual Value
Flatness of Table Top (X/Y Axes)	1000▼0.05/M,1000-2000▲0.06/M, 2000 0.07/M	0.02
Squareness of Axes Movement (X/Y Axes)	0.020/500	0.005
Squareness of Axes Movement (Y/Z Axes)	0.02/500	0.005
Spindle Taper Runout	Fixed Side : 0.005,Free Side : 0.015/300	0.001/0.005
Circularity Accuracy	0.012/150(X-axis 5000▲0.020/150)	0.003

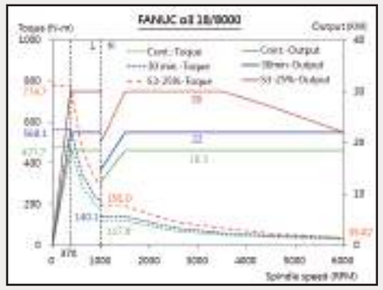
Disclaimer / Performance Note

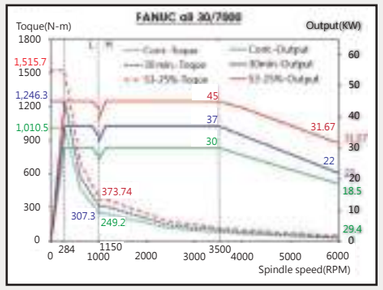
Disclaimer regarding Performance Data
All test data contained in this catalog was produced under controlled, rigorous conditions in a specialized facility.
Actual results may vary depending on specific operating conditions, environmental factors, and non-ideal testing parameters.

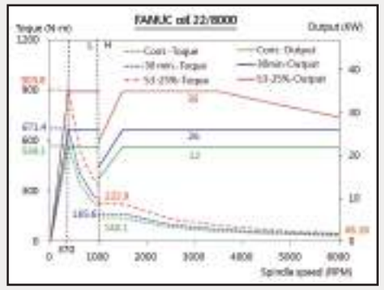
07 Spindle Torque Diagrams

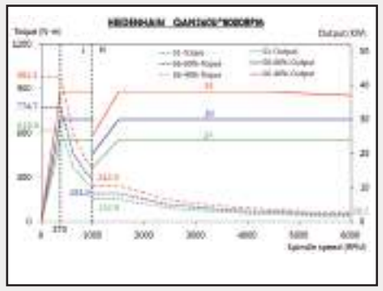
Spindle torque diagrams

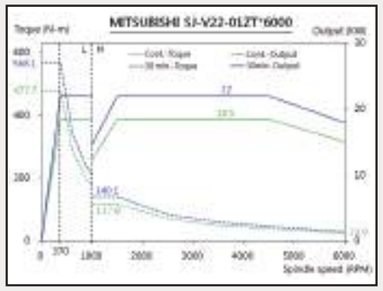
■ Gear 6,000 rpm

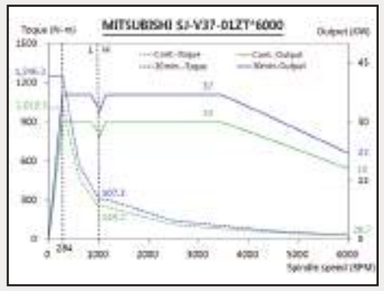


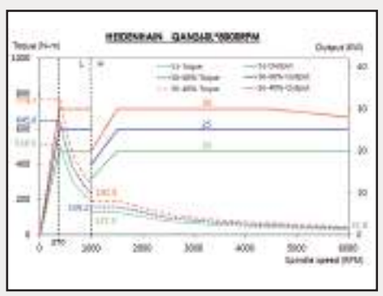


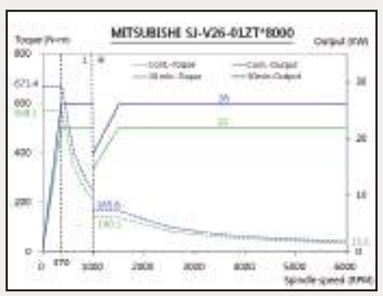






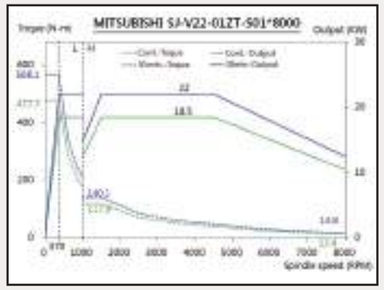


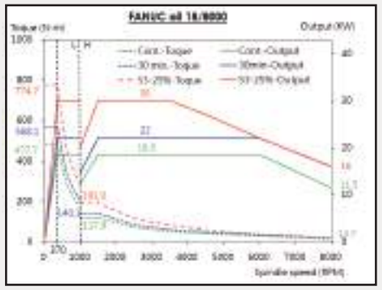


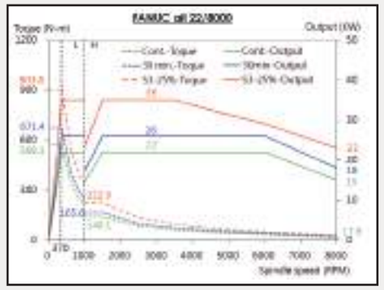


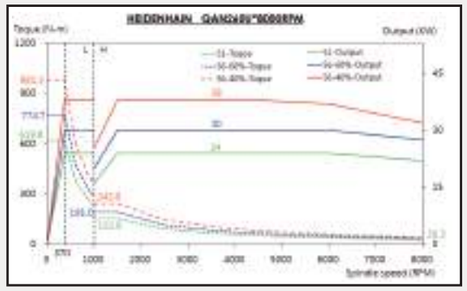
Spindle torque diagrams

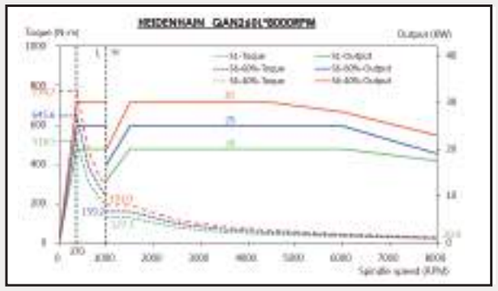
■ Gear 8,000 rpm (Opt.)



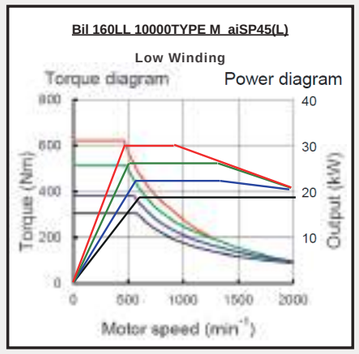


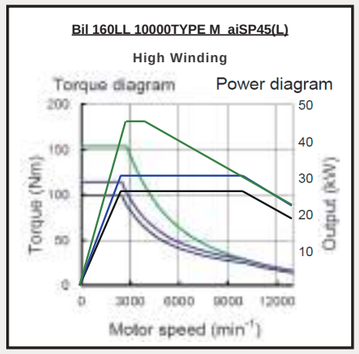






■ Hybrid 10,000 rpm (Opt.)

