

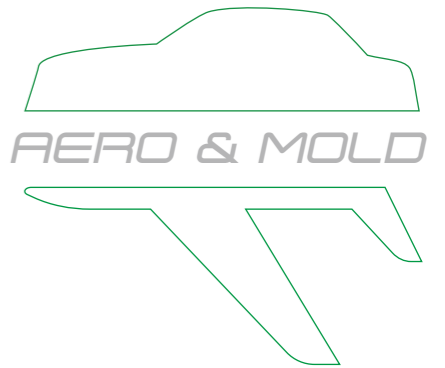
專注航太·品質·創造未來
Aiming At Aerospace Solutions

🏠 No.7, Jingke N. Rd.Nantun Dist.,Taichung
City 408018Taiwan (R.O.C.)
☎ +886-4-2358-9313
🌐 www.apecnc.com
✉ sales@apecnc.com



MEMBER OF
TIGROUP
2023/08

G8000
5-axis Gantry Vertical
Machining Center



AIMING AT AEROSPACE SOLUTIONS



ASIA PACIFIC ELITE CORP. (APEC) IS A SUBSIDIARY OF **TTGroup**, THE **BIGGEST MACHINE TOOLS GROUP** IN TAIWAN

APEC aims at "Aerospace manufacturing process" and defines ourselves as a resources integrator, solutions provider and customers' best strategic partner of OEM, Tier1 to Tier3.

APEC has the world's most complete medium and large aerospace structure and engine parts processing solutions.

Besides, we also have 20 years of professional practical experience in die & mold and precision machining.

Our clients are all over the world, like Canada, the USA, Germany, Japan, Mainland China and Taiwan, etc. Furthermore, we offer comprehensive customer services including factory planning, intelligent manufacturing, technical training, process upgrades and Turnkey solutions.



TIMS

- Production management
- Intelligent monitoring
- RFID tool management
- Workpiece management
- Order management



TLM

- Machine status
- Utilization analysis
- Alarm history
- Operation history
- Program upload/download



AGA key components

- Spindle
- Milling Head
- Trunnion Table



Aerospace Gebert APEC is a brand which provide key components of aerospace processing. It is developed by APEC and Dr.Gebert's team from Germany.AGA provides the brilliant components such as high power high speed Spindle, Milling Head and Trunnion Table which are especially designed for APEC machines. This allows us to provide after-sales service more effcently and accurately.





The G800 series is mainly developed for the workpieces that require five-axis simultaneous machining in the aerospace, mold and automotive industries. Customers can choose the following spindles according to different processing requirements: 12,000rpm (HSK100A), 15,000rpm (HSK100A), 20,000rpm (HSK63A), 24,000rpm (HSK63A)

- **Gantry type five-axis**

The smallest footprint in the industry and the best 3D space configuration design.

- **X/Y/Z-axis driven by high-speed ball screw, A/C-axis driven by direct drive motor**

This design can ensure that the center moving part and counterweight remains concentric which can effectively reduce the vibration caused by the rapid movement.

- **The whole machine is equipped with Heidenhain optical scale**

Effectively ensure the accuracy and stability of each axis, and is equipped with a protection device to avoid dust, oil, water and gas pollution shortened life of the optical scale.

- **Gantry type structure design**

The driving centers of the three-axis are all located at the center of gravity, which greatly improves the dynamic stability of the structure.

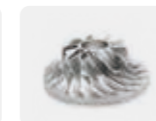
- **Short force flow design of spindle saddle**

Minimize the spindle overhang to improve the stability and rigidity of the machining process.

- **Suitable workpieces**



Engine blisk



Engine impeller



Engine case



Engine blade



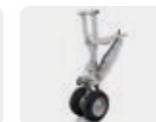
Precision mold



Stamping mold



Aluminum alloy structural parts



Titanium alloy structural parts

(The picture is only for reference, please make the object as the standard.)

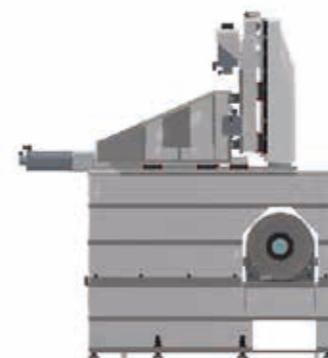
The Direct Drive Motor directly drives the rotary table to provide high-precision machining.

