

ALL NEW INFINITY

Double Column Machining Center

Linear Guide Way

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Unleash Your Productivity
Hartford the **ALL NEW INFINITY**

- ∞ Single Set Up from Heavy Cutting to Fine Finishing
- ∞ Massive Range of Machining Accessories
- ∞ Ultimate Precision



ALL NEW INFINITY

Powerful Cutting Performance

Model HSA428
Spindle 6,000rpm
Gear Head 26kW
Material S45C Mild Carbon Steel

Unique Machine Features

These icons are a guide to the special features of this Hartford machine. Ask your salesperson for more information.

Endmill

Tool Diameter Ø63mm
 Feed Rate 1350mm/min
 Depth 10mm

10 mm
Depth

Tapping

Tool Diameter Ø36mm
 Feed Rate 480mm/min
 Depth 40mm

M36
Tool Diameter
480 mm/min
Feedrate

Facemill

Tool Diameter Ø125mm
 Feed Rate 2050mm/min
 Depth 4mm
 Cutting Volume 820c.c.

820 c.c.
Cutting Volume

Drilling

Tool Diameter Ø50mm
 Feed Rate 100mm/min
 Depth 50mm

Ø50 mm
Tool Diameter

From Heavy Cutting to Fine Finishing, the ALL NEW INFINITY Handles It All

With the excellent vibration absorption of the ALL NEW INFINITY you can take your precision molds from solid blocks of material, right through to the final precision mold in a single set-up - in record time.

- ∞ Increase Your Production Quality - Reduce errors created through multiple set-ups.
- ∞ Increase Your Productivity - Reduce operator set up time and increase your output.

Mechanical



FEA Finite Element Analysis
All Hartford machines are FEA analyzed to ensure optimum structural design and performance.



OFS Optimum Force Flow Structure
Redirects machining forces to reduce vibration and guarantee accuracy.



MQT Machine Quality Target
Right from design stage, guarantees machine performance and stable quality.



SRA Spindle Run-out Accuracy
Accuracy within 0.005mm/300mm.



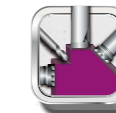
VPB Variable Pressure Bearing
Internal pressure adjusted to deliver optimum machining performance and extend spindle service life.



HLS Heavy - Light Cutting Spindle
Unique spindle gear design allows for heavy and light cutting.



FTT 4 Linear Guide Ways - 3 Surface Contact Technology
Linear guideways set on adjacent rather than opposite faces to maximize rigidity under heavy machining load.



MAS Multiple Angular Head Solutions
Many different multi-axis head options to suit all types of machining requirements.



BSD Ballscrew Support Device
Additional ballscrew support is added to eliminate deflection of the ballscrew and maintain precision.



UAC Universal Angular Head with CTS Function
Through tool coolant feature is included in the universal head.

Electrical



SMS Short Message Sender
Management immediately aware of machine issues so they can resolve quickly.



MTM Machining Time Management
Empowers management to maximize machine efficiency.



TMM Thread Milling Macro
Allows you to easily cut wide pitch threads.



SOD Servo Overload Detection
Detects unusual loading to avoid collisions.

The **Perfect** Machine,
Made Just for You.



FEA



MQT



TMM



ALL NEW INFINITY

Whatever You Need, We Have It.

Huge Range of Machining Heads and Machine Options

The ALL NEW INFINITY is backed up with decades of experience and cutting options from Hartford. We have a huge range of cutting head options to easily handle your most complex cutting tasks.

Our range of design options tailors the machine for your specific requirements, so you can maximize your productivity and optimize your production.

- ∞ 90° Head - Side Milling & Drilling
- ∞ Extended Doors - Easy Workpiece Management
- ∞ Universal Head - Complex Angle Cutting
- ∞ Extension Head - Deep Drilling
- ∞ Ergonomic Design - Easy Operation



90°
Head - Side Milling & Drilling

INFINITY - Your Flexible & Versatile Production Solution

We are constantly delivering new developments for the ALL NEW INFINITY, and we can offer some of the latest productivity enhancement packages to maximize production for your working environment:

- ∞ Auto Swivel Head - Automatic Machine Head Changer
- ∞ Extended Y-Axis Travel - Wider Cutting Volume
- ∞ ZF Gearbox - 8,000rpm Gear Head
- ∞ Linear Scales - Closed Loop Precision Positioning

8,000^{rpm}
Gear Head

The Support You Need

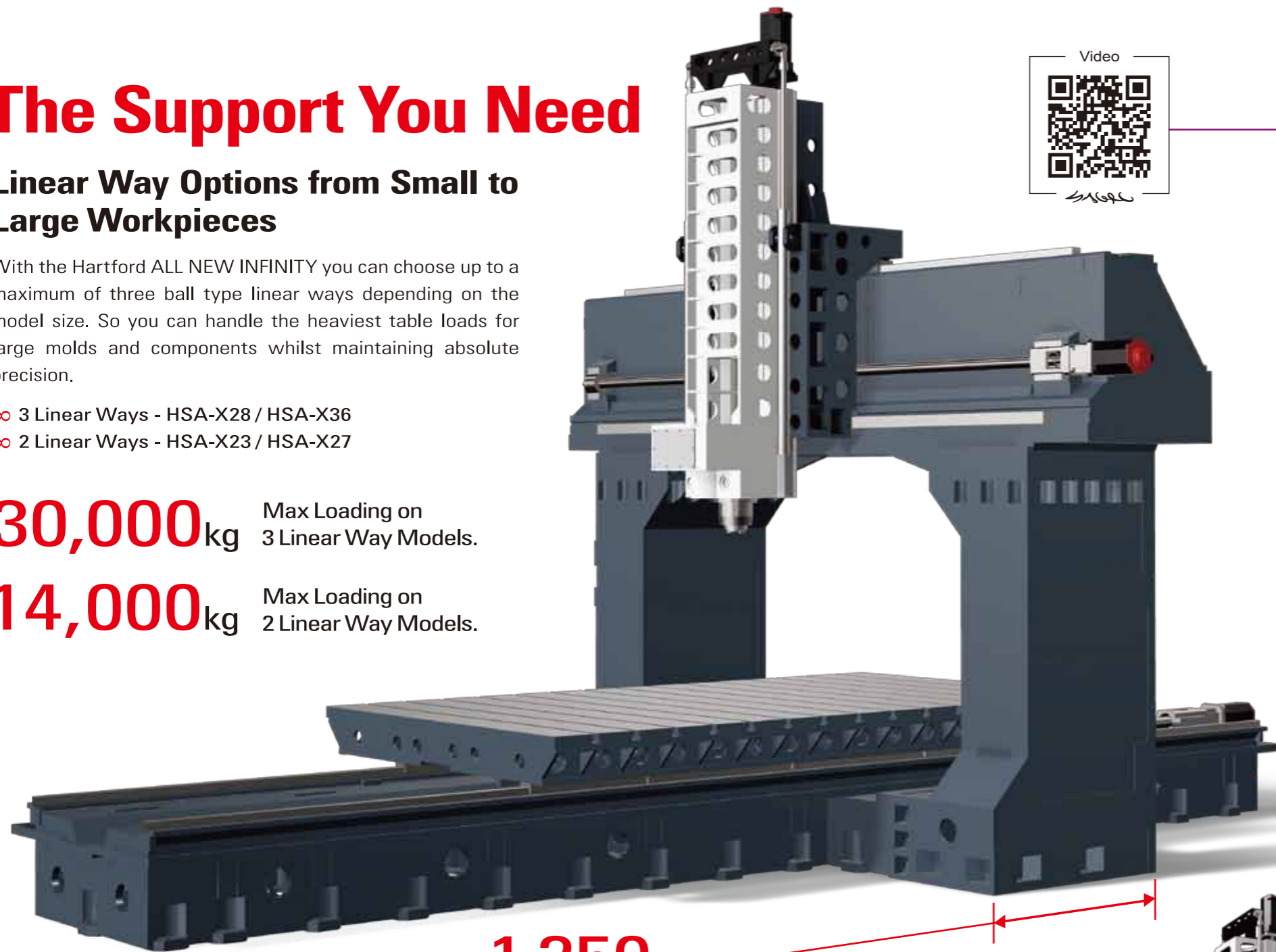
Linear Way Options from Small to Large Workpieces

