GRA100

5-Axis High-Speed Machining Center Designed for Precision Machining and Precision Mold Machining.

JINGDIAO

GRA100

With fully closed-loop control technology, the GRA100 is suitable for 5-axis machining of small precision mold, small precision and complex hardware parts.

05

Highlights

01 Cooling technology of the rotary table, bearings and screw nut are chilled them thermally stable. The fully enclosed structure further enhances thermal stability of the work environment.

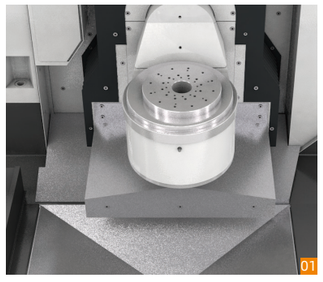
02 Inclined design and drawer type collection box makes it easy to collect machining chips . Waste recycling rate reaches 3‰.

03 JINGDIAO 5-axis high-speed machining centers are designed for the stable precision machining, “0.1 μm feeding, 1 μm cutting, nano surface finish".

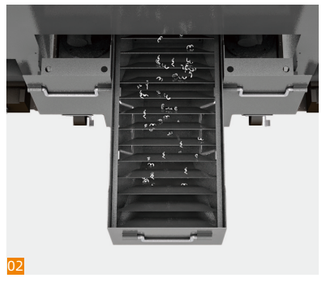
04 The fully closed loop axis drives are equipped with linear glass scales which ensure machining and positioning accuracy.

05 The machine weighs 2.7 tons (6040.7 lb) and has a compact footprint of 5.48' × 7.25' (1670mm × 2210mm).

Learn More About GRA100



01



02

03

04

Machining Samples

Medical Bone Rasp

Size (mm/in): 99×29×17/3.90×1.17×0.67
Material: 17-4 Stainless Steel
Highlights:
+ Cycle time including roughing and finishing is only 4h 15min;
+ Witness mark on each surface is less than 0.01 mm;
+ Since there are no burrs, secondary processes are eliminated.

Fresnel Lens Mold

Size (mm/in): Φ30×60/Φ1.18×2.36
Material: S136 (HRC50)
Highlights:
+ Stable 2 μm cutting for 99 h with R0.1μm PCD cutting tool and the tool wear is less than 1 μm;
+ Surface roughness Sa < 0.05 μm;
+ Dimensional accuracy is ±5 μm.

Ring Carving Patterns

Size (mm/in): Φ24.0×4.8/Φ0.94×0.19
Material: AL 6061
Highlights:
+ JINDIAO SurfMill CAM "Carving Patterns" feature makes it easy to program jewelry patterns;
+ The entire processing time is 17min 10s;
+ No machining marks on the surface under 40x magnifier.

Mirror Mold

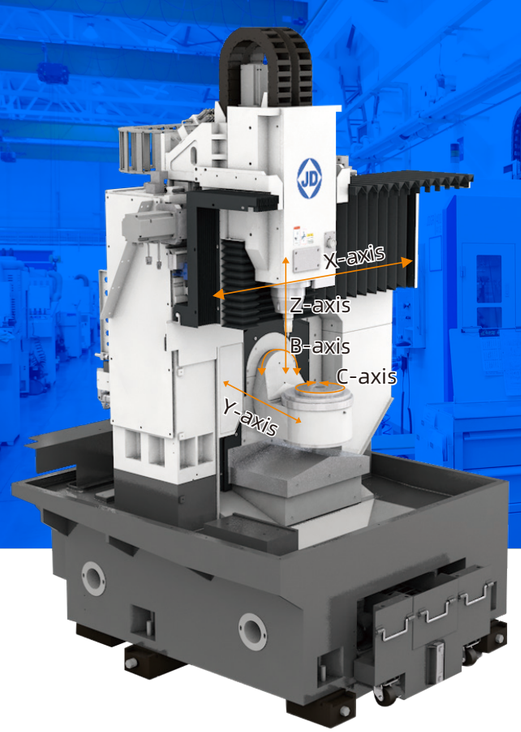
Size (mm/in): 75×75×40/2.95×2.95×1.57
Material: Stavax (HRC50)
Highlights:
+ Continuous finishing with R1 PCD cutting tool for 20h,stable cutting volume of 3 μm;
+ Sa <4 nm, PV <3 μm.

Bracelet Processing Stripe

Size (mm/in): Φ68.0×5.0/2.68×0.20
Material: AL 6061
Highlights:
+ 800 shading processing in one minute;
+ Witness mark in nearly impossible to see under 40x magnifier.

Special-Shaped Bracelet

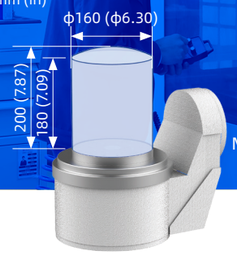
Size (mm/in): 62.0×52.0×5.0/2.44×2.05×0.20
Material: AL 6061
Highlights:
+ Our 5-axis high-speed machining centers are equipped with JINGDIAO on-machine measurement and intelligent modification technology which conforms the NC program to the shape of the work piece.



Machine Structure

Max. Workpiece Dimension

Unit: mm (in)

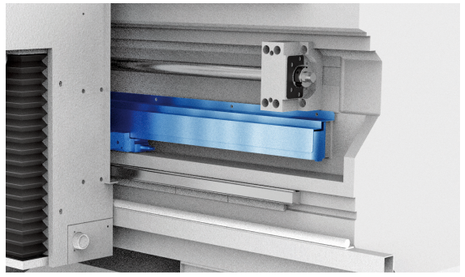


Max. load (kg/lb): 15/33.1

Travel (X/Y/Z) mm/ (in)	400/200/200 (15.75/7.87/7.87)
B/C Rotation Angle (deg)	±120°/360°

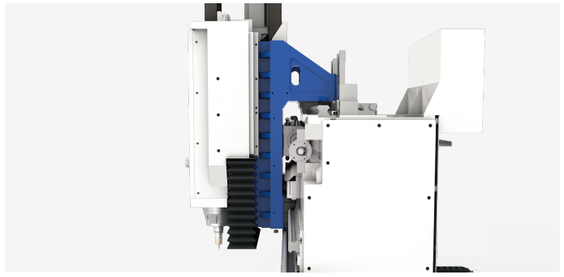
Higher Motion Accuracy

+ Full closed loop control, motion axes equipped with linear glass scales.



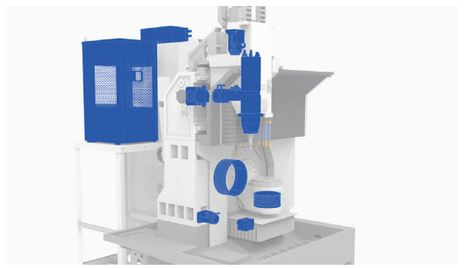
Better Machine Rigidity

+ Inverted “L” structure.



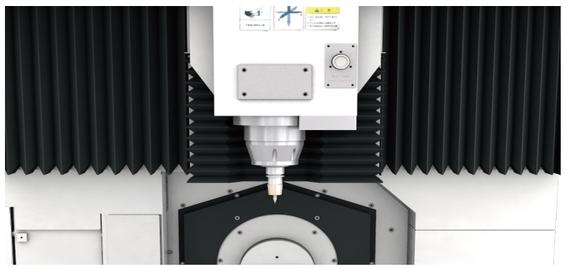
Good Thermal Stability

+ All round cooling design, using rotary table cooling, bearing cooling, screw cooling technology, and equipped with fully enclosed machine covers.