The A/C-axis are driven by direct drive motor. The power can be completely transmitted and provides high-precision machining capabilities.



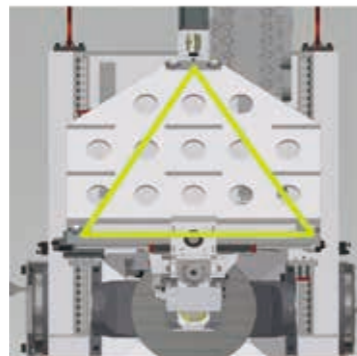
Three axis driven at center of gravity(DCG)

The driven centers of three axis are all on these gravity centers, which greatly improves the dynamic stability of the structure.



Compact trunnion rotary table

X/Y/Z axis movement and table rotation work individually to make sure machining is free from 3 axis inertia influences. Perfect servo driven design gives excellent machining stability.

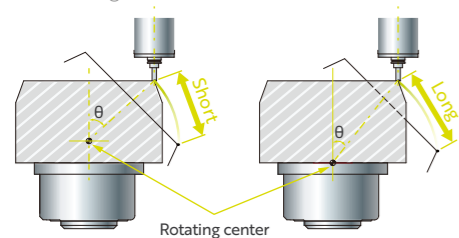


Milling and turning compound machining (optional)- G800-T

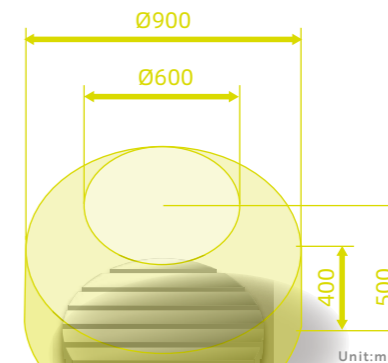
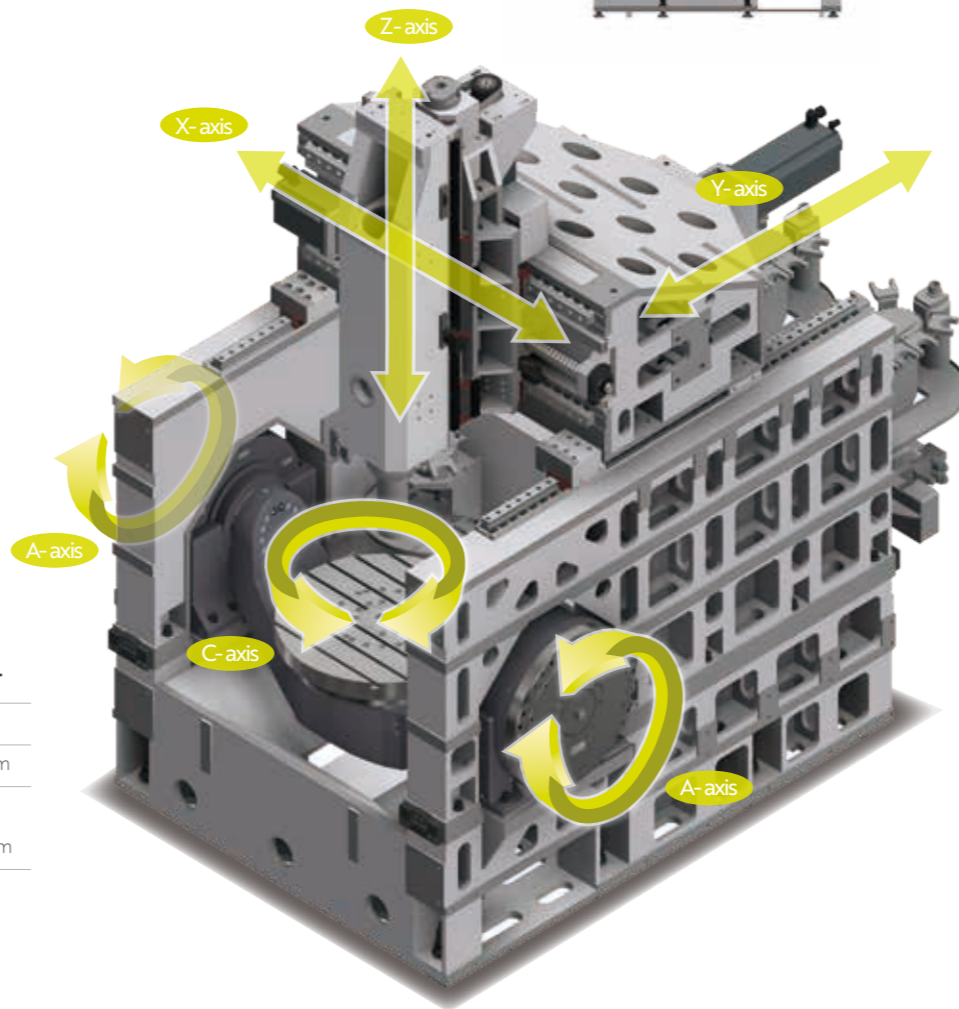
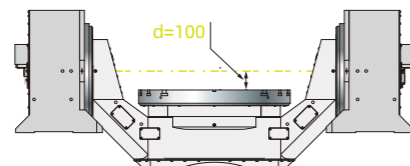
The optional high-speed rotary table can be reconfigured into a lathe module to perform turning operations.