With the Hartford ALL NEW INFINITY you can choose up to a maximum of three ball type linear ways depending on the model size. So you can handle the heaviest table loads for large molds and components whilst maintaining absolute precision.

- ∞ 3 Linear Ways - HSA-X28 / HSA-X36
- ∞ 2 Linear Ways - HSA-X23 / HSA-X27

30,000 kg Max Loading on 3 Linear Way Models.

14,000 kg Max Loading on 2 Linear Way Models.



1,250mm
Oversized Column Footprint

Maximum Transmission Power Enhanced Positional Accuracy

Our patented Y-axis ball screw supports coupled with the X-axis supports ensure that transmission power is delivered at minimum loss whilst also minimising deflection issues to enhance your machining accuracy.

- ∞ 5 - 6m Models X-axis is Standard
- ∞ 4m Models - Option



ALL NEW INFINITY

Heavy Cutting - Fine Finishing High - Low Ratio Gear Head

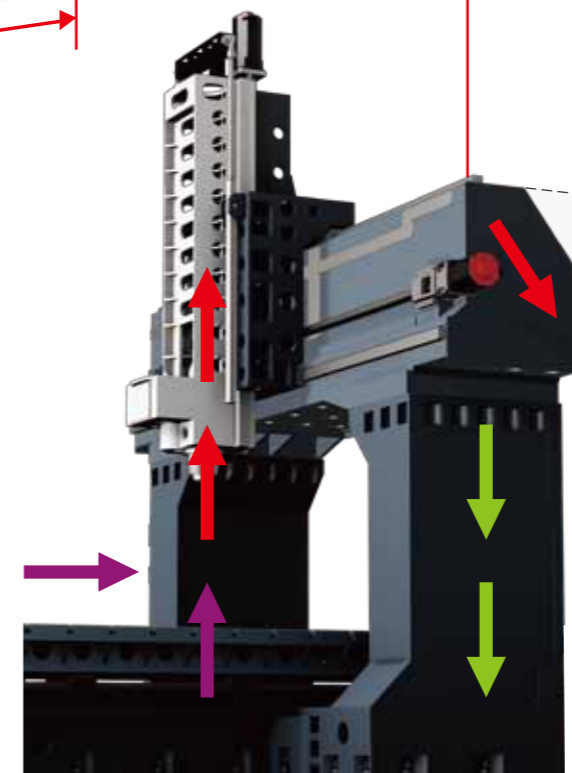
With our 8,000 rpm gear head you can take on the toughest heavy cutting jobs using the powerful low ratio gear. Then the 8,000 rpm high speed high ratio gears deliver the cutting speed and accuracy that you need to perform the finest finishing.

Reduce Cutting Vibration With New Force Flow Design

Traditional beam designs deliver cutting force horizontally to the beam, potentially causing deflection and vibration issues.

Hartfords new slant beam design redirects the cutting force flow at 45° down into the columns, significantly reducing vibration through efficient force flow transfer.

45° Force Flow Design



Patented Oversize Column Design Maximum Cutting Force Transmission

Our new patented column design increases the contact area between the column and the machine base to 1,250mm. This provides a more efficient delivery of cutting force to the machine base and reduces vibration to improve your accuracy and surface finish.



ALL NEW INFINITY

Powerful & Versatile Spindles

Four Spindle Options to Suit Your Machining

Hartford delivers a powerful gear driven 6,000 rpm spindle as standard on the Infinity series machines, with a further three spindle options so that you can tailor the machine to your exact cutting environment from Heavy cutting through to fine finishing.

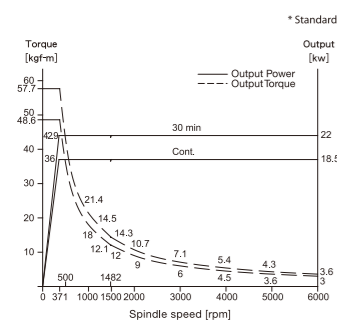
The gearbox features a high / low gear ratio to allow you to easily handle your full range of cutting requirements whilst still delivering the power you need.

- ∞ 6,000rpm Gear Driven Spindle
- ∞ 8,000rpm Gear Driven Spindle (Option)
- ∞ 10,000rpm Direct Drive Spindle - Ceramic Bearings - (Option)
- ∞ 12,000rpm Direct Drive Spindle - (Option)

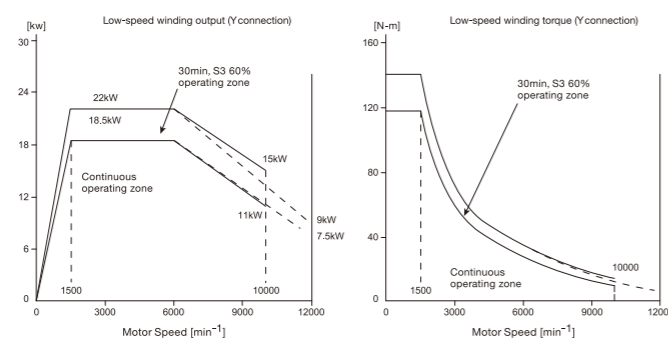


Fanuc

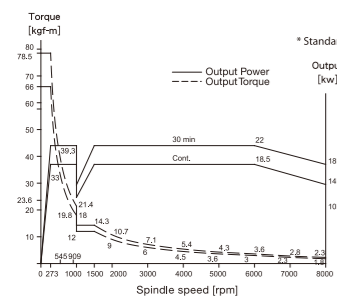
FANUC α18/7000i (Gear 6000rpm)