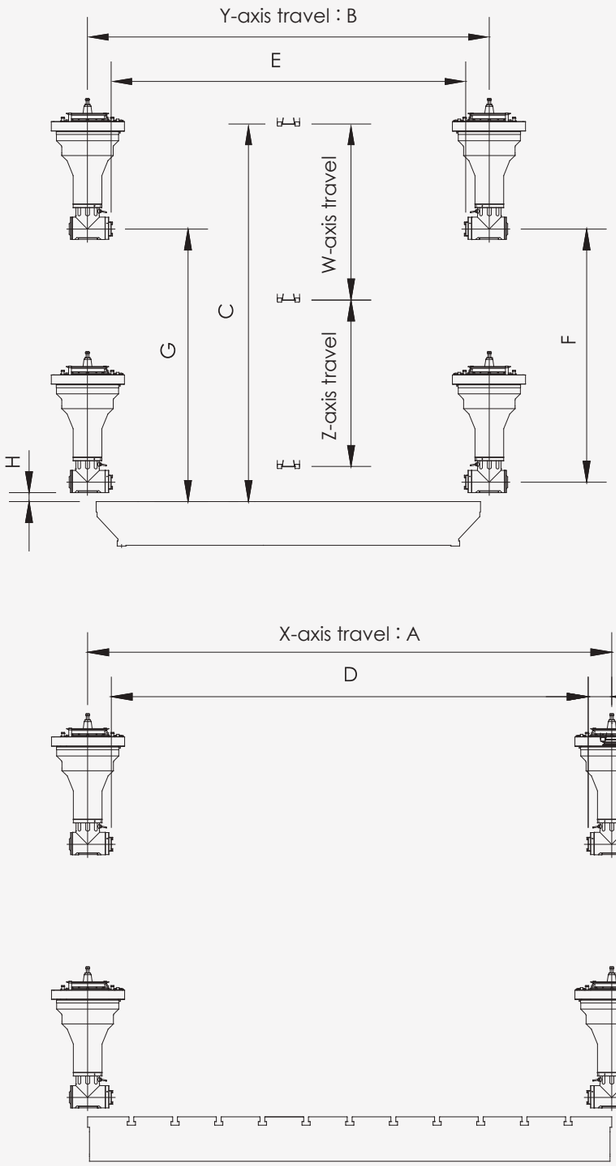




All the results featured in this calogue were produced under shich testing condilion in a special zed testing enviroment.
Under dfferent festing conditions and in less than ideal tesing environments. That the rest results vary fom those shown in this catalogue.

08 Machining Range Of The Angle Head

■ Automatic 90 degree head_HF-AR90

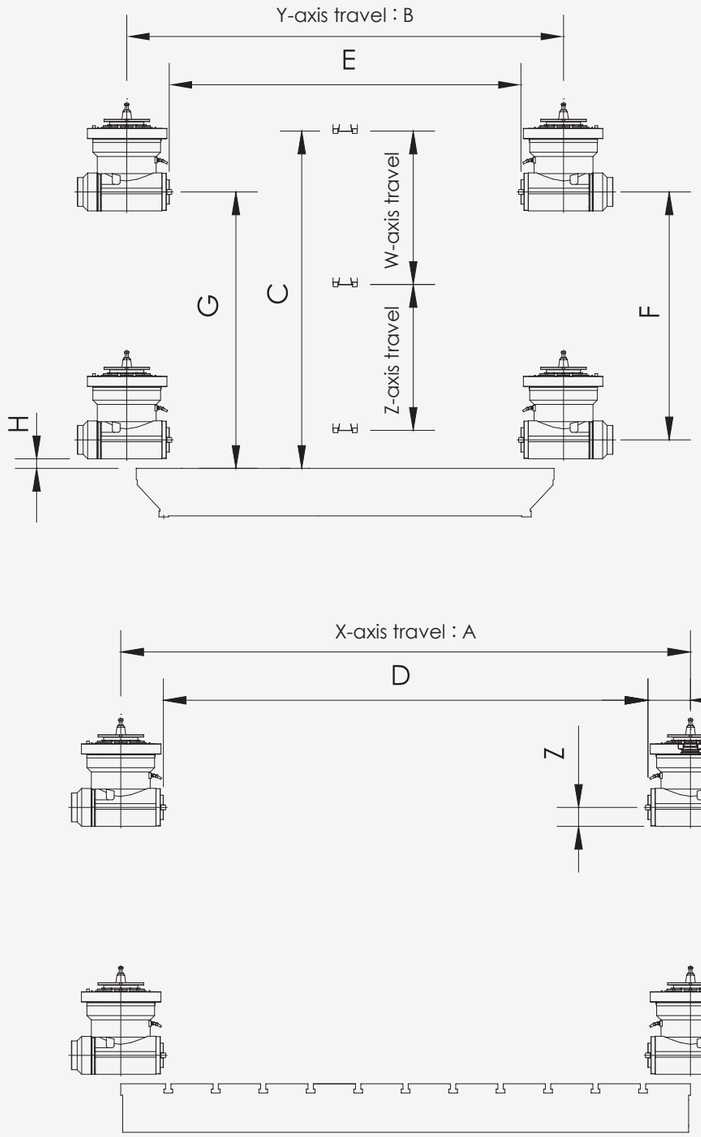


Unit : mm ( ) : Opt.

MODEL	Z-TRAVEL	COLUMN-HIGH	Distance from column to column	A	B	C	D	E	F	G	H	Reference		
							A-(X*2)	B-(X*2)	C-(Y+Z+H)	C-Y		X	Y	Z
HSA-220EA/EAY			2000	2000	2000/2800		1730	1730						
HSA-320EA/EAY			2000	3000	2000/2800		2730	1730						
HSA-420EA/EAY			2000	4000	2000/2800		3730	1730						
HSA-323EA/EAY			2300	3000	2300/3100		2730	2030						
HSA-423EA/EAY			2300	4000	2300/3100		3730	2030						
HSA-523EA/EAY			2300	5000	2300/3100	1350 1550 1750	4730	2030	640 840 1040	750 950 1150				
HSA-623EA/EAY			2300	6000	2300/3100		5730	2030						
HSA-327EA/EAY			2700	3000	2700/3500		2730	2430						
HSA-427EA/EAY			2700	4000	2700/3500		3730	2430						
HSA-527EA/EAY			2700	5000	2700/3500		4730	2430						
HSA-627EA/EAY			2700	6000	2700/3500		5730	2430						
HSA-428EA/EAY	1000 1200 1400	2200 2400 2600	2800	4000	2800/3600		3730	2530			50	135	600	60
HSA-528EA/EAY			2800	5000	2800/3600		4730	2530						
HSA-628EA/EAY			2800	6000	2800/3600		5730	2530						
HSA-728EAY			2800	7000	3600		6730	2530						
HSA-828EA/EAY			2800	8000	2800/3600		7730	2530						
HSA-432EAY			3200	4000	4000		3730	2930						
HSA-532EA/EAY		-	3200	5000	3200/4000	1310 1510 1710	4730	2930	600 800 1000	710 910 1110				
HSA-632EA/EAY			3200	6000	3200/4000		5730	2930						
HSA-832EAY			3200	8000	4000		7730	2930						
HSA-536EA/EAY			3600	5000	3600/4400		4730	3330						
HSA-636EA/EAY			3600	6000	3600/4400		5730	3330						
HSA-736EAY			3600	7000	4400		6730	3330						
HSA-836EAY			3600	8000	4400		7730	3330						
HSA-546AAC			3600	5000	4600		4730	4330						