Rotating center is higher than table surface

Rotating center of A axis is 100 mm higher than table surface, that reduces the distance while tool moving and table rotation simultaneously to save cycle time and gives perfect surface finishing in profile machining.



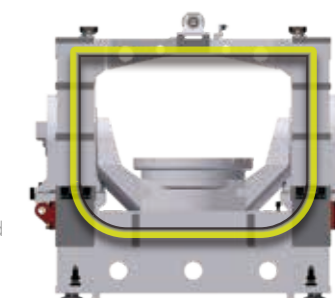
	G800-TR	G800-T
Max. table load	1,300 kg	1,300 kg
Table size	Ø800 mm	Ø800 mm
Table speed	A-axis 70 rpm	70 rpm
	C-axis 70 rpm	1,000 rpm



Max workpiece size

High rigidity U-frame structure

The saddle and column form a closed structure. High rigidity machine can reduce vibration effectively, increase processing stability and improve machining accuracy.



✓ **Excellent rigidity**

The high-strength structure can be matched with a 500 N m high-torque spindle to easily cutting titanium alloy, zinc alloy...etc.

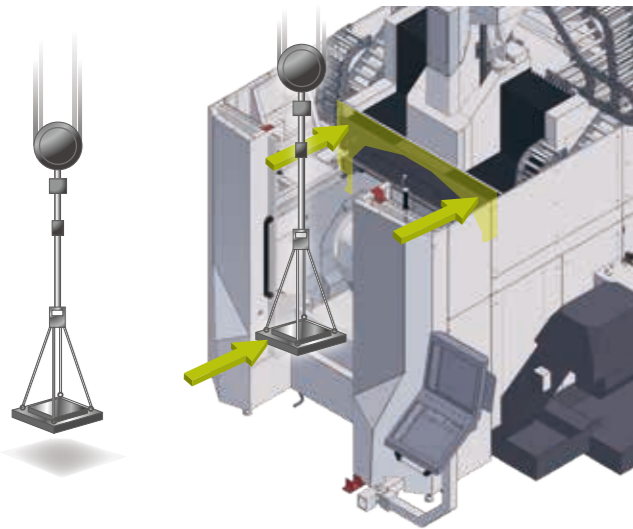
✓ **Highest precision**

Ultra-high precision designed and adjusted for car lamp molds, engine parts... etc.

✓ **Brilliant stability**

The symmetrical structure and cradle with double supports, double drives, full casting structure. It makes the center of gravity drive achieve the best stability.