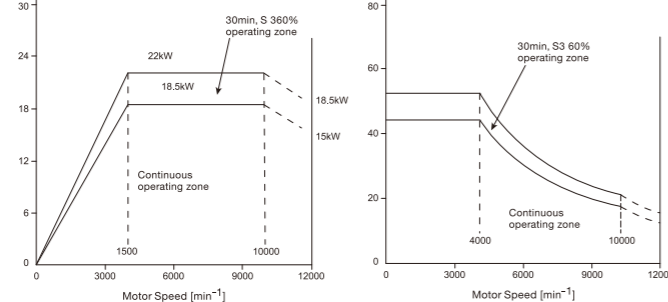
FANUC αi18/10000 (DDT 10000 rpm)



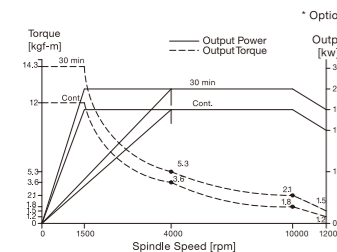
FANUC αi18/10000 (ZF Gear 8000rpm)



FANUC αi18/12000 (DDS 12000rpm)

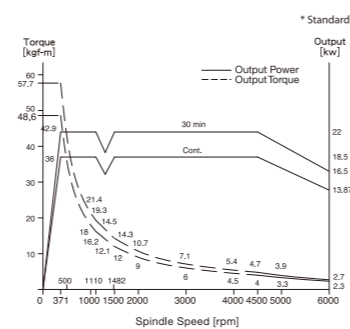


FANUC αi18/12000 (DDS 12000rpm)

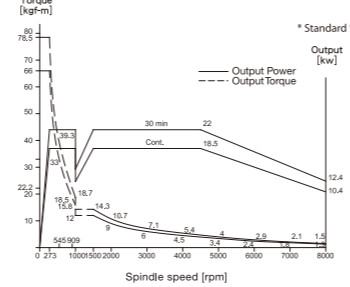


Mistubishi

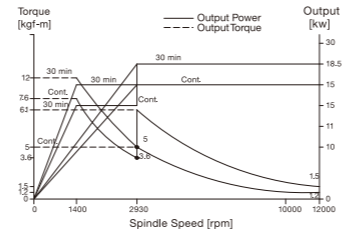
MITSUBISHI SJ-V22-01 (Gear 6000rpm)



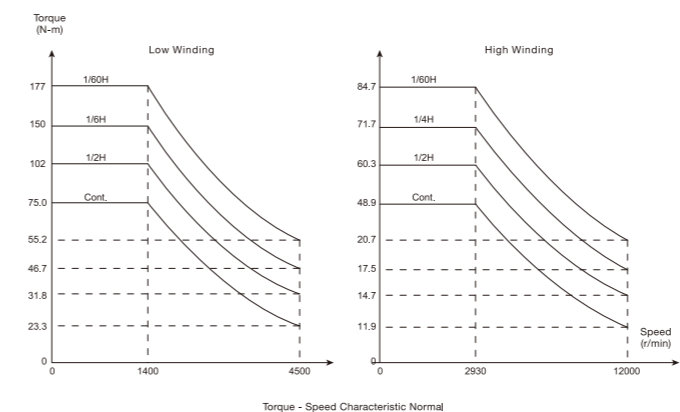
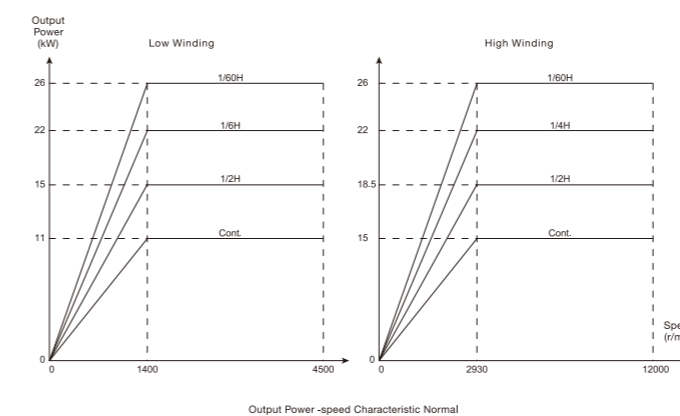
MITSUBISHI SJ-V22-01 (ZF_Gear 8000rpm)



MITSUBISHI SJ-VK30-16FZT (DDS 12000rpm)

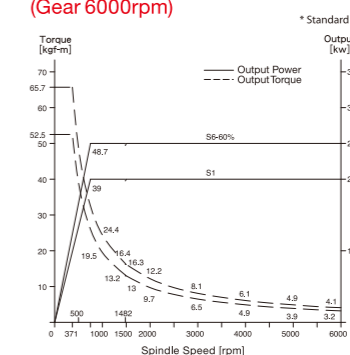


MITSUBISHI SJ-VK30-16FZT (DDT 10000 RPM & 12000 RPM)

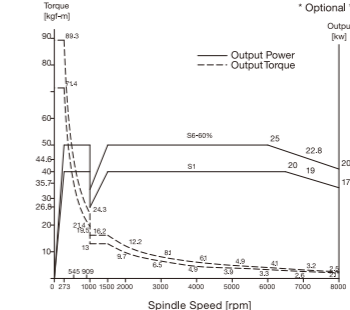


Heidenhain

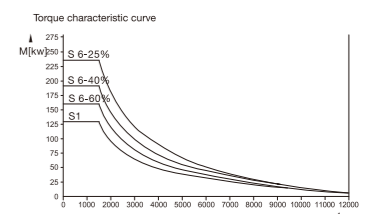
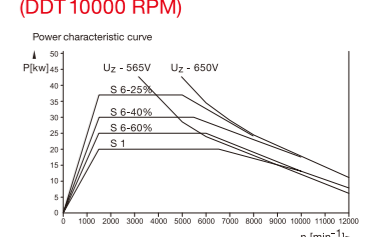
HEIDENHAIN QAN260L (Gear 6000rpm)



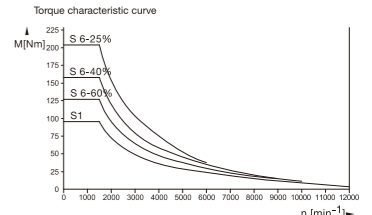
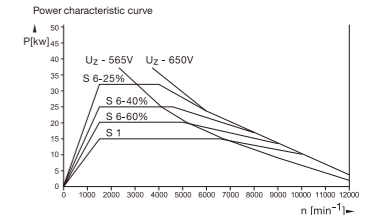
HEIDENHAIN QAN260L (ZF Gear 8000rpm)



HEIDENHAIN QAN260L (DDT 10000 RPM)



HEIDENHAIN QAN260M (DDT 12000 RPM)