08 Machining Range Of The Angle Head

■ Extensive 90 degree head_HF-A90

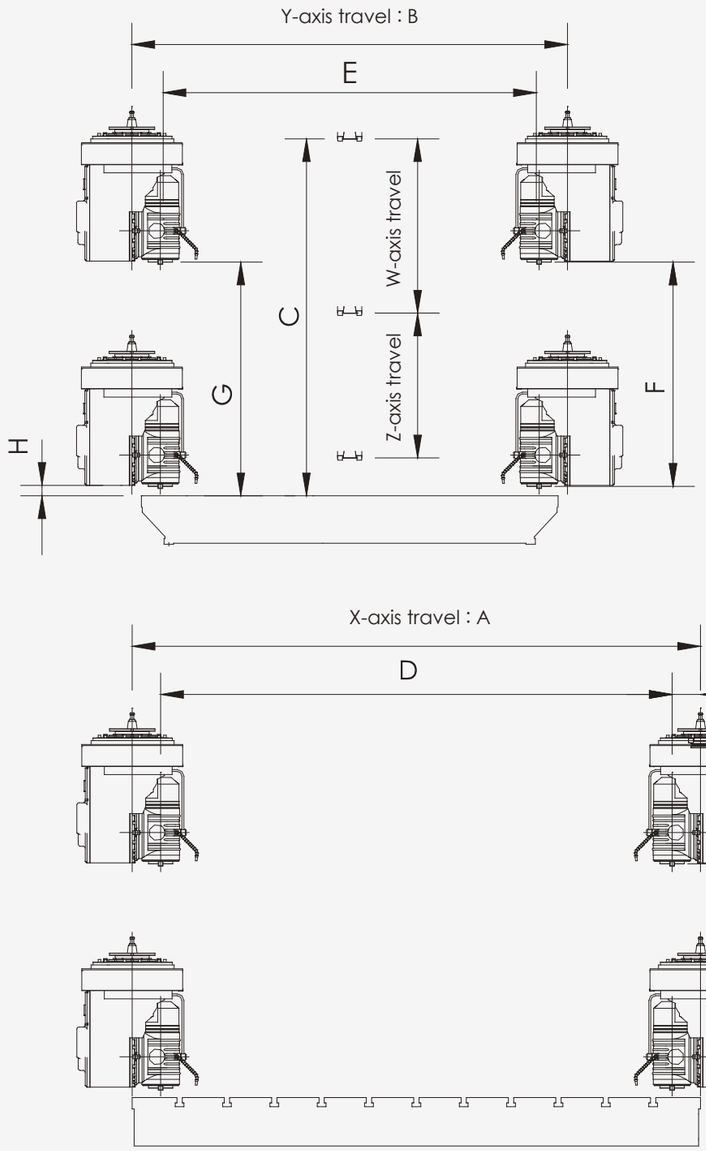


Unit : mm **( ) :** Opt.

MODEL	Z-TRAVEL	COLUMN-HIGH	Distance from column to column	A	B	C	D	E	F	G	H	Reference		
							A-(X*2)	B-(X*2)	C-(Y+Z+H)	C-Y		X	Y	Z
HSA-220EA/EAY	1000 1200 1400	2200 2400 2600	2000	2000	2000/2800	1350 1550 1750	1552	1552	880 1080 1280	1030 1230 1430	50	224	320	100
HSA-320EA/EAY			2000	3000	2000/2800		2552	1552						
HSA-420EA/EAY			2000	4000	2000/2800		3552	1852						
HSA-323EA/EAY			2300	3000	2300/3100		2552	1852						
HSA-423EA/EAY			2300	4000	2300/3100		3552	1852						
HSA-523EA/EAY			2300	5000	2300/3100		4552	1852						
HSA-623EA/EAY			2300	6000	2300/3100		5552	2252						
HSA-327EA/EAY			2700	3000	2700/3500		2552	2252						
HSA-427EA/EAY			2700	4000	2700/3500		3552	2252						
HSA-527EA/EAY			2700	5000	2700/3500		4552	2252						
HSA-627EA/EAY			2700	6000	2700/3500		5552	2352						
HSA-428EA/EAY			2800	4000	2800/3600		3552	2352						
HSA-528EA/EAY			2800	5000	2800/3600		4552	2352						
HSA-628EA/EAY			2800	6000	2800/3600		5552	2352						
HSA-728EAY			2800	7000	2800/3600		6552	2352						
HSA-828EA/EAY			2800	8000	2800/3600		7552	2352						
HSA-432EAY			3200	4000	3200/4000		3552	2752						
HSA-532EA/EAY		-	3200	5000	3200/4000	1310 1510 1710	4552	2752	840 1080 1280	990 1190 1390				
HSA-632EA/EAY			3200	6000	3200/4000		5552	2752						
HSA-832EAY			3200	8000	4000		7552	2752						
HSA-536EA/EAY			3600	5000	3600/4400		4552	3152						
HSA-636EA/EAY			3600	6000	3600/4400		5552	3152						
HSA-736EAY			3600	7000	4400		6552	3152						
HSA-836EAY			3600	8000	4400		7552	3152						
HSA-546AAC			3600	5000	4600		4552	4152						

