www.hartford.com.tw

Website

Facebook

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

She Hong INDUSTRIAL CO. LTD.

No.3,Jingke N. Rd.,Nantung District,Taichung City, 40852 Taiwan(R.O.C)
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CAT.NO : 201800905- E03

Hartford

Hartrol · Smartcenter · Robocell

We manufacture intelligent machines only

Hartford innovation

THE NEXT 50 YEARS

AERO Series

Smartcenter

Intelligent Gantry type 5-axis machining center

- 5 - year warranty on guideway.
- Equipped with Germany 5 axis head.
- High precise 5 axis head.

Join The Aerospace Revolution

High Efficiency Solution for Aerospace Components

ISO9001&AS9100 Certified

The Hartford AERO 5-axis machining center builds on decades of excellent machining experience, it deliver the next generation solution for customers in the Aerospace components industry.

High tech structural components machined from aluminum and alloys with 3D contours are the standard requirement for aerospace parts and demand the very best in cutting efficiency and precision.

Hartford's 5-axis universal head delivers the versatility and flexibility you need on large complex components machining.

Aerospace Part

Material : Aluminum 7050-T7451

Feature :

1.Aerospace aluminum be machined from rough workpiece (cutting volume up to 70%).

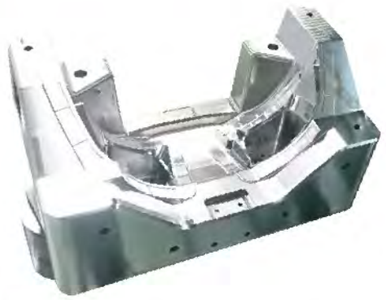
2.Tolerance must be smaller than 0.5mm / accuracy require of hole: 0.03~0.05mm.

Aerospace Part

Material : Aluminum 7050-T7451

Feature :

1. Aerospace aluminum be machined from rough workpiece (cutting volume up to 70%).
2. Axial of tool setting, optimized machining.



Automobile injection mold

Material : Die steel

Feature :

1. 5-axes tilting fixed aix rapping machining on recessed angle.
2. Uncoaxiality 5-axes machining, within tolerance.

Automobile panel mold – Hood

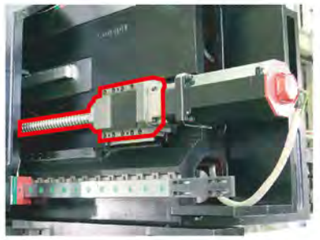
Material : Medium carbon steel

Feature :

1. Display complex curve cutting ability.
2. One-piece curve mold and fine finishing.
3. Precisely central position of tool, contour accuracy.

High rigidity structure design on Aero-2225/2232

AERO-2225 / 2232 is designed with gantry type construction with rigid design so thatit can provide a solid support for AERO-2225 / 2232



1.AERO three-axis direct-connected drive advantage

AERO series X-axis pair up with the planetary reducer, effectively enhancing the overall axial drive torque the machine.

2. Two axis heads

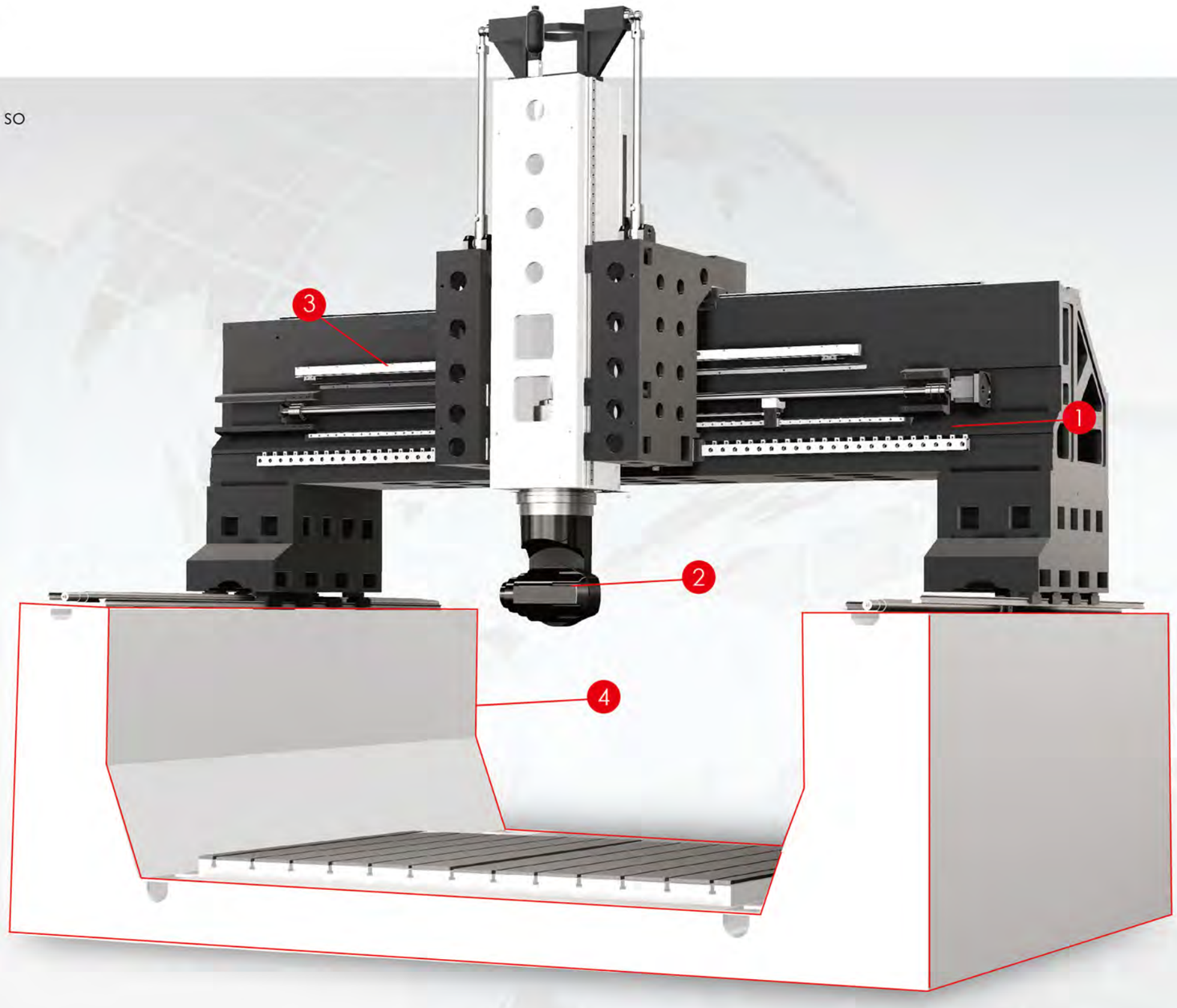
1.Main application in aviation and automotive industries, main processing face milling, drilling, and end milling, etc.
2.High precision axial and radial bearing available use.
3.Rotary axis use high precision angle to match high precision positioning.
4.Spindle can use CTS system to elevate processing efficiency and energy saving.

3. Z-axis nitrogen accumulator weight system

Reduce operating noise of hydraulic tank. Reduce hydraulic thank oil temperature by **50%** Effective energy - saving more than **20%**

4.One piece base design

High rigidity crane type of double column machine, one piece casting design of base and table, strong vibration absorbing capability, high precision and stable processing quality, provide you high speed and heavy processing.



Grease Lubrication System

- Extend machinery components life time, reduce.
- Extend cutting fluid life time, reduce pollution around machines.
- Reduce work piece be polluted, prevent lubricant hardening.

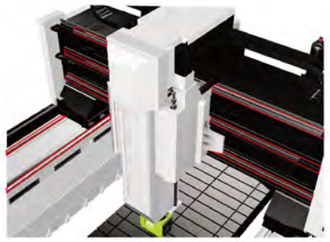
MEEHANITE

Extra rigid & Stable of Aero-626

New AERO-626, from roughing to finishing, allows you to accomplish at one go.