A Full Range of Machining Heads

2 Angular Head Solution



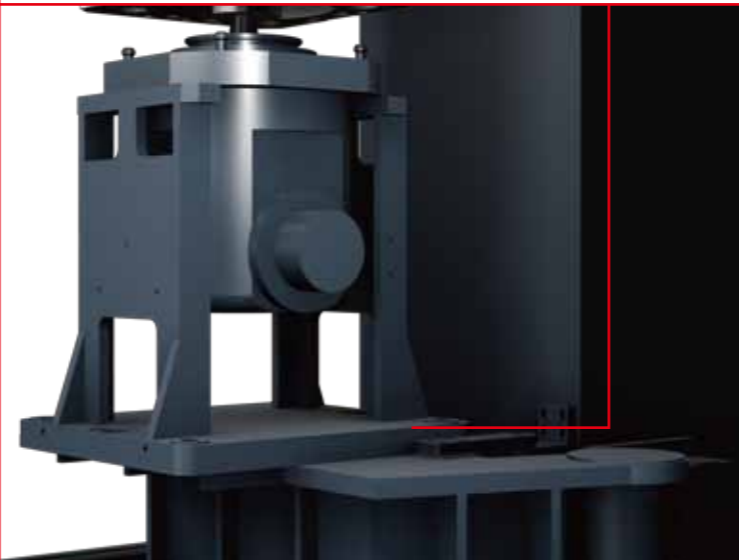
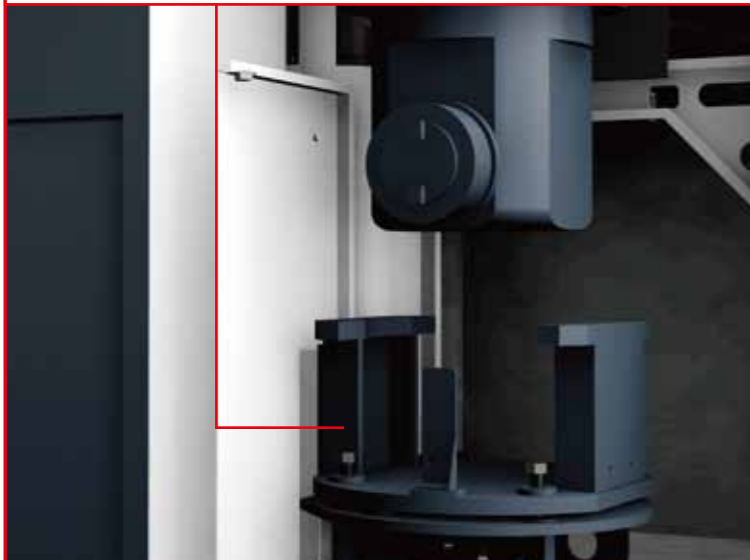
- ∞ Automatic Universal Head
- ∞ 90° Head
- ∞ Straight Extension Head
- ∞ 30° Head

With the Infinity range of machines, Hartford delivers a full range of machining head options to customize the machine to your particular cutting requirements. We also offer the auto swivel arm head changer to automate the head changing process and save you machining time.

1. Automatic Heads (Auto Clamp)

A Type Auto Clamp / Auto Swivel (HSA-EA / HSA-EAY)

B Type Auto Clamp / Manual Swivel (HSA-EA / HSA-EAY)



Four Linear Guideways Z-axis



2. Manual Heads

Manual Clamp / Manual Swivel (HSA)

Two Linear Guideways Z-Axis

Universal Head (Manual / Semi-auto)

±/110° A-axis, ±/180° C-axis
Max Speed 2,500rpm
Power 18.5 kW



90° Angular Head (Manual / Semi-auto)

Tool Change Manual (Screw / Hydraulic Release)
Max Speed 2,000rpm
Power 18.5 kW



Straight Extension Head 350/500 mm

Max Speed 4,000rpm
Power 18.5 kW



Automatic Universal Head

Max Speed 4,000rpm
Power 26 kW



Automatic 90° Head

Max Speed 2,500rpm / 4,000rpm
Power 26 kW
C-axis Manual Positioning Option



Automatic Extension Head 350/500 mm

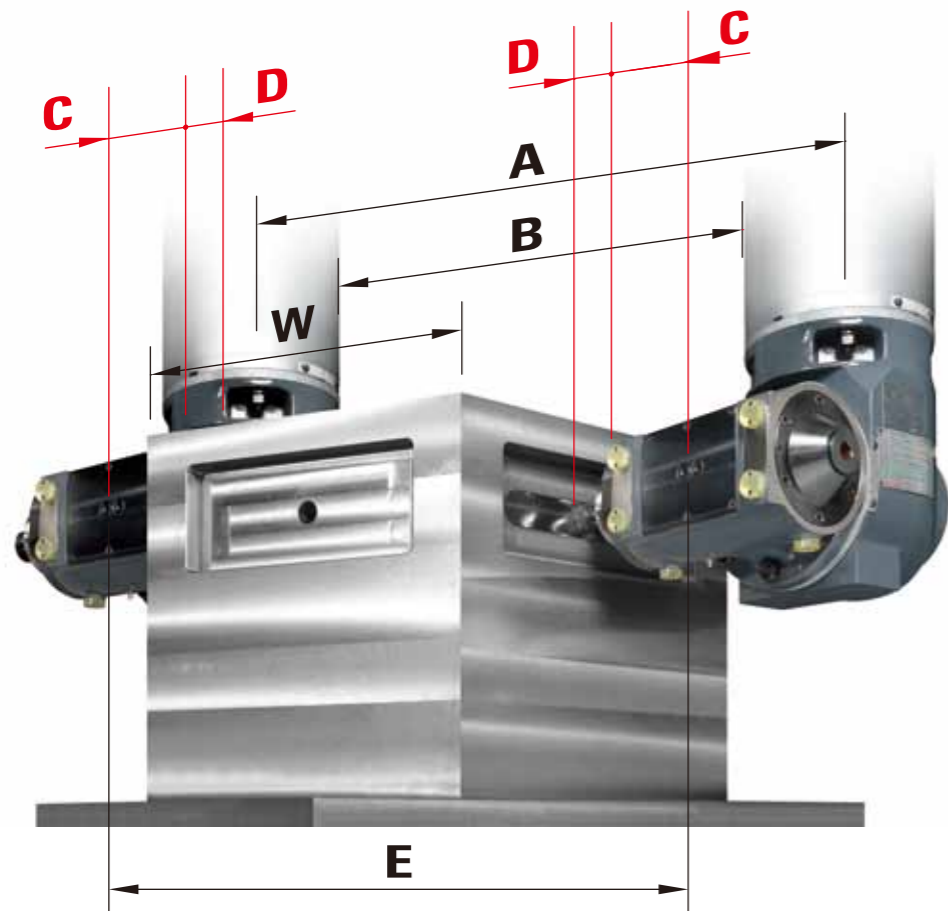
Max Speed 4,000rpm
Power 26 kW



ALL NEW INFINITY

New Y-axis Design Delivers Wider Cutting

Expand Your Y-axis Machining Volume

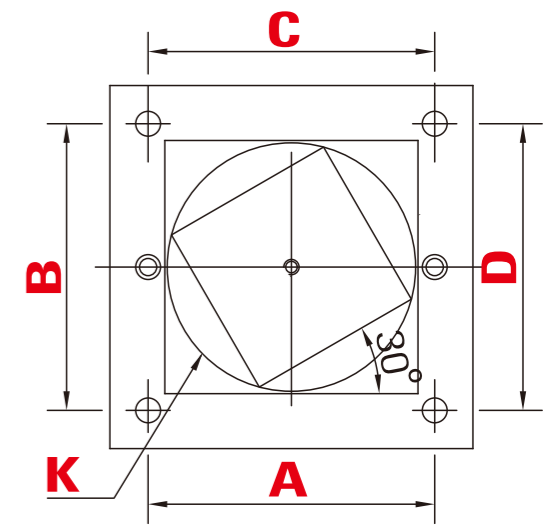


With the Infinity series we offer an expanded Y-axis design for customers who need just that little bit more. The Y-axis expansion increases your Y-axis cutting to allow machining of even larger mold components without additional set up requirements, saving you money and time.