08 Machining Range Of The Angle Head

■ Automatic universal head_HF-AU360_V

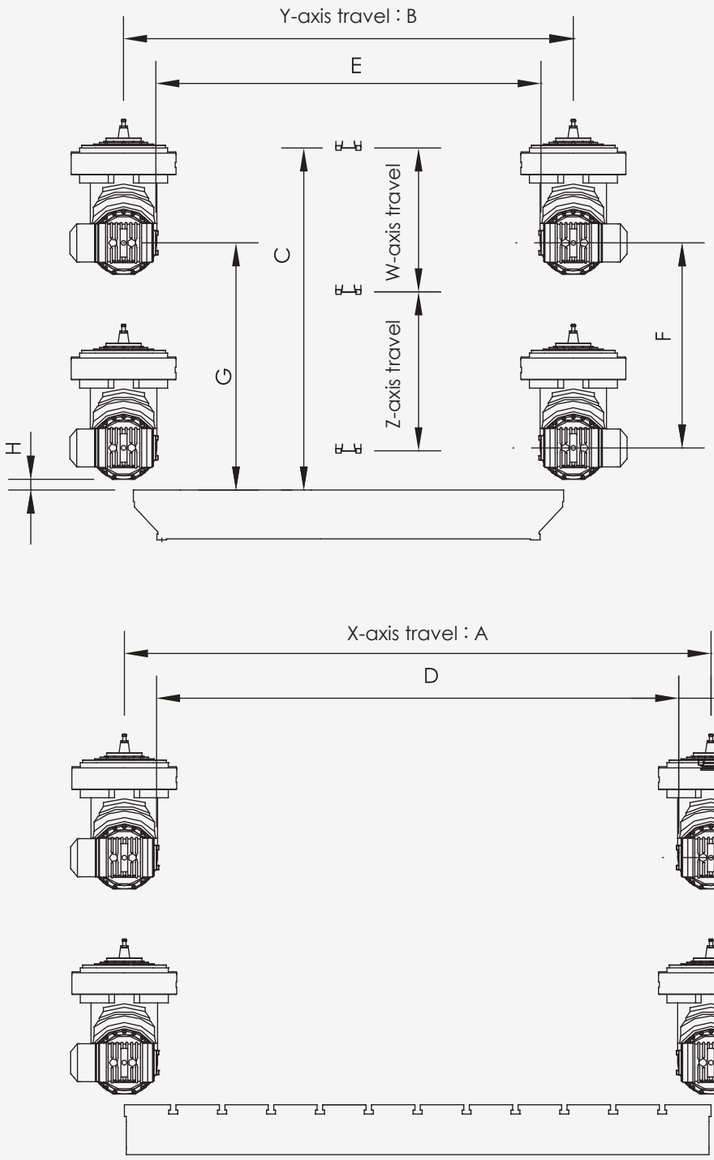


Unit : mm ( ) : Opt.

MODEL	Z-TRAVEL	COLUMN-HIGH	Distance from column to column	A	B	C	D	E	F	G	H	Reference		
							A-(X*2)	B-(X*2)	C-(Y+Z+H)	C-Y		X	Y	Z
HSA-220EA/EAY			2000	2000	2000/2800		1700	1700						
HSA-320EA/EAY			2000	3000	2000/2800		2700	1700						
HSA-420EA/EAY			2000	4000	2000/2800		3700	2000						
HSA-323EA/EAY			2300	3000	2300/3100		2700	2000						
HSA-423EA/EAY			2300	4000	2300/3100		3700	2000						
HSA-523EA/EAY			2300	5000	2300/3100	1350 1550 1750	4700	2000	650 850 1050	700 900 1100				
HSA-623EA/EAY			2300	6000	2300/3100		5700	2400						
HSA-327EA/EAY			2700	3000	2700/3500		2700	2400						
HSA-427EA/EAY			2700	4000	2700/3500		3700	2400						
HSA-527EA/EAY			2700	5000	2700/3500		4700	2400						
HSA-627EA/EAY			2700	6000	2700/3500		5700	2500						
HSA-428EA/EAY	1000	2200	2800	4000	2800/3600		3700	2500			50	150	650	100
HSA-528EA/EAY	1200	2400	2800	5000	2800/3600		4700	2500						
HSA-628EA/EAY	1400	2600	2800	6000	2800/3600		5700	2500						
HSA-728EAY			2800	7000	3600		6700	2500						
HSA-828EA/EAY			2800	8000	2800/3600		7700	2500						
HSA-432EAY			3200	4000	3200/4000		3700	2900						
HSA-532EA/EAY		-	3200	5000	3200/4000	1310 1510	4700	2900	610	660				
HSA-632EA/EAY			3200	6000	3200/4000	1710	5700	2900	810 1010	860 1060				
HSA-832EAY			3200	8000	4000		7700	3300						
HSA-536EA/EAY			3600	5000	3600/4400		4700	3300						
HSA-636EA/EAY			3600	6000	3600/4400		5700	3300						
HSA-736EAY			3600	7000	3600/4400		6700	3300						
HSA-836EAY			3600	8000	4400		7700	3300						
HSA-546AAC			3600	5000	4600		4700	4300						

08 Machining Range Of The Angle Head

■ Automatic universal head_HF-AU360_H

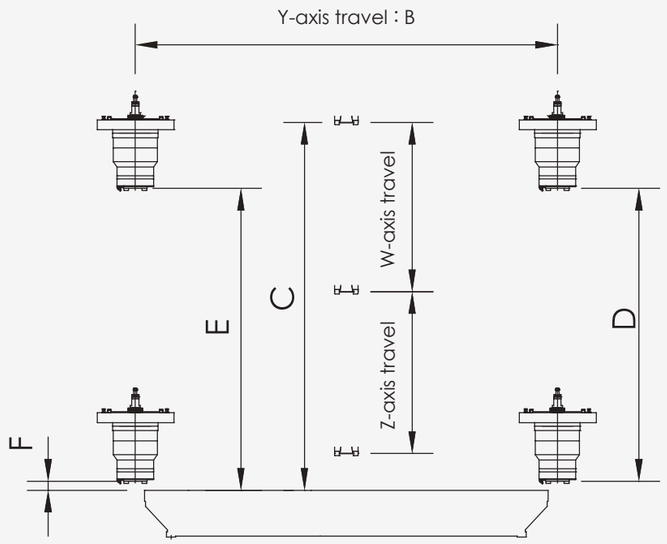


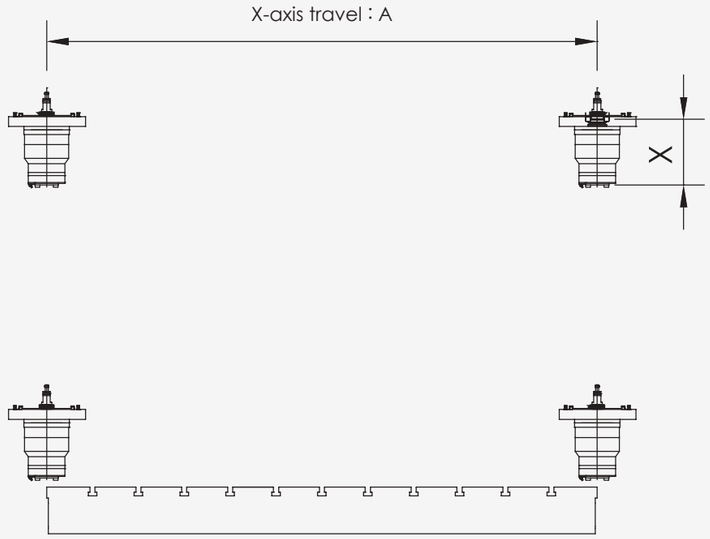
Unit : mm **( ) :** Opt.