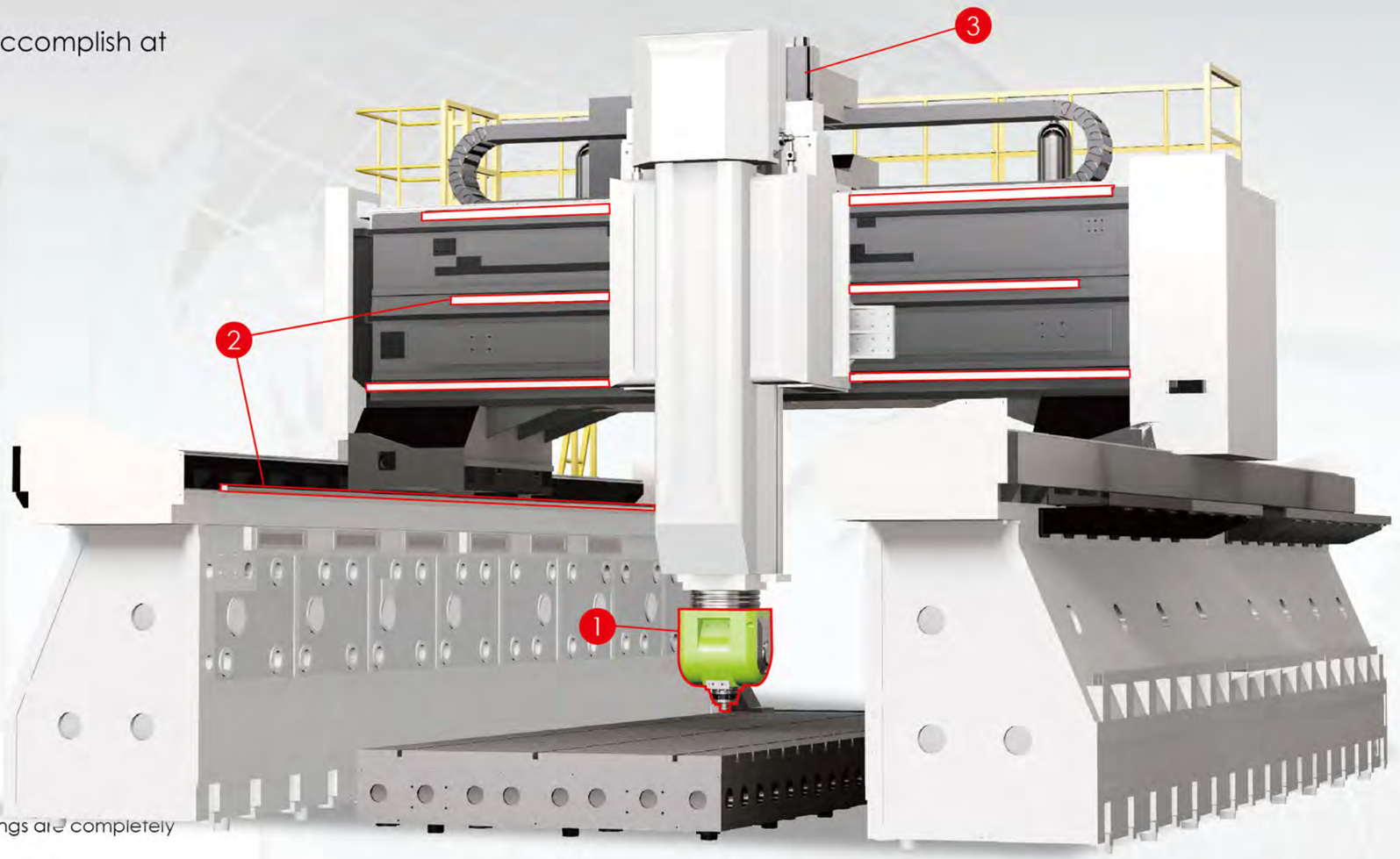
1.HSK-A63 5-axis head

- Assembly with Germany made Cytec 5 axis head delivers highly precise.



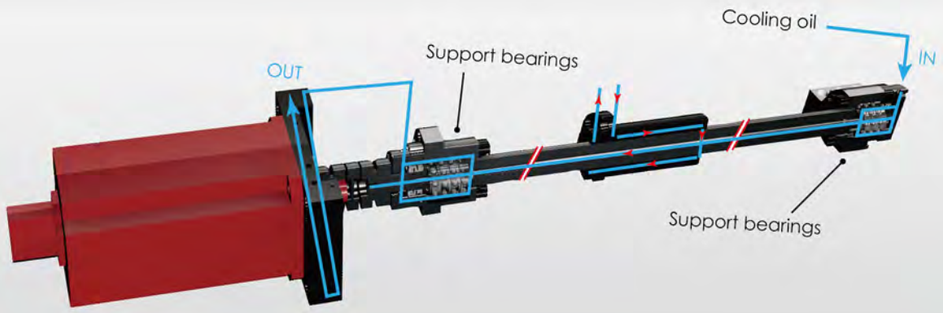
2. X / Y multi linear guideways with wide span design

- X axis with 4 linear guideways - 2 linear guideways on each side to maximize rigidity
- Y axis with 3 linear guideways



3.Thermal growth control on Z-axis

- The parts in Z-axis feeds, such as the motor base, ballscrews, nuts and bearings are completely cooled.
- Removes thermal deformation while ensuring the positioning accuracy of the machine.
- Machine dynamic rigidity is increased.
- Axis accuracy increased by 15%
- Features may vary by models, please check with sales window.

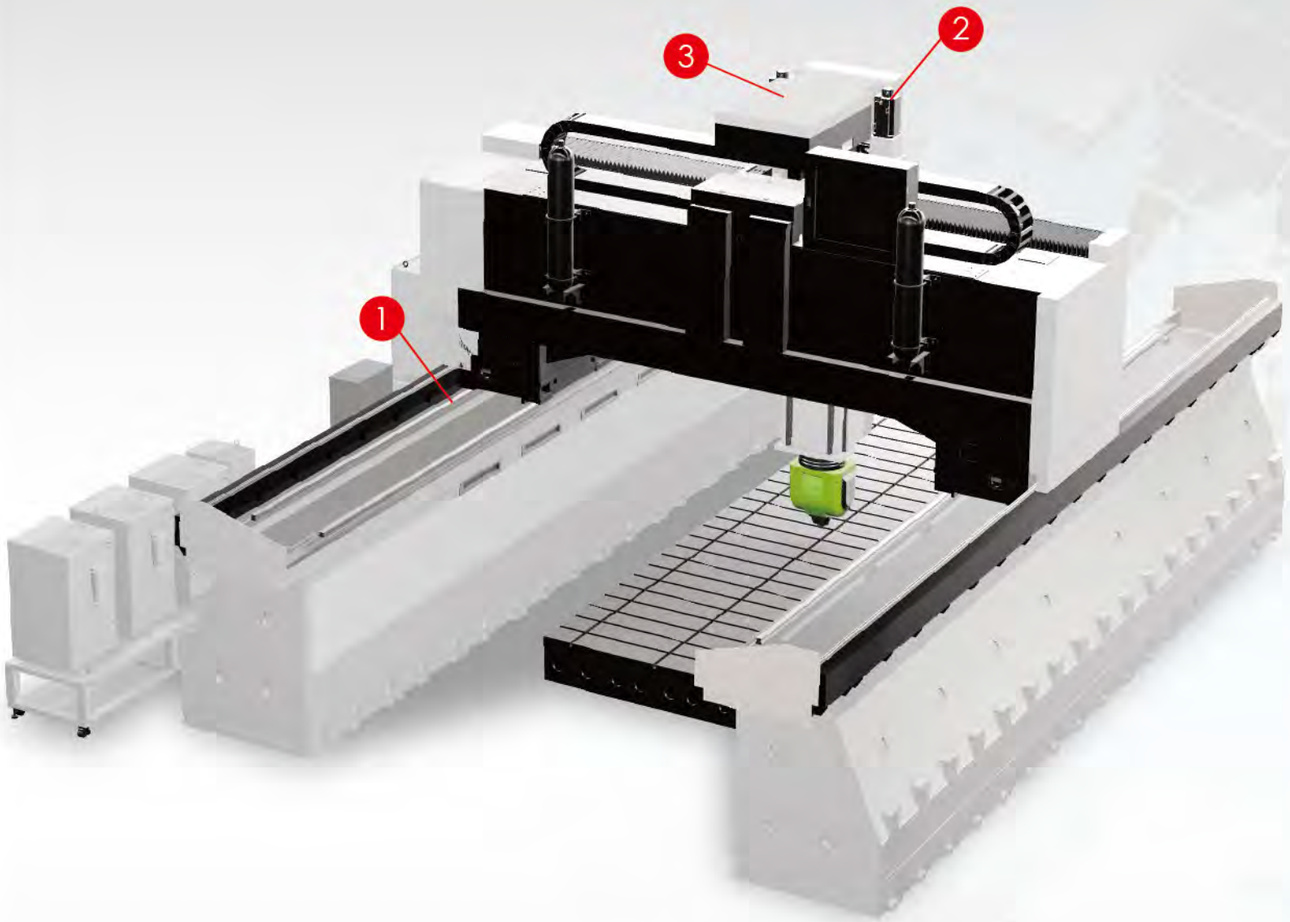


Full range of linear guideway five - year warranty:

Warranty coverage will not apply under following conditions,

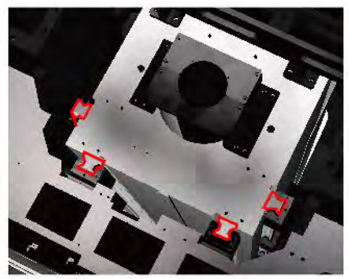
1. Improper operation (collision)
2. Lack of regular cleaning of accumulated debris causing damage to the linear rails & carriages.