Quality Control Cutting Performance

HSA-423 Model Testing

Texture of Material F25C
 Cutting Speed F200 ~ 500
 Spindle Speed S500 ~ 800
 The Cutting Tool Ø25mm



A Y travel
 Expanded = Original + (C + D) x 2

B Machining Area of Angular Head

C Distance From End of Angular Head to Center of Spindle

D Tool Diameter

E Distance Between Column

W Width of Workpiece

Model	A		B		C	D	E	W
	Original	Expanded	Original	Expanded				
HSA-x23EA	2300		1822		239	150	2300	1522
HSA-x23EAY		3100		2622				
HSA-x27EA	2700		2222					
HSA-x27EAY		3500		3022				
HSA-x28EA	2800		2322					
HSA-x28EAY		3600		3122				
HSA-x36EA	3600		3122		3600	2822	3600	2822
HSA-x36EAY		4400		3922				

	Positioning Machining Precision Positioning Precision				Circular Circumference Cutting Precision Circularity
	A	B	C	D	K
Tolerance	0.025	0.025	0.025	0.025	0.04
Actual Value	0.0019	0.0037	0.0016	0.015	0.0070
	(⊕)	(⊕)	(⊕)	(⊕)	(○)

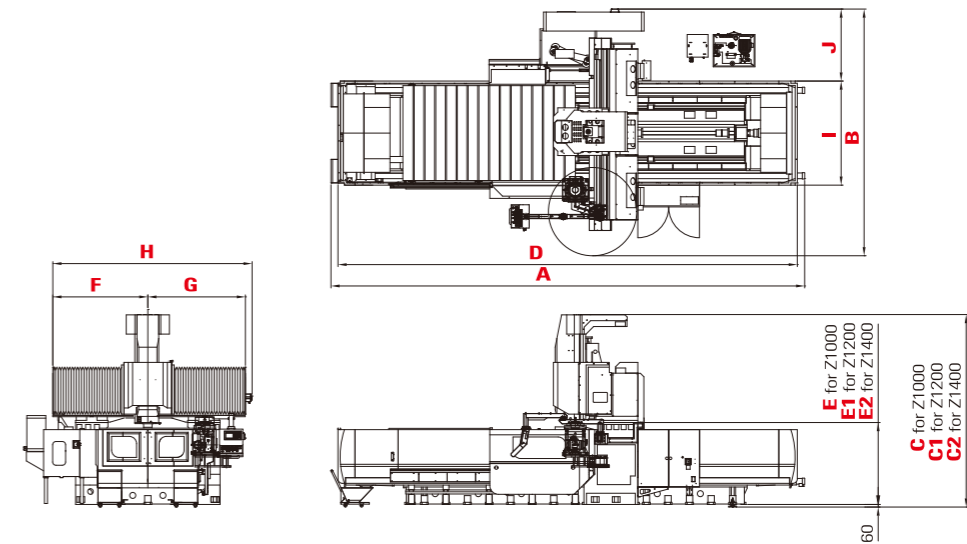
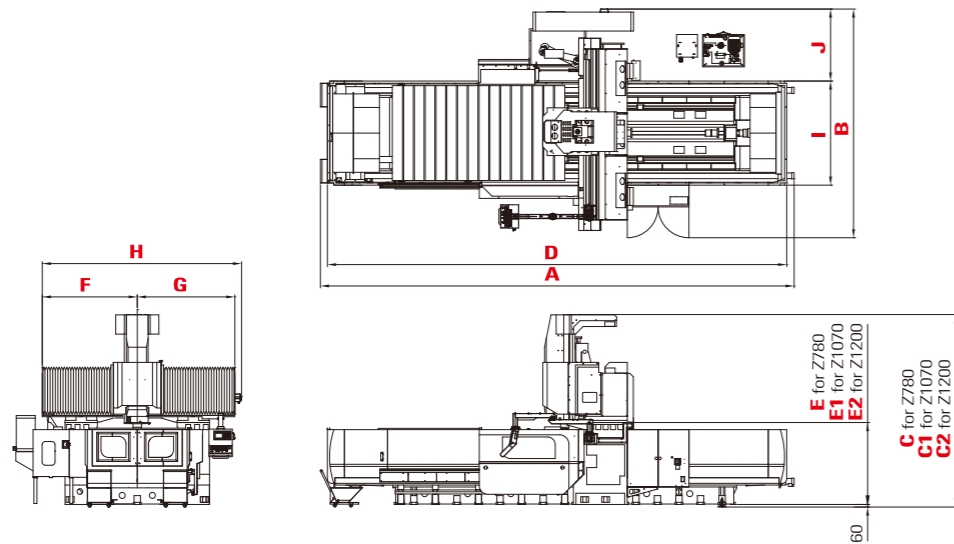
Unit: mm

Accuracy	Tolerance	Actual Value
Straightness Per Full Travel (X / Y-axis)	1000▼0.05M, 1000-2000 0.06M, 2000▲0.07M	0.02
Squareness Between Two Coordinate Axis (X / Y-axis)	0.02 / 500	0.006
Squareness Between Two Coordinate Axis (Y / Z-axis)	0.02 / 500	0.005
Squareness Between Two Coordinate Axis (X / Y-axis)	0.02 / 500	0.004
Positioning Accuracy (X-axis)	0.020 / Full Travel	0.005
Positioning Accuracy (Y-axis)	0.020 / Full Travel	0.005
Positioning Accuracy (Z-axis)	0.020 / Full Travel	0.004
Repeatable Positioning (X-axis)	0.010 / Full Travel	0.004
Repeatable Positioning (Y-axis)	0.010 / Full Travel	0.003
Repeatable Positioning (Z-axis)	0.010 / Full Travel	0.002
Run-out Of Spindle Taper Hole	Fixed Side: 0.005, Free Side: 0.015 / 300	0.001 / 0.005
Circularity	0.03 / 150	0.003