Less Interference in 5-Axis Machining

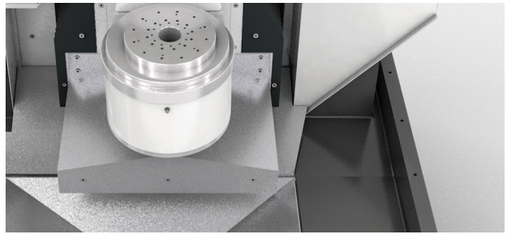
+ The sharp structure of the machine head bottom lengthens the nose head of the spindle.



Designed for Convenient Precious Metal Recycling

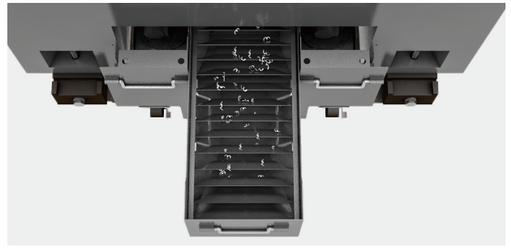
+ **Stainless Steel Sheet Metal**

  The stainless steel sheet metal located machining area of the machine tool, makes it easy to clean up the processing waste.



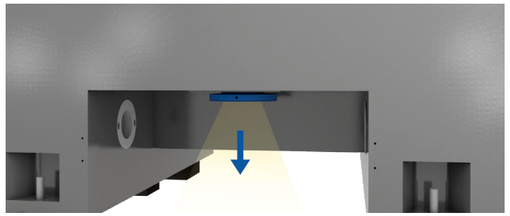
+ **Drawer Type Collection Box**

  The upper part of the machine oil tank adopts a drawer type collection box, which is convenient for cleaning and recycling of precious metal debris.



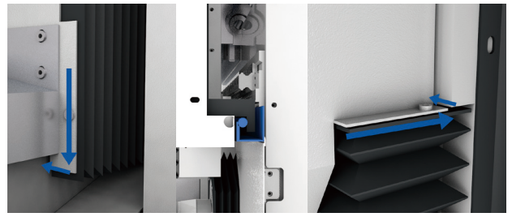
+ **Recycling Filter Bags**

  Install a filter bag to improves the recovery rate precious metal debris.



+ **Labyrinth Protective Structure**

  The machine uses a labyrinth structure which has higher protection level design to prevent chips from entering the machine tool area.

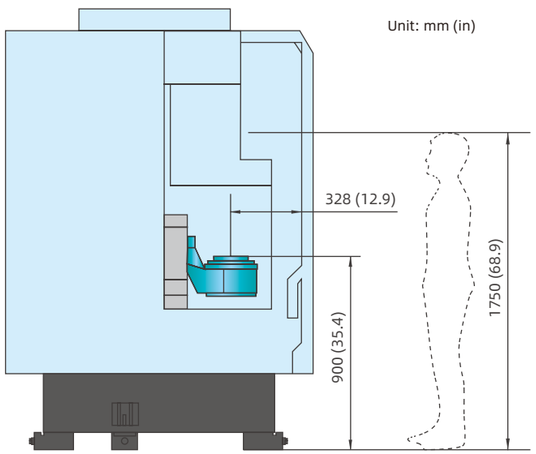


Ergonomics

The structural designed of each operation part conforms to ergonomics.

+ The worktable is close to the operator ,which makes it easy to load and unload the workpiece.
+ The display height of the console is ideal for the operator of average height.
+ Pneumatic components and lubricating components are all installed on the left side of the machine,which is convenient for inspection and maintenance.

Unit: mm (in)



Key Components

JD50 CNC System

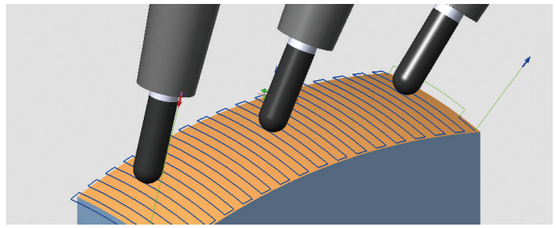
The JD50 CNC system developed by JINGDIAO is the brains of the machine. It has the basic functions seen other control systems, but also includes several complete 5-axis modules developed by JINGDIAO's R&D department. This is how JINGDIAO 5-axis machine tools achieve high machining accuracy, and mirror finishes. Our machining modules are flexible and can be customized based on a customer's machining application.

G100 Instruction
Data Management

Basic Characteristics

- The programming resolution and control resolution are 0.1 μm (3.9×10^{-6} in).
- Supports linear, plane arc, space arc, spiral line, spline and involute interpolation methods.
- Support pitch compensation and reverse clearance compensation.
- Support RTCP multi-axis motion control.

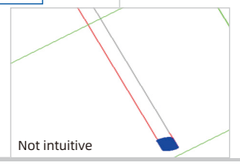
0.1μm Feed, 1μm Cutting



Fixed Point Cutting

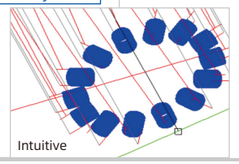
Not RTCP Program

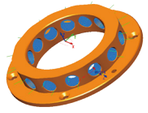
```
G91G28Z0
G90
G0X0.7883Y2.4874A-90.C-77.1431
M590 L1
G43H1
Z35.0874
Z30.6074
N102G1Z30.1074F189.
```



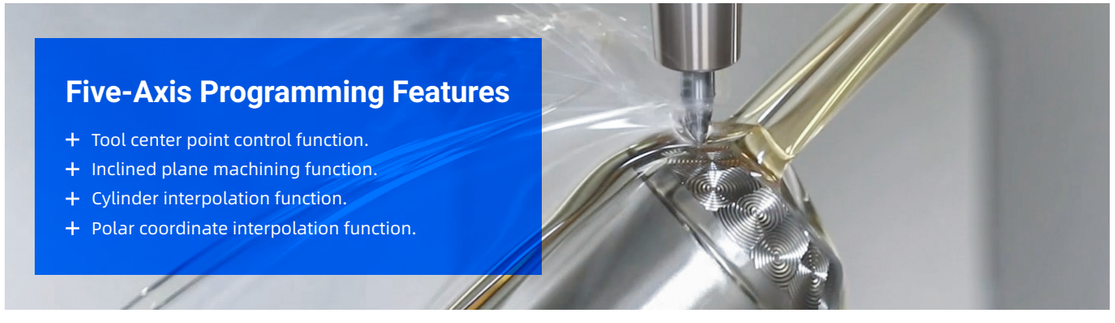
RTCP Program

```
G91G28Z0
G90
G68.2X29.3331Y6.6949Z-6.I-77.143J-90.K0.
G53.1
G0X0.7883Y-3.5126
M590 L1
G43H1
Z5.
Z0.52
N102G1Z0.02F189.
```





RTCP



Five-Axis Programming Features

- Tool center point control function.
- Inclined plane machining function.
- Cylinder interpolation function.
- Polar coordinate interpolation function.

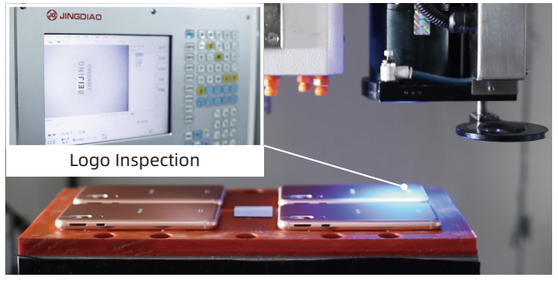
System Advantages

- Various programming methods and flexible technical process design.
- Abundant types of interfaces and buses, with strong peripheral expansion capabilities.
- Unique external extended function instructions (G100), which can realize instruction-level peripheral control, human-computer interaction, and complex data operations.

