GRA200

5-Axis High Speed Machining Center
Ideal for Die Mold Machining.

JINGDIAO

GRA200

Thanks to the excellent machine design and compatibility between key components, the GRA200 is capable of "0.1μm feeding, 1μm" consistent machining resulting in nano surface fisnishes.

Highlights

Learn More About GRA200

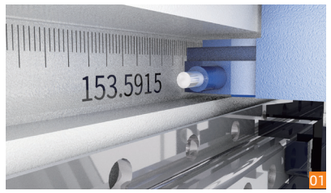
01 Full closed-loop control technology guarantees the linear axes motion accuracy.

02 Jingdiao spindles are available to fulfill a variety of machining applications

03 Tool inspection system is equipped to automatically monitor tool wear amount and results in higher work piece accuracy.

04 With the on-machine measurement system, workpieces are inspected on the machine and the results are graphically shown on the control system. Knowing the part accuracy at each machining step ensures the workpiece's quality.

Travel (X/Y/Z) mm/(in)	500/280/300 (19.7/11.0/11.8)
B/C Rotation Angle (deg)	-120~90/360



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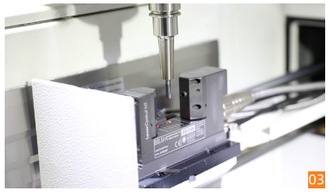
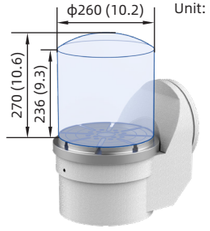
02


03


04

Max. Workpiece Dimension

The machine design is the foundation of the machine tool. Through continuous optimization and manufacturing, the GRA200's compact. rigid, and stable structure is ideal for 5-axis high speed machining.



Max. Load (kg/lb): 50/110.2

Machining Samples

Facial Massager Parts Mold

Size (mm/in): 150×150×60/5.9×5.9×2.4
Material: S136(HRC52)
Highlights:
+ Corner machining is perfect as length to diameter ratio of R0.4 mm cutting tool can be reduced less than 2:1 by using Jingdiao 5-axis machine tools;
+ Tool wear of R0.4 mm cutting tool is less than 5μm during 27 hours of machining;
+ Our mirror finishing eliminates the need for hand polishing;
+ Clearance fit is less than 5 μm, products have no fins.

Auto Brake Housing Mold Inset

Size (mm/in): 141×131×197/5.6×5.6×7.8
Material: H13(HRC52)
Highlights:
+ Cornering with R0.5 mm ball end mill;
+ JINGDIAO On-machine Measurement Technology intelligently compensates the workpiece position, resulting in accurate machining

Glass-Ceramic Aspheric Lens

Size (mm/in): ϕ190×31/ϕ7.5×1.2
Material: Glass-ceramic
Highlights:
+ Surface roughness Sa<0.05 μm;
+ Profile tolerance is less than 5 mm.

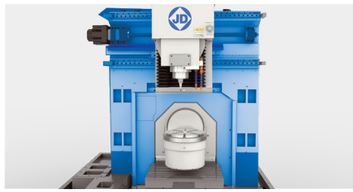
Medical Bone Rasp

Size (mm/in): 99×29×17/3.9×1.1×0.7
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 on the workpiece, the deburring process is eleiminated.

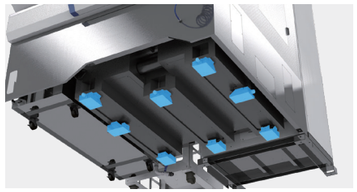
Machine Structure

Anti Vibration Design

The most classic gantry structure design is used to provide a strong support for the machine tool.

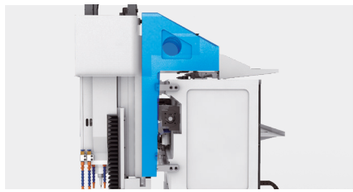


The feet of the machine tool are arranged at designated locations to improve the stability of the machine tool. The feet are also covered in a rubber material which reduces vibration.



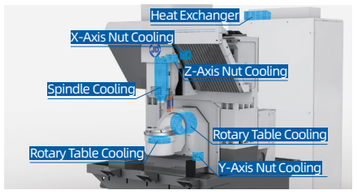
Good Rigidity

The inverted “L” structure design is good for force balance which makes the structure more compact in Z direction. This design also improves the rigidity and anti-vibration ability of machine tool.



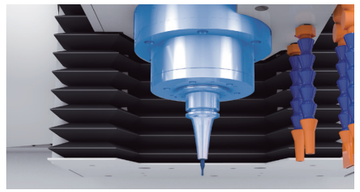
Good Thermal Stability

The all encomposing cooling design, includes rotary table cooling, bearing cooling, ball screw cooling technology, and is equipped with machine cover.



Suitable for 5-Axis Machining

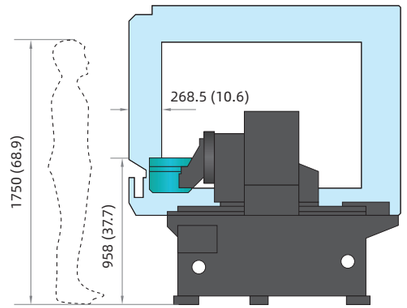
The sharp structure design at bottom of machine head lengthens the nose end of spindle and helps avoid 5 axis machining interference.



Ergonomics

We design the machine based on ergonomics principles to provide convenient operation experience to our customers.

+ The panel of the CNC system can be adjusted to the appropriate angle according to the needs, while being operated in a comfortable position.
+ The distance between the worktable and the operator is ideal which is convenient for workpiece loading and unloading.
+ Pneumatic and lubricating components are installed on the right side of the machine, which is convenient for inspection and maintenance.
+ The machine tool door has a large-sized window, which makes it easy to view the machining process.