Open top telescopic cover



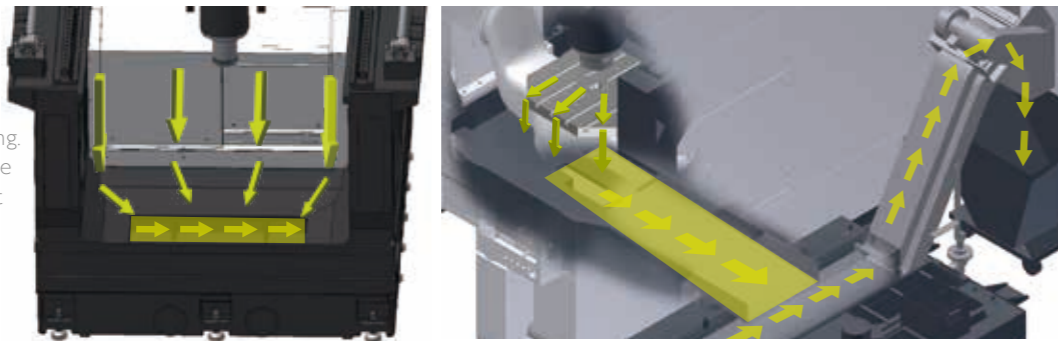
Door opening width

Wide door opening facilitates the operation and maintenance.



Well chip flow

Central chip flow design. Chips can be carried out immediately while machining. It prevents casting structure from being affected by hot chips and maintains machining accuracy.

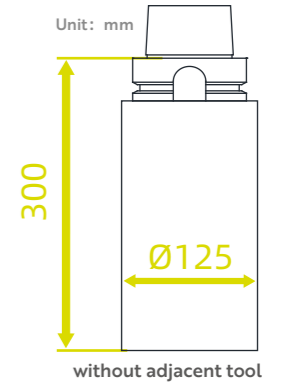


ATC (Automatic Tool Changer)



Tools Specification

	HSK63A	HSK100A
G800-TR	HSK63A	HSK100A
Standard	32T(Opt. 64T)	24T
Optional	64T	60T
Max. tool weight	7kg	15kg
Max. tool diameter	Ø75 Ø120(w/o adjacent tool)	Ø125 Ø125(w/o adjacent tool)
Max. tool length	300 mm	300 mm



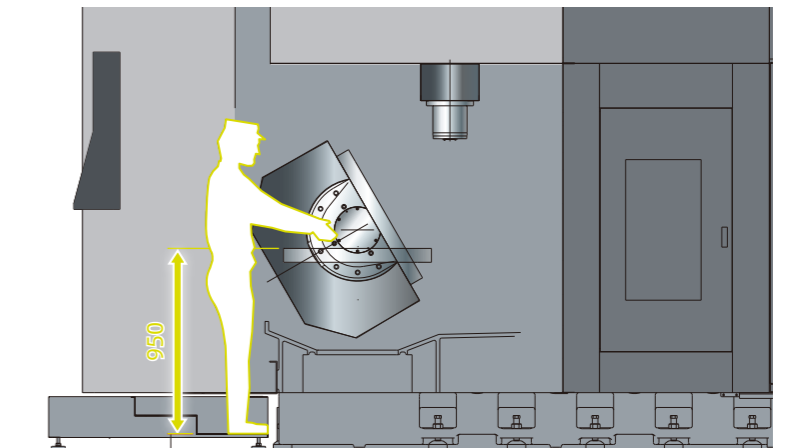
Operation / Accessibility

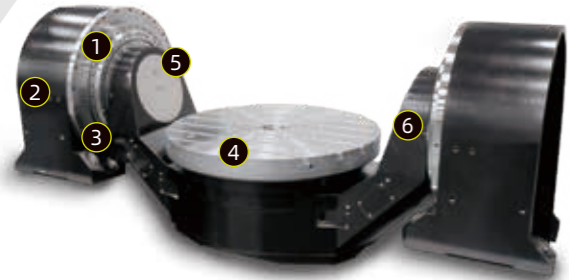
Easily reachable distance to working table and widely door open space is convenient for loading/unloading.