	A	B	C
1	Tool NO.	1	0.0Degre
2	Time	2020.04.21-12:56:43	10.0Degre
3	Parameter	Measure Data	20.0Degre
4	Length	0	30.0Degre
5	Radius	0	40.0Degre
6	Fit R Value		50.0Degre
7	Avarage A Value		60.0Degre
8	Max deviation		70.0Degre
9	Min deviation		80.0Degre
10	Contour Range	0	90.0Degre
11			

Advanced Features

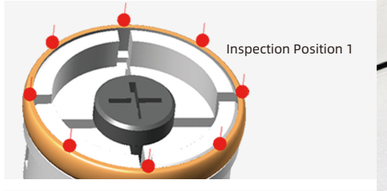
- Includes on-machine contact and non-contact measurement functions, which results in high-precision 2D and 3D measurements.
- Built-In CAM technology and intelligent modification technology supports the on-machine tool-path deformation compensation machining.
- Incorporates multiple communication protocols and remote monitoring.

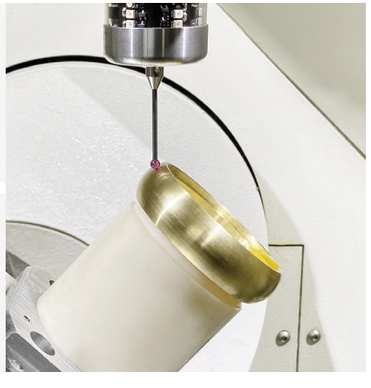


Logo Inspection

Non-Contact Measurement

Contact Measurement





Surface Deformation Compensation

Remote Monitoring of Machines

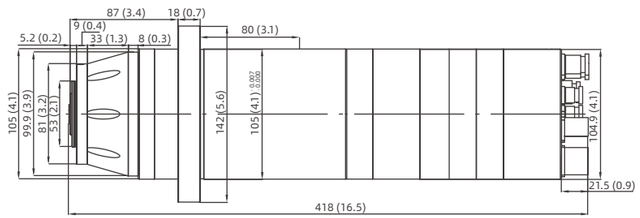
JINGDIAO High-Speed Precision Spindle

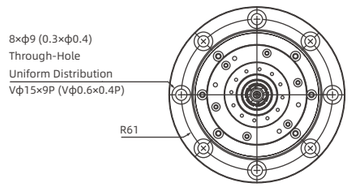
JINGDIAO's high speed spindles are the machine's main power source which produce precision machining results. Our in-house built spindles have low vibration, and high thermal stability resulting in a small coefficient of thermal expansion and stable cutting in conditions.

JD105S-28-HE32/F

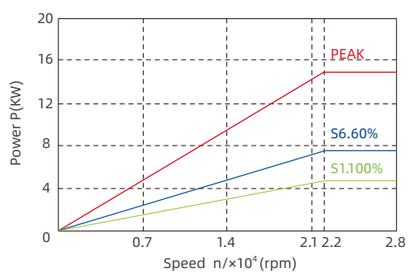
Dimension

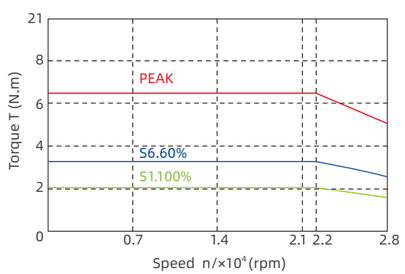
Unit:mm (in)





Output Performance





Basic Specification

Clamping Diameter (mm/in): ϕ105 (0,-0.007) mm ϕ4.13 (0,-0.00028) in
Output Power (S6-60%): 7.6 KW
Output Torque (S6-60%): 3.3 N·m
Speed: 28,000 rpm
Tool Holder: HSK-E32
Weight (kg/lb): 13.3/29.32

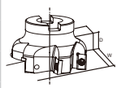
Performance

- Taper bore radial runout ⩽1.5 μm (5.9×10^{-5} in)
- Rotor end face axial runout ⩽1 μm (3.9×10^{-5} in)
- Vibration at maximum speed ⩽0.6 mm/s (1.44 ipm)

Optional

01 Coolant Through Spindle:JD105SC-28-HE32
02 Spindle for Precision Machining:JD105E-36-ISO20/F
03 High-speed Precision Spindle:JD105E-32-HE32/F
04 Spindle for Precision Machining:JD130E-32-HE32/F
05 High-speed Precision Spindle:JD130S-24-BT30/F

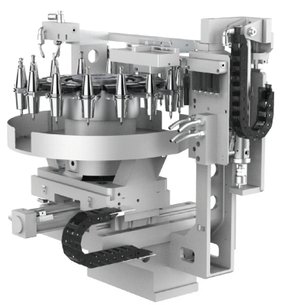
Cutting Test Results (Spindle Type JD105S-28-HE32/F 28,000rpm)

Item	Material	Teeth Number	Tool Size mm/in	Cutting Width (mm/in) / Cutting Depth (mm/in)	Spindle Speed rpm	Cutting Feed Rate mm/min (in/min)	Cutting Capacity cm^3/mm
 Face Mill	Aluminum	3	ϕ10 (ϕ0.39)	8/0.31 1/0.039	10,000	3,000 (118.1)	24
	Steel	4	ϕ10 (ϕ0.39)	6/0.24 0.2/0.0079	4,000	1,600 (63.0)	1.92
 End Mill	Aluminum	3	ϕ10 (ϕ0.39)	0.2/0.0079 15/0.59	10,000	3,000 (118.1)	9
	Steel	4	ϕ10 (ϕ0.39)	0.1/0.0039 15/0.59	4,200	1,600 (63.0)	2.4
 Drill	Aluminum	2	ϕ8 (ϕ0.31)	/	1,600	500 (19.7)	/
	Steel	2	ϕ6 (ϕ0.24)	/	1,200	100 (3.9)	/
 Tap	Aluminum	2	M8×1	/	800	800 (31.5)	/
	Steel		M6×1	/	500	500 (19.7)	/

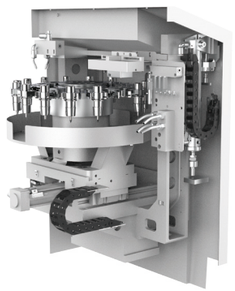
※Different machining conditions have different machining data, which is only for reference.

Tool Magazine

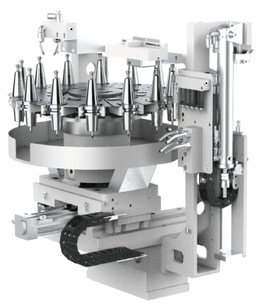
To meet your production needs, we have a variety of tool magazines to choose from.