MODEL	Z-TRAVEL	COLUMN-HIGH	Distance from column to column	A	B	C	D	E	F	G	H	Reference		
							A-(X*2)	B-(X*2)	C-(Y+Z+H)	C-Y		X	Y	Z
HSA-220EA/EAY			2000	2000	2000/2800		1670	1670						
HSA-320EA/EAY			2000	3000	2000/2800		2670	1670						
HSA-420EA/EAY			2000	4000	2000/2800		3670	1970						
HSA-323EA/EAY			2300	3000	2300/3100		2670	1970						
HSA-423EA/EAY			2300	4000	2300/3100	1350	3670	2370	655	865				
HSA-523EA/EAY			2300	5000	2300/3100	1550	4670	2370	855	1065				
HSA-623EA/EAY			2300	6000	2300/3100	1750	5670	2370	1055	1265				
HSA-327EA/EAY			2700	3000	2700/3500		2670	2370						
HSA-427EA/EAY			2700	4000	2700/3500		3670	2370						
HSA-527EA/EAY			2700	5000	2700/3500		4670	2370						
HSA-627EA/EAY			2700	6000	2700/3500		5670	2370						
HSA-428EA/EAY	1000	2200	2800	4000	2800/3600		3670	2470			50	165	485	160
HSA-528EA/EAY	1200	2400	2800	5000	2800/3600		4670	2470						
HSA-628EA/EAY	1400	2600	2800	6000	2800/3600		5670	2470						
HSA-728EAY			2800	7000	3600		6670	2470						
HSA-828EA/EAY			2800	8000	2800/3600		7670	2470						
HSA-432EAY			3200	4000	3200/4000		3670	2870						
HSA-532EA/EAY		-	3200	5000	3200/4000	1310	4670	2870	615	825				
HSA-632EA/EAY			3200	6000	3200/4000	1510 1710	5670	2870	815 1015	1025 1225				
HSA-832EAY			3200	8000	4000		7670	2870						
HSA-536EA/EAY			3600	5000	3600/4400		4670	3270						
HSA-636EA/EAY			3600	6000	3600/4400		5670	3270						
HSA-736EAY			3600	7000	3600/4400		6670	3270						
HSA-836EAY			3600	8000	4400		7670	3270						
HSA-546AAC			3600	5000	4600		4670	4270						

08 Machining Range Of The Angle Head

■ Automatically extension head_HF-AE35L



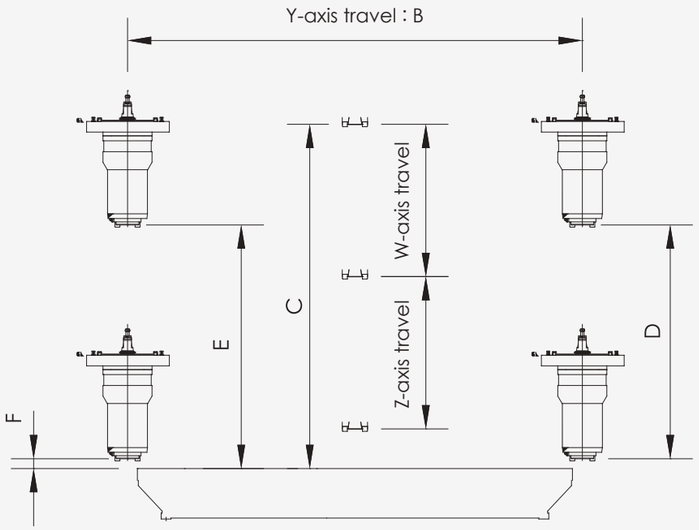


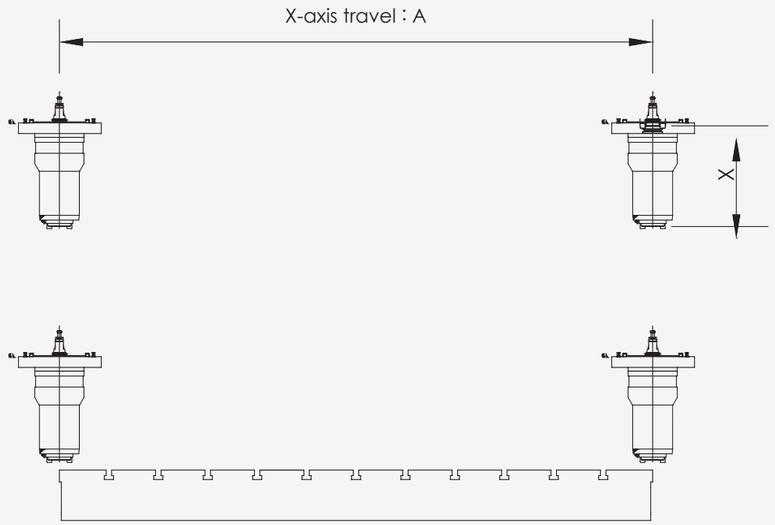
Unit : mm **( ) :** Opt.

MODEL	Z-TRAVEL	COLUMN-HIGH	Distance from column to column	A	B	C	D	E	F	X
							C-(X+F)	C-X		
HSA-220EA/EAY			2000	2000	2000/2800					
HSA-320EA/EAY			2000	3000	2000/2800					
HSA-420EA/EAY			2000	4000	2000/2800					
HSA-323EA/EAY			2300	3000	2300/3100					
HSA-423EA/EAY			2300	4000	2300/3100	1350	942	992		
HSA-523EA/EAY			2300	5000	2300/3100	1550	1142	1192		
HSA-623EA/EAY			2300	6000	2300/3100	1750	1342	1392		
HSA-327EA/EAY			2700	3000	2700/3500					
HSA-427EA/EAY			2700	4000	2700/3500					
HSA-527EA/EAY			2700	5000	2700/3500					
HSA-627EA/EAY			2700	6000	2700/3500					
HSA-428EA/EAY	1000	2200	2800	4000	2800/3600					
HSA-528EA/EAY	1200	2400	2800	5000	2800/3600				50	358
HSA-628EA/EAY	1400	2600	2800	6000	2800/3600					
HSA-728EAY			2800	7000	2800/3600					
HSA-828EA/EAY			2800	8000	2800/3600					
HSA-432EAY			3200	4000	3200/4000					
HSA-532EA/EAY		-	3200	5000	3200/4000	1310	902	952		
HSA-632EA/EAY			3200	6000	3200/4000	1510	1102	1152		
HSA-832EAY			3200	8000	4000	1710	1302	1352		
HSA-536EA/EAY			3600	5000	3600/4400					
HSA-636EA/EAY			3600	6000	3600/4400					
HSA-736EAY			3600	7000	4400					
HSA-836EAY			3600	8000	4400					
HSA-546AAC			3600	5000	4600					