Key design of Aero-626



2.Twin ballscrew design for Z axis

- This design brings you highly stability.
- Double screws driven : High stability
- Advantages : Less vibration on Z axis



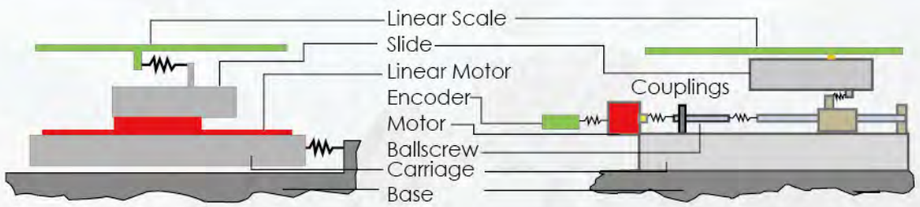
3. Z-axis four linear guideways three binding structure patented technology

The patented AERO four linear guideways three binding structure technology, two-way support provides high rigidity while cutting, bringing you excellent performance.

Patent No.1264343 machining center Z-axis head Z-axis four linear guideways.

Linear Motor

There are two interfaces Linear motor driven, but four on screw type driven.
Error, vibration, backlash will be caused by interface. In addition, linear motor has less spare parts on designing. It can have advantages on maintenance.



Linear Motor Drive　　Motor+Ballscrew Drive

1.Roller type linear guideway on 3 axis

- This makes high accuracy, heavy load resistance and long lifespan possible.
- Linear Roller type on 3 axis: High accuracy & better life time.
- Compare with ball type : Increase 20%

Good :

- No backlash and wear.
- Good for high speed and high accuracy.
- Brand : BOSCH REXROTH
- Linear motor : No blacklash & High speed & precision
- Better machining efficiency and accuracy

The Spindles for Aero series models

Spindles for Aero-X26/X36 series models

Key Feature

1.High rigidity FORK structure
- Torque motor Direct Dirve
- Non-mechanism transmission system
- High rigidity positioning machining(hydraulic brake)
- High resolution rotary encoder systme

2.High rigidity hybrid-bearing
- HIgh rigidity, load and longer lifetime

3.BC axes parallel connection torque motor drive
- High dynamic performance
- No mechanical wear and minimize maintenance
- Wide torque-speed range and no reverse backlash
- High accuracy

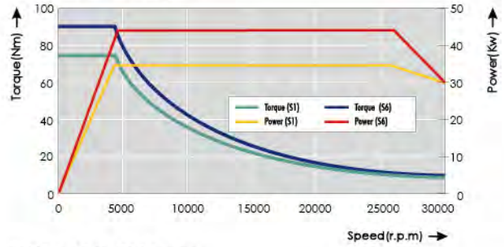
4.Automatic tool clamp / unclamp system

5.Grease lubrication

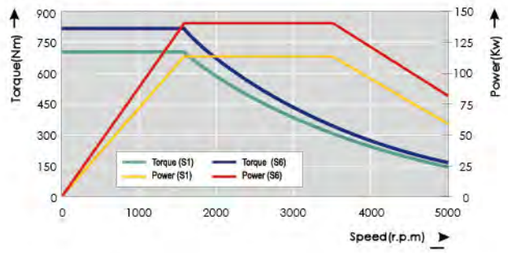
6.CTS is standard equipment

Torque curve diagram

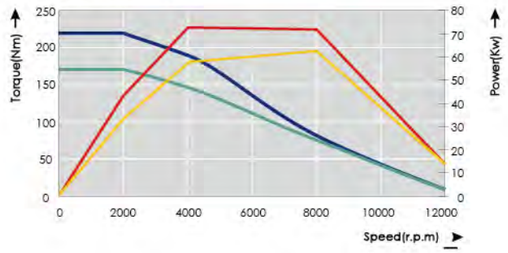
HSK-A63, 24000rpm



HSK-A100, 5000rpm

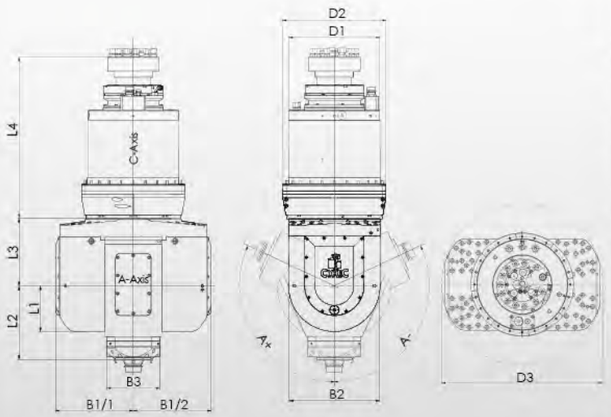


HSK-A100, 12000rpm



Powerful & Versatility

		HSK-A63 (24000 rpm)		HSK-A100 (5000 rpm (opt.))		HSK-A100 (12000 rpm(opt.))	
Item	Unit	B Axis	C Axis	B Axis	C Axis	B Axis	C Axis
Spindle drive motor	kW(S1/S6)	34 / 43		110 / 138		34 / 43	
Spindle Rated Torque	Nm(S1/S6)	72 / 91		657 / 824		170 / 220	
Swiveling Speed	rpm	60	60	60	60	60	60
Roted Torque	Nm	1340	1530	2550	1960	1340	1530
Braking Torque	Nm	4000	4000	7000	7000	4000	4000
Swiveling Angle	deg	±110°	±360°	±110°	±360°	±110°	±360°
Precision of Positioning	sec.	±5"	±2"	±2.5"	±2"	±5"	±2"



Head Series	HSK-A63 (24000 rpm)	HSK-A100M (5000 rpm opt.)	HSK-A100M (12000 rpm opt.)
D1	335	380	335
D2	□400	□460	□400
B1/1	284	332.5	284
B1/2	271	332.5	271
B2	400	522	400
B3	200	294	200
L1	200	261	200
L2	310	505	385
L3	290	376	290
L4	807	826	807
D3	588	730	588

The Spindles for Aero-2225/ 2232 series models

Leistungsdaten bei Betriebsart Performance at Load Cycle	Unit	S1	S6-60% (Tc = 3,15 min)	S6-40% (Tc = 3,15 min)	MAX (Tl ≤ 10 s)
Drehmoment Torque	Nm	69,3	79,7	90,1	104
Leistung Power	kW	45	51,8	58,5	61,6
Strom Current	A	123	141	160	185
Umrichterspannung Voltage at inverter output	Vrms	349	382	417	424
Motor-Spannung Voltage at motor terminal	Vrms	254	266	279	271

AERO Pyramid RMP600 Precision measuring

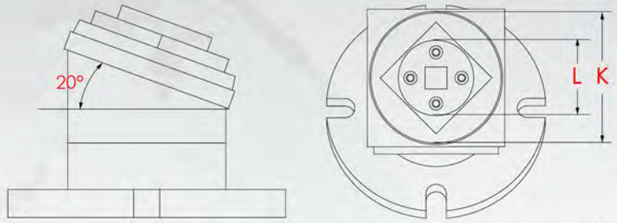
Rotary positioning accuracy error on BC axis

1. 3-axis < 0.01mm
   5-Axis Head Bo, Co, 3 Axis Machining accuracy
2. 5-axis < 0.02mm
   Rotary positioning accuracy error on BC axis
3. 5-axis < 0.02mm
   Rotary positioning accuracy error on BC axis
4. 5-axis < 0.02mm
   Rotary positioning accuracy error on BC axis

		Actual length		Std. length		Error margin	
NO.	Machining Accuracy	X-axis	Y-axis	X-axis	Y-axis	X-axis	Y-axis
1	3-axis < 0.01mm	34.6061	41.6073	34.6	41.6	- 0.0061	- 0.0073
2	5-axis < 0.02mm	71.4207	80.4093	71.4	80.4	- 0.0207	- 0.0093
3	5-axis < 0.02mm	112.6049	121.6025	112.6	121.6	- 0.0049	- 0.0025
4	5-axis < 0.02mm	151.2162	160.2055	151.2	160.2	- 0.0162	- 0.0055