Safety/Full enclosure working zone

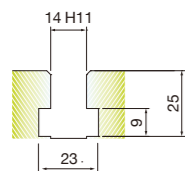
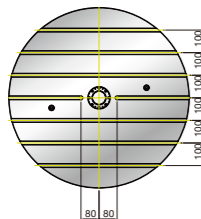
Top roof sliding cover

Avoid any flying chips, coolant and coolant mist splashed out.

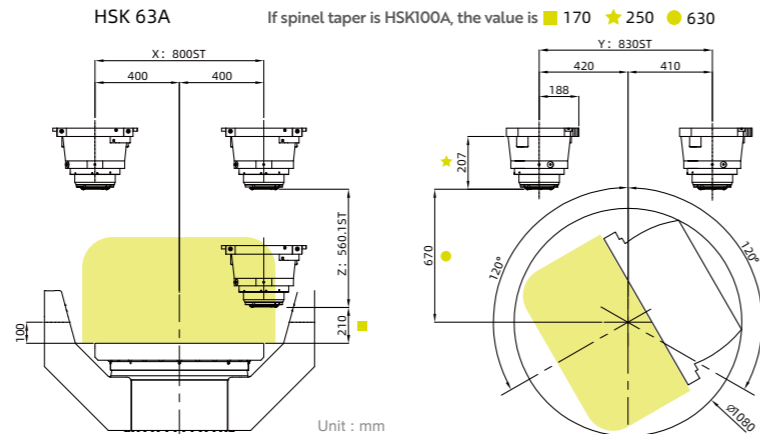




Rotary table		
Swing/rotation speed	rpm	A=70 / C=70
Max. swing/rotation torque (S1/S6)	Nm	A=4,240 / 6,920 C=2,120 / 3,460
Clamping torque	Nm	A=8,000 / C=8,000
Swing/rotation angle	deg	A=±120 / C=Cont.



T-slot dimension



1. The A / C-axis are driven by direct drive motor

The power can be completely transmitted and provides high-precision machining capabilities.

2. The A-axis is driven by a symmetrical double direct drive motor

The DD motor is on both sides of the table which prevents the cradle structure be twisting or deforming after loading.

3. 70 rpm of A axis feed rate

The maximum torque could be 6,920Nm and clamping torque up to 8,000Nm.