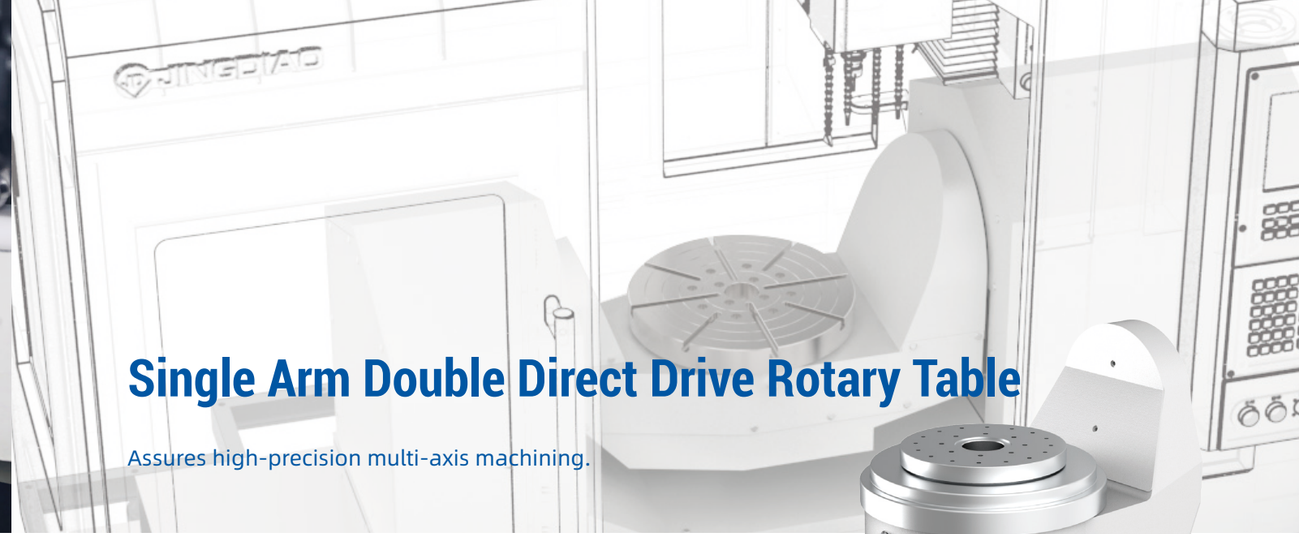
Tool Magazine	Servo Tool Magazine 1
Tool Holder	ISO20
Capacity	16
Allowable Maximum Tool Length (mm/in) (From End of Spindle)	120/4.72
Maximum Diameter of Contiguous Tools (Full) (mm/in)	40/1.57
Maximum Diameter of Contiguous Tools (Vacant) (mm/in)	40/1.57
Max. Load of Each Position (kg/lb)	0.4/0.88
Max. Load of Tool Magazine (kg/lb)	6.4/14.11



Tool Magazine	Servo Tool Magazine 2
Tool Holder	HSK-E32
Capacity	16
Allowable Maximum Tool Length (mm/in) (From End of Spindle)	120/4.72
Maximum Diameter of Contiguous Tools (Full) (mm/in)	40/1.57
Maximum Diameter of Contiguous Tools (Vacant) (mm/in)	40/1.57
Max. Load of Each Position (kg/lb)	0.4/0.88
Max. Load of Tool Magazine (kg/lb)	6.4/14.11



Tool Magazine	Servo Tool Magazine 3
Tool Holder	BT30
Capacity	14
Allowable Maximum Tool Length (mm/in) (From End of Spindle)	120/4.72
Maximum Diameter of Contiguous Tools (Full) (mm/in)	40/1.57
Maximum Diameter of Contiguous Tools (Vacant) (mm/in)	40/1.57
Max. Load of Each Position (kg/lb)	3/6.61
Max. Load of Tool Magazine (kg/lb)	42/14.11



Single Arm Double Direct Drive Rotary Table

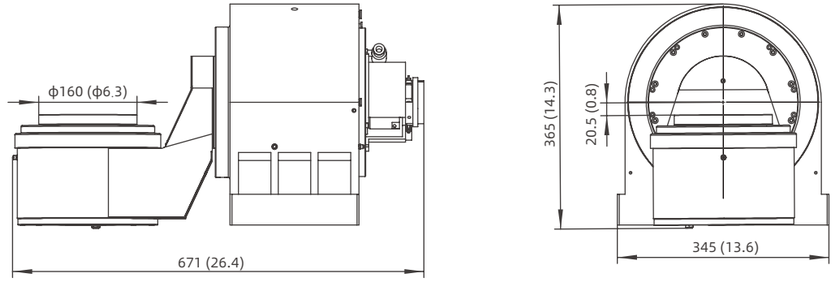
Assures high-precision multi-axis machining.

Features

- The rotary table is a cantilever structure..
- Five axis simultaneous processing, multi surface positioning processing.
- Direct drive motor, with emergency braking function.
- B-axis adopts pneumatic locking method, and contains a brake structure.
- Both b and c axis are cooled by circulating water cooling to reduce the thermal deformation.
- The encoder and limit structure are external, which is convenient for maintenance.
- The chip resistant sheet metal makes it easy to clean.

Dimension

Unit: mm (in)



Specification

Item	Tilt Axis (B)	Rotation Axis (C)
Weight (kg/lb)	130/286.60	40/88.18
Position Accuracy (")	8	8
Repeatability (")	5	5
Cooling Mode	Circulating Water Cooling	Circulating Water Cooling
Positioning Locking Mode	Pneumatic Locking	––
Positioning Locking Air Pressure (MPa/PSI)	0.6±0.02/8.8±2.9	––
Safety Brake	√	––

Accessories

Material Handling System

Material Handling System is mainly composed of handling manipulator, storage module and the control system. It is equipped with tridimensional fixed plate exchange system, which can realize the automatic handling of workpiece under the condition of no human intervention.


Processing System


Feeding System


Clamping System


Software System

Production Mode

The exceptional features of JINGDIAO operation management system makes it easier to collaborate with colleagues within in your manufacturing team. The personnel will perform their respective duties, guarantee the continuous operation of the system, and improve the machines' actual utilization rate.

Factory Supervisor	Operator	Technologist	Dispatcher	Workshop Supervisor
Obtain Production Information in Time	Maintain	Synchronous Programming	Production Scheduling	Real Time Statistics of Machine State
	Preparation	Network Transmission	Flexible Adjustment	

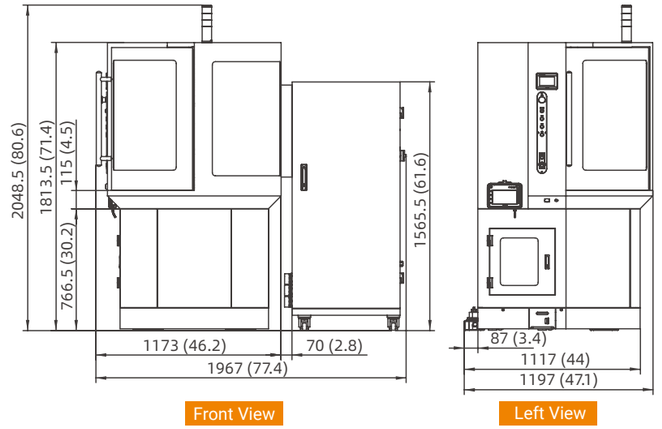
MHS15

Specification

MHS15 Specifications			
Feeding System	MHS15-SR14A	MHS15-SR18A	MHS15-SR24A
Load (kg/lb)	15 (33.07)		
Storage Capacity	14	18	24
Workpiece Dimension (mm/in)	120×120×140 (4.7×4.7×5.5)	80×80×140 (3.1×3.1×5.5)	60×60×140 (2.4×2.4×5.5)
Machine Dimension (mm/in)	900×940×2065 (35.4×37.0×81.3)		
Weight (kg/lb)	1000 (2204.6)		

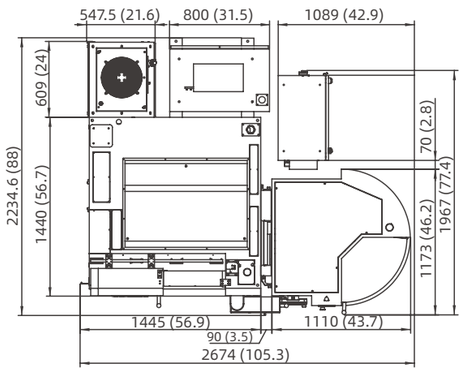
※ Machine dimension and weight are only parameters of the Material Handling System

Unit: mm (in)