Key Components

JINGDIAO High-Speed Precision Spindle

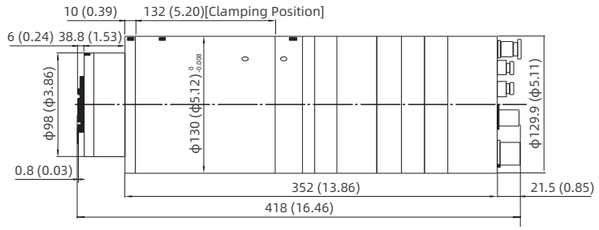
Spindle is the key component for high speed machining. Different spindles give different machining performances. There are 3 types of JINGDIAO developed spindles (20,000-24,000-32,000rpm) available on the GRU200T. The 32,000 rpm spindle is ideal for precision machining using small tools on hard materials. You can choose the most suitable one based on your machining needs.

JD130E-32-HE32

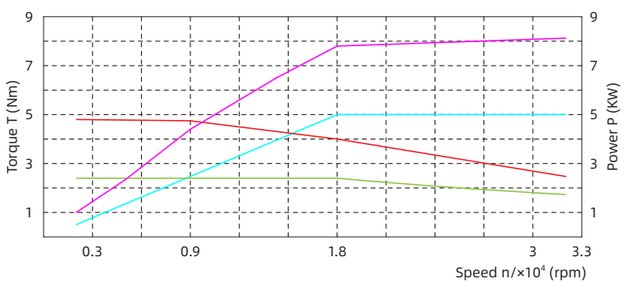
Basic Specification

Clamping Diameter (mm/in): Φ130/Φ5.1 (0, -0.008)
Output Power (S6-60%) (KW): 5.0
Output Torque (S6-60%) (Nm): 2.4
Speed (rpm): 32,000
Tool Holder: HSK-E32
Weight (kg/lb): 25/55.1

Dimension Unit: mm (in)



Output Performance



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

JD150S-20-HA50/A

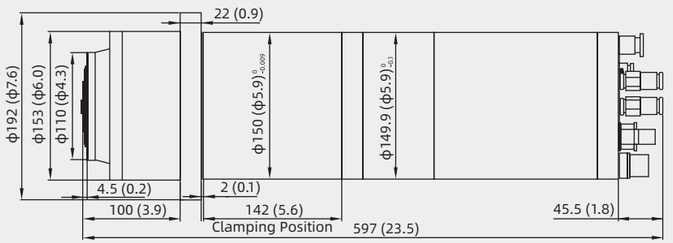
Speed: 20,000rpm
Tool Holder: HSK-A50

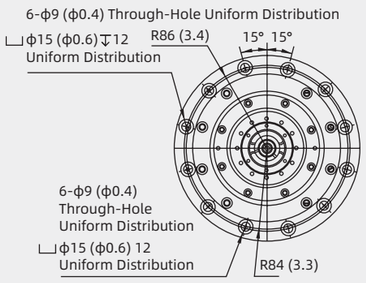
Basic Specification

Clamping Diameter (mm/in): Φ150/Φ5.9 (0, -0.009) mm
Output Power (S6-60%): 18 KW
Output Torque (S6-60%): 21.5 Nm
Weight (kg/lb): 46.5/102.5

High torque spindle is also available on GRU200T. Its output torque can reach 21.5Nm, which makes it perfect for large cutting amount machining and is suitable for not only milling but also drilling, grinding, tapping etc.

Dimension Unit: mm (in)

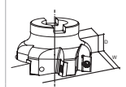




JD130S-24-BT30

Speed: 24,000 rpm
Tool Holder: BT30

Cutting Test Results (Spindle Type JD150S-20-HA50/A 20,000rpm)

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 cm³/mm
 Face Mill	Aluminum	7	ϕ80/ϕ3.15	70/2.8 2/0.08	6,000	3,200 (126.0)	448
	Steel	4	ϕ50/ϕ2.0	45/1.8 0.8/0.03	1,000	1,000 (39.3)	36
 End Mill	Aluminum	4	ϕ16/ϕ0.6	3.2/0.1 32/1.3	10,000	3,200 (126.0)	327.68
	Steel	4	ϕ16/ϕ0.6	1/0.04 32/1.3	3,600	2,400 (94.5)	76.8
 Drill	Aluminum	2	ϕ24/ϕ0.9	/	1,000	200 (7.9)	/
	Steel	2	ϕ24/ϕ0.9	/	1000	100 (3.9)	/
 Tap	Aluminum	2	M20×1.5	/	700	1,050 (41.3)	/
	Steel	2	M14×1.5	/	400	600 (23.6)	/

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

JD50 CNC System

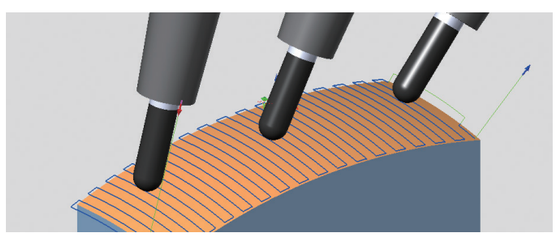
The JD50 CNC system developed by JINGDIAO is the brains of machine tools. It has the basic functions seen other control systems, but also includes several complete 5-axis modules developed by JINGDIAO's R&D department. This is how JINGDIAO 5-axis machine tools achieve high machining accuracy, and mirror 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.