4. Modular design rotary table

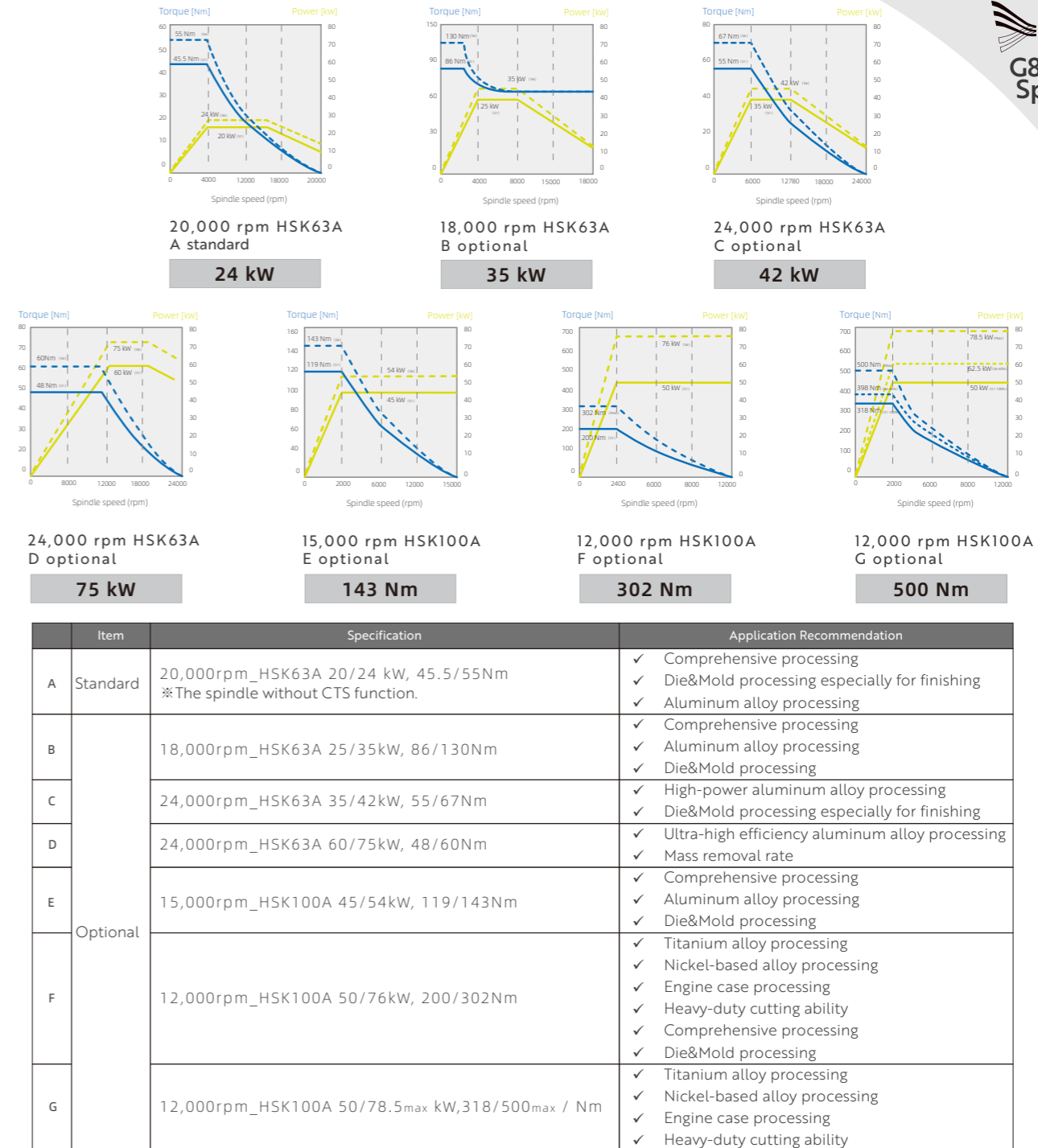
According to different industrial processing types, you can customize and replace workbench modules of various sizes and grooves.

5. The cradle rotating table can flush chips

The cutting fluid spray column can be supplied synchronously with the working table, regardless of the rotation angle.

6. Large angle rotation/swing axis

Improve production efficiency; high-precision rotating/swing shafts ensure product quality.



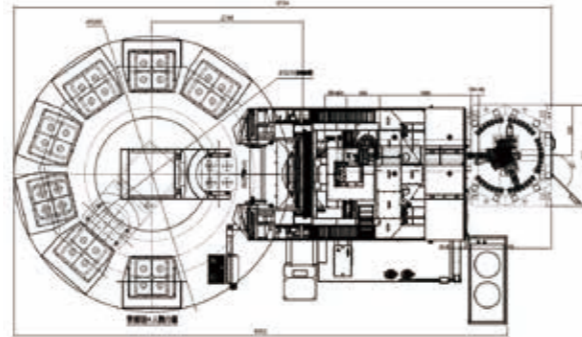
Item	Specification	Application Recommendation
A	Standard 20,000rpm_HSK63A 20/24 kW, 45.5/55Nm ※The spindle without CTS function.	<ul style="list-style-type: none"> Comprehensive processing Die&Mold processing especially for finishing Aluminum alloy processing
B	18,000rpm_HSK63A 25/35kW, 86/130Nm	<ul style="list-style-type: none"> Comprehensive processing Aluminum alloy processing Die&Mold processing
C	24,000rpm_HSK63A 35/42kW, 55/67Nm	<ul style="list-style-type: none"> High-power aluminum alloy processing Die&Mold processing especially for finishing
D	24,000rpm_HSK63A 60/75kW, 48/60Nm	<ul style="list-style-type: none"> Ultra-high efficiency aluminum alloy processing Mass removal rate
E	15,000rpm_HSK100A 45/54kW, 119/143Nm	<ul style="list-style-type: none"> Comprehensive processing Aluminum alloy processing Die&Mold processing
F	12,000rpm_HSK100A 50/76kW, 200/302Nm	<ul style="list-style-type: none"> Titanium alloy processing Nickel-based alloy processing Engine case processing Heavy-duty cutting ability Comprehensive processing Die&Mold processing
G	12,000rpm_HSK100A 50/78.5max kW, 318/500max / Nm	<ul style="list-style-type: none"> Titanium alloy processing Nickel-based alloy processing Engine case processing Heavy-duty cutting ability