Front View | Left View

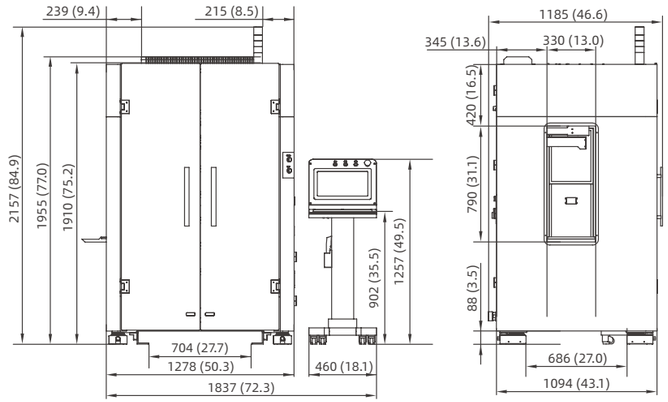
Unit: mm (in)



Layout

MHS25

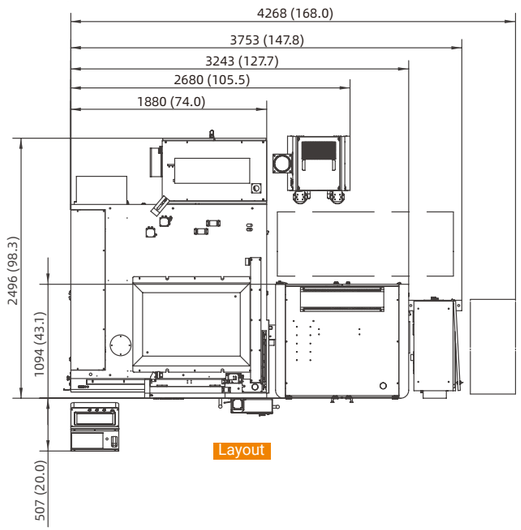
Unit: mm (in)



Front View

Left View

Unit:mm (in)



Layout

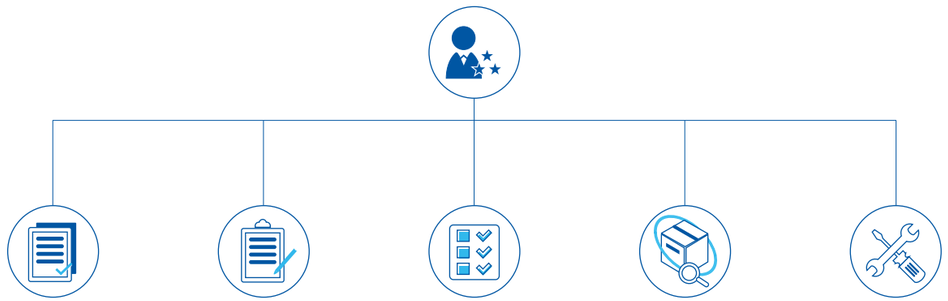
Specification

MHS25 Specifications			
Feeding System	MHS25-SF42A	MHS25-SF96B	MHS25-SF63A
Load (kg/lb)	25 (55.1)		
Storage Capacity	42	96	63
Workpiece Dimension (mm/in)	120×120×120 (4.7×4.7×4.7)	Φ60×100 (Φ2.4×3.9)	120×100×100 (4.7×3.9×3.9)
Machine Dimension(mm/in)	1280×1000×1900 (50.39×39.37×74.80)		
Weight (kg/lb)	900 (1984.2)		

※ Machine dimension and weight are only parameters of the Material Handling System.

Customized Service

We can design and develop the structure according to your actual production needs.



Tool Holders

Tool holders require good clamping performance such as high clamping accuracy, low vibration and the ability minimize oil mist during high-speed machining.
JINGDIAO tool holders have anticorrosive properties, minimize air resistance, and are designed good dynamic balance. Equipped with different spindles, GRA100 can use BT30, HSK & ISO type tool holders.

Technical Parameter

ER Series Handle

Type	Name	Size (mm /in)				
		A	B	C	L	Thread
BT30	BT30-ER11-85S	7.5 (0.30)	19 (0.75)	35 (1.38)	82 (3.23)	M14×0.75
	BT30-ER16-60S	10.5 (0.41)	30 (1.18)	50 (1.97)	67 (2.64)	M22×1.5
	BT30-ER16-100S	10.5 (0.41)	30 (1.18)	50 (1.97)	107 (4.21)	M22×1.5
	BT30-ER25-060S	18 (0.71)	41.8 (1.65)	54 (2.13)	62 (2.44)	M32×1.5
HSK-E32	HSK-E32-ER16M-050S	10.5 (0.41)	22 (0.87)	27.5 (1.08)	50 (1.97)	M19×1
	HSK-E32-ER20M-050S	13.5 (0.53)	28 (1.1)	27.5 (1.08)	51 (2.01)	M24×1
	HSK-E32-ER20M-060S	13.5 (0.53)	28 (1.1)	27.5 (1.08)	54 (2.13)	M24×1
ISO20	ISO20-ER16-040MS	10.5 (0.41)	22 (0.87)	28.5 (1.12)	35 (1.38)	M19×1
	ISO20-ER16M-045S	10.5 (0.41)	22 (0.87)	29 (1.14)	41 (1.61)	M19×1
	ISO20-ER16M-050S	10.5 (0.41)	22 (0.87)	28.5 (1.12)	47 (1.85)	M19×1

Blade Handle without Wind Resistance

Type	Name	Size mm (mm /in)					
		A	B	C	D	L	Thread
BT30	BT30-ER11-085S	7.5 (0.30)	17.99 (0.71)	53 (2.09)	19 (0.75)	85 (3.35)	M14×0.75
	BT30-ER16-060S	10.5 (0.41)	26.99 (1.06)	50 (1.97)	30 (1.18)	60 (2.36)	M22×1.5
	BT30-ER20M-060S	13.5 (0.53)	30 (1.18)	28.5 (1.12)	32 (1.26)	60 (2.36)	M24×1
HSK-E32	HSK-E32-ER16-060HS	10.5 (0.41)	26.99 (1.06)	27.5 (1.08)	30 (1.18)	60 (2.36)	M22×1.5
	HSK-E40-ER16-060HS	10.5 (0.41)	26.99 (1.06)	28.5 (1.12)	30 (1.18)	60 (2.36)	M22×1.5
ISO20	BT30-ER20M-060S	10.5 (0.41)	26.99 (1.06)	28.5 (1.12)	30 (1.18)	60 (2.36)	M22×1.5

Oil Mist Collector

The oil mist collector reduces the rise of internal temperature caused by the oil mist accumulation. It eliminates the diffusion of oil mist, reduces the internal electrical fault of the machine tool, improves the stability of equipment operation, reduces air pollution, and protects the workshop environment.

GL370 Oil Mist Collector ►

Specification

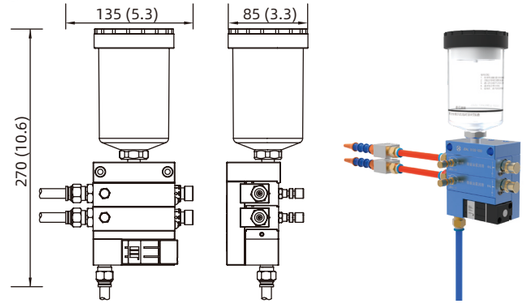
Item	Spec
Voltage (V)	AC380±10%
Power (W)	370
Current (A)	0.95
Frequency (Hz)	50±2%
Ambient Temperature (℃ / ℉)	5~40/41~104
Environmental Pressure	Atmos
Weight (kg/lb)	80/176.4
Max. Air Volume (m^3/in^3)	$450/2.7\times10^7$
Filtration Efficiency	> 99%

Minimal Quantity Lubrication (MQL)

MQL cooling technology is used in precision grinding and micro milling. Equipped with MQL, the temperature fluctuation in the machine can be controlled within 0.5 ℃ (32.9 ℉).