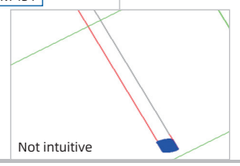
0.1μm Feed, 1μm Cutting



Fixed Point Cutting

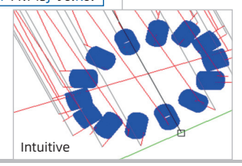
Not RTCP Program

```
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

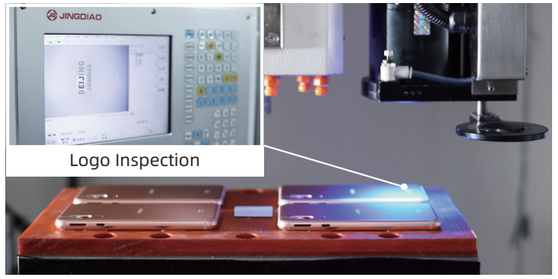
- Various programming methods and flexible technical process design.
- Abundant types of interfaces and buses, with strong peripheral expansion capabilities.
- Unique external extended function instructions (G100), which can realize instruction-level peripheral control, human-computer interaction, and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

B10 0

	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

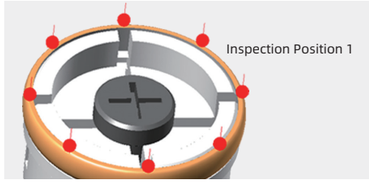
- Supports on-machine contact and non-contact measurement, which can realize high-precision 2D and 3D measurement.
- Built-In CAM technology and intelligent modification technology supports the on-machine tool-path deformation compensation machining.
- Supports multiple communication protocols including remote monitoring.



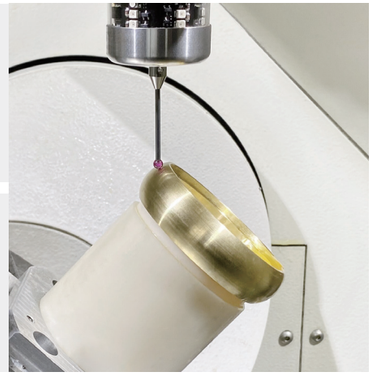
Logo Inspection

Non-Contact Measurement

Contact Measurement



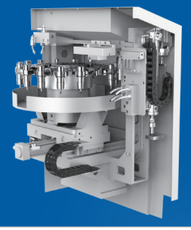
Surface Deformation Compensation



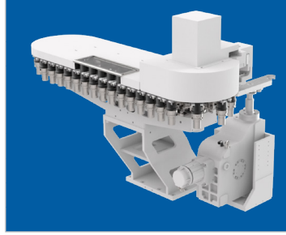
Remote Monitoring of Machines

Tool Magazine

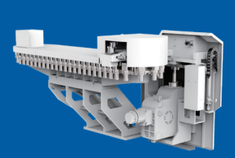
To meet your production needs, we have a variety of tool magazines to choose from.



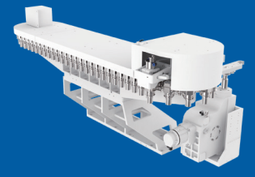
Type	Servo Tool Magazine
Capacity	16
Tool Holder	HSK-E32
Allowable Maximum Tool Length (mm/in) (From End of Spindle)	155/6.1
Maximum Diameter of Contiguous Tools (Full) (mm/in)	50/2.0
Maximum Diameter of Contiguous Tools (Vacant) (mm/in)	50/2.0
Max. Load of Each Position (kg/lb)	0.4/0.9
Max. Load of Tool Magazine (kg/lb)	6.4/14.1



Type	Chain Type Tool Magazine with Manipulator		
Capacity	36		
Tool Holder	HSK-A50	BT30	HSK-E32
Allowable Maximum Tool Length (mm/in) (From End of Spindle)	170/6.7	155/6.1	155/6.1
Maximum Diameter of Contiguous Tools (Full) (mm/in)	50/2.0	50/2.0	50/2.0
Maximum Diameter of Contiguous Tools (Vacant) (mm/in)	90/3.5	90/3.5	90/3.5
Max. Load of Each Position (kg/lb)	3.5/7.7	3/6.6	1.5/3.3
Max. Load of Tool Magazine (kg/lb)	61/134.5	61/134.5	61/134.5



Type	Chain Type Tool Magazine with Manipulator	
Capacity	53	
Tool Holder	HSK-A50	HSK-E32