Optional Accessories



Smart Factory-Tool Management System

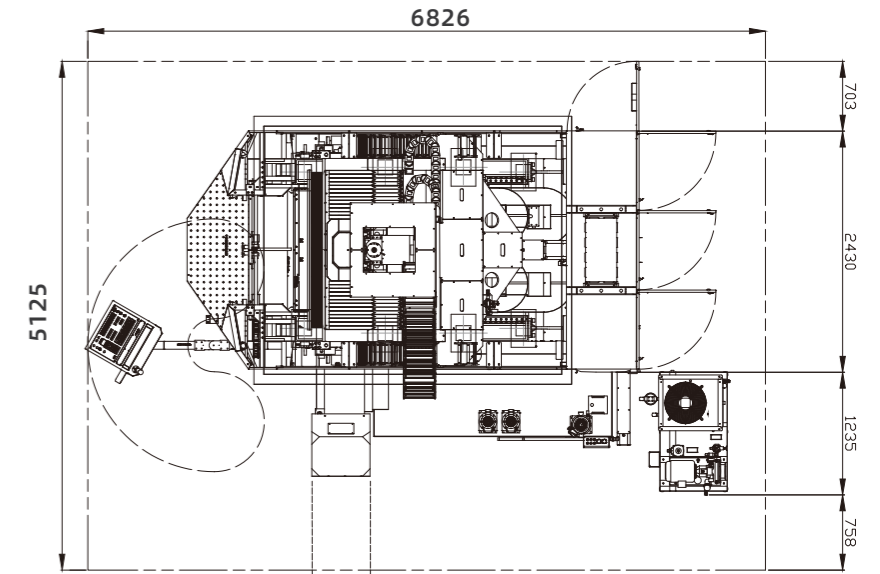
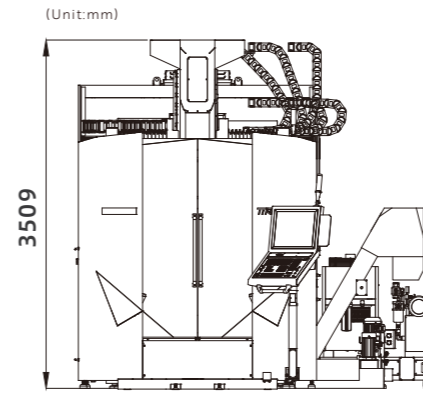
The database records tool status and usage history which can effectively manage tool data (tool length, radius, life... etc.). Moreover, tool compensation data is automatically uploaded and reducing tool data input errors and time.



Whole Plant Planning-Single Machine with Multiple pallets

There are multiple pallets for a single machine and operators can arrange multiple identical parts or work independently without supervision, which greatly improves production efficiency.

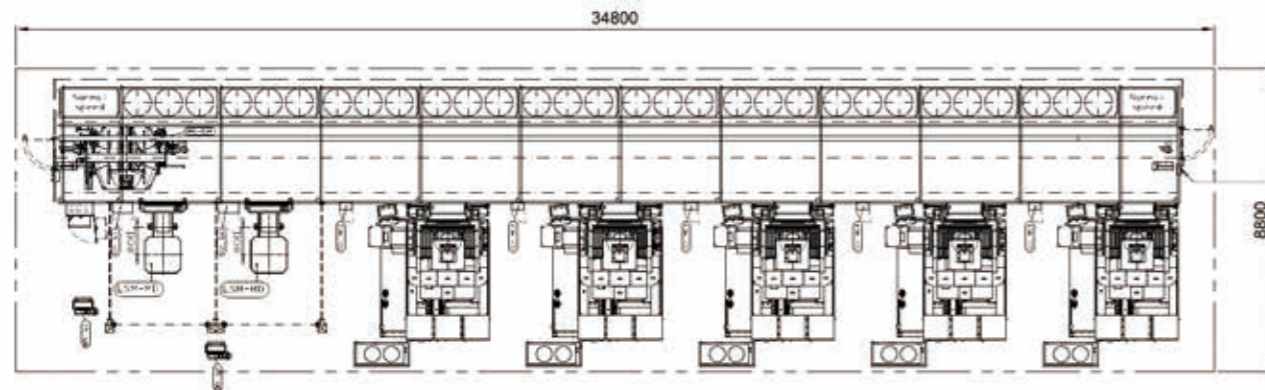
- Convenient for heavy/large workpieces to be loaded outside the machine
- Increase the productivity of machines and operators
- Pallets can be easily interchanged between machines or multiple areas