Unit : mm

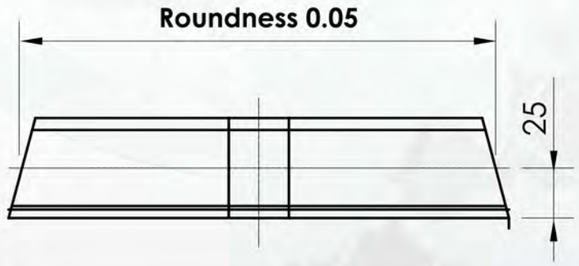
5-axis accuracy test: NAS-975



Unit:mm

Item	Test Item	Tolerance	Test Results
1	Roundness	L	0.0037
2	Roundness	K	0.0069
3	Inclination Ansgle	20° ±1' 20"	19° 58' 48"

NAS 979 Inspection Cutting report



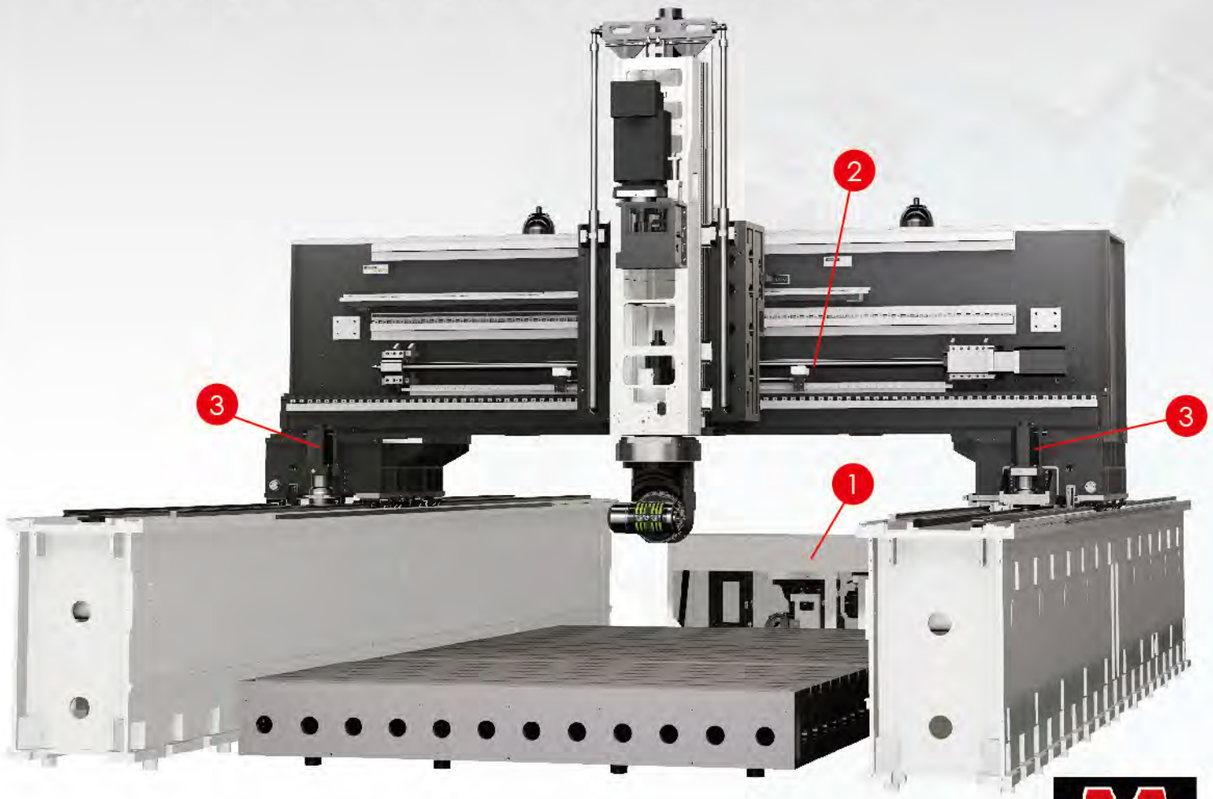
	Tolerance	Test results
Inclination angle	∠15°(±1°/20")	15.0007°
Roundness	0.05	0.0148

Unit:mm

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

Optimal Rigid Design Construction for AERO-X31SR

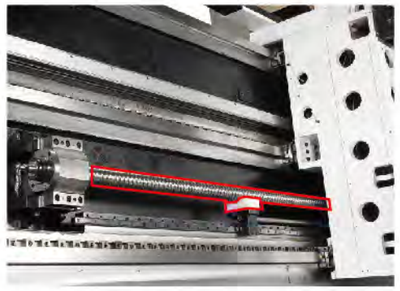
The gantry type construction provides a solid support for AERO-X31SR



MEEHANITE

1.Aero-X31SR can operate with the automatic head changer and horizontal or vertical tool changer system to offer efficient and versatile machining.

- Can operate with the auto universal head/auto 90° head/extension head.
- The full automatic head changer is provided with the protective cover and independent head magazine.
- The hydraulic cylinder is used for fast head changeover.
- Each magazine is provided with an independent moving door that is opened only during the head changeover to prevent debris from contaminating heads.
- Additional head magazines are also available. If you need them, contact your sales representative.



Y-axis screw support mechanism

2.Screw support mechanism maintains excellent positioning accuracy

- In time of the transmission of the x and Y axis, ensure that power is maintained.
- Improve screw dead weight sagging ; enhance the positioning accuracy andlife of screw.
- Increase 1 level of screw specification; lift static rigidity.

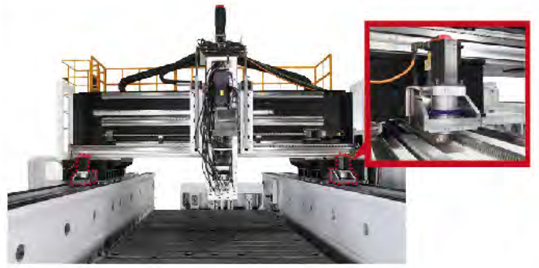
Diversified strong spindle meets your processing needs

Hartford made gear type 8,000rpm Two-stage spimdle (optional feature)

- To follow the process attribute, pair up with high or low gear.
- Spindle-mounted structure design
- Thermal separation technology enables thermal extension to contral and apply to AERO-X31SR

Hartford made i-Tech hybrid type 10,000 rpm spindle (optional feature)

- Motor and spindle dual cooling circulation design.
- Cooling cycle design
- Built-in motor-maximum 35kw, 600N-m



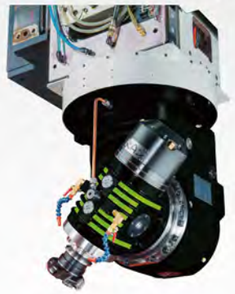
3.X axis Rack and Pinion Features

1. No backlash by electrical pre-loading
2. High positioning accuracy even by single driver
3. High torque transmission.
4. Low noise, helical angle and pressure angle give system running smoothly.
5. In closed loop control, machine transmission components can reduce damping.

Complete angular head design package for Aero-x31SR

Hartford has a full range of angular head specifications, in addition to automatic universal heads, automatic 90 degrees head, automatically extension head, automatic grab head to pair up with a 90-degree head, there are series of manual and semi-automatic universal heads, 90 degrees head and extension head, etc., for you to choose to meet you wide range of processing needs.

1. Automatic heads (automatic clamp) suitable



Automatic universal head (2.5°/1°)	Axis	A / C axis division angle configuration table			
A / C axis automatic rotation angle Maximum speed: 4, 000 rpm Maximum power: 26 kW The maximum torque to withstand: 930 N-m Optional configuration of maximum pressure 70 BAR CTS	C-axis	1°	2.5°	2.5°	1°
	A-axis	1°	2.5°	1°	2.5°
	Remark	ST. standard feature	OPT. customized specifications		

Automatic 90 ° head (2.5° / 1°)
Maximum speed: 4,000 rpm / 2,500 rpm (opt.) Maximum power: 26 kW The maximum torque to withstand: 930 N-m Optional configuration of maximum pressure 70 BAR CTS Minimum optional configuration C-axis positioning indexing: 1 degree

Automatically extension head (350 / 500 mm)
Maximum speed: 4,000 rpm Maximum power: 25 kW The maximum torque to withstand: 750 N-m Optional configuration of maximum pressure 70 BAR CTS Automatic tool change function

Automatic clamp/unclamp+ the manual 90° head
Maximum speed: 2,000 rpm Maximum power: 18.5 kW The maximum torque to withstand: 650 N-m External guide pins enhance the positioning accuracy of the exchange head, with automatic grab head function and manual rotating angle function.

