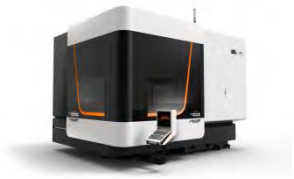
VISION WIDE

Solution . Satisfaction . Smile

FA Series
5-axis Double Column Machining Center

VISION WIDE TECH CO.,LTD.

Vision Wide Product range

General Machining X:800mm~4m Y:500mm~2m 	Heavy duty M/C DV series 	HSM M/C SV series 	Table moving HSM SE series 	Gantry moving HSM GS series 
Multi-angel Machining X:2m~10m Y:1.2m~4.9m 	Heavy duty M/C VB/VF series 	High efficiency M/C SF/NF/HF series  	Bridge moving portal M/C BM series 	
5-axes machining X:1.2m~10m Y:1.2m~6m 	Table moving HSM FA series 	Gantry moving HSM GS/GF/GM series 	Advance material application ADM series 	Universal HSM ASM series 

Heavy Duty ⟷ Speedy Machining

FA-Series

FA 5 Axes Machining Center

Optional with top cover

FA series

FA 5 Axes Machining Center

Features:
High efficiency machining
Auto accuracy compensation
Self-monitor protection system

- Spindle speed :
  12,000/20,000 rpm
- 5 simultaneous axes :
  X/Y/Z/B/C axis
- Z axis travel :
  1,000/1,200 mm

Optional with top cover
Standard without top cover

FA series

State of the art 5-axes High Speed Machining




Variety application on Aerospace parts , molding, Aluminum mass-removal High-Speed-Machining.

FA series

Wide application

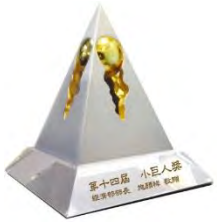
Die & Mold

Jui Li Enterprise(Taiwan)
Lian Chen Metal(Taiwan)

National Award

Power/Energy

MELCO(Japan)
鼎貿工業(Taiwan)
Gongin(Taiwan)



Rising Star Award

Material/Heavy

Bao Steel(China)
BSHI (China)

TAIWAN EXCELLENCE 2012

Parts

Victor Taichung
CHMER(Taiwan)
LITZ(Taiwan)

Military Aerospace

AVIC(China)
中國北方軍工
ADVANCED TECH(USA)

FA series

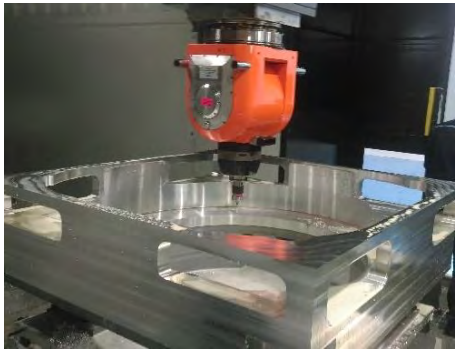
State of the art 5-axes High Speed Machining

57/75 kW Powerful spindle

- With a spindle power 57/75kW, 170Nm torque at 2,000 rpm, FA machine offer efficiently cutting performance.
- Especially on mass-aluminum material and hard steel alloy high speed machining.

Spindle	HSK-A100
Max. speed	12,000rpm
Max. torque S1/S6)	170/220Nm
Max. power (S1/S6)	57/75kW

Semi-conductor Chamber Aluminum alloy machining



Car out-profile mold fine machining

Steel alloy mold

Bump machining

FA series

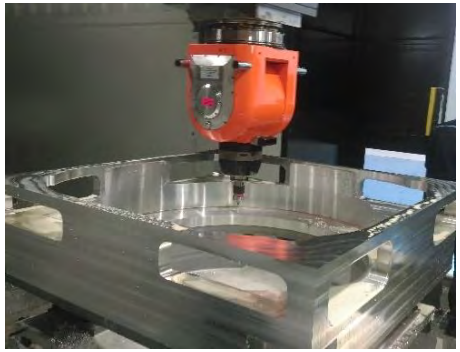
State of the art 5-axes High Speed Machining

34/43 kW Powerful spindle

- With a spindle speed 20,000 rpm, 34/43kW, 27Nm torque at 2,000 rpm, FA machine offer efficiently high speed machining performance.
- Especially on hard steel alloy middle & fine machining.

Spindle taper	HSK-A63
Max. speed	20,000rpm
Max. torque S1/S6	72/91Nm
Max. power S1/S6	34/43kW

Thinner wall machining
Aero space component



Turbine blades
high speed machining

Car out-profile mold
fine machining

Steel mold
middle machining

FA series

Rigid 2 axes synchronous head

Built-in motor with IDD driven on B & C axis.

■Hi-acceleration rotation

■Backlash-free.

■High accuracy,
Positioning accuracy P:5" ,Ps:3"

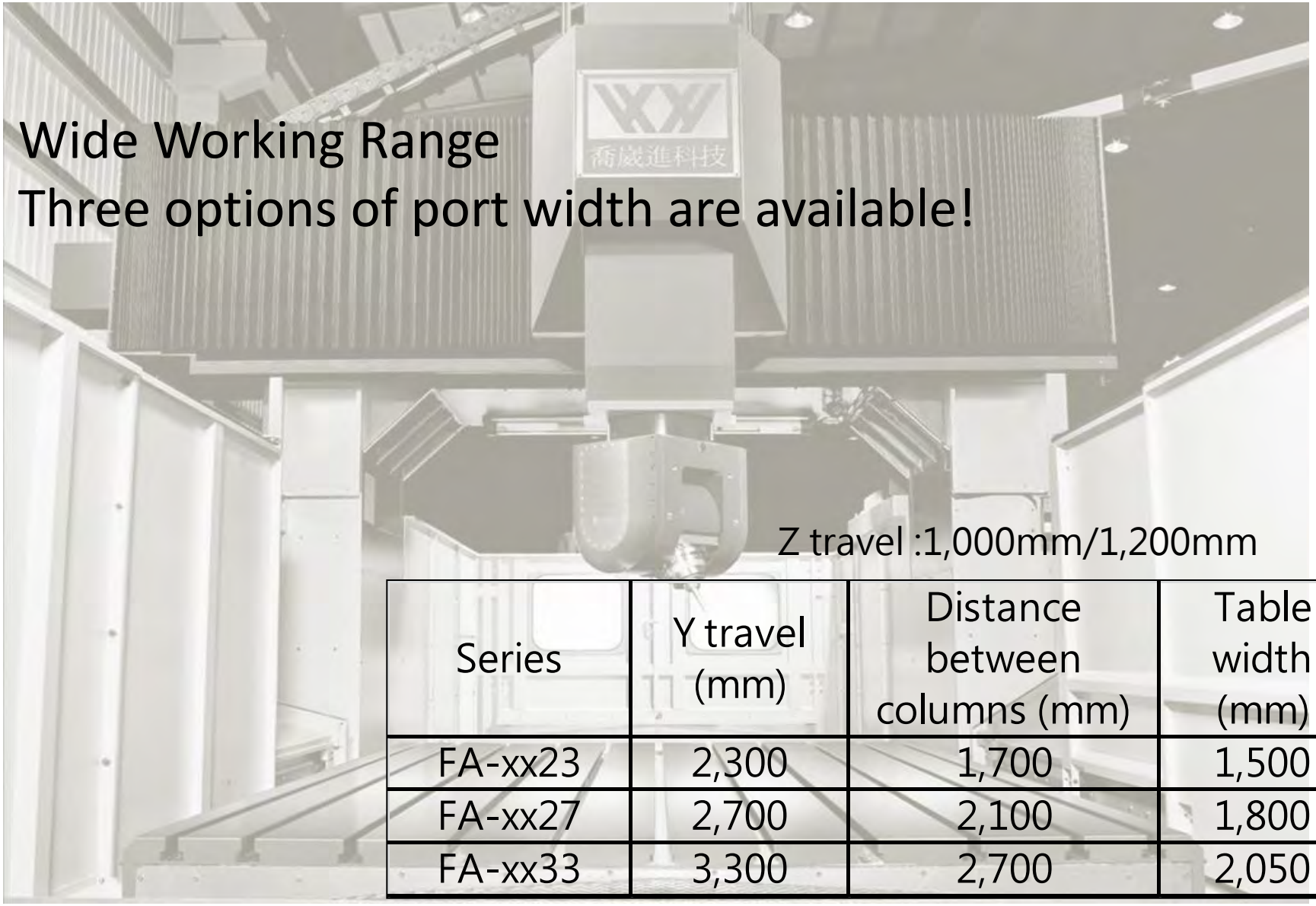
■The smallest conflict between workpiece and head outline.