08 Machining Range Of The Angle Head

■ Automatically extension head_HF-AE50L

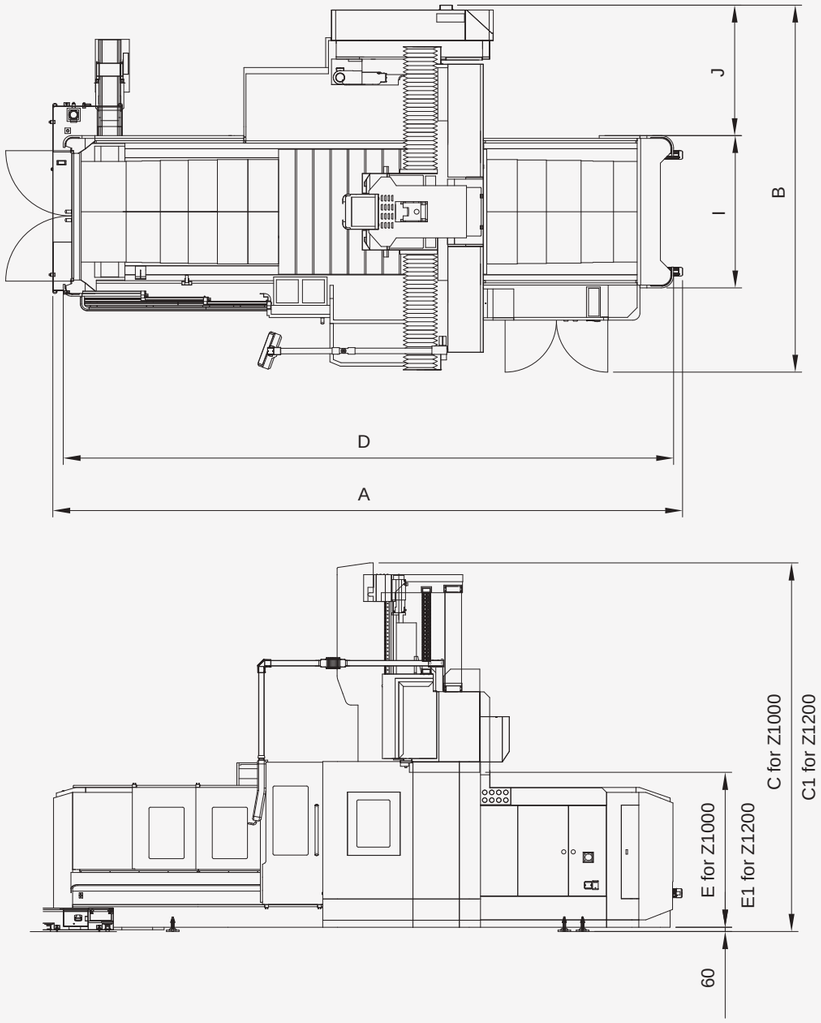


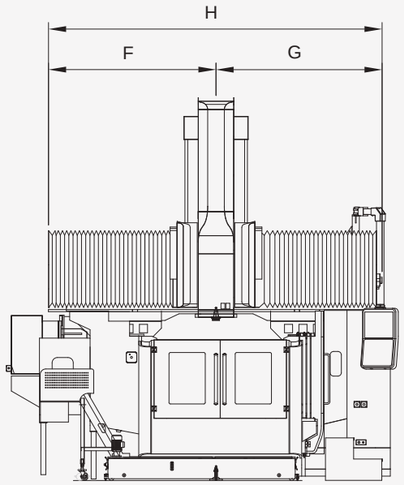


Unit : mm **( ) :** Opt.

MODEL	Z-TRAVEL	COLUMN-HIGH	Distance from column to column	A	B	C	D	E	F	X
							C-(X+F)	C-X		
HSA-220EA/EAY			2000	2000	2000/2800					
HSA-320EA/EAY			2000	3000	2000/2800					
HSA-420EA/EAY			2000	4000	2000/2800					
HSA-323EA/EAY			2300	3000	2300/3100					
HSA-423EA/EAY			2300	4000	2300/3100					
HSA-523EA/EAY			2300	5000	2300/3100	1350 1550 1750	792 992 1192	842 1042 1242		
HSA-623EA/EAY			2300	6000	2300/3100					
HSA-327EA/EAY			2700	3000	2700/3500					
HSA-427EA/EAY			2700	4000	2700/3500					
HSA-527EA/EAY			2700	5000	2700/3500					
HSA-627EA/EAY			2700	6000	2700/3500					
HSA-428EA/EAY			2800	4000	2800/3600					
HSA-528EA/EAY	1000 1200 1400	2200 2400 2600	2800	5000	2800/3600				50	508
HSA-628EA/EAY			2800	6000	2800/3600					
HSA-728EAY			2800	7000	3600					
HSA-828EA/EAY			2800	8000	2800/3600					
HSA-432EAY			3200	4000	3200/4000					
HSA-532EA/EAY		-	3200	5000	3200/4000	1310 1510 1710	752 952 1152	802 1002 1202		
HSA-632EA/EAY			3200	6000	3200/4000					
HSA-832EAY			3200	8000	4000					
HSA-536EA/EAY			3600	5000	3600/4400					
HSA-636EA/EAY			3600	6000	3600/4400					
HSA-736EAY			3600	7000	4400					
HSA-836EAY			3600	8000	4400					
HSA-546AAC			3600	5000	4600					

09 Machine Dimension





Unit : mm

Model	A	B	C	C1	D	E	E1	F	G	H	I	J
HSA-220EA	7755	5040	5235	5635	7545	2200	2400	2130	2190	4400	2194	1630
HSA-320EA	9000	5040	5235	5635	8795	2200	2400	2130	2190	4400	2194	1630
HSA-420EA	11000	5040	5235	5635	10795	2200	2400	2130	2190	4400	2194	1630
HSA-220EAY	7755	5290	5235	5635	7545	2200	2400	2380	2280	4740	2194	1880
HSA-320EAY	9000	5290	5235	5635	8795	2200	2400	2380	2280	4740	2194	1880
HSA-420EAY	11000	5290	5235	5635	10795	2200	2400	2380	2280	4740	2194	1880
HSA-323EA	9000	5340	5235	5635	8795	2200	2400	2205	2265	4625	2494	1630
HSA-423EA	11000	5340	5235	5635	10795	2200	2400	2205	2265	4625	2494	1630
HSA-523EA	13000	5340	5235	5635	12795	2200	2400	2205	2265	4625	2494	1630
HSA-323EAY	9000	5590	5235	5635	8795	2200	2400	2625	2535	5225	2494	1880
HSA-423EAY	11000	5590	5235	5635	10795	2200	2400	2625	2535	5225	2494	1880
HSA-523EAY	13000	5590	5235	5635	12795	2200	2400	2625	2535	5225	2494	1880
HSA-327EA	9000	5840	5235	5635	8795	2200	2400	2625	2670	5192	2994	1630
HSA-427EA	11000	5840	5235	5635	10795	2200	2400	2625	2670	5192	2994	1630
HSA-527EA	13000	5840	5235	5635	12795	2200	2400	2625	2670	5192	2994	1630
HSA-327EAY	9000	6090	5235	5635	8795	2200	2400	2875	2850	5722	2994	1880
HSA-427EAY	11000	6090	5235	5635	10795	2200	2400	2875	2850	5722	2994	1880
HSA-527EAY	13000	6090	5235	5635	12795	2200	2400	2875	2850	5722	2994	1880
HSA-428EA	11000	5840	5235	5635	10795	2200	2400	2525	2585	5195	2994	1630
HSA-528EA	13000	5840	5235	5635	12795	2200	2400	2525	2585	5195	2994	1630
HSA-628EA	15200	5840	5235	5635	14995	2200	2400	2525	2585	5195	2994	1630
HSA-828EA	19200	5840	5235	5635	18995	2200	2400	2525	2585	5195	2994	1630
HSA-428EAY	11000	6090	5235	5635	10795	2200	2400	2875	2785	5725	2994	1880
HSA-528EAY	13000	6090	5235	5635	12795	2200	2400	2875	2785	5725	2994	1880
HSA-628EAY	15200	6090	5235	5635	14995	2200	2400	2875	2785	5725	2994	1880
HSA-728EAY	17200	6090	5235	5635	16995	2200	2400	2875	2785	5725	2994	1880
HSA-828EAY	19200	6490	5235	5635	18995	2200	2400	2875	2785	5725	2994	1880
HSA-532EA	13000	6490	5235	5635	12795	2200	2400	2750	2810	5670	3394	1630
HSA-532EAY	13000	6740	5235	5635	12795	2200	2400	3100	3010	6220	3394	1880
HSA-832EAY	17200	6740	5235	5635	18995	2200	2400	3100	3010	6220	3394	1880
HSA-536EA	13150	6990	5235	5635	12945	2200	2400	3025	3085	6195	3794	1715
HSA-736EA	17350	6990	5235	5635	17145	2200	2400	3025	3085	6195	3794	1715
HSA-536EAY	13150	7240	5235	5635	12945	2200	2400	3275	3185	6525	3794	1965
HSA-736EAY	17350	7240	5235	5635	17145	2200	2400	3275	3185	6525	3794	1965
HSA-836EAY	19350	7240	5235	5635	19145	2200	2400	3275	3185	6525	3794	1965
HSA-546AAC	13000	8620	5235	5635	12795	2200	2400	4035	3237	7328	3794	3430