2. Manual position head (manually fixed) applicable to general model AERO-X31SR

Universal head (manual / semi-automatic)		Manual universal head	Semi-automatic universal head
A axis: ± 110°, C-axis: ± 180° Maximum speed: 2,500 rpm Maximum power: 18.5 kW The maximum torque to withstand: 650 N-m	Binding mechanism	Manual	Manual
	Unclamping mechanism	Manual	Automatic
	C-axis rotation	Manual	Manual

90° side milling head (manual / semi-automatic)		Manual 90° head	Semiautomatic 90° head
Manual tool change (manual / hydraulic lock release tool.) Maximum speed: 2,000rpm Maximum power: 18.5 kW The maximum torque to withstand: 650 N-m	Binding mechanism	Manual	Manual
	Unclamping mechanism	Manual	Automatic
	C-axis rotation	Manual	Manual

Extension head (350 / 500 mm)
Maximum speed:4,000 rpm Maximum power: 18.5 kW The maximum torque to withstand: 650 N-m

Angular head exclusive technology for AERO-X31SR

Patented technology

Clutch-type vertical skew angular axis head.
The clutch lock of the horizontal axis(CHE)

During clutch, the electromanetic brake will activate on both the rotating and linkage shaft.
The slanting swing is generated by gravity. Reduce the amount of slanting swing while in clutch to avoid tooth jamming.

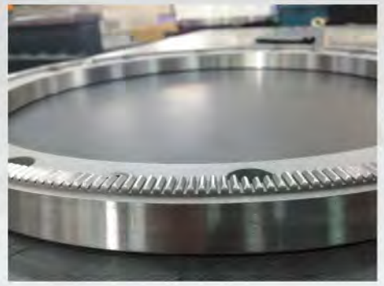
Angular head C-axis 1 degree positioning mechanism (TWC)

Angular head C-axis 1-degree indexing positioning function. Because the whole transmission system is a fully closed loop, it can still better eliminate the origin of mechanical backlash.

Angular head center coolant mechanism(UAC)

All automatic head classes have CTS function, can give customers maximum tool life and processing performance.

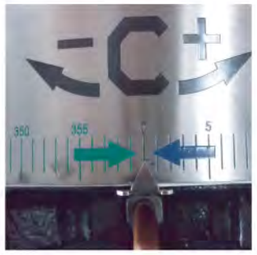
· Adjust teeth clearance



· Check gear

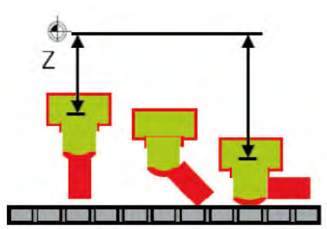
· End surface flatness correction

Intelligent technology



Minimum optional configuration A/C-axis positioning indexing : 1 degree

In AC travel, arbitrary integer angular inclined surface processing needs.(Optional accessory)



Auto angular head travel intelligent switching

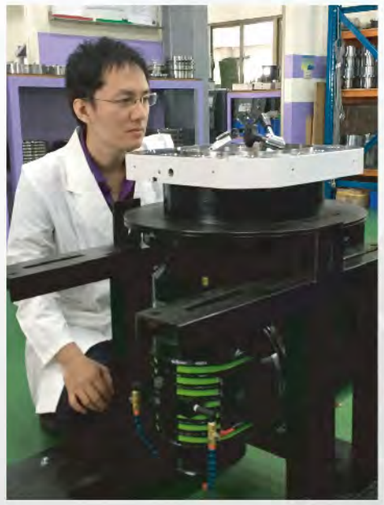
Solves the problems of switching between travel and protected areas so that the travel limit (Y-axis & Z-axis) is autimatically adjusted according to the universal head angular.(Standard accessory)

AC universal head rotstion center + Tool tip automatic error measurement function

Raises processing accuracy, reduces manual measurement error, and shortens the measurement time.
In time of measured comprising a heat deflection of the angle head, so it is possible to improve accuracy errors. (Optional accessory)

Adhere to quality and meticulous detail

Hartford adheres to each gradation, grasps every possibility, and is devoted to adhering to quality and meticulous detail.
By demanding quality precision within each process, we remain dedicated to producing the best.

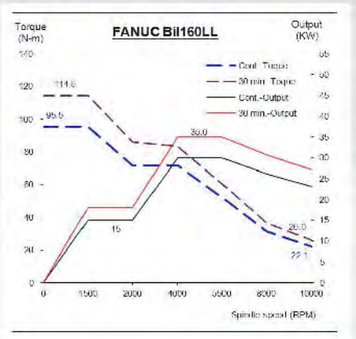


A variety of Hartford mode spindles have quality assurance for Aero-x31SR

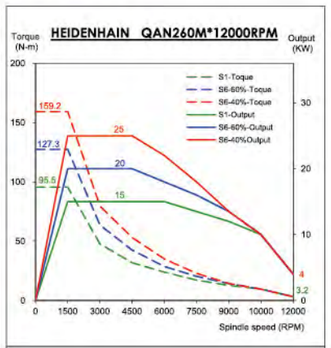
Torque curve diagram

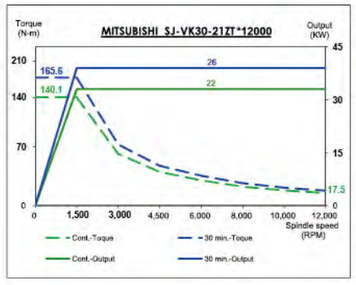
6,000 rpm gear type spindle
8,000 rpm grar type spindle (optional configuration)
10,000 rpm direct-connected spindle (optional configuration)
12,000 rpm direct-connected spindle (optional configuration)
15,000 rpm direct-connected spindle (optional configuration)