Allowable Maximum Tool Length (mm/in) (From End of Spindle)	170/6.7	155/6.1
Maximum Diameter of Contiguous Tools (Full) (mm/in)	50/2.0	50/2.0
Maximum Diameter of Contiguous Tools (Vacant) (mm/in)	90/3.5	90/3.5
Max. Load of Each Position (kg/lb)	3.5/7.7	1.5/3.3
Max. Load of Tool Magazine (kg/lb)	61/134.5	61/134.5



Type	Chain Type Tool Magazine with Manipulator	
Capacity	63	
Tool Holder	HSK-A50	HSK-E32
Allowable Maximum Tool Length (mm/in) (From End of Spindle)	170/6.7	155/6.1
Maximum Diameter of Contiguous Tools (Full) (mm/in)	50/2.0	50/2.0
Maximum Diameter of Contiguous Tools (Vacant) (mm/in)	90/3.5	90/3.5
Max. Load of Each Position (kg/lb)	3.5/7.7	1.5/3.3
Max. Load of Tool Magazine (kg/lb)	61/134.5	61/134.5

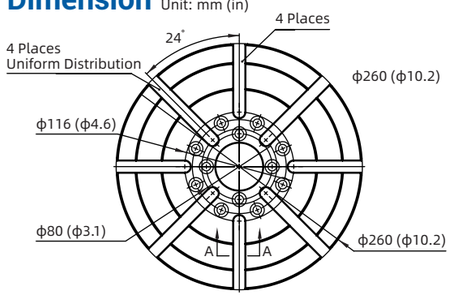
Single Arm Double Direct Drive Rotary Table

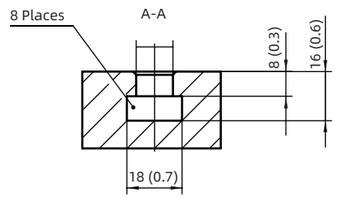
Assures high-precision multi-axis machining.

Features

+ The double-axes are driven by a high precision responsive torque motor;
+ The compact rotary table adopts a cantilever structure, which occupies a space small resulting in convenient operation;
+ Circulating water cooling technology reduces thermal deformation;
+ 5-Axis synchronous machining, multi-surface positioning machining;
+ The hollow design of C-axis is conducive to the configuration of a variety of pneumatic fixtures.

Dimension Unit: mm (in)





Specification

Item	Tilt Axis	Rotation Axis
Position Accuracy (")	8	8
Repeatability (")	5	5
Rapid Feed Rate (rpm)	60	100
Cutting Speed (rpm)	60	100
Cooling Mode	Circulating Water Cooling	Circulating Water Cooling
Positioning Locking Mode	Pneumatic Locking	Pneumatic Locking
Positioning Locking Air Pressure (MPa/PSI)	0.6/8.8	0.6±0.02/8.8±2.9
Safety Brake	√	––

Accessories

Material Handling System

JINGDIAO material handling systems are able to increase your production capacity. The automatic workpiece loading and unloading reduces set up time. JINGDIAO technologies like OMIM, easy start, and DT further improves safe and continuous machining. JINGDIAO's own MHS25 and MHS30 material handling systems are available to increase your working capacity.

MHS30

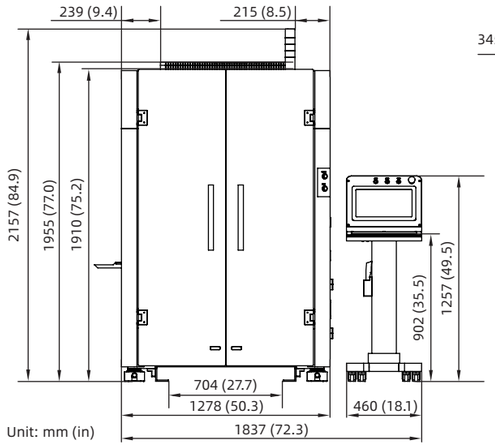
Specification

MHS30 Specifications				
Feeding System	MHS30-SR18A	MHS30-SR24A1	MHS30-SR32A	MHS30-SR18B
Load (kg/lb)	30 (66.1)			
Storage Capacity	18	24	32	18
Workpiece Dimension (mm/in)	170×170×200 (6.7×6.7×7.9)	120×120×200 (4.7×4.7×7.9)	120×120×200 (4.7×4.7×7.9)	ϕ100×230 (Jack-up structure) (Φ3.9×9.1)