■Thermal protection in all motors and bearing.

■Vibration protection in all bearings.

■High-resolution feed back from B & C axis.

Specification



Wide Working Range
Three options of port width are available!

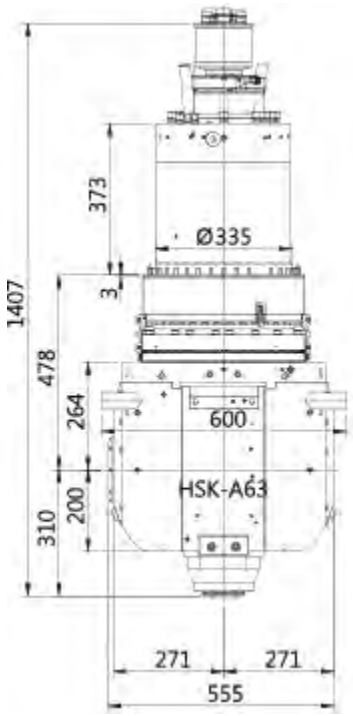
Z travel :1,000mm/1,200mm

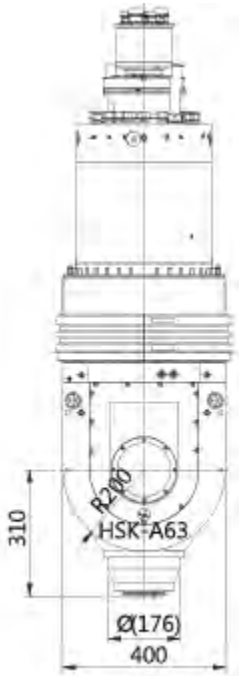
Series	Y travel (mm)	Distance between columns (mm)	Table width (mm)
FA-xx23	2,300	1,700	1,500
FA-xx27	2,700	2,100	1,800
FA-xx33	3,300	2,700	2,050

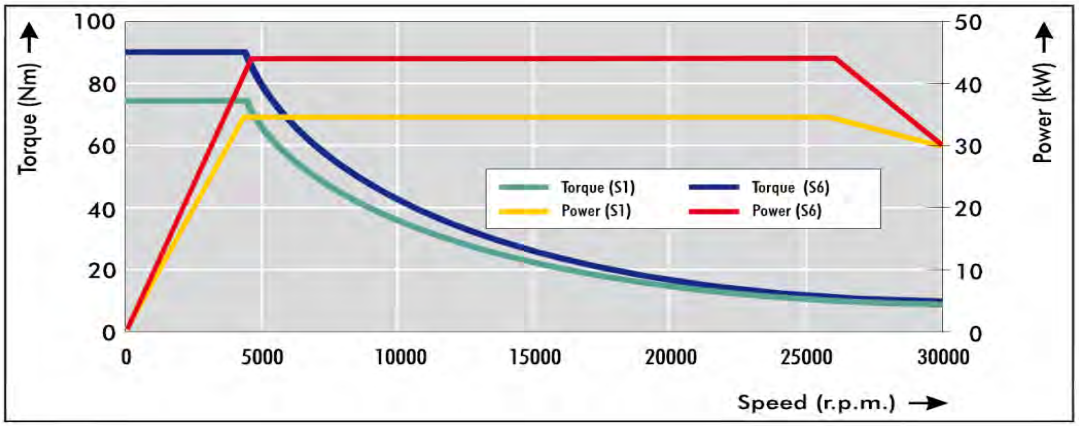
FA series

Compact outline & performance

Outline dimension of 20,000rpm spindle







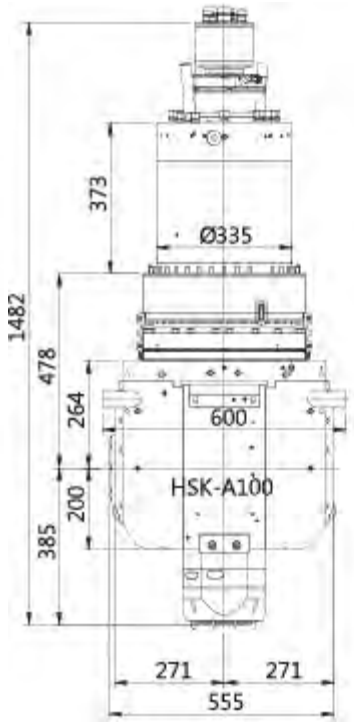
B axis	
Rotation range	±105°
Positioning accuracy	±5"
Rotation speed	20 rpm
Rotation torque (cont.)	700Nm
Rotation torque (Max.)	1,000Nm
Clamping torque	4,000Nm

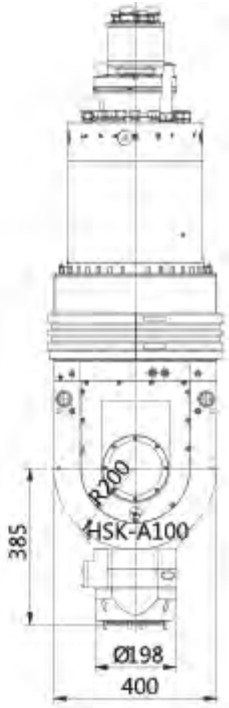
C axis	
Rotation range	±360°
Positioning accuracy	±3"
Rotation speed	20 rpm
Rotation torque (cont.)	700Nm
Rotation torque (Max.)	1,200Nm
Clamping torque	4,000Nm

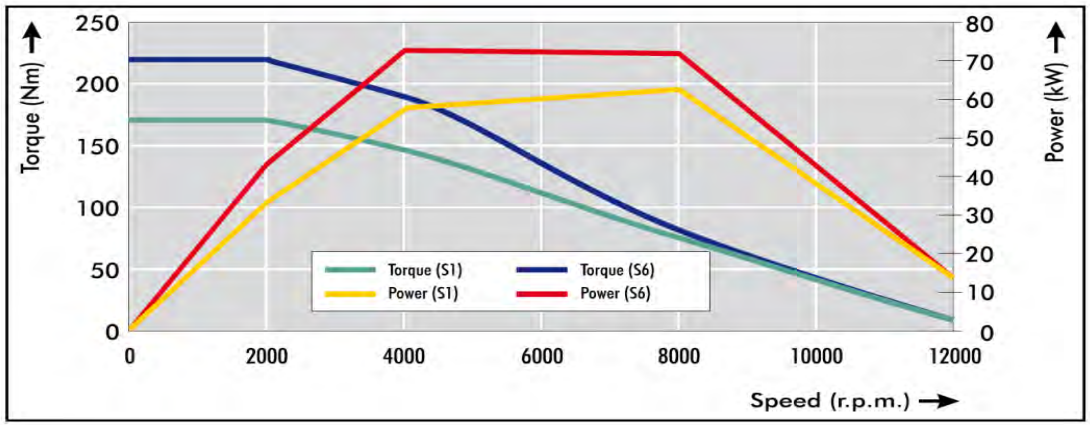
FA series

Compact outline & performance

Outline dimension of 12,000rpm spindle







B axis	
Rotation range	±105°
Positioning accuracy	±5"
Rotation speed	20 rpm
Rotation torque (cont.)	700Nm
Rotation torque (Max.)	1,000Nm
Clamping torque	4,000Nm