Machine Dimensions



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Model	A	B	C	C1	C2	D	E	E1	E2	F	G	H	I	J
HSA-323	9000	5304	4640	5210	5540	8671	1900	2200	2400	2205	2420	4625	2414	1670
HSA-423	11000					10671								
HSA-523	13000					12671								
HSA-623	15000					14671								
HSA-327	9000	5804	4640	5210	5540	8671	1900	2200	2400	2523	2583	5192	2914	1670
HSA-427	11000					10671								
HSA-527	13000					12671								
HSA-627	15000					14671								
HSA-428	11050	5677	4730	5200	5530	10671	2000	2200	2400	2523	2583	5192	2914	1543
HSA-528	13050					12671								
HSA-628	15050					14671								
HSA-728	17050					16671								
HSA-828	19050					18671								
HSA-536	12950	6539	4730	5200	5530	12520	2000	2200	2400	3023	3083	6192	3714	1605
HSA-636	14950					14520								
HSA-736	16950					16520								
HSA-836	18950					18520								

Model	A	B	C	C1	C2	D	E	E1	E2	F	G	H	I	J
HSA-323EA	9000	5725	5480	5610	5810	8671	2200	2400	2600	2205	2263	4625	2414	1670
HSA-423EA	11000					10671								
HSA-523EA	13000					12671								
HSA-623EA	15000					14671								
HSA-327EA	9000	6225	5480	5610	5810	8671	2200	2400	2600	2523	2583	5192	2914	1670
HSA-427EA	11000					10671								
HSA-527EA	13000					12671								
HSA-627EA	15000					14671								
HSA-428EA	11050	6095	5480	5610	5810	10671	2200	2400	2600	2523	2583	5192	2914	1543
HSA-528EA	13050					12671								
HSA-628EA	15050					14671								
HSA-728EA	17050					16671								
HSA-828EA	19050					18671								
HSA-536EA	12950	6960	5480	5610	5810	12520	2200	2400	2600	3023	3083	6192	3714	1605
HSA-636EA	14950					14520								
HSA-736EA	16950					16520								
HSA-836EA	18950					18520								
HSA-323EAY	9000	5975	5480	5610	5810	8671	2200	2400	2600	2525	2410	5090	2414	1920
HSA-423EAY	11000					10671								
HSA-523EAY	13000					12671								
HSA-623EAY	15000					14671								
HSA-327EAY	9000	6475	5480	5610	5810	8671	2200	2400	2600	2775	2660	5545	2914	1920
HSA-427EAY	11000					10671								
HSA-527EAY	13000					12671								
HSA-627EAY	15000					14671								
HSA-428EAY	11050	6475	5480	5610	5810	10671	2200	2400	2600	2775	2660	5545	2914	1920
HSA-528EAY	13050					12671								
HSA-628EAY	15050					14671								
HSA-728EAY	17050					16671								
HSA-828EAY	19050					18671								
HSA-536EAY	12950	7475	5480	5610	5810	12520	2200	2400	2600	3275	3060	6445	3714	1920
HSA-636EAY	14950					14520								
HSA-736EAY	16950					16520								
HSA-836EAY	18950					18520								