Machine Dimension	1100×2600×2000 (43.3×102.4×78.7)			
Weight (kg/lb)	1500 (3306.9)			

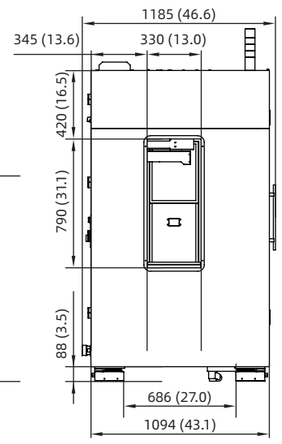
MHS25

Specification

MHS25 Specifications			
Feeding System	MHS25-SF42	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	1280×1100×1970 (50.4×43.3×77.6)		
Weight (kg/lb)	1000 (2204.6)		

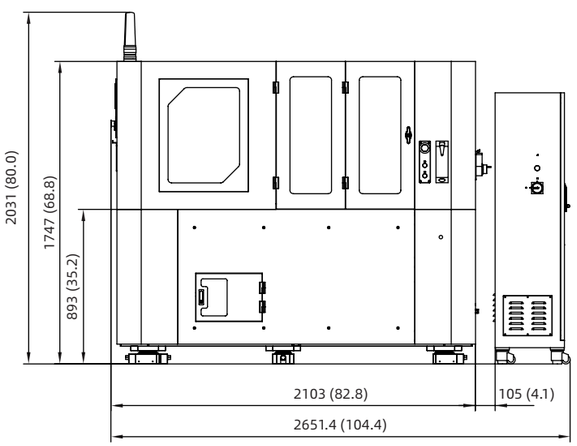


Front View

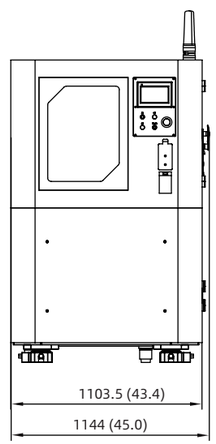


Left View

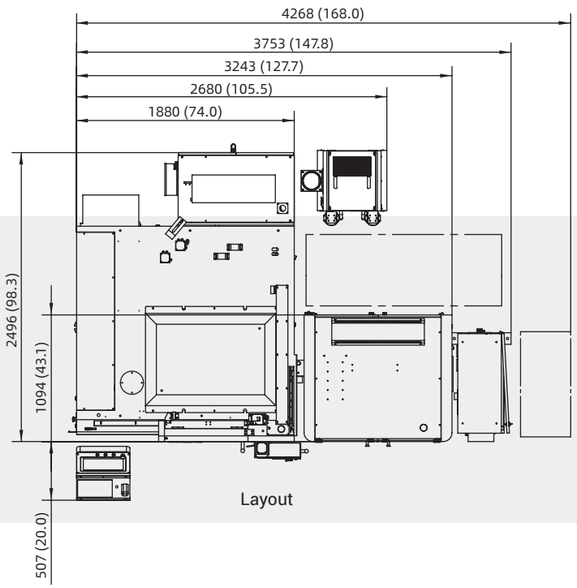
Unit: mm (in)



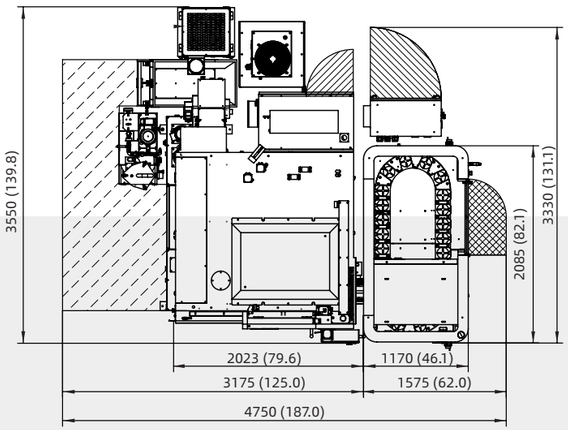
Front View



Left View



Layout



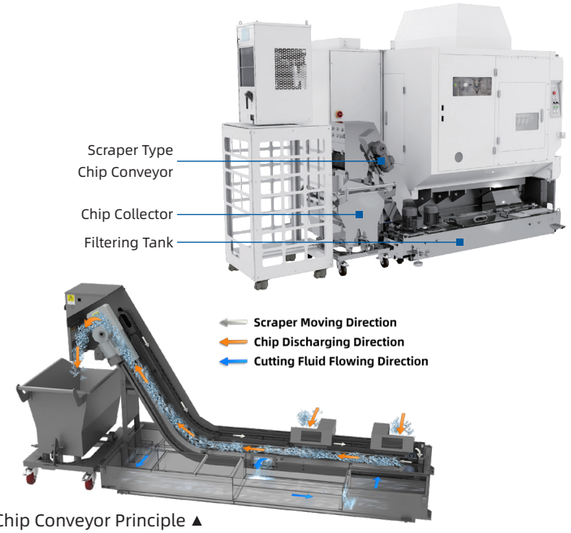
Layout

Scraper Style Chip Conveyor System

The scraper style chip conveyor collects and filters out the collection of cutting chips from the machining fluid.

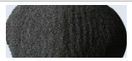
Features

- Improves maintenance by moving the chips into disposal container.
- Cutting fluid service life is extended by using a multistage filtration unit.
- Equipped with a cleaning mechanism and drop recovery mechanism which is self cleaning resulting cutting fluid recovery.



Chip Conveyor Principle ▲

Appropriate Chip Types

Material	Chip Form	Chip Size	Applicability
Steel		Long	●
		Short	●
		Powder	●
Cast Iron		Short	●
		Powder	●
Aluminum/ Non-ferrous Metal		Long	●
		Cumulus	●
		Short	●

● :Ideal ● :Suitable ● :Not Suitable

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)	450/2.7×10^7
Filtration Efficiency	＞ 99%

Oil Mist Collector

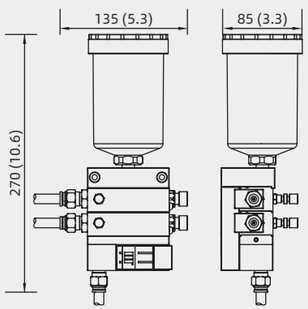
The oil mist collector reduces the rise of internal temperature caused by the oil mist accumulation. It eliminates the diffusion of oil mist, reduces the internal electrical fault of the machine tool, improves the stability of equipment operation, reduces air pollution, and protects the workshop environment.

GL370 Oil Mist Collector ►

Minimal Quantity Lubrication (MQL)

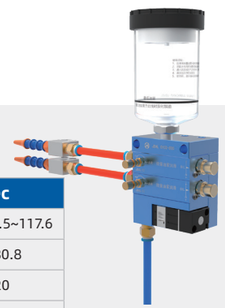
MQL cooling technology is used in precision grinding and micro milling. Equipped with MQL, the temperature fluctuation in the machine can be controlled within 0.5 ℃ (32.9 ℉).

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



Tool Holders

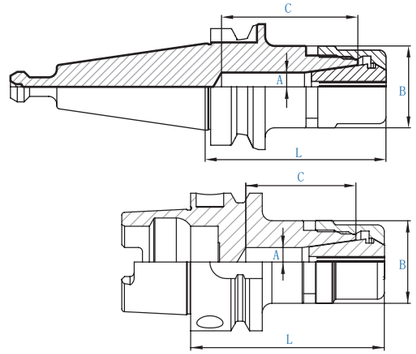
Tool holders require good clamping performance such as high clamping accuracy, low vibration and the ability minimize oil mist during high-speed machining.