10 Mechanical Specifications Table

		單位	HSA-220/320/420 (EA/EAY)	HSA-323/423/523 (EA/EAY)	HSA-327/427/527 (EA/EAY)	HSA-428/528/628/828 (EA/EAY)	HSA-532/832 (EA/EAY)	HSA-536/636/736/836 (EA/EAY)	HSA-546AAC
Table	Working surface	mm	2000 / 3000 / 4000 x1800	3000 / 4000 / 5000 x 2200	3000 / 4000 / 5000 x 2200	4000 / 5000 / 6000 / 8000 x 2500	5000 / 8000 x 2500	5000 / 6000 / 7000 / 8000 x 3000	5000 x 3000
	T-slot Width x pitch(number)	mm	22 x 250 (7 / 11 / 15)	28 x 250 (11 / 15 / 19)	28 x 250 (11 / 15 / 19)	28 x 250 (15 / 19 / 23 / 31)	28 x 250 (19 / 31)	28 x 250 (19 / 23 / 27 / 31)	28 x 250 (19)
	Max.load	kg	8000 / 10000 / 12000	10000 / 12000 / 15000	10000 / 12000 / 15000	18000 / 20000 / 23000 / 27000	20000 / 27000	21000 / 24000 / 27000 / 30000	21000
Travel	X-axis travel	mm	2000 / 3000 / 4000	3000 / 4000 / 5000	3000 / 4000 / 5000	4000 / 5000 / 6000 / 8000	5000 / 8000	5000 / 6000 / 7000 / 8000	5000
	Y-axis travel	mm	**EA :** 2000 ; **EAY :** 2800	**EA :** 2300 ; **EAY :** 3100	**EA :** 2700 ; **EAY :** 3500	**EA :** 2800 ; **EAY :** 3600	**EA :** 3200 ; **EAY :** 4000	**EA :** 3600 ; **EAY :** 4400	4600
	Z-axis travel	mm	1000 (1200)	1000 (1200)	1000 (1200)	1000 (1200)	1000 (1200)	1000 (1200)	1000 (1200)
	Distance from spindle center to column	mm	450	450	450	450	450	-	450
	Distance between two columns	mm	2000	2300	2800	2800	3200	3600	3600
	Distance from spindle end to table #50	mm	350~1350(Z:1000_Column 2200) 350~1550(Z:1200_Column 2400)	350~1350(Z:1000_Column 2200) 350~1550(Z:1200_Column 2400)	350~1350(Z:1000_Column 2200) 350~1550(Z:1200_Column 2400)	310~1310(Z:1000_Column 2200) 310~1510(Z:1200_Column 2400)	310~1310(Z:1000_Column 2200) 310~1510(Z:1200_Column 2400)	310~1310(Z:1000_Column 2200) 310~1510(Z:1200_Column 2400)	310~1310(Z:1000_Column 2200) 310~1510(Z:1200_Column 2400)
Spindle	Spindle nose taper		#50	#50	#50	#50	#50	#50	#50
	Spindle speed (Gear)	rpm	6000 (8000)	6000 (8000)	6000 (8000)	6000 (8000)	6000 (8000)	6000 (8000)	6000 (8000)
	Spindle speed (Hybrid built-in)	rpm	10000	10000	10000	10000	10000	10000	10000
Feed	Cutting feedrate(X/Y/Z)	m/min	12 / 12 / 12	12 / 12 / 12 **(323)** ; 10 / 12 / 12 **(423)** 8 / 12 / 12 **(523)**	12 / 12 / 12 **(327)** 10 / 12 / 12 **(427)** 8 / 12 / 12 **(527)**	10 / 12 / 12 **(428)** ; 8 / 12 / 12 **(528/628)** 6 / 12 / 12 **(828)**	8 / 12 / 12 **(532)** 6 / 12 / 12 **(832)**	8 / 10 / 10 **(536/636/736)** 6 / 10 / 10 **(836)**	8 / 8 / 10
	Rapid traverse rate (X/Y/Z)	m/min	24 / 18 / 16 **(220)** 20 / 18 / 16 **(320/420)**	20 / 18 / 16 **(323/423)** 14 / 18 / 16 **(523)**	20 / 18 / 16 **(327/427)** 14 / 18 / 16 **(527)**	16 / 18 / 16 **(428)** ; 12 / 18 / 16 **(528)** 10 / 18 / 16 **(628)** ; 8 / 18 / 16 **(828)**	12 / 18 / 16 **(532)** 8 / 18 / 16 **(832)**	14 / 16 / 16 **(536)** ; 10 / 16 / 16 **(636/736)** 8 / 16 / 16 **(836)**	14 / 14 / 16
ATC	Capacity	pcs	V : 32 / 40 / 60 / 90 H : 32 / 40 / 62 (opt.)	V : 32 / 40 / 60 / 90 H : 32 / 40 / 62 (opt.)	V : 32 / 40 / 60 / 90 H : 32 / 40 / 62 (opt.)	V : 32 / 40 / 60 / 90 H : 32 / 40 / 62 (opt.)	V : 32 / 40 / 60 / 90 H : 32 / 40 / 62 (opt.)	V : 32 / 40 / 60 / 90 H : 32 / 40 / 62 (opt.)	V : 32 / 40 / 60 / 90 H : 32 / 40 / 62 (opt.)
	Max.tool weight	kg	A : 20	A : 20	A : 20	A : 20	A : 20	A : 20	A : 20
	Max.tool size(dia.x length)	mm	A : Ø125 x 400L	A : Ø125 x 400L	A : Ø125 x 400L	A : Ø125 x 400L	A : Ø125 x 400L	A : Ø125 x 400L	A : Ø125 x 400L
	Tool shank		BT-50 (BBT / CAT / DIN / HSK)	BT-50 (BBT / CAT / DIN / HSK)	BT-50 (BBT / CAT / DIN / HSK)	BT-50 / CAT50 / DIN / BBT50 / HSK	BT-50 / CAT50 / DIN / BBT50 / HSK	BT50 (BBT / CAT / DIN / HSK)	BT50 (BBT / CAT / DIN)
	Pull stub bolt		P50T-1	P50T-1	P50T-1	P50T-1	P50T-1	P50T-1	P50T-1