Dimension

Unit:mm (in)



Specification

Item	Spec
Pressure (MPa/PSI)	0.5~0.8/73.5~117.6
Rated Pressure (MPa/PSI)	0.55/80.8
Air Volume (L/min)	0~220
Air Consumption per Nozzle (L/min)	100
Oil Consumption per Nozzle (ml/h)	0~30
Nozzle Quantity	2
Weight (kg/lb)	1.5/3.3
Mounting Pitch (mm/in)	70/2.8

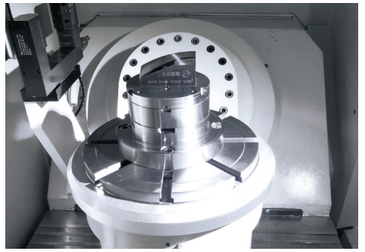
JINGDIAO Quick-Change Clamping Systems

Realizing fast, accurate and efficient clamping.

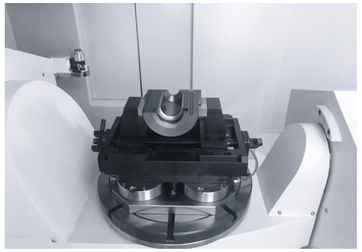
Features

+ The loading and unloading work inside the machine can be transferred outside the machine.
+ Multi-process processing or inspection can achieve accurate positioning.
+ To achieve rapid conversion between tooling and shorten the manufacturing cycle.

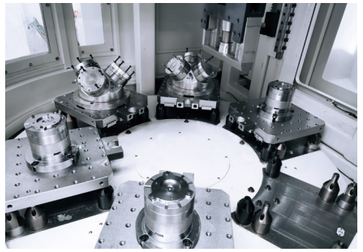
Application Scenario



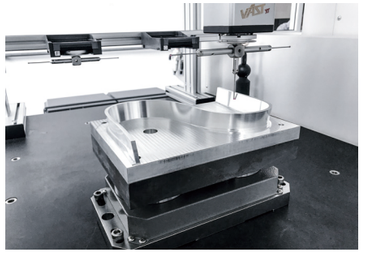
Multi-Axis Machining



Multi-Process Machining



Automation Manufacturing



Measuring

Use in Combination

Distinctive Technologies

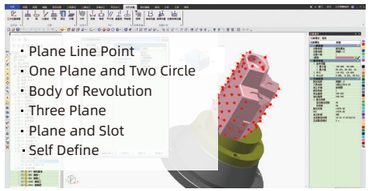
On-Machine Measurement and Intelligent Modification Technology

JINGDIAO's innovative on-machine measurement and intelligent modification technology (OMIM) is an ideal solution that integrates CAD/CAM programming technology, numerical control processing and precision inspection technology. Its intelligent application can effectively shorten the production cycle of the workpiece, streamline the processing flow, and improve quality and efficiency for production and machining.

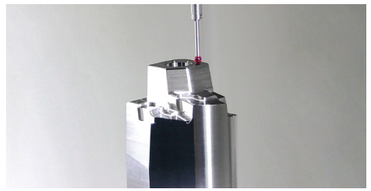
The Function of JINGDIAO OMIM is Mainly Reflected in Three Aspects

+ Intelligent Workpiece Alignment

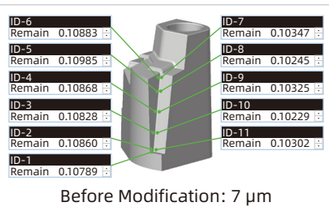
This feature automatically corrects the workpiece alignment by probing workpiece position which automatically adjusts the program accordingly.



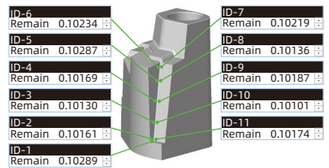
01-Support Multiple Workpiece Position Compensation Methods



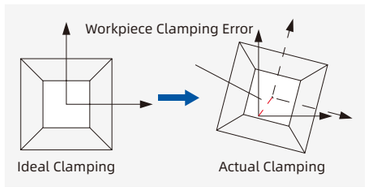
02-Obtain Actual Position on the Machine



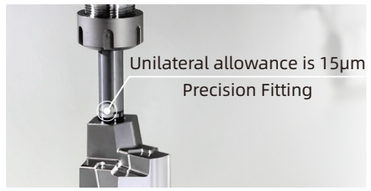
Before Modification: 7 μm



After Modification: 4 μm



03-Workpiece Position Compensation

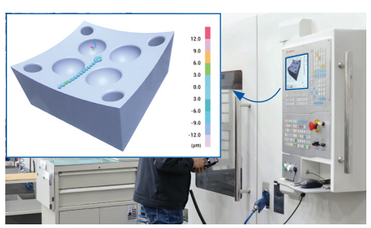


04-Verification of Position Compensation Accuracy

+ Machining Step Remaining Stock Inspection

With this feature, the remaining stock at each machining step can be measured in real time, and the inspection results will be displayed on the machine's control. The operator can analyze the results in order to ensure that an even amount of material is removed at every machining step. This results in reduced tool wear, constant chip load, improved machining accuracy and improved surface finishes.

Inspect the Remaining Stock on the Machine

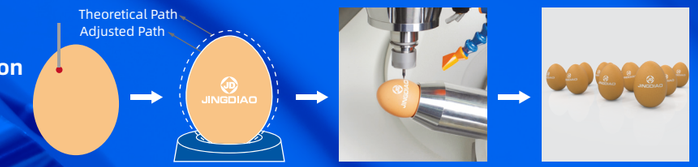


Real Time Display of CNC System

Achieve Stable Precision Machining

+ 5-Axis Path On-Machine Compensation

The CAM function embedded in the CNC system can compensate for the inaccurate machining path, which is created by an non-conforming geometric shapes, clamping deformation and clamping deviation.



Surface Data Measurement | Adjust Processing Path | Egg Processing | Egg Demonstration

A New Model of Numerical Control Processing

+ Machining and inspection are achieved on one machine, forming a new model of "integration of machining and inspection".
+ The digitalization of CNC machining experience enables a entry-level operator to complete precision machining.
+ The actual processing time proportion of CNC machines has increased from **25% -45% to 45% -70%**.
+ Thanks to our on machine inspection fewer inspectors and inspection equipment is required.

Before Using Integration of Machining and Inspection

After Using Integration of Machining and Inspection

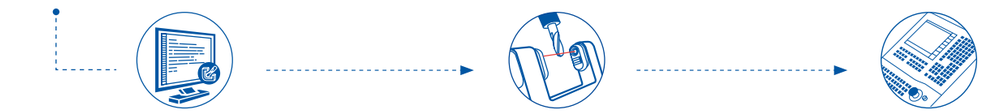
Tool Inspection System

During the 5-axis machining process, JINGDIAO tool inspection system can inspect the errors of different positions of the tool contour of the bull nose tool, ball-end tool and other tools for precision machining and compensate intelligently. This can effectively reduce the unqualified workpiece accuracy caused by the tool inaccuracy.