JINGDIAO tool holders have anti-corrosive styles, minimize air resistance, and are designed good dynamic balance. Our tool holders are available in various styled including BT30, HSK.

Technical Parameter

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
HSK-A	HSK-A40-ER16-060HS	10.5 (0.41)	30 (1.18)	28.5 (1.12)	65 (2.56)	M22×1.5
	HSK-A50-ER11-080S	7 (0.28)	19 (0.75)	30 (1.18)	80 (3.15)	M14×0.75
	HSK-A50-ER16-070S	10.5 (0.41)	30 (1.18)	40 (1.57)	71 (2.95)	M22×1.5
	HSK-A50-ER16-110S	10.5 (0.41)	30 (1.18)	40 (1.57)	111 (4.37)	M22×1.5
HSK-E	HSK-E32-ER16-060HS	10.5 (0.41)	30 (1.18)	27.5 (1.08)	65 (2.56)	M22×1.5

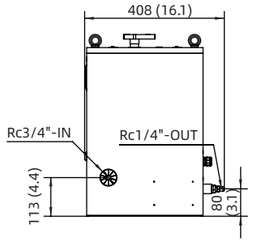
Dimension Comparison Chart

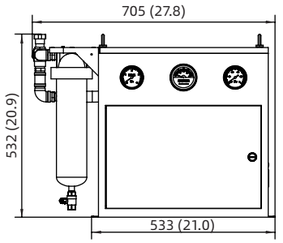


CTS Coolant System

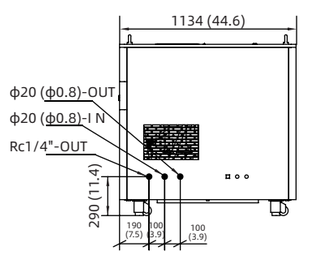
Provides high-pressure and clean cutting fluid(oil) for CTS to realize the function of central water outlet.

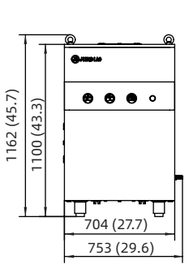
CTS Coolant System (2MPa)





CTS Coolant System (5MPa)





Specification

Specification Type	JDAZX20	JDAZX50
Pressure Regulating Scope	0.8~2 MPa	2.5~5 MPa
Filtration Accuracy	5 μm	10 μm
Spindle	JD105S-28-HE32, JD130-32-HE32/A, JD130S-24-BT30, JD150S-20-HA50/A	
Machining Type	Grinding,Milling	Milling
Cutting Tool	Hollow Cutting Tools with Diameter over ϕ6 mm	Hollow Cutting Tools with Diameter over ϕ2 mm
Application	Deep hole drilling, inner cavity machining and inner cavity cleaning	
Application requirement	Inlet filtering accuracy of cutting fluid (oil) is required within 250 μm	

Distinctive Technologies

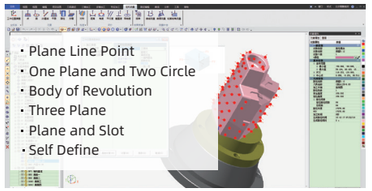
On-Machine Measurement and Intelligent Modification Technology

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.

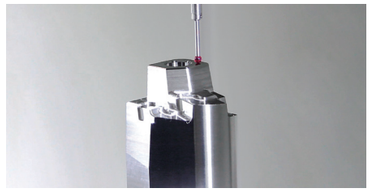
The Function of JINGDIAO OMIM is Mainly Reflected in Three Aspects

+ Intelligent Workpiece Alignment

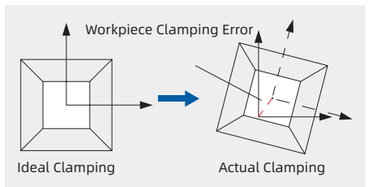
This feature automatically corrects the workpiece alignment by probing workpiece position which automatically adjusts the program accordingly in control. This reduces workpiece setup time, improves machining quality and increases production.



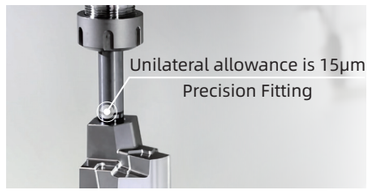
01-Support Multiple Workpiece Position Compensation Methods



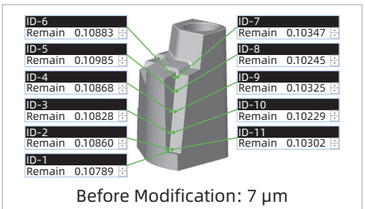
02-Obtain Actual Position on the Machine