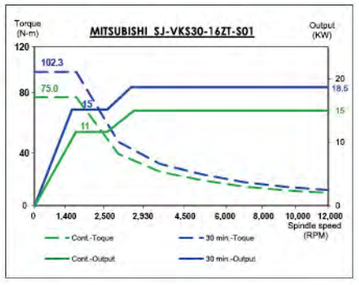
Hybrid 10,000RPM

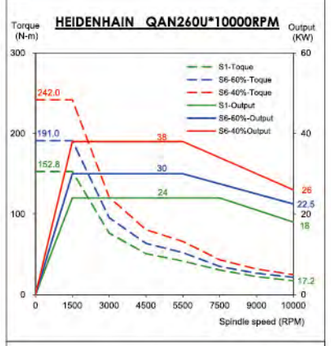


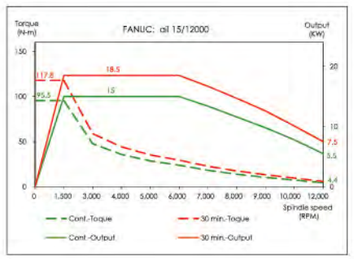
Direct type

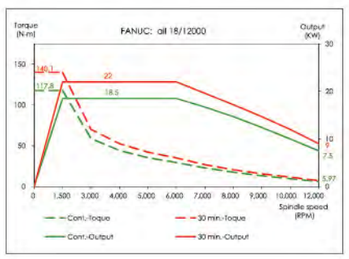


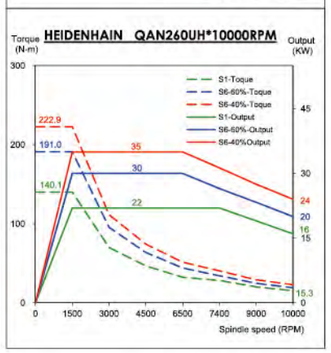


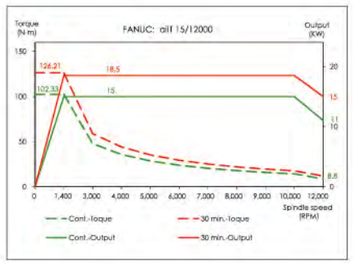


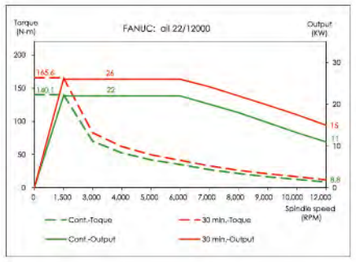




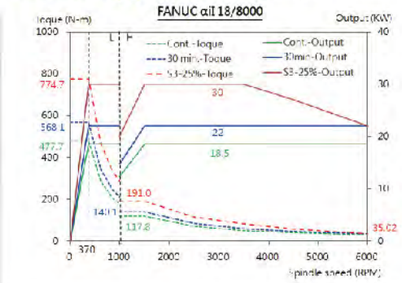


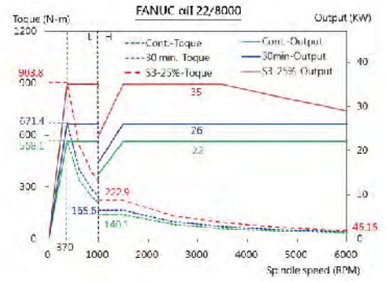


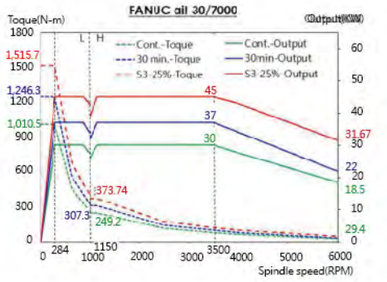


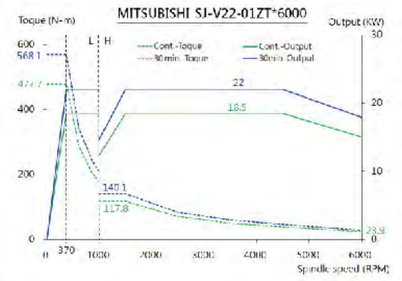


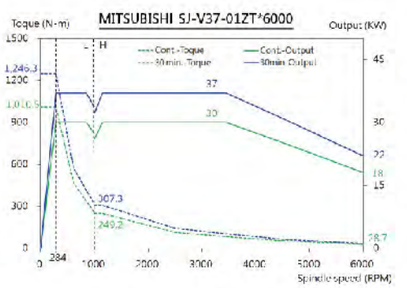
Gear type 6,000RPM

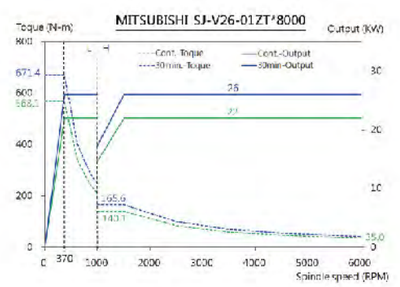




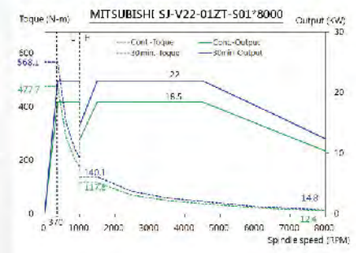


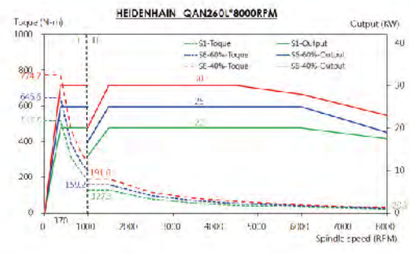


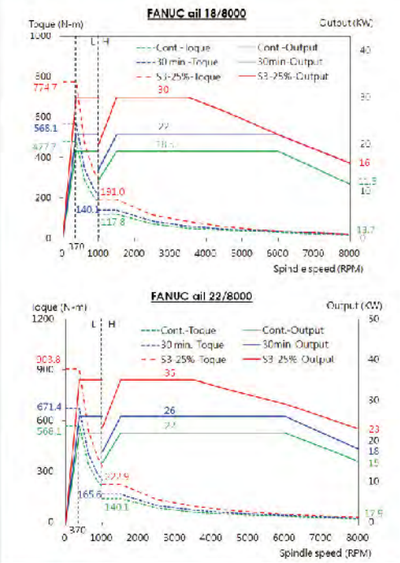


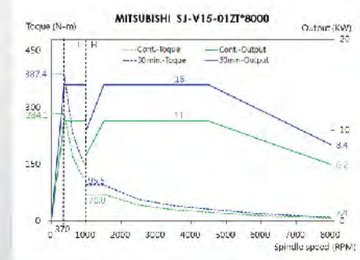


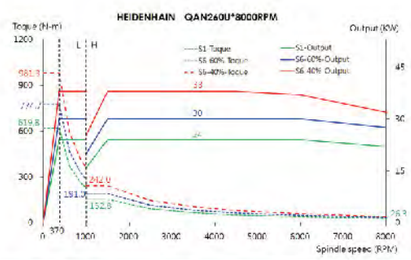
Gear type 8,000RPM





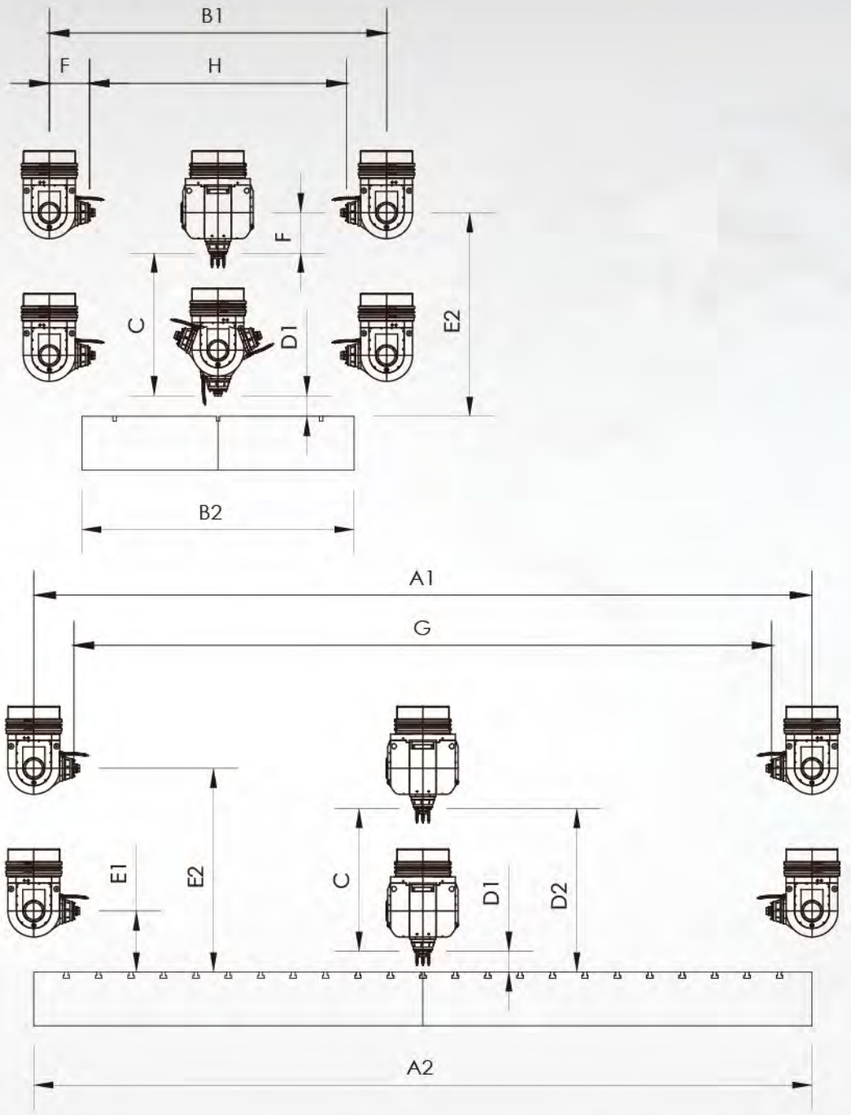






The Y-axis is designed to bring a broader range of processing

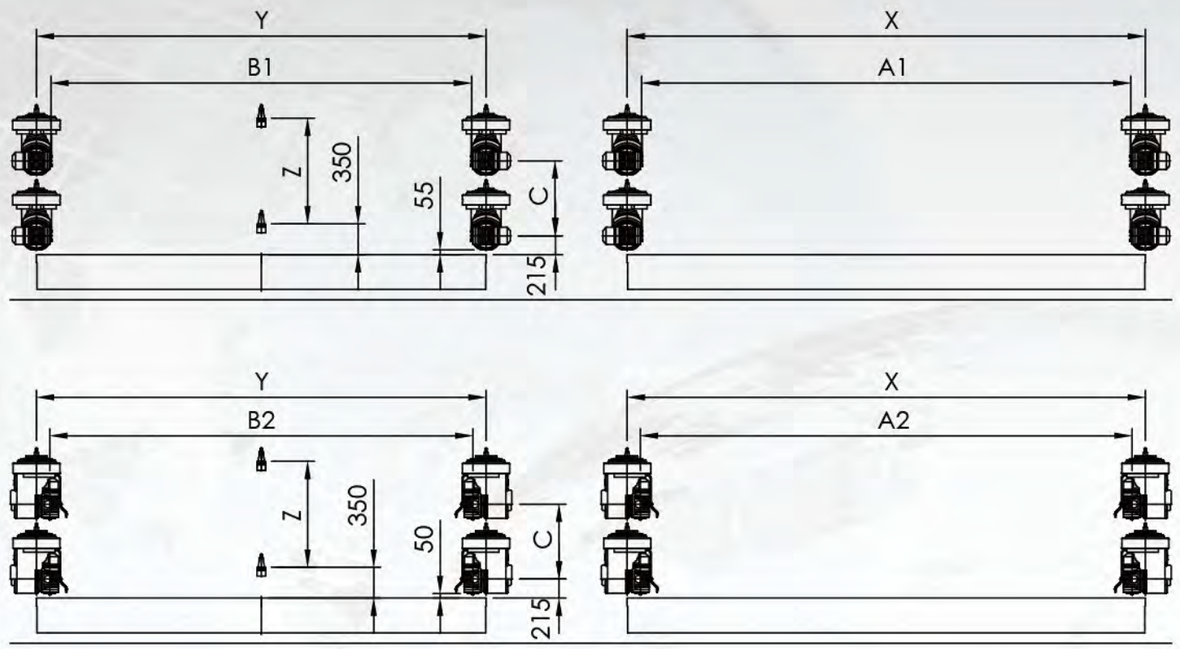
AERO-626



Head Series	Travel			Table Size		D		E		F	G	H
	X axis: A1	Y axis: B1	Z axis: C	L : A2	W : B2	D1	D2	E1	E2			
HSK-A63 (24000 rpm)	6000	2600	1100 (1300)	6000	2100	160	1260 (1460)	470	1570 (1770)	310	5380	1980
HSK-A100M (5000 rpm (opt.))						80	1180 (1380)	585	1685 (1885)	585	4830	1430