Motor	Spindle drive motor (cont./30 min)	kW	18.5 / 22 (opt. 30 / 35)	18.5 / 22 (opt. 30 / 35)	18.5 / 22 (opt. 30 / 35)	18.5 / 22 (opt. 30 / 35)	18.5 / 22 (opt. 30 / 35)	18.5 / 22 (opt. 30 / 35)	18.5 / 22 (opt. 30 / 35)
Pos. Acc.	Positioning Accuracy (JIS B6330),No Scale	mm	±0.010	±0.010	±0.010	±0.010	±0.010	±0.010	±0.010
	Repeatability (JIS B6330),No Scale	mm	±0.003	±0.003	±0.003	±0.003	±0.003	±0.003	±0.003
	Positioning Accuracy(JIS B6330),With Scale	mm	±0.008	±0.008	±0.008	±0.008	±0.008	±0.008	±0.008
	Repeatability(JIS B6330),With Scale	mm	±0.003	±0.003	±0.003	±0.003	±0.003	±0.003	±0.003
	Positioning accuracy (VDI 3441)	mm	0.015 / 0.018 / 0.020	0.018 / 0.020 / 0.026	0.018 / 0.020	0.020 / 0.026 / 0.028 / 0.030	0.026 / 0.030	0.026 / 0.028 / 0.028 / 0.030	0.026
	Repeatability(VDI 3441)	mm	0.014 / 0.016 / 0.017	0.016 / 0.017 / 0.021	0.016 / 0.017	0.017 / 0.021 / 0.024 / 0.026	0.021 / 0.026	0.021 / 0.024 / 0.024 / 0.026	0.021
Other	Required air pressure	kg/cm²	6.5	6.5	6.5	6.5	6.5	-	6.5
	Electric power requirement	KVA	40~65 **(220)** ; 45~65 **(320 / 420)**	45~70	45~65	45~60 **(428)** ; 45~65 **(528 / 628 / 828)**	40~70 **(532)** ; 45~75 **(832)**	45~70	45~70
	Machine weight	kg	**EA :** 26000 / 29000 / 32000 **EAY :** 26500 / 29500 / 32500	**EA :** 32000 / 36000 / 40000 **EAY :** 33500 / 37500 / 41500	**EA :** 35300 / 39300 / 43300 **EAY :** 36800 / 40800 / 44800	**EA :** 41300 / 46300 / 51300 / 61300 **EAY :** 42800 / 47800 / 52800 / 62800	**EA :** 46500 **(532)** **EAY :** 48000 / 64000 **(532/832)**	**EA :** 58000 / 63000 / 68000 **EAY :** 59500 / 64500 / 69500 / 74500	Z1000 : 63500 Z1200 : 65000
	Floor space(standard tank)	mm	**EA :**10100 / 12100 /14100 x 6635 **EAY:**10100 / 12100 /14100 x 7055	**EA :** 10945 / 12940 /14945 x 7100 **EAY :** 10940 / 12940 /14940 x 7475	**EA :** 11490 / 13490 / 15490 x 7600 **EAY :** 11490 / 13490 / 15490 x 7850	**EA :** 13490 /15490 /17490 / 21490 x 7600 **EAY :** 13490 /15490 /17490 / 21490 x 7850	**EA :** 15620 x 8375 **(532)** **EAY :** 15620 / 21620 x 8625 **(532/832)**	**EA :** 15045 /17045 / 19045 x 8605 **EAY :** 15045 /17045 / 19045 / 21045 x 8855	15000 x 9550
	Machine dimension(LxWxH)	mm	**EA :** Z1000 : 7755 / 9000 /11000 x 5040 x 5235 Z1200 : 7755 / 9000 /11000 x 5040 x 5635 **EAY :** Z1000 : 7755 / 9000 /11000 x 5290 x 5235 Z1200 : 7755 / 9000 /11000 x 5290 x 5635	**EA :** Z1000 : 9000 / 11000 /13000 x 5340 x 5235 Z1200 : 9000 / 11000 /13000 x 5340 x 5635 **EAY :** Z1000 : 9000 / 11000 /13000 x 5590 x 5235 Z1200 : 9000 / 11000 /13000 x 5590 x 5635	**EA :** Z1000 : 9000 / 11000 / 13000 x 5840 x 5235 Z1200 : 9000 / 11000 / 13000 x 5840 x 5635 **EAY :** Z1000 : 9000 / 11000 / 13000 x 6090 x 5235 Z1200 : 9000 / 11000 / 13000 x 6090 x 5635	**EA :** Z1000 : 11000 /13000 /15000 /19000 x 5840 x 5235 Z1200 : 11000/13000 /15000 /19000 x 5840 x 5635 **EAY :** Z1000 : 11000 /13000 / 15000 /19000 x 6090 x 5235 Z1200 : 11000 /13000 / 15000 /19000 x 6090 x 5635	**EA (532) :** Z1000 : 13000 x 6490 x 5235 Z1200 : 13000 x 6490 x 5635 **EAY (532/832) :** Z1000 : 13000 /19000 x 6740 x 5235 Z1200 : 13000 /19000 x 6740 x 5635	**EA (536/636/736) :** Z1000 : 13000/15000/17000 x 6990 x 5235 Z1200 : 13000/15000/17000 x 6990 x 5635 **EAY (536/636/736/836) :** Z1000 : 13000/15000/17000/19000 x 7240 x 5235 Z1200 : 13000/15000/17000/19000 x 7240 x 5635	Z1000 : 13000 x 8620 x 5235 Z1200 : 13000 x 8620 x 5635

Note : 1. Factory laser accuracy is based on JIS standards. For VDI 3441 compliance, please specify separately.
2. Product specifications and accessories are subject to change without notice.
3. Machine weight is based on standard configuration.
4. Maximum tool size refers to full-tool loading condition.