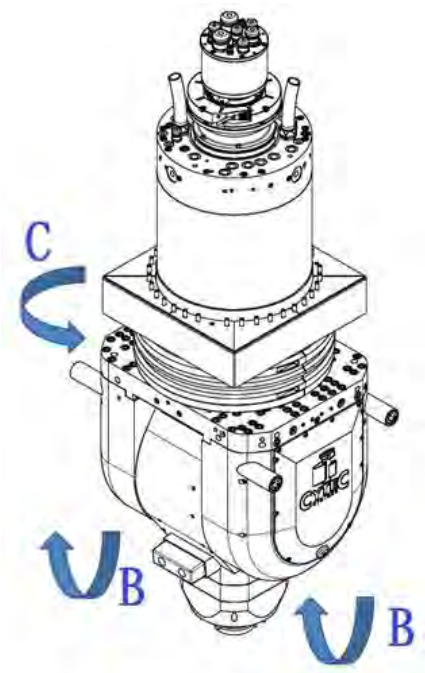
C axis	
Rotation range	±360°
Positioning accuracy	±3"
Rotation speed	20 rpm
Rotation torque (cont.)	700Nm
Rotation torque (Max.)	1,200Nm
Clamping torque	4,000Nm

FA series

CYTEC B/C axis working range

Rigid structure

- Bridge-type/Double column structural design, good structural rigidity and wide working range.
- Cytec 2 axes head equips high torque rotation structure of B / C axis ,and D.D. motor on B axis.

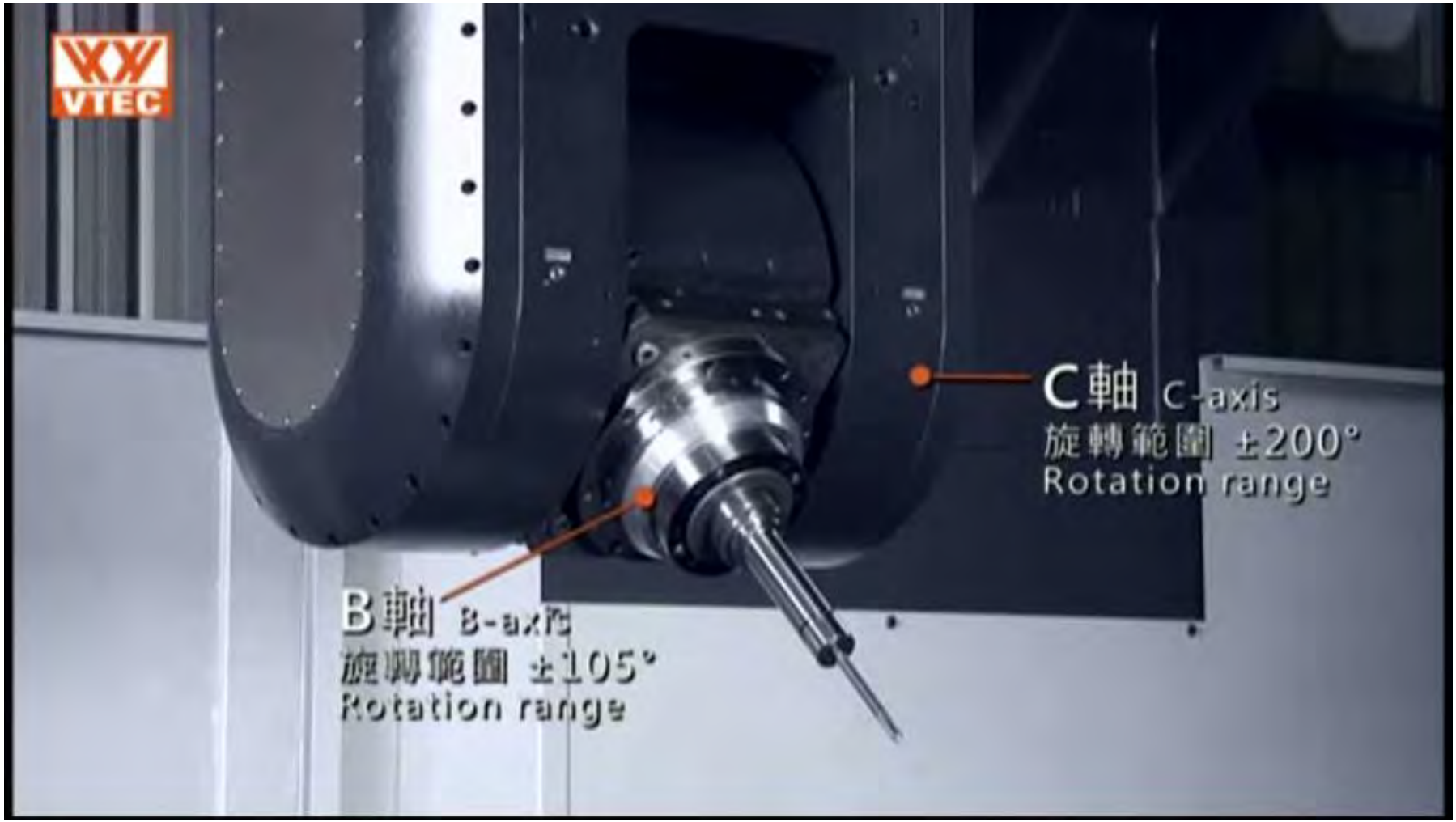


C axis	
Swiveling range	±360°
Positioning accuracy	±2"
Rotation speed	60 rpm
Torque (con.)	700 N-m
Torque (max.)	1,200 N-m
Clamping torqeu (60 bar)	4,000 N-m

B axis	
Swiveling range	±110°
Positioning accuracy	±2.5"
Rotation speed	60 rpm
Torque (con.)	700 N-m
Torque (max.)	1,200 N-m
Clamping torqeu (60 bar)	4,000 N-m