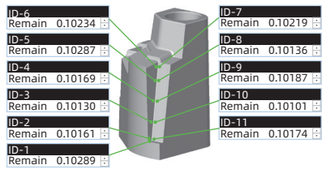
03-Workpiece Position Compensation



04-Verification of Position Compensation Accuracy



Before Modification: 7 μm

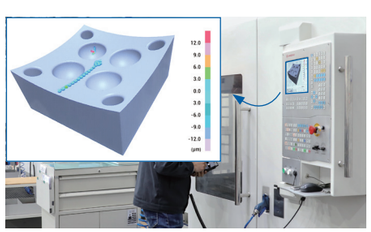


After Modification: 4 μm

+ Machining Step Remaining Stock Inspection

With this feature, the remaining stock at each step can be measured in real time, and the inspection results will be feedback on the screen of control system. The operator can analyze these results to make sure every step is removed at the right amount of material.

Inspect the Remaining Stock on the Machine

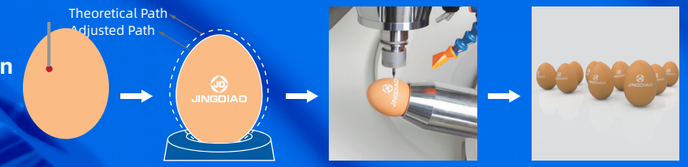


Real Time Display of CNC System

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 a irregular workpiece shape, 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%**.

Before Using Integration of Machining and Inspection

After Using Integration of Machining and Inspection

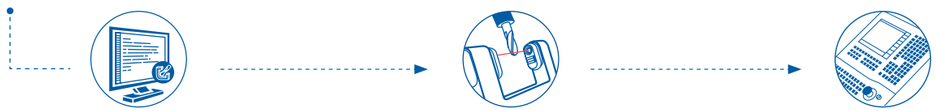
Tool Inspection System

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.

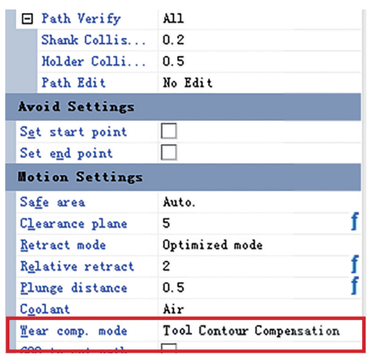
Ball-End Tool | Nose Tool | Taper Ball-End Tool

* Tool Type

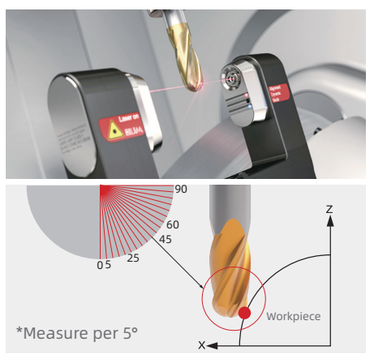
Realization



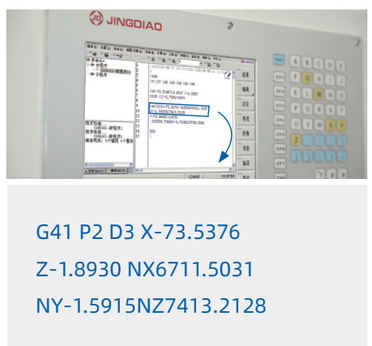
JIGNDIAO CAM Software | Standard Laser Tool Set | JIGNDIAO CNC System



3D Tool Contour Compensation Function



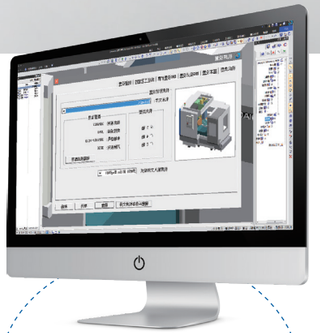
Inspect Tool Contour on the Machine



Compensate Tool Contour Deviation

JINGDIAO JINGDIAO Digital Twin (DT) Technology

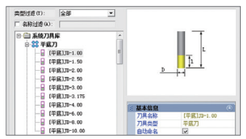
With JINGDIAO's software, the actual production materials and process parameters are digitized to ensure the correct information is selected by the process personnel, material preparation personnel and the operator. This creates a seamless integration process development, material preparation and machine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



Machine

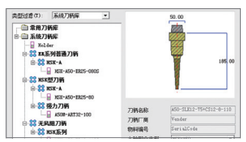
Machine Bank

Tool

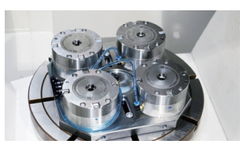


Tool Bank

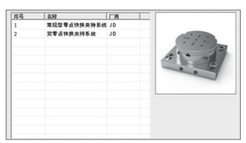
Tool Holder



Tool Holder Bank



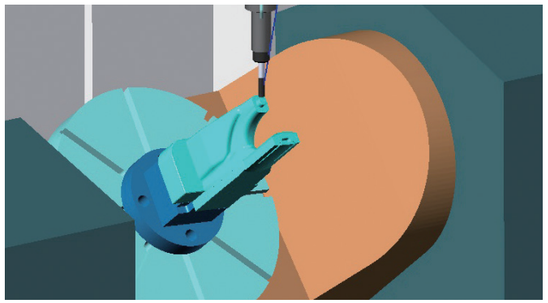
Fixture



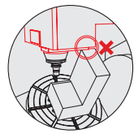
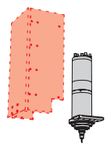
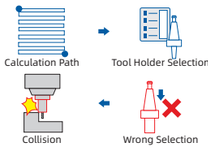
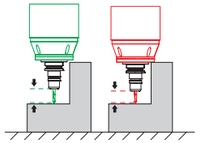
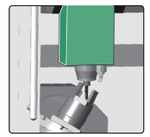