Machine Specifications



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Model	Unit	HSA-2212	HSA-3212	HSA-2215	HSA-323 / 423 / 523 / 623	HSA-327 / 427 / 527 / 627	HSA-428 / 528 / 628 / 728 / 828	HSA-536 / 636 / 736 / 836
Table								
Working Surface	mm	2000 x 1100	3000 x 1100	2100 x 1450	3000 / 4000 / 5000 / 6000 x 2200	3000 / 4000 / 5000 / 6000 x 2200	4000 / 5000 / 6000 / 7000 / 8000 x 2500	5000 / 6000 / 7000 / 8000 x 3000
T-slot (Size x Number x Pitch)	mm	22 x 6 x 100	22 x 6 x 160	21 x 11 x 200	28 x 11 / 15 / 19 / 23 x 250	28 x 11 / 15 / 19 / 23 x 250	28 x 15 / 19 / 23 / 27 / 31 x 250	28 x 19 / 23 / 27 / 31 x 250
Max. Table Load	kg	3500	4500	6000	8000 / 10000 / 12000 / 14000	8000 / 10000 / 12000 / 14000	15000 / 18000 / 21000 / 24000 / 27000	21000 / 24000 / 27000 / 30000
Travel								
Longitudinal Travel (X-axis)	mm	2250	3250	2200	3000 / 4000 / 5000 / 6000	3000 / 4000 / 5000 / 6000	4000 / 5000 / 6000 / 7000 / 8000	5000 / 6000 / 7000 / 8000
Cross Travel (Y-axis)	mm	1200	1200	1500	2300	2700	2800	3600
Vertical Travel (Z-axis)	mm	780	780	780 (1070)	780 (1070 / 1200 / 1400)	780 (1070 / 1200 / 1400)	780 (1070 / 1200 / 1400)	780 (1070 / 1200 / 1400)
Distance from Spindle End to Table	mm	120 ~ 900	120 ~ 900	220 ~ 1000 (Z: 780_Column 2000) # 50 420 ~ 1200 (Z: 780_Column 2200) # 50 230 ~ 1300 (Z: 1070_Column 2300) # 50 278 ~ 1059 (Z: 780_Column 2000) # 40 289 ~ 1359 (Z: 1070_Column 2300) # 40	200 ~ 980 (Z: 780_Column 1900) 210 ~ 1280 (Z: 1070_Column 2200) 280 ~ 1480 (Z: 1200_Column 2400) 280 ~ 1680 (Z: 1400_Column 2600) 480 ~ 1880 (Z: 1400_Column 2800)	200 ~ 980 (Z: 780_Column 1900) 210 ~ 1280 (Z: 1070_Column 2200) 280 ~ 1480 (Z: 1200_Column 2400) 280 ~ 1680 (Z: 1400_Column 2600) 480 ~ 1880 (Z: 1400_Column 2800)	260 ~ 1040 (Z: 780_Column 2000) 170 ~ 1240 (Z: 1070_Column 2200) 240 ~ 1440 (Z: 1200_Column 2400) 240 ~ 1640 (Z: 1400_Column 2600) 440 ~ 1840 (Z: 1400_Column 2800)	260 ~ 1040 (Z: 780_Column 2000) 170 ~ 1240 (Z: 1070_Column 2200) 240 ~ 1440 (Z: 1200_Column 2400) 240 ~ 1640 (Z: 1400_Column 2600) 440 ~ 1840 (Z: 1400_Column 2800)
Distance from Spindle Center to Column	mm	450	450	430	450	450	450	450
Width Between Column	mm	1300	1300	1750	2300	2800	2800	3600
Spindle								
Spindle Speed (Gear Type)	rpm	6000 only for #50	6000 only for #50	6000	6000 (8000)	6000 (8000)	6000 (8000)	6000 (8000)
Spindle Speed (DDS)	rpm	10000 (15000 Only on #40)	10000 (15000 Only on #40)	10000 (15000 Only on #40)	(10000 / 12000)	(10000 / 12000)	(10000 / 12000)	(10000 / 12000)
Spindle Nose Tape		ISO50 / ISO40	ISO50 / ISO40	ISO50 / ISO40	ISO50	ISO50	ISO50	ISO50
Feed								
Cutting Feed Rate (X / Y / Z-axis)	mm / min	10000	10000	8000	8000	8000	5000	5000
Rapid Traverse (X / Y / Z-axis)	mm / min	X=24000 Y=24000 Z=20000	X=24000 Y=24000 Z=20000	X=20000 Y=20000 Z=15000	X / Y=15000, Z=12000 (323) X / Z=12000, Y=15000 (423) X=10000, Y=15000, Z=12000 (523) X=8000, Y=15000, Z=12000 (623)	X=15000, Y / Z=12000 (327) X / Y / Z=12000 (427) X=10000, Y / Z=12000 (527) X=8000, Y=12000, Z=12000 (627)	X / Y / Z=12000 (428) X=10000, Y / Z=12000 (528,628) X=8000, Y / Z=12000 (728) X=6000, Y / Z=12000 (828)	X=10000, Y / Z=12000 (536, 636) X=8000, Y / Z=12000 (736) X=6000, Y / Z=12000 (836)
ATC								
Tool Storage Capacity	pcs	24/32 A-type , 40 A-type Only on #50	24/32 A-type , 40 A-type Only on #50	20 S-type, 32 / 40 A-type (24 A-type Only on #40)	20 S-type, 32A-type	20 S-type, 32 A-type	20 S-type, 32 A-type	20 S-type, 32 A-type
Max. Tool Weight	kg	15 (#50), 6 (#40)	15 (#50), 6 (#40)	15 (#50), 6 (#40)	15 S-type, 15 A-type	15 S-type, 15 A-type	15 S-type, 15 A-type	15 S-type, 15 A-type
Max. Tool Size (Diameter x Length)	mm	Ø110 x 350 (24) / Ø125 x 350 (32 / 40) (Ø75 / Ø300 Only on #40)	Ø110 x 350 (24) / Ø125 x 350 (32 / 40) (Ø75 / Ø300 Only on #40)	Ø125 x 350 (Ø125 x 250 #40)	Ø125 x 350	Ø125 x 350	Ø125 x 350	Ø125 x 350
Tool Shank		BT50 / CAT50 / DIN, BT40 / CAT40 / DIN	BT50 / CAT50 / DIN, BT40 / CAT40 / DIN	BT50 / CAT50 / DIN, BT40 / CAT40 / DIN	BT50 / CAT50 / DIN / BBT50	BT50 / CAT50 / DIN / BBT50	BT50 / CAT50 / DIN / BBT50	BT50 / CAT50 / DIN / BBT50
Pull Stud Bolt		P50T-1/CAT-50/DIN, MAS-P40T-1/CAT-40/DIN	P50T-1/CAT-50/DIN, MAS-P40T-1/CAT-40/DIN	P50T-1 / P40T-1	P50T-1	P50T-1	P50T-1	P50T-1
Motor								
Spindle Drive Motor (Fanuc) kW(30min / Con)		#50: 15 #40: 7.5	#50: 15 #40: 7.5	#50: 18.5 / 15 (22 / 18.5 DDS for Fanuc) #40: 11 / 7.5 DDS for Fanuc	22 / 18.5 22 / 18.5 (DDS for Fanuc)	22 / 18.5 22 / 18.5 (DDS for Fanuc)	22 / 18.5 (30 / 26 DDS for Fanuc)	22 / 18.5 (30 / 26 DDS for Fanuc)
Other								
Required Air Pressure	kg / cm ²	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Electric Power Consumption	KVA	#50: 50, #40: 50	#50: 50, #40: 50	#50: 45 (60 for DDS), #40: 40 for DDS	55 / 55 / 60 / 65	55 / 55 / 60 / 65	65 / 65 / 65 / 65 / 70	60 / 70 / 70 / 70
Floor Space (Full Guarding)	mm	7930 x 5440	10160 x 5440	7700 x 6170	11000 / 13000 / 15000 / 17000 x 6400	11000 / 13000 / 15000 / 17000 x 6900	13440 / 15440 / 17440 / 19440 / 21440 x 7280	14790 / 16790 / 18790 / 20790 x 8140
Net Weight	kg	16000 (#50) 16000 (#40)	16000 (#50) 16000 (#40)	24500 (Z-axis 780) 26000 (Z-axis 1070)	30100/34100/38100/42100 (Z-axis 780) 31420/35420/39420/43420 (Z-axis 1070) 32000/36200/40200/44200 (Z-axis 1200)	33370/37370/41370/45370 (Z-axis 780) 34690/38690/42690/46900 (Z-axis 1070) 35470/39470/43470/47470 (Z-axis 1200)	39000/44000/50000/55000/60000 (Z-axis 780) 39500/44500/50500/55500/60500 (Z-axis 1070) 40000/45000/51500/56500/61500 (Z-axis 1200)	56000/62000/67000/72000 (Z-axis 780) 56500/62500/67500/72500 (Z-axis 1070) 57000/63000/68000/73000 (Z-axis 1200)
Z-axis 1400kg Weight Please Ask Sales.								

Standard & Optional 1. Electrical Function

A. Hartrol (Standard)

- ∞ Workpiece Calibration by Mpg Directly
- ∞ Tool Magazine Display
- ∞ Pop-up Calculator (In Hartrol Screen) (Only for Fanuc Controller)
- ∞ Parameter Package
- ∞ Utilization Rate of Machining (Only for Fanuc Controller)
- ∞ Machining Time Countdown (Only for Fanuc Controller)
- ∞ Threading Cutting (Only for Oi and 31i)
- ∞ Tool Type Display (Only for Oi and 31i)
- ∞ Monitoring of Tool Status (Only for Oi and 31i)
- ∞ Barcode Factory Management (Only for Fanuc Controller)
- ∞ Character Craving Macro
- ∞ Tool Change Function on Tool Offset Screen

B. Harnet (Optional)

- ∞ Management System of Utilization
- ∞ Machining Time Countdown
- ∞ Convenient File Transfer

C. Electrical Function (Optional)

- ∞ Compensation of Temperature Displacement
- ∞ Lifting Function Against Gravity
- ∞ Retraction for Rigid Tapping
- ∞ Intelligent MPG
- ∞ HCl for Tool Magazine