FA series

B/C axis rotation range introduction



FA series

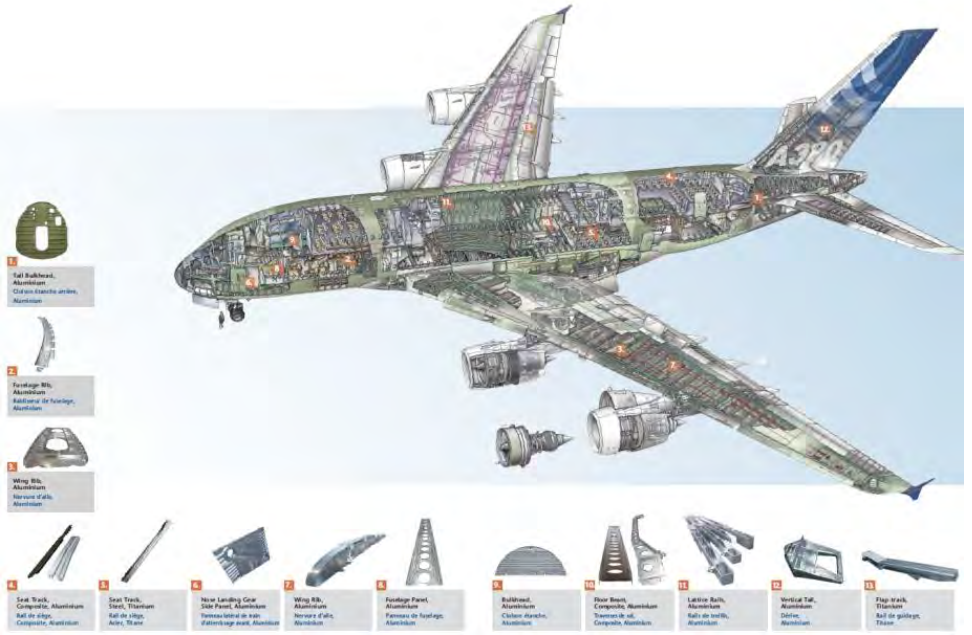
Specification

Model	Unit	FA-3127/4127	FA-3233/4233/5233/6233	FA-8233
Travel				
X axis	mm	3100/4100	3200/4200/5200/6200	8200
Y axis	mm	2700	3300	3300
Z axis	mm	1000/1200	1000/1200	1000/1200
Distance from spindle nose to worktable	mm	CYTEC(HSK-A63): 213~1213 CYTEC(HSK-A100): 138~1138	CYTEC(HSK-A63): 200~1200 CYTEC(HSK-A100): 125~1125	CYTEC(HSK-A63): 200~1200 CYTEC(HSK-A100): 125~1125
Door width	mm	2,100	2,700	2,700
Working table				
Dimension	mm	3000/4000 x 1800	3000/4000/5000/6000×2450	8000×2,450
Spindle (A) HAK-A100				
Power (Cont./ 30 mins rated)	kW	57 / 75	57 / 75	57 / 75
Speed	rpm	12,000	12,000	12,000
Taper	-	HSK-A100	HSK-A100	HSK-A100
Spindle (B) HAK-A63 (optional)				
Power (Cont./ 30 mins rated)	kW	34/ 43	34/ 43	34/ 43
Speed	rpm	20,000	20,000	20,000
Taper	-	HSK-A63	HSK-A63	HSK-A63
Feed rate				
Rapid traverse	mm/min	1-10,000	1-10,000	1-10,000

FA series

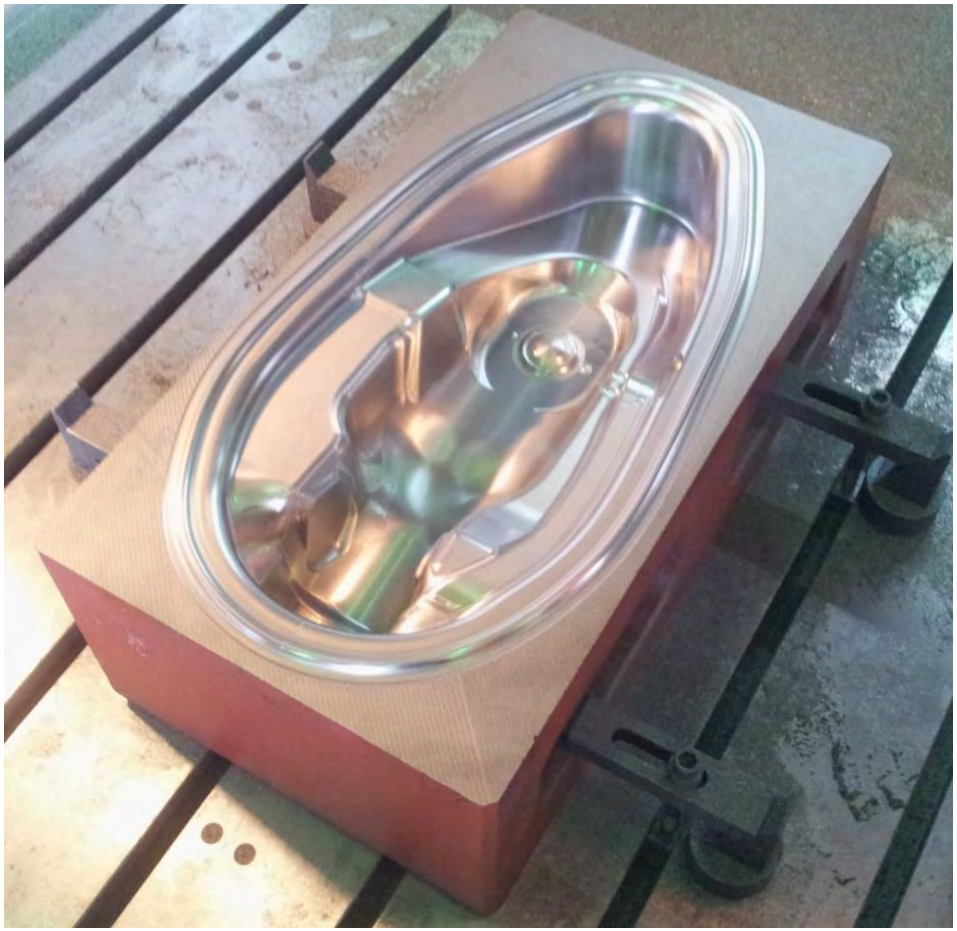
Application Range

- Aerospace / Transportation- Compound surface
- Green Energy- Spiral blades
- Mold industry-Efficient and precise molds
- Complex machining-5 axes synchronized machining



FA series

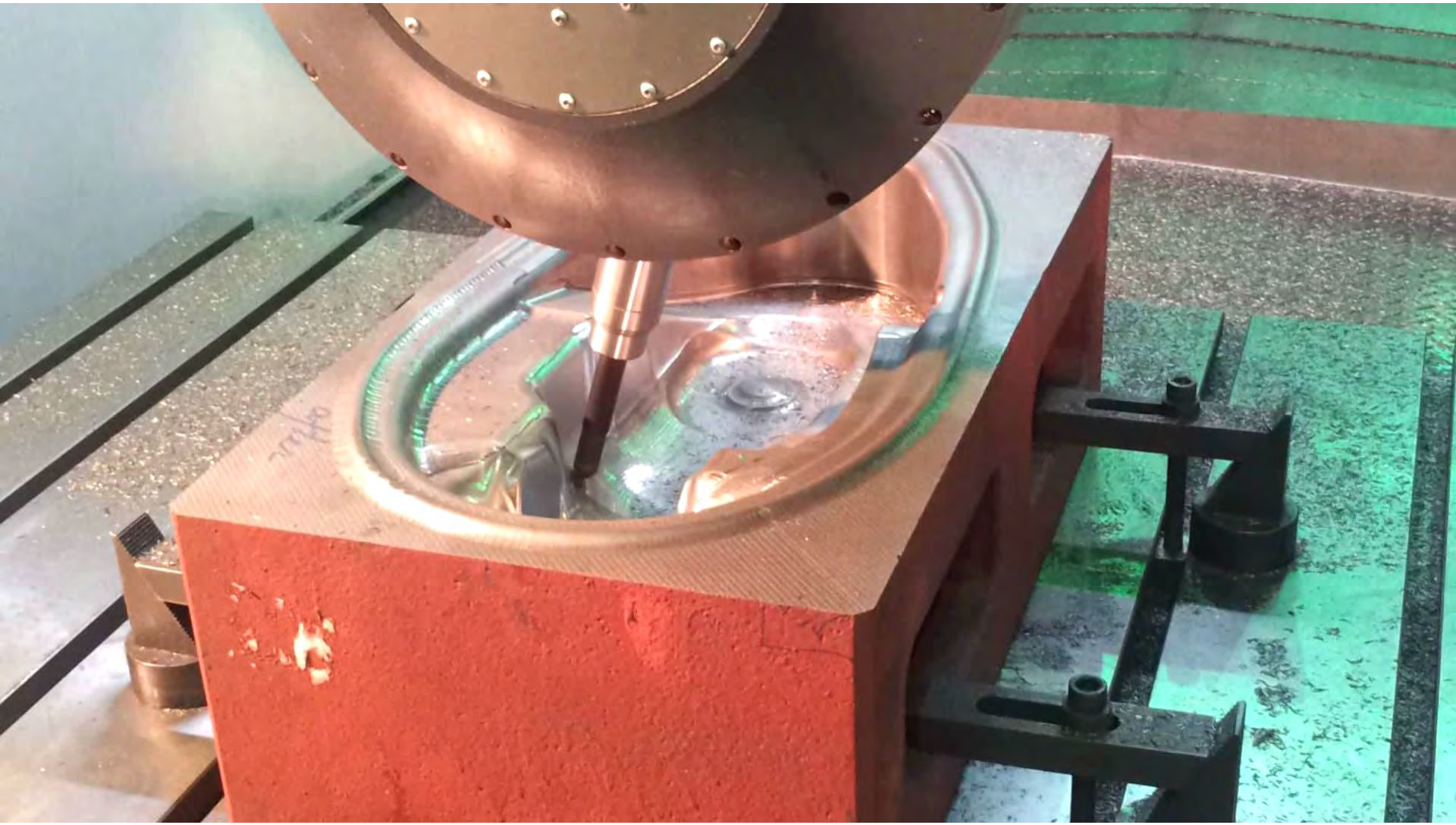
Efficient 5 Axes Synchronized Machining



Item	5 Axes Synchronized Mold Test	
Material	FC250	
cutting type	Rough cutting	Fine Finishing
tool type	Corner radius end mill D32-R6	Ball end D20-R10
speed (rpm)	2100	12000
feed rate (mm/min)	1575	5000
pitch (mm)	20	0.2
depth (mm)	2	0.2
tolerance (mm)	0.05	0.01