HSK-A100M (12000 rpm (opt.))						85	1185 (1385)	470	1570 (1770)	385	5230	1830

Unit:mm

AERO-SR Series

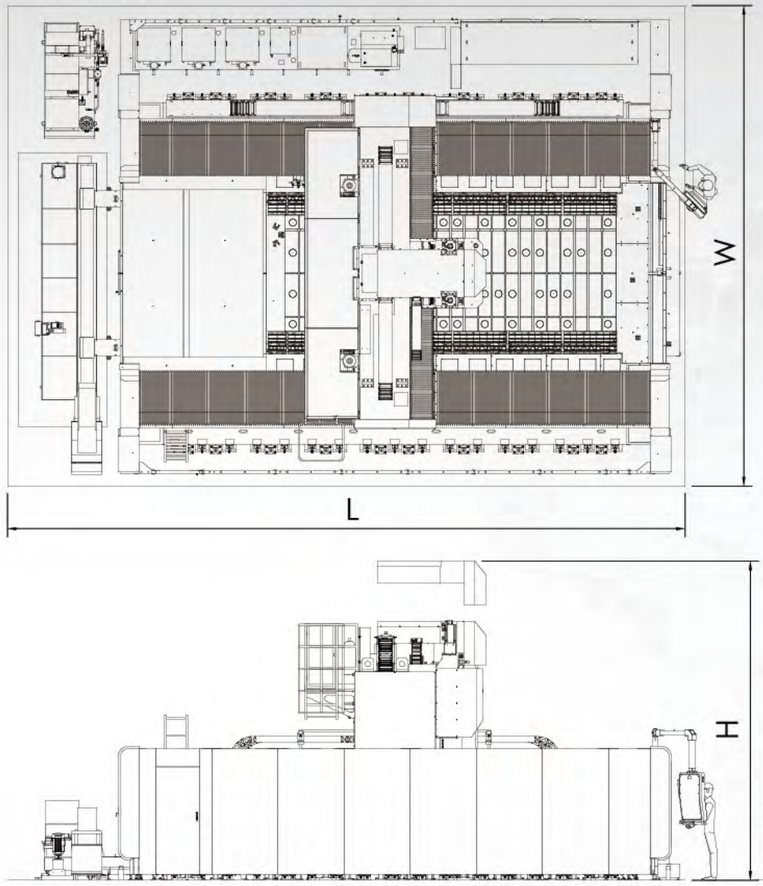


Model / Head Series	AERO-X26SR	AERO-X31SR	AERO-X36SR	AERO-X41SR	AERO-X46SR	AERO-X51SR
X-axis travel : X	3~20m,per.2m	4~20m,per.2m	4~20m,per.2m	5~20m,per.2m	5~20m,per.2m	6~20m,per.2m
Y-axis travel : Y	2600	3100	3600	4100	4600	5100
Z-axis travel : Z	1000(1200 opt.)	1000(1200 opt.)	1000(1200 opt.)	1000(1200 opt.)	1000(1200 opt.)	1000(1200 opt.)
A1	2670~19670 per.2000	3670~19670 per.2000	3670~19670 per.2000	4670~19670 per.2000	4670~19670 per.2000	5670~19670 per.2000
A2	2700~19700 per.2000	3700~19700 per.2000	3700~19700 per.2000	4700~19700 per.2000	4700~19700 per.2000	5700~19700 per.2000
B1	2270	2770	3270	3770	4270	4770
B2	2300	2800	3300	3800	4300	4800
C	650(850 opt.)	650(850 opt.)	650(850 opt.)	650(850 opt.)	650(850 opt.)	650(850 opt.)

Unit:mm

Machine Spec

AERO-626

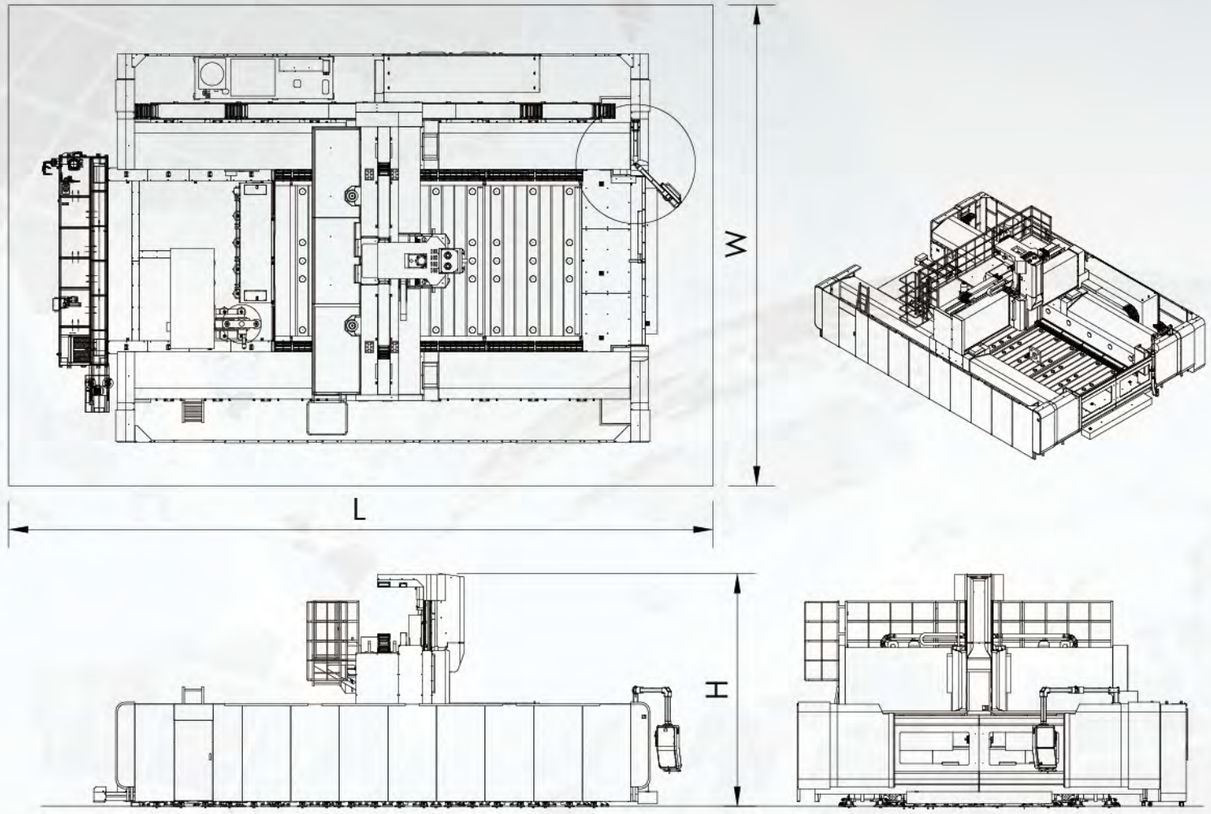


MODEL : AERO-626

Floor space (Full Guarding) (mm)	W	10250
	H	5810 CyTec M21 HSK-A63
	L	13550

Unit:mm

AERO-SR Series



Floor space (Full Guarding) Item	W	H	L
AERO-x26SR	9400	4785 (4985 op.)	11500~18500 per.2M
AERO-x31SR	9900		
AERO-x36SR	10400		
AERO-x41SR	10900		
AERO-x46SR	11400		
AERO-x51SR	11900		