Specification	Unit	G800-TR	G800-T
Travel			
X-axis	mm	800	
Y-axis	mm	830	
Z-axis	mm	560	
A-axis	deg	±120	
C-axis	deg	±360(continuous)	
Distance from spindle end to table	mm	210-770 (with std. spindle)	
A/C-axis			
Speed for A-axis	rpm	70	70
Speed for C-axis	rpm	70	1,000
Torque for A-axis(SI/max)	Nm	4,240 / 6,920	4,240 / 6,920
Torque for C-axis(SI/max)	Nm	2,120/3,460	1,490/2,460
Brake torque(A/C)	Nm	8,000/8,000	
Disk diameter	mm	Ø800	
Load	tons	1.3	
Feedrate			
Rapid traverse	m/min	XYZ=48	
XYZ axis acceleration	m/sec ²	4	
Accuracy			
Positioning (VDI3441)	mm	X / Y / Z=0.008	
Repeatability (VDI3441)	mm	X / Y / Z=0.005	
Spindle (Std.)			
Spindle taper		HSK63A	HSK63T
Spindle speed	rpm	20,000	20,000
Spindle power(SI/S6)	kW	20/24	30/38
Spindle torque(SI/S6)	Nm	45.5/55	88/123
Automatic tool changer (Std.)			
Tool shank	pcs	32 (opt. 64)	
Max. tool length	mm	300	
Max. tool diameter with adjacent tool	mm	Ø75	
Max. tool diameter without adjacent tool	mm	Ø120	
Others			
Machine weight	tons.	15.5	

Item	Specification	Standard accessories	Optional accessories
Controller	HEIDENHAIN TNC640 MPG HR510	●	
	HEIDENHAIN TNC640 MPG HR520 / HEIDENHAIN TNC640 MPG HR550 SIEMENS SINUMERIK ONE		○
Spindle - G800-TR	AGA HSK63A 20,000rpm 20/24 kW	●	
Spindle - G800-T	AGA HSK63T 20,000rpm 30/38 kW	●	
Drive system	XYZ axis with high speed ball screw driving / AC axis with direct drive motor	●	
Automatic tool changer	32T	●	
	64T		○
Chip removal system	Complex chip conveyor / Coolant tank	●	
Cutting coolant	Coolant through spindle 20bar		○
	Coolant through spindle 70bar		○
System coolant	Chiller for spindle / Chiller for A/C axis / Air conditioner for electrical cabinet	●	
Workpiece measurement system	BLUM workpiece measurement system-TC-60+RC66		○
	Renishaw workpiece measurement system-RMP600		○
Tool measurement system	BLUM tool measurement system-NT-A4		○
	Renishaw tool measurement system-NC4-F230		○
Smart factory	TIMS system		○
	TLM system		○
Others	Security door interlocks / Fully enclosure splash guard	●	
	Oil mist collecting system / Air dryer / Isolation transformer		○
	Stabilizer / Oil separator		○

- Please contact with our sales if you have special requirement.
- All specifications and design are subject to change without notice.



Automated production line

The flexible manufacturing and production system for various workpieces is automated in the whole process, supplemented by automated inspections, which shortens the time for mold changeovers in an all-around way. And no defective products are produced. The equipment is also fully networked to monitor the production line in real-time, continuously optimize the process through big data, and even link M E S and E R P to create a smart automated production system that can reduce the burden of production management and integrate production information.