FA series

Efficient 5 Axes Synchronized Machining



FA series

Efficient 5 Axes Synchronized Machining-Turbine Blades

Workpiece	Turbine Blades
Material	Aluminum
Tool type	Ball end φ10-R5
Speed	10000
Feed rate (mm/min)	5000
Pitch (mm)	0.3
Depth (mm)	0.2
Tolerance (mm)	0.01

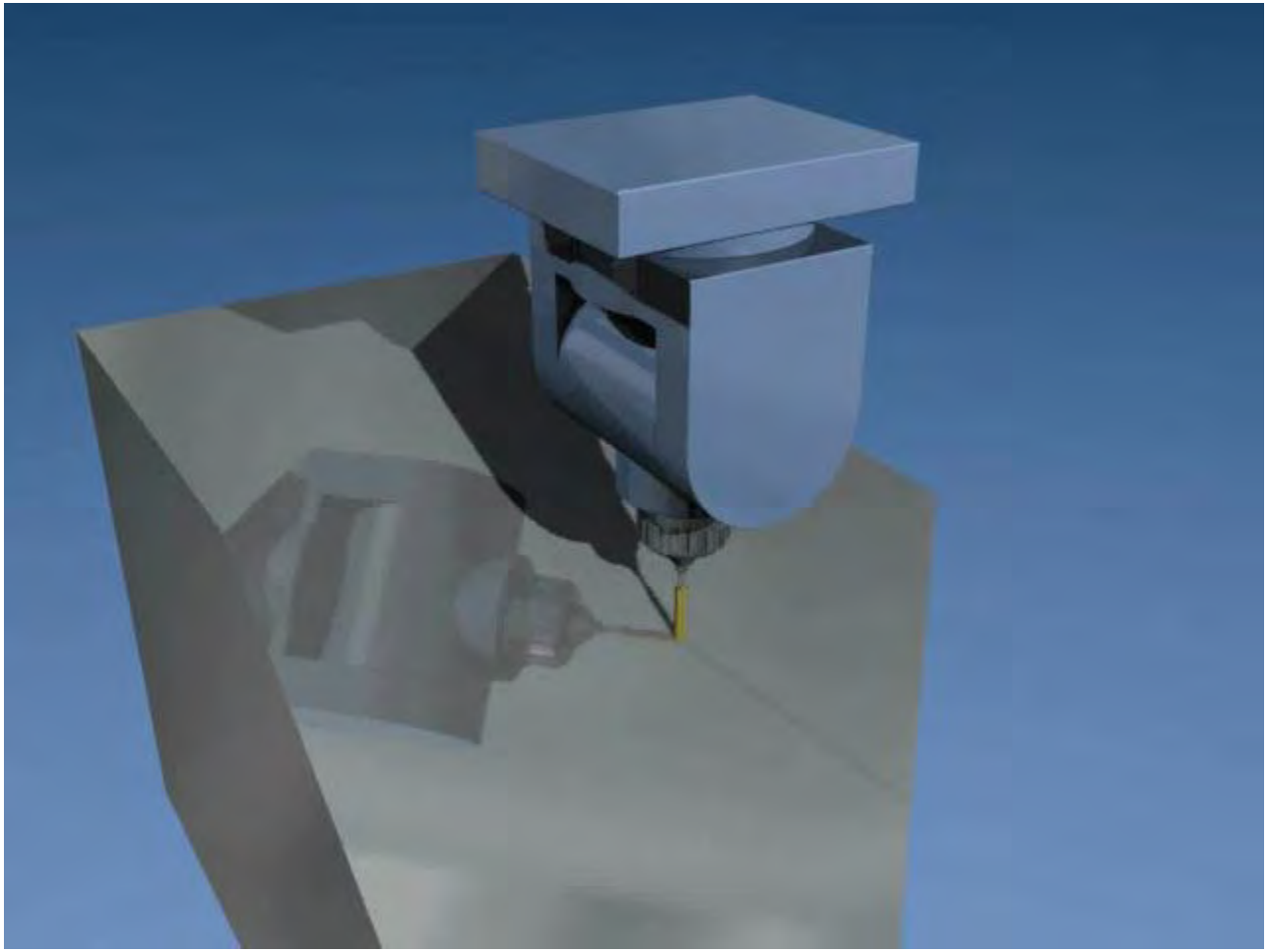
FA series

Efficient 5 Axes Synchronized Machining-Turbine Blades

FA series

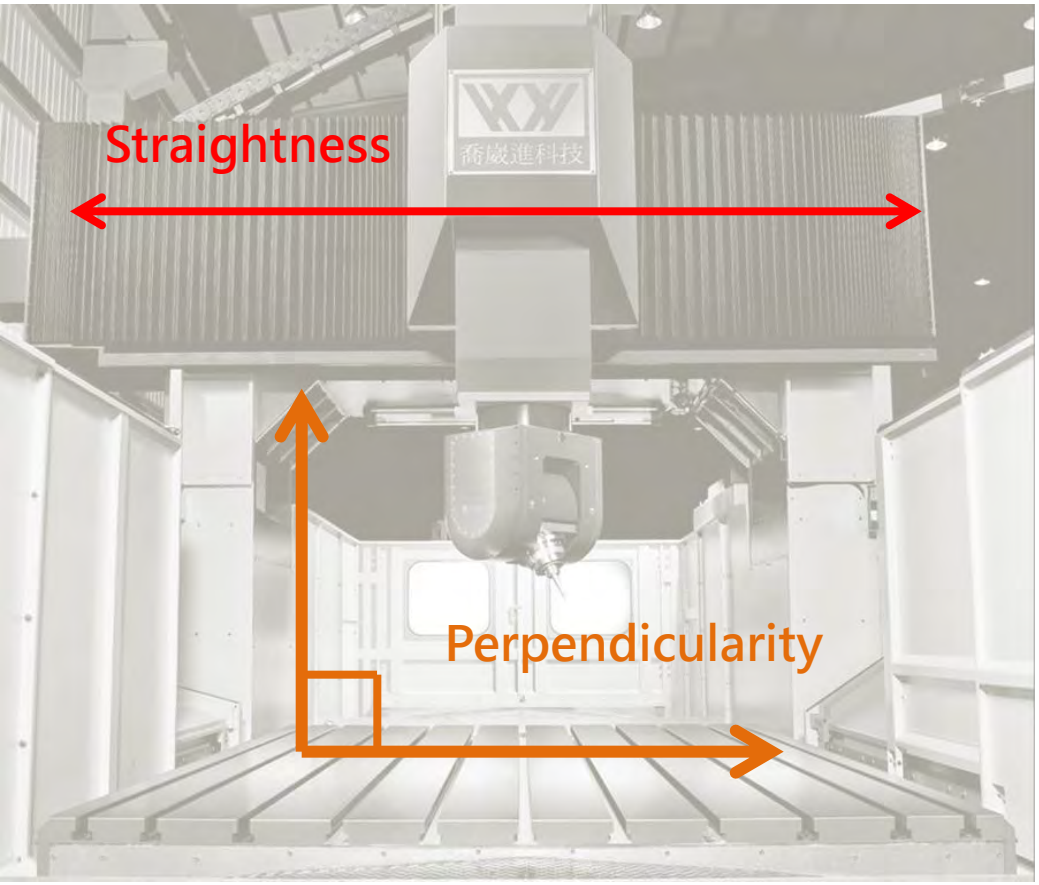
Tool Center Point Management (TCPM) and Coordinates

- TCPM simulation



FA series

High accuracy 3 axis structure



Geometric accuracy	VW	Normal
XYZ axis straightness	**0.01mm/m；0.020mm/ full travel**	0.015mm /300mm
XYZ axis Related perpendicularity	**0.01mm/m**	0.015mm /300mm

Geometric accuracy performance upgrade 5 times.