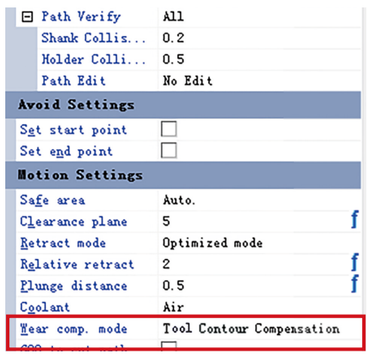
Ball-End Tool | Nose Tool | Taper Ball-End Tool

* Tool Type

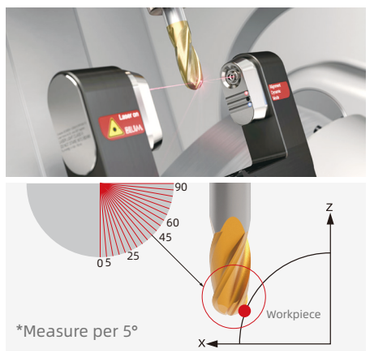
Realization



JIGNDIAO CAM Software | Standard Laser Tool Set | JIGNDIAO CNC System



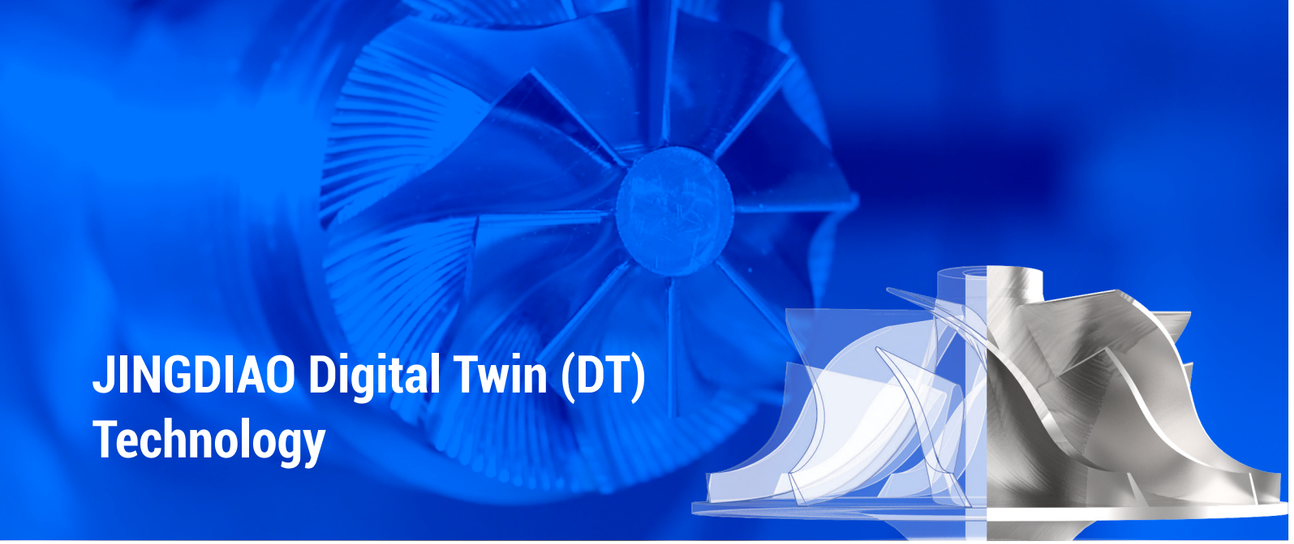
3D Tool Contour Compensation Function



Inspect Tool Contour on the Machine

G41 P2 D3 X-73.5376
Z-1.8930 NX6711.5031
NY-1.5915NZ7413.2128

Compensate Tool Contour Deviation



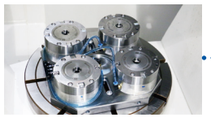
JINGDIAO Digital Twin (DT) Technology

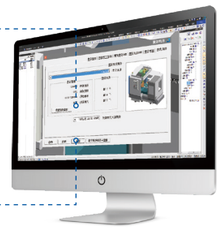
With JINGDIAO's software, the actual production materials and process parameters are digitized to ensure the correct information is selected by the process personnel, material preparation personnel and the operator. This creates a seamless integration process development, material preparation and machine operation, and improves the accuracy and fluency of the machining Process.


Machine

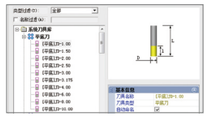

Tool

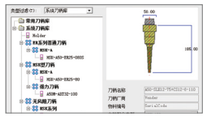

Tool Holder

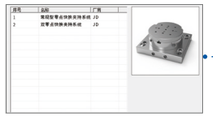

Fixture




Machine Bank


Tool Bank

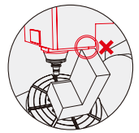
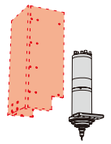
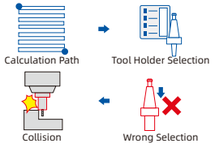
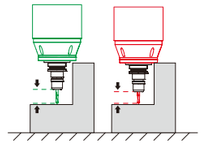
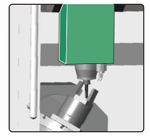
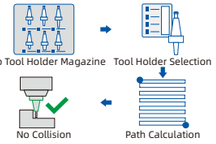
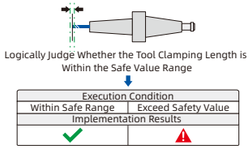

Tool Holder Bank


Fixture Bank

Ensuring the Safety of 5-Axis Machining

Five-axis milling is a complex machining process. During the machining there is the risk of collisions between tools, tool holders and the workpiece. JINGDIAO uses its SurfMill software to establish the connection between production materials, CAM programming and actual processing in a virtual environment. The user can build the same digital scene in the software, simulate the machining process, analyze and adjust the process, and eliminate the machining risk in the software programming stage.

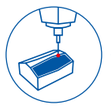
Application Scenarios of DT Programming Technology

Technical Points	Mirror the Actual Machining Environment to Ensure the Accuracy of Interference Risk Inspection	Informatization of Production Materials to Avoid Risks Caused by Wrong Selection of Materials	The Macro Program Fool-Proof to Avoid Risk Caused by Mis-Operation by Personnel
Risk Type	 Z-Axis and Workpiece	 Tool Holder and Workpiece	 Spindle and Workpiece
Cause Of Risk	 Ignore Z-Axis	 No Informatization of Production Material	 Tool Clamping Length Error
Solutions	 Complete Machine Model	 Informatization of Production Materials	 Tool Setup Foolproof

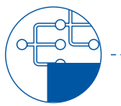
Easy Start

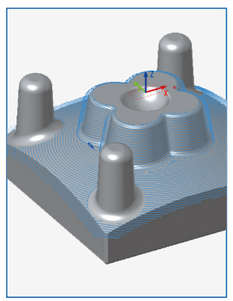
With this software, the program processing, measurement, preparation and logical judgment are combined into one program. The operator only needs to press the start button to begin the processing of the part which reduces machine setup time.

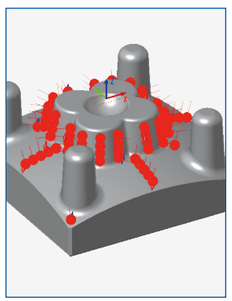

Processing Program


Measurement Program


Preparation Program


Logical Judgment





Warm up Machine
↓
Tool Inspection
↓
Warm up Machine
↓
Path Travel Fool-Proof
↓
...

M98 P5001 (Warm up Machine)
M98 P5002 (Tool Inspection)
M98 P5003 (Calibration)
M98 P5004 (Path Travel Fool-Proof)
M98 P5005 (Processing Program)
...