Unit:mm

Specification

Model		Unit	Aero-2225 / 2232	Aero-X26/31/36/41/46	Aero-X26/31/36/41/46/51SR
Travel	X-axis	mm	2200	3000/4000/5000/6000/8000 per.2M Max:20000	3000 ~ 20000
	Y-axis	mm	2500/3200	2600~4600	2600~5100
	Z-axis	mm	1000/(1200)	1100/1300	1100 /1200
	Distance from spindle nose to table surface	mm	Z1000 : 250-1250 Z1200 : 250-1450	M21 HSK-A63: Z1100:160~1260/Z1300:160~1460 M21 HSK-A100: Z1100:85~1185/Z1300:85~1385 G30 HSK-A100:Z1100:80~1180/Z1300:80~1380	Z1100:350-1350 Z1200:350-1550
	Width between column	mm	3430/4130	3700~5700	3240~5740
Table	Working surface	mm	2200 x 2500 2200 x 3200	2100/2600 /3100/3600 /4100 X 3000/4000/5000/6000 /8000 per.2M Max:20000	2600 x 3000 ~ 2600 x 20000 5100 x 6000 ~ 5100 x 20000
	Max. table load	kg/m²	5000	5000	5000
	T-slot (Size x Number x Pitch)	mm	22x250	28x250	28x250
Spindle	Spindle power(S1/ S6)	kw	45/51	34/43 (M21 HSK-A63) 34/43 (M21 HSK-A100) 110/138(G30 HSK-A100)	Gear type: 18.5/22(22/26;30/37) Hybrid type : 30/35
	Spindle Torque(S1/ S6)	Nm	69/79	72/91 (M21HSK-A63) 170/220(M21HSK-A100) 657/824(G30 HSK-A100)	Gear type: 556.8/669.8/1249.4 Hybrid type : 600
	Spindle Speed	rpm	24000(HSK-A63)	24000(M21 HSK-A63) 12000(M21 HSK-A100) 5000 (G30 HSK-A100)	Gear type: 6000(8000 opt.) Hybrid type : 10000
	Tappered hole /Tool shank		HSK-A63	HSK-A63/HSK-A100	BT50
	Full automatic head changer		NA	NA	OP
Feedrate	Rapid speed (X/Y/Z)	m/min	24/24/24	60/60/50	20/18/16
	Cutting feedrate	m/min	20	24	12
ATC	Tool Storage	Pcs	30/40/60	30(S-Type) Op:40(S-Type) ； 40/60 (A- Type)	32/40/60
	Tool Length	mm	Ø75x 300(HSK-A63)	Ø75x 220(HSK-A63) Ø125x300(HSK-A100)	Ø125x400
	Tool Weight	Kg	7(HSK-A63)	7 (HSK-A63) 20(HSK-A100)	20
Other	Floor space(L xW xH)	mm	6200x6200x5280(5480) 6200x6900x5280(5480)	Add list(1)	L :11500~18500 W : 9400~11900 H : 4785(4985)

Add list(1) Unit : mm

			X26	X31	X36	X41	X46
Floor space	W	X6M above	10250	10750	11250	11750	12250
		X5M below	10250	10750	11250	11750	12250
	H	CyTec M21 HSK-A63/A100 Z1100 : 0~5810					
		CyTec M21 HSK-A63 /A100 Z1300 : (-200~6010)					
		CyTec G30 HSK-A100 Z1100:-200~5810					
		CyTec G30 HSK-A100 Z1300: (-400~6010)					
	L	10550/11550/12550/13550/15550/per.2M					

Standard & Optional Mechanical Accessories

Aero-2225 / 2232
Standard

- X,Y,Z -axis Roller Rail Linear Guide
- Closed Loop Linear Scale Positioning System
- A63-24000RPM Head
- Full Splash Guard
- Cooling System
- Centralized Automatic Lubrication System
- Air Blast Through Spindle
- Spindle Oil Cooler
- Screw Type Chip Conveyer
- Link Type Chip Conveyor
- Fluorescent
- Automatic Power off
- Operation Finish Lamp
- Remote Manual Pulse Generator
- RS-232 Interface
- Leveling Bolts and Blocks
- Adjusting Bolt And Blocks
- Adjusting Tools And Box
- Operation manual & electric drawing equipment
- Convection Heat Exchanger in Control Box
- Tool ARM Type Tool Magazine
- Oil Fluid Separator
- Spindle Air Curtain
- Z AXIS Nitrogen Accumulator

Optional

- Coolant Through Spindle
- NC Rotary Table
- Auto Tool Length Measurement
- Imitative Mold Cutting System
- Portable Chip Bucket
- Coolant /Air gun
- DNC Software
- CTS Full Splash Guard
- Tool ARM Type Tool Magazine

Standard & Optioanl Electrical Function

Standard

- Kinematics opt.(Auto length measurement, auto workpiece measurement and KKH-10 are necessary option for this function)
- Software option 1: PLANE function
- Software option 2: TCPM

Optional

- Kinematics comp
- DXF converter
- AFC: Adaptive feed control
- CTC: Cross talk comp.
- PAC: Pos. adaptive control
- LAC: Load adaptive control
- MAC: Motion adaptive control
- ACC: Active chatter control
- AVD: Active vibration damping

Standard & Optional Mechanical Accessories

Aero-X26/31/36/41/46/51SR
Standard

- X,Y,Z -axis Roller Rail Linear Guide
- X-axis linear scale system_HEIDENHAIN
- Full Splash Guard
- Coolant system_Coolant Pump Motor, Upgrade 5.36HP
- Electric Grease Lubricators
- Air blast through spindle_M53
- Spindle cooler, HBO-750
- Screw type chip conveyor 0.5HP*2EA
- Link type chip conveyor 0.5HP & portable chip bucket(1 EA)
- Fluorescent lamp
- Automatic Power off
- Foundation bolt, Concrete
- Tool package
- Maintenance safety guard (Including maintenance ladder)
- Spindle Air Curtain
- Tool ARM Type Tool Magazine_32 pcs, ø125*400L*20kg [ø4.92"*15.75"L*44lb]

Optional

- Automatic angular head (HF-A90L) 2500/4000RPM
- Automatic angular head (HF-A90L) 2.5deg.2500/4000RPM, CTS
- Automatic angular head (HF-A90L) 1deg.2500/4000RPM
- Automatic angular head (HF-A90L) 1deg.2500/4000RPM, CTS
- Angular head_HF-M90L_2000RPM,Auto clamp head
- Automatic Extend Head_HF-AE35L*4000RPM, 350mmL
- Automatic Extend Head_HF-AE50L*4000RPM, 500mmL
- Automatic Mutiangular milling head_HF-AU360H, 2.5/5deg.4000RPM
- Automatic Mutiangular milling head_HF-AU360H, 2.5/5deg.4000RPM,CTS
- Automatic Mutiangular milling head_HF-AU360H, 1deg./div.4000RPM
- Automatic Mutiangular milling head_HF-AU360H, 1deg./div.4000RPM,CTS
- Y, Z-axis linear scale system_HEIDENHAIN
- Coolant Through Spindle
- NC Rotary Table
- Arm Type Tool Magazine
- Auto Tool Length Measurement
- Imitative Mold Cutting System
- Coolant / Air gun
- CTS Full Splash Guard

Aero-X26/31/36/41/46
Standard

- X,Y,Z -axis Roller Rail Linear Guide
- Closed Loop Linear Scale Positioning System
- M21A63-24000RPM Head
- Full Splash Guard
- Cooling System
- Centralized Automatic Lubrication System
- Air Blast Through Spindle
- Spindle Oil Cooler
- Screw Type Chip Conveyer
- Link Type Chip Conveyor
- Fluorescent
- Automatic Power off
- Operation Finish Lamp
- Spindle Air Curtain
- Z AXIS Nitrogen Accumulator
- Foot Switch For Spindle Clamp/Unclamp
- Remote Manual Pulse Generator
- RS-232 Interface
- Leveling Bolts and Blocks
- Adjusting Bolt And Blocks
- Adjusting Tools And Box
- Air Blast Through Spindle
- Operation manual & electric drawing equipment
- Convection Heat Exchanger in Control Box
- Drum Type Tool Magazine
- Table Side Air Blast (1 tube)
- Oil Fluid Separator

Optional

- G30A00-5000 RPM Head
- M2112000 RPM Head
- Coolant Through Spindle
- NC Rotary Table
- Auto Tool Length Measurement
- Imitative Mold Cutting System
- Portable Chip Bucket
- Coolant / Air gun
- DNC Software
- CTS Full Splash Guard
- Drum Type Tool Magazine

Standard accessories, optional accessories, specifications and sizes are subject to change without prior notice. (Actual machine weight is based on shipment).