FA series

5 Axis temperature accuracy compensation

- Whole machine has XYZ axis environment temperature accuracy compensation
- Unique environment temperature and spindle temperature compensation of dynamic rotation axis
- Excellent spindle tool center point accuracy affect by temperature within 0.035mm
- Not affect by spindle thermal variation and environment temperature change

FA series

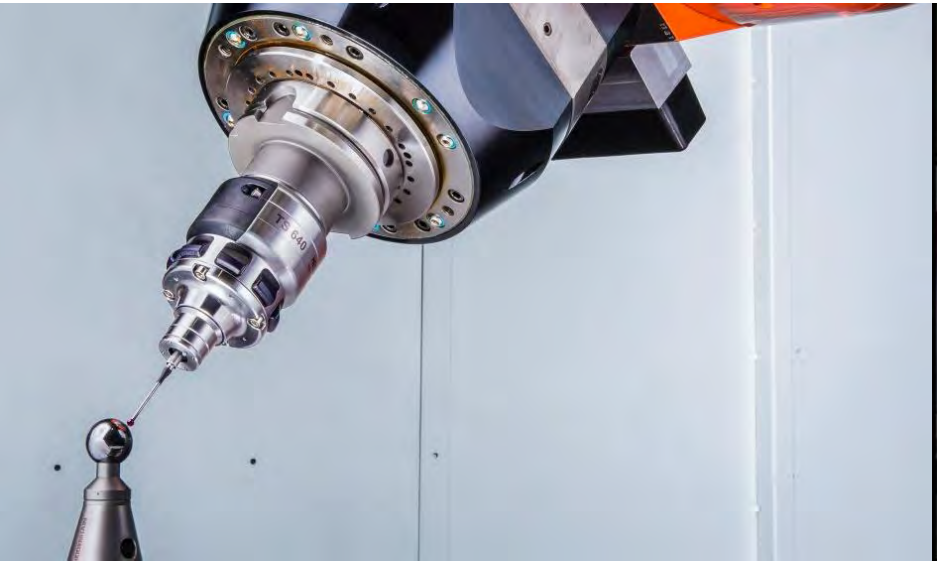
German 2 axis rotation accuracy

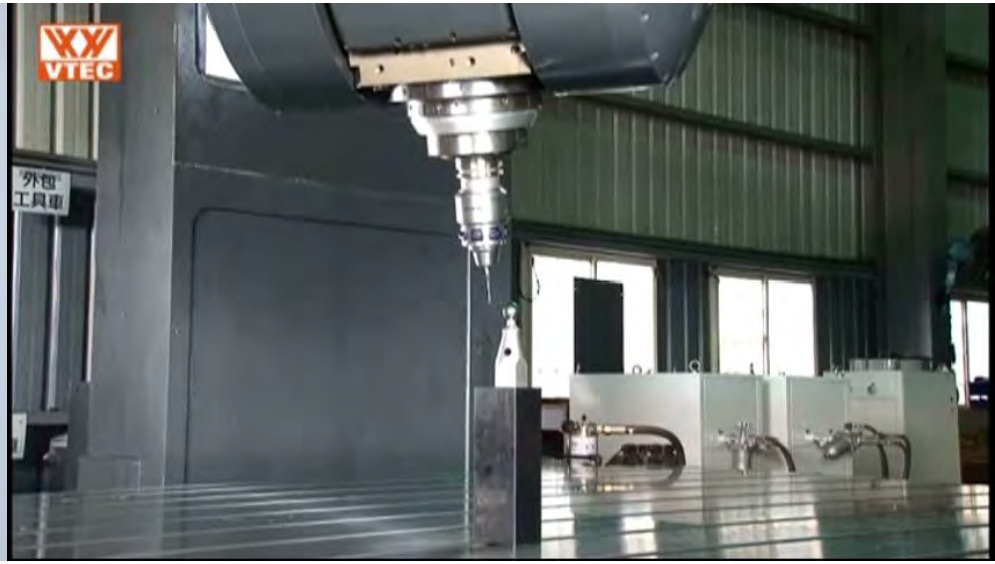
5-axis simultaneous excellent accuracy performance, 5-axis simultaneous accuracy TCPM 0.04mm :

- A axis rotation positioning accuracy±5“
- C axis rotation positioning accuracy±3“
- A/C axis IDD motor design without backlash。
- Spindle vibration lower than 1mm/sec

FA series

5 axis dynamic accuracy compensation



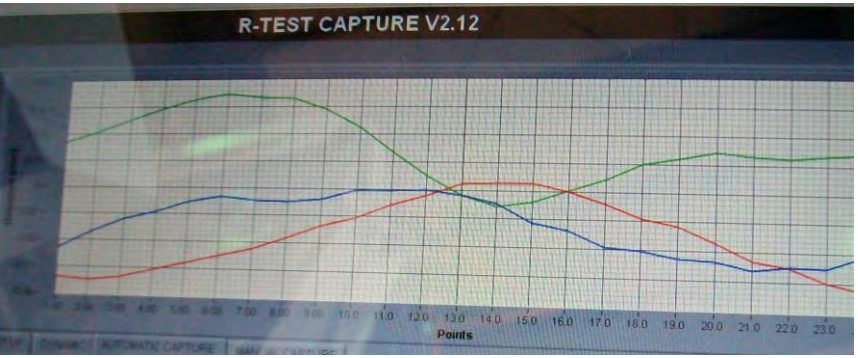


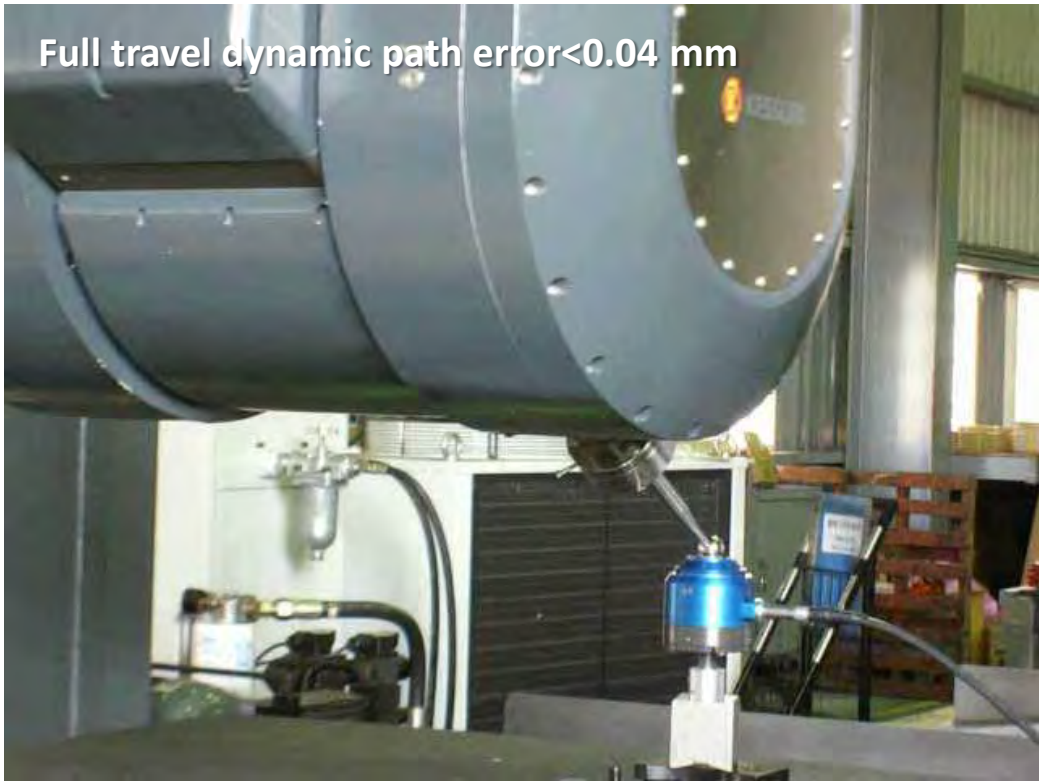
HEIDENHAIN TS-640 auto measurement compensation, measurement accuracy can be reached within 3 μ , before and after machining operator can be implemented:

- **Auto measurement of 2 axis head rotation accuracy**
- **Auto compensation of 2 axis head rotation accuracy**
- **Auto detection of workpiece accuracy**

FA series

5 axis dynamic accuracy test



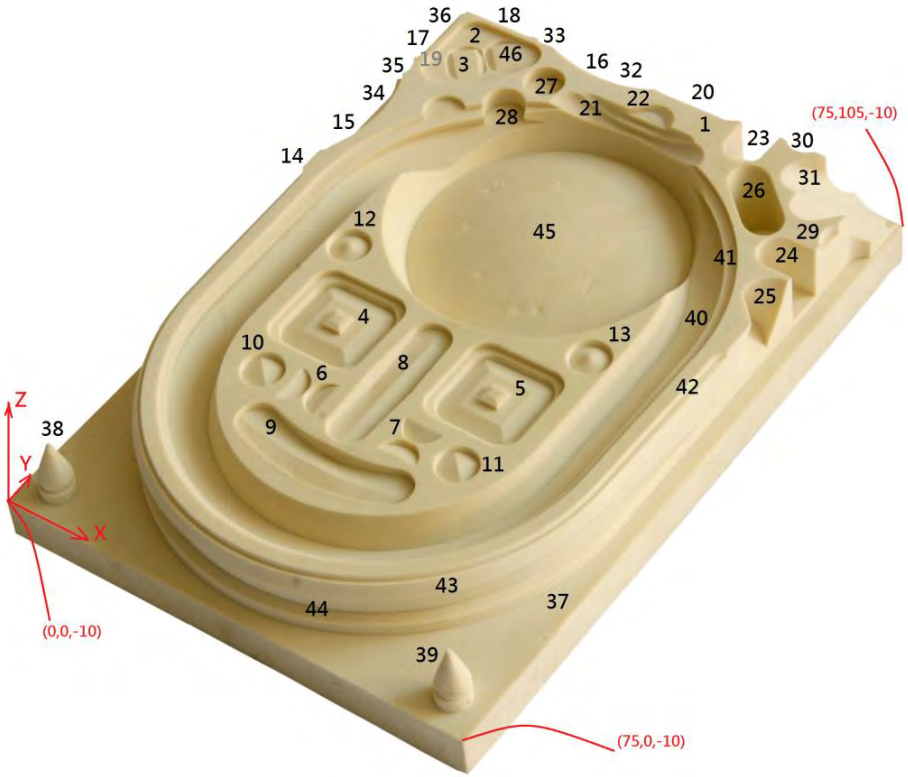


- IBS (R-TEST) device for 5 axis simultaneous path accuracy trace measurement

FA series

5 axis dynamic accuracy test

Machine performance through 46 items can be indicated by NCG ISO test workpiece



NCG Recommendation 2005 特徵判別分類表					
特徵	內容說明	檢查分類			
		Dressing	TCP	Axes	Contour
0	素材尺寸 W75 x L105 x H80 (mm)				
1	Dressing in Z, F5000				
2	Signature area, slow				
3	"N" logo, slow				
4	Square left, orientation in X/Y, slow				
5	Square right, orientation in X/Y, fast				
6	Touching left, orientation in X, slow				
7	Touching right, orientation in Y, slow				
8	Nose, orientation in X, slow/fast				
9	Mouth, orientation in Y, slow/fast				
10	Pyramid left, orientation in X/Y, slow				
11	Pyramid right, orientation in X/Y, fast				
12	Cone left, orientation in X/Y, cw, slow				
13	Cone right, orientation in X/Y, ccw, fast				
14	Dressing in X/Y, slow				
15	Quadrant error X, slow/fast				
16	Quadrant error Y, slow/fast				
17	Overshooting X, fast				
18	Overshooting Y, fast				
19	Measuring points				
20	Overshooting Z, fast				
21	Quadrant error Z, slow/fast				
22	Exact stop X/Y/Z, slow/fast				
23	Orientation in X, slow				
24	Orientation in Y, slow				
25	Orientation in X+/Y+, slow				
26	Orientation in X-/Y+ and X+/Y-, slow				
27	Tool diameter and rotation, fast				
28	Exact stop Z, slow/fast				
29	Exact stop X, slow/fast				
30	Exact stop Y, slow/fast				
31	Path X/Y/Z, slow/fast				
32	Overshooting orientation in Y, fast				
33	Exact stop orientation in Y, slow/fast				
34	Overshooting orientation in X, fast				
35	Exact stop orientation in X, slow/fast				
36	Exact stop orientation in X/Y, slow/fast				
37	Contour dressing in X/Y, slow				
38	Minaret left, slow				
39	Minaret right, fast				
40	Inner lower side, ccw, slow				
41	Inner upper side, ccw, fast				
42	Outer upper side, cw, slow				
43	Outer middle side, cw, fast				
44	Outer lower side, cw, slow				
45	Sphere cap radial, longitudes, slow/fast				
46	"C" logo, slow				

FA series

5 axis dynamic accuracy test

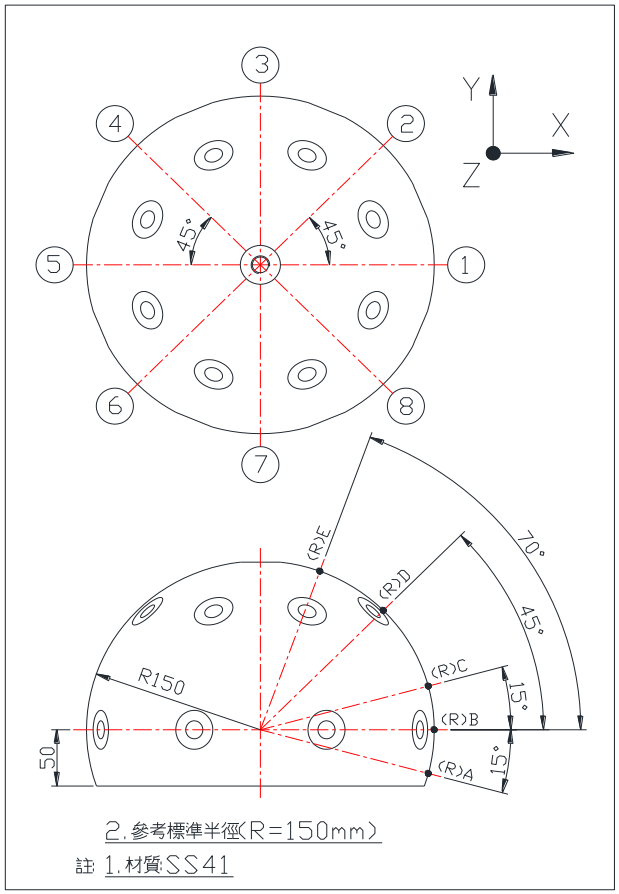
FA series

5 axis dynamic accuracy test

■ 5 axis dynamic accuracy test (sphere radius)