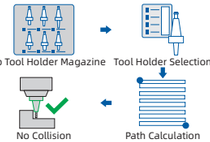
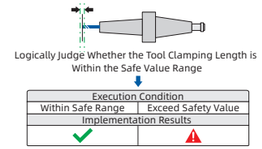
Fixture Bank

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.



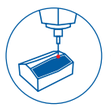
Application Scenarios of JINGDIAO DT Technology

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.

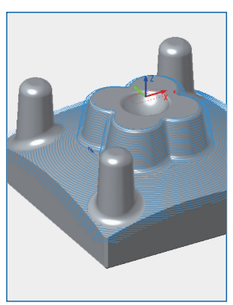
Processing Program

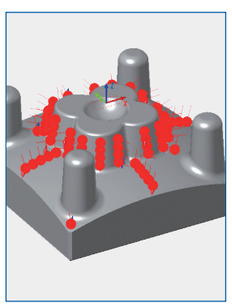


Measurement Program

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)

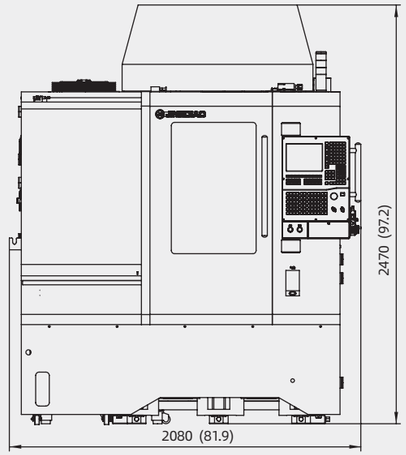
N999

M99

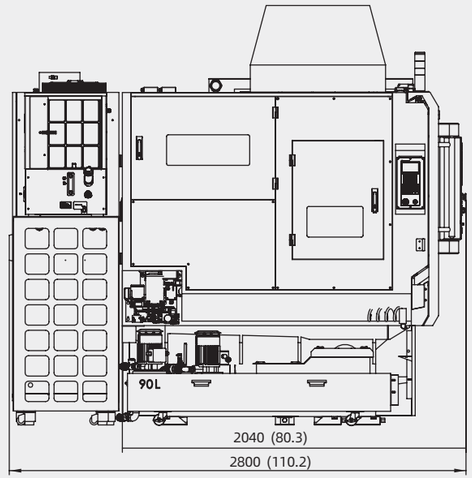
Processing Easy Start

Technical Specification

Dimension Unit: mm (in)

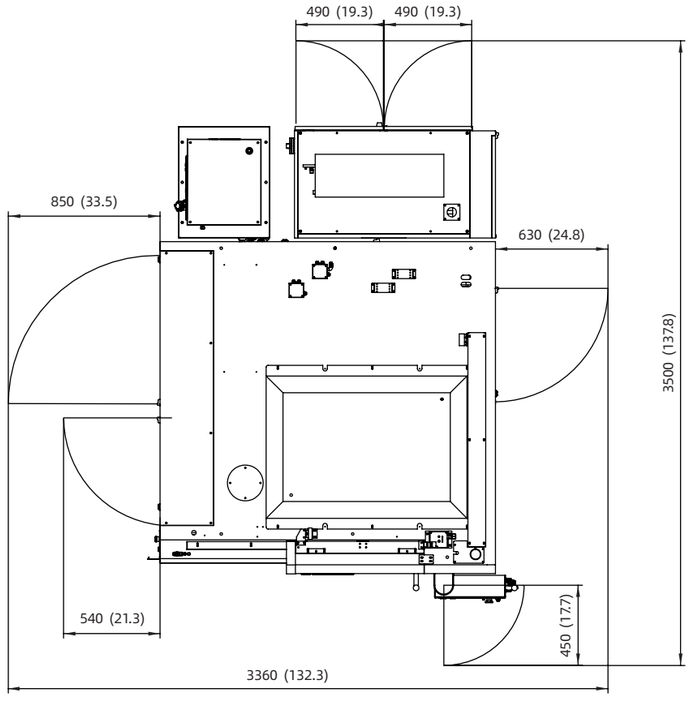


Front View



Left View

Layout Unit: mm (in)



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)	500/280/300 (19.7/11.0/11.8)
A/C Rotation Angle deg	-120~90/360
Table Diameter (mm/in)	ϕ260/ϕ10.2
Max. Load (kg/lb)	30/66.1
Max. Spindle Speed rpm	32,000rpm (HSK-E32)
	24,000rpm (BT30)
	20,000rpm (HSK-A50)
Tool Magazine/Capacity	HSK-E32/BT30/HSK-A50: 16 Disc Type Tool Magazine with Manipulator
	HSK-E32/BT30/HSK-A50: 36 Chain Type Tool Magazine with Manipulator
Rapid Speed (X/Y/Z) m/min (in/min)	15 (590.6)
Rapid Rotation Speed (A/C) rpm	60/100
Max. Cutting Feed Speed (X/Y/Z) m/min (in/min)	10 (393.7)
Max. Cutting Feed Speed (A/C) rpm	60/100
Drive System	AC Servo
Voltage	3-Phase, 480V/60Hz
Air Pressure (MPa/PSI)	≥0.52/75.4
Machine Weight (kg/lb)	5900/13007.3

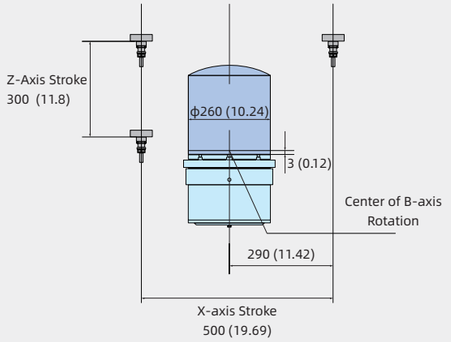
Standard Features and Options

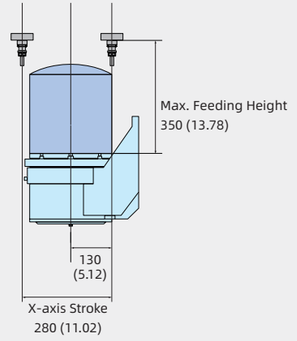
Items	Configuration
Control System	
JD50 CNC System	●
CAM Software	
JDSoft SurfMill 8.0	○
Spindle	
JD130-32-HE32/A (HSK-E32, Precision Machining)	●
JD150S-20-HA50/A (HSK-A50)	○
JD130S-24-BT30 (BT30)	○
JD105S-28-HE32 (HSK-E32)	○
JD150SC-20-HA50	○

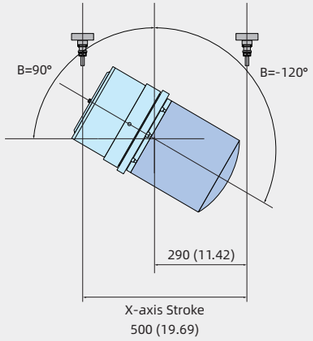
Items	Configuration
Tool Magazine	
Chain Type Tool Magazine with Manipulator (63 Tools)	○
Chain Type Tool Magazine with Manipulator (53 Tools)	○
Chain Type Tool Magazine with Manipulator (36 Tools)	●
Disc Type Tool Magazine with Manipulator (16 Tools)	○
Cooling System	
Coolant Device (Half Ring Nozzle, 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 Interface	○
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)







You can find more information at
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