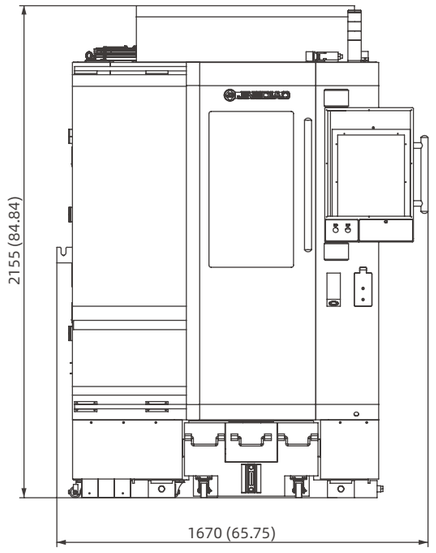
If[[#1 Eq 0] || [#2 Eq 0]...[#18 Eq 0]]Go to 1
(Cycle Condition: Unqualified Remaining Stock at Any Point)
Go to 999
N1 (Execute the Pop-up Program)
G65 P495 A18 (Real-Time Actual Remaining Stock Displayed on the Pop-up)
N999
M99

Processing Easy Start

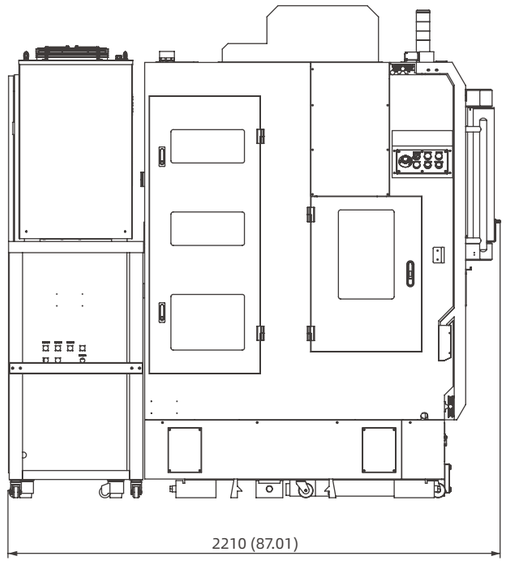
Technical Specification

Dimension

Unit: mm (in)



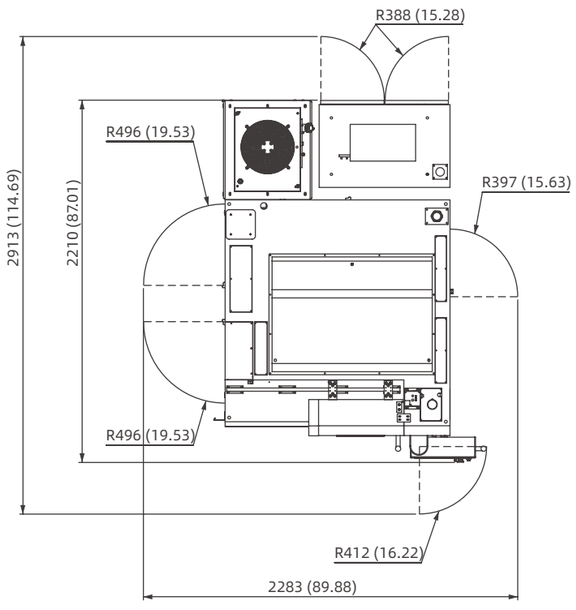
Front View



Left View

Layout

Unit: mm (in)



Technical Specification

Items	Standard Value					
Position Accuracy (X/Y/Z) mm/ (in)	0.002/0.002/0.002 (0.00008/0.00008/0.00008)					
Position Accuracy (B/C) sec	8/8					
Repeatability (X/Y/Z) mm/ (in)	0.0018/ 0.0018/ 0.0018 (0.00007/0.00007/0.00007)					
Repeatability (B/C) sec	5/5					
Travel (X/Y/Z) (mm/in)	400/200/200 (15.74/7.87/7.87)					
A/C Rotation Angle deg	±120/360					
Table Diameter (mm/in)	ϕ160/ϕ6.30					
Max. Load (kg/lb)	15/33.1					
Spindle Type	JD105S -28- HE32/F	JD105SC -28- HE32	JD105E -36- ISO20/F	JD105E -32- HE32/F	JD130E -32- HE32/F	JD130S -24- BT30/F
Max. Spindle Speed (rpm)	28,000	28,000	36,000	32,000	32,000	24,000
Tool Holder Type	HSK-E32	HSK-E32	ISO20	HSK-E32	HSK-E32	BT30
Tool Magazine/Capacity	Chain Type Tool Magazine with Manipulator/60					
Max. Rapid Rate (X/Y/Z) m/min (ipm)	15 (590.6)					
Max. Swivel Rate (B/C)rpm	60/240					
Max. Feed Rate (X/Y/Z) m/min (ipm)	10 (393.7)					
Max.Feed Rate (B/C)rpm	30/120					
Drive System	AC Servo					
Voltage	3-Phase, 380V/50Hz					
Air Pressure (MPa/PSI)	≥0.52/75.4					
Machine Weight (kg/lb)	2740/6040.7					

※ Above parameters have been calibrated With reference to International standard ISO230-2.

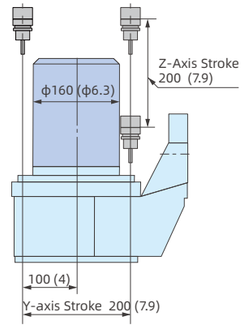
Standard Features and Options

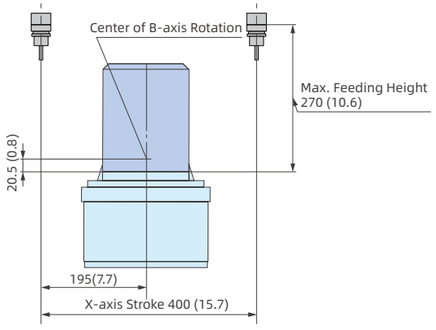
Items	Configuration
Control System	
JD50 NC System	●
CAM Soft	
JDSoft SurfMill 9.0	●
Spindle	
JD105S-28-HE32/F	●
JD105SC-28-HE32	○
JD105E-36-ISO20/F	○
JD105SC-28-HE32	○
JD130E-32-HE32	○
JD130S-24-BT30	○
Tool Magazine	
Disc Type Servo Tool Magazine (16 Tools)	○
Disc Type Servo Tool Magazine (16 Tools)	●
Disc Type Servo Tool Magazine (14 Tools)	○
Cooling System	
Coolant Device (Half Ring Nozzle, 2 Nozzles)	●
Coolant Tank	●
Cutting Air Cooling System	●
Spindle Cooling	●
Rotary Table Cooling	●
Screw Cooling	●
Control Cabinet Cooling	●
Oil-Water Separating System	○
Oil-Mist Separation System	○
Micro Mist Lubrication	○
Chip Conveyor	
Scraper Type Chip Conveyor	×
Internal Spiral Chip Conveyor	×
Chip Conveyor Inerface	×
Chip Collection	×
Measurement System	
Contact-Type Tool Set	●
Laser Tool Set	●
JINGDIAO On-Machine Measurement System	●
Standard Calibrating Ball	○
Others	
MPG (Manual Pulse Generator)	●
Bag Type Filtration System	○
Hollow Filtration System	○
Front Door Safety Lock	●
Low Oil Pressure Inspection Device	○
Low Air Pressure Inspection Device	●
Ground Protector of Power Leakage	●
Machine Foot	●
Alarm	●
Lubricating Oil Inspection	●
Auto Power off Function	○
Internal Lighting Switch	●
Dynamic Balance Holder	○

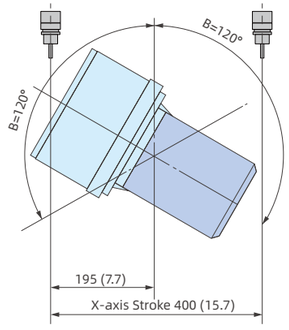
●: Standard ○: Optional

Stroke Diagram

Unit: mm (in)







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