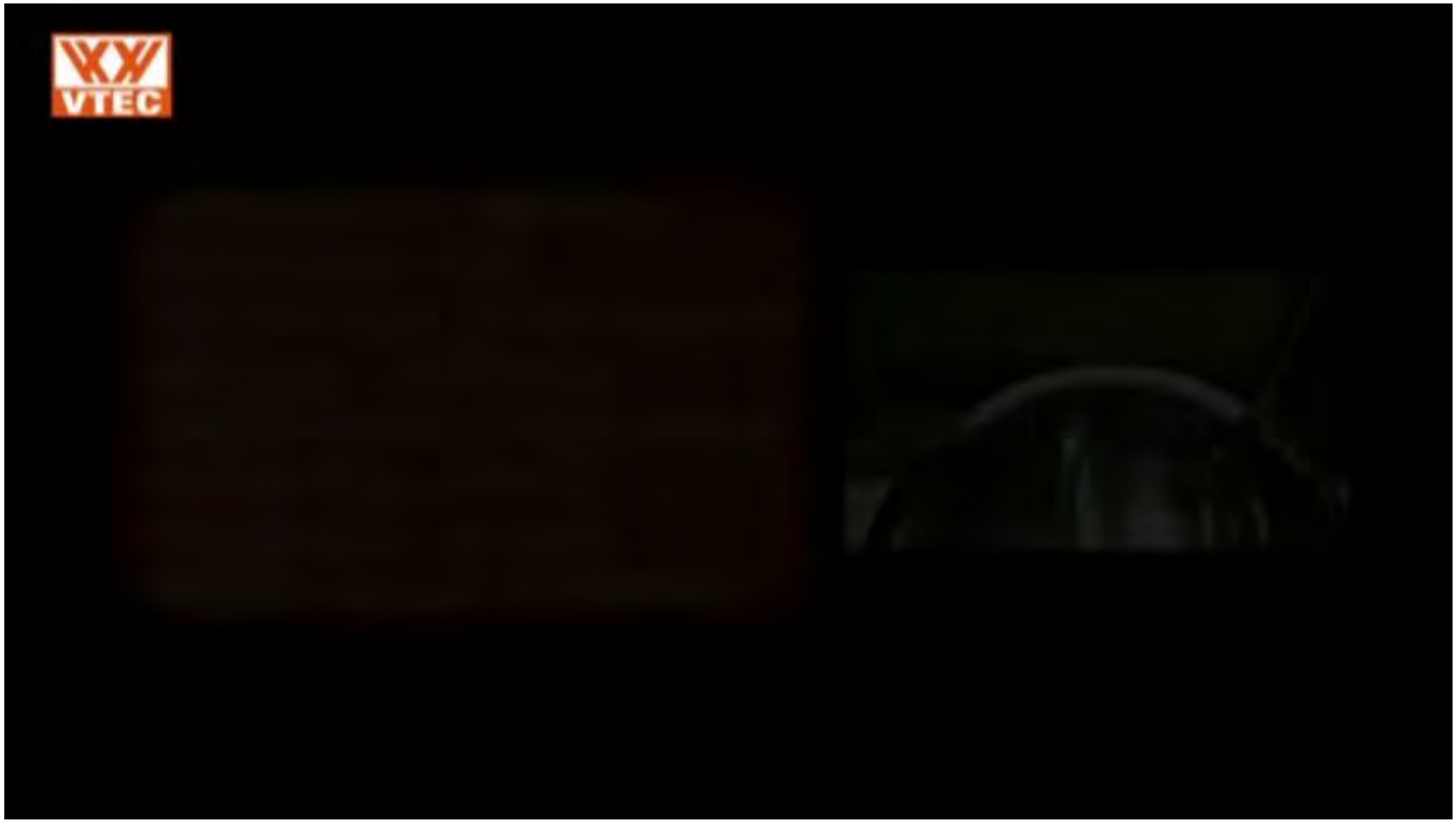
Test standard:

1. Radius accuracy (150 mm), Tolerance 0.05mm。
2. Indexing accuracy: Distance from the center of boring end (149mm)，Tolerance 0.05mm。



FA series

5 axis dynamic accuracy test: Video



FA series

Intelligent/Self-monitoring protection system

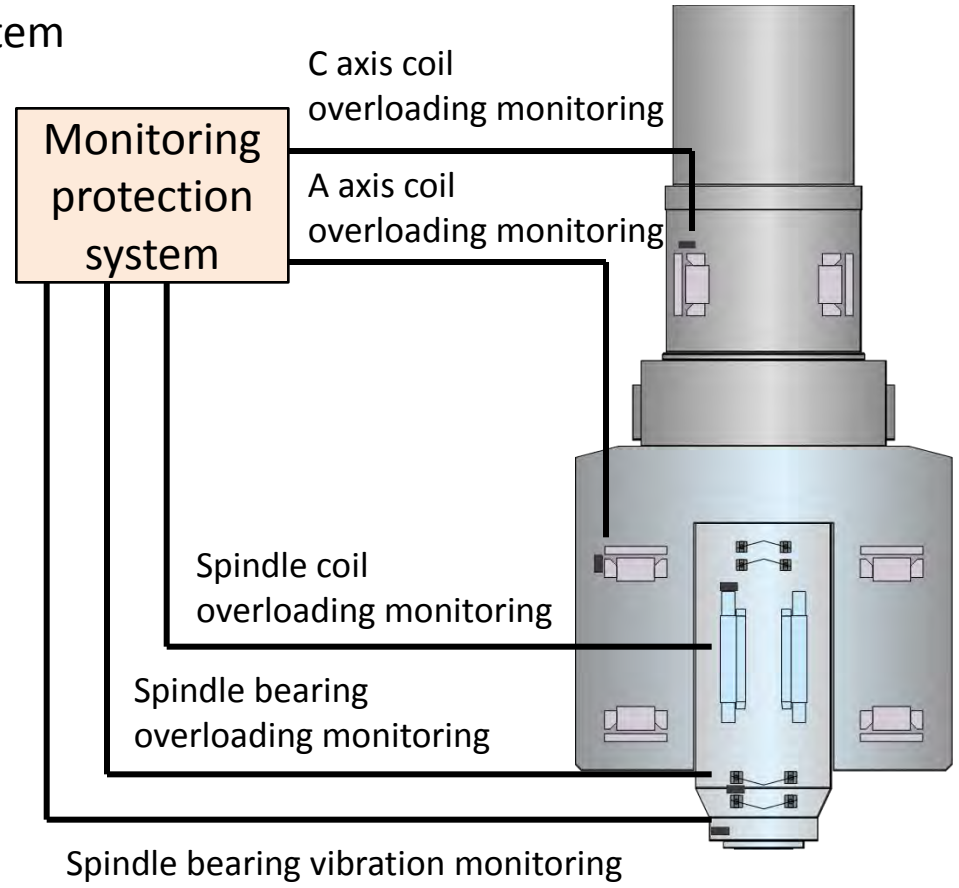
Spindle and rotation axis protection system through self-monitoring protection system to carry out:

Spindle vibration protection

- Spindle bearing vibration monitoring
- Tool dynamic balance error test
- Spindle overloading protected by software
- Random tool overloading protection can be set.

Machining temperature protection

- Spindle bearing overloading monitoring
- Spindle coil overloading monitoring
- A axis coil overloading monitoring
- C axis coil overloading monitoring



FA series

Intelligent anti-collision monitoring

Anti-collision monitoring- (**DCM**=Dynamic Collision Monitoring)
To check the possible collision between machine components and tools.

cutting simulation → collision warming → collision alarm

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For more information, please contact us.