Machine Specifications

Model	Unit	HSA-323 / 423 / 523 / 623EA	HSA-327 / 427 / 527 / 627EA	HSA-428 / 528 / 628 / 728 / 828EA	HSA-536 / 636 / 736 / 836EA
Table					
Working Surface	mm	3000 / 4000 / 5000 / 6000 x 2200	3000 / 4000 / 5000 / 6000 x 2200	4000 / 5000 / 6000 / 7000 / 8000 x 2500	5000 / 6000 / 7000 / 8000 x 3000
T-slot (Size x Number x Pitch)	mm	28 x 11 / 15 / 19 / 23 x 250	28 x 11 / 15 / 19 / 23 x 250	28 x 15 / 19 / 23 / 27 / 31 x 250	28 x 19 / 23 / 27 / 31 x 250
Max. Table Load	kg	8000 / 10000 / 12000 / 14000	8000 / 10000 / 12000 / 14000	15000 / 18000 / 21000 / 24000 / 27000	21000 / 24000 / 27000 / 30000
Travel					
Longitudinal Travel (X-axis)	mm	3000 / 4000 / 5000 / 6000	3000 / 4000 / 5000 / 6000	4000 / 5000 / 6000 / 7000 / 8000	5000 / 6000 / 7000 / 8000
Cross Travel (Y-axis)	mm	2300 / 3100 (EAY)	2700 / 3500 (EAY)	2800 / 3600 (EAY)	3600 / 4400 (EAY)
Vertical Travel (Z-axis)	mm	1000 / 1200 / 1400	1000 / 1200 / 1400	1000 / 1200 / 1400	1000 / 1200 / 1400
Distance from Spindle End to Table	mm	350 ~ 1350 350 ~ 1550 (OP) 350 ~ 1750 (OP)	350 ~ 1350 350 ~ 1550 (OP) 350 ~ 1750 (OP)	310 ~ 1310 310 ~ 1510 (OP) 310 ~ 1710 (OP)	310 ~ 1310 310 ~ 1510 (OP) 310 ~ 1710 (OP)
Distance from Spindle Center to Column	mm	450	450	450	450
Width Between Column	mm	2300	2700	2800	3600
Spindle					
Spindle Speed (Gear Type)	rpm	6000	6000	6000	6000
Spindle Nose Tape		ISO50	ISO50	ISO50	ISO50
Feed					
Cutting Feed Rate (X / Y / Z-axis)	mm / min	8000 / 5000 (EAY)	8000 / 5000 (EAY)	5000	5000
Rapid Traverse (X / Y / Z-axis)	mm / min	X=15000, Y=15000, Z=12000 (323) (EA) X=12000, Y=15000, Z=12000 (423) (EA) X=10000, Y=15000, Z=12000 (523) (EA) X=8000, Y=15000, Z=12000 (623) (EA) X=15000, Y=12000, Z=12000 (323) (EAY) X=12000, Y=12000, Z=12000 (423) (EAY) X=10000, Y=12000, Z=12000 (523) (EAY) X=8000, Y=12000, Z=12000 (623) (EAY)	X=15000, Y=12000, Z=12000 (327) (EA) X=12000, Y=12000, Z=12000 (427) (EA) X=10000, Y=12000, Z=12000 (527) (EA) X=8000, Y=12000, Z=12000 (627) (EA) X=15000, Y=12000, Z=12000 (327) (EAY) X=12000, Y=12000, Z=12000 (427) (EAY) X=10000, Y=12000, Z=12000 (527) (EAY) X=8000, Y=12000, Z=12000 (627) (EAY)	X / Y / Z=12000 (428) X=10000, Y / Z=12000 (528) X=10000, Y / Z=12000 (628) X=8000, Y / Z=12000 (728) X=6000, Y / Z=12000 (828)	X=10000, Y / Z=12000 (536, 636) X=8000, Y / Z=12000 (736) X=6000, Y / Z=12000 (836)
ATC					
Tool Storage Capacity		32 A-type / 40 (62) Chin-type	32 A-type / 40 (62) Chin-type	32 A-type / 40 (62) Chin-type	32 A-type / 40 (62) Chin-type
Max. Tool Weight	pcs	20	20	20	15 (S-type) / 15 (A-type)
Max. Tool Size (Diameter x Length)	kg	Ø125 x 400	Ø125 x 400	Ø125 x 400	Ø125 x 400
Tool Shank	mm	BT50 / CAT50 / DIN	BT50 / CAT50 / DIN	BT50 / CAT50 / DIN	BT50 / CAT50 / DIN
Pull Stud Bolt		P50T-1	P50T-1	P50T-1	P50T-1
Motor					
Spindle Drive Motor (Fanuc) kW(30min / Con)		22 / 18.5	22 / 18.5	22 / 18.5	22 / 18.5
Other					
Required Air Pressure	kg / cm ²	6.5	6.5	6.5	6.5
Electric Power Consumption	KVA	55 / 55 / 60 / 65	55 / 55 / 60 / 65	60 / 62 / 65 / 65 / 70	65 / 70 / 70 / 70
Floor Space (Full Guarding)	mm	11000 / 13000 / 15000 / 17000 x 6500 (EA) 11000 / 13000 / 15000 / 17000 x 7000 (EAY)	11000 / 13000 / 15000 / 17000 x 7000 (EA) 11000 / 13000 / 15000 / 17000 x 7500 (EAY)	13000 / 15000 / 17000 / 19000 / 21000 x 7200 (EA) 13000 / 15000 / 17000 / 19000 / 21000 x 7500 (EAY)	11000 / 13000 / 15000 / 17000 x 8500 (EA) 11000 / 13000 / 15000 / 17000 x 9000 (EAY)
Net Weight	kg	30500 / 34500 / 39000 / 44500 (EA) 32000 / 36000 / 40500 / 46000 (EAY)	34000 / 38000 / 42500 / 47500 (EA) 35500 / 39500 / 44000 / 49000 (EAY)	39500 / 44000 / 49500 / 55500 / 62000 (EA) 41000 / 44500 / 51000 / 57000 / 63500 (EAY)	58000 / 63000 / 68000 / 73000 (EA) 59500 / 64500 / 69500 / 74500 (EAY)

For Other Specs Please Ask Sales.

Standard & Optional 2. Mechanical Accessories

Standard for HSA Series	Optional for HSA Series
<ul style="list-style-type: none"> ○ Centralized Automatic Lubrication System ○ Air Blast Through Spindle ○ Spindle Oil Cooler ○ Portable Chip Bucket x 2 ○ Fluorescent Lamp ○ Full-enclosed Splash Guard 	<ul style="list-style-type: none"> ○ Heat Exchanger in Control Box (For MITSUBISHI, FANUC, SYNTEC) ○ Table Side Air Blast (1 Tube) ○ Spindle Air Curtain ○ Gear Head 6000 rpm ○ Semi-splash Guard ○ CTS Full Splash Guard ○ Coolant Through Spindle ○ 90° Angular Head ○ 30° Angular Head ○ Extend Head ○ Universal Milling Head ○ Arm Type Angular Head Seat (Not for HSA-2215) ○ Touch Probe ○ Imitative Mold Cutting System ○ Closed Loop Linear Scale Positioning System (Standard: X-axis 6 Meters and Higher) ○ Link Type Chip Conveyor & Portable Chip Bucket ○ Direct Drive Spindle 10000 rpm / 12000 rpm ○ ATC 40T / 60T ○ Gear Head 8000 rpm (ZF Gearbox) (Not for HSA-2215) ○ Cooling System (Standard: HSA-2215)

