

CTA600

3-Axis High Speed Machining Center
designed for die mold machining.



CTA600

Highlights

3-Axis Engraving Center Designed for the Precision Machining of Molds, Hard-To-Cut Material such as Quenching Material Mold and Stainless Steel.

The machines are capable of milling, grinding, drilling, boring, tapping, and other composite processing.

The crossbeam adopts three guide rail supporting structure, which improves the rigidity and movement stability of the machine.

With the On-Machine Measurement System, workpieces are inspected on the machine and the results are graphically shown on the control. Knowing the part accuracy at each machining step ensures the workpiece's quality.



Learn More About CTA600



Samples

Stamping Mold



Size (mm/in): 93×42×80 (3.7×1.7×3.1)
Material: Cr12Mov (HRC60)
Highlights: Surface roughness Ra < 0.4 μm.

Deep Cavity Mold



Size (mm/in): 93×42×80 (3.7×1.7×3.1)
Material: S136 (HRC52)
Highlights: Inner wall roughness Ra < 0.1 μm;
 The contour offset is less than 13 μm.

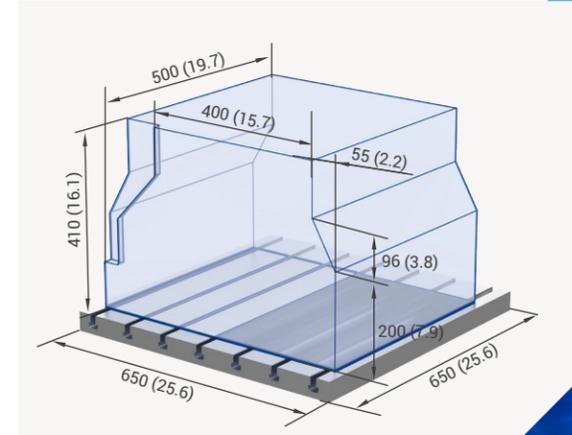
Deep Cavity Mold



Size (mm/in): 93×42×80 (3.7×1.7×3.1)
Material: H13 (HRC52)
Highlights: The tool length diameter ratio is 6:1;
 A uniform surface finish is seen throughout the part.

Machine Structure

Max. Workpiece Dimension Unit:mm (in)



Better Machine Rigidity

+ Three high rail design makes the structure more rigid.



Travel (X/Y/Z) (mm/in)	600/500/300 (23.6/19.7/11.8)
Table Size (mm/in)	650×650 (25.6×25.6)
Max. Load (kg/lb)	300 (661.4)

Easy Chips Disposal

+ The machine base is integrated with a auger style chip conveyor which allows the machining chips to easily exit the machining area which reduces maintenance down time.



Thermal Symmetry

+ Our bridge style structure has excellent thermal symmetry.



Key Components & Distinctive Technologies

JINGDIAO High-Speed Precision Spindle

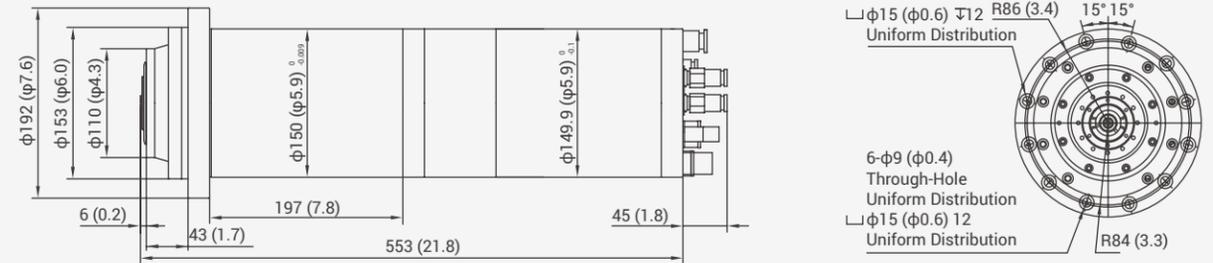
JINGDIAO's high speed spindles are the machine's main power source which produce precision machining results. Our in-house built spindles have low vibration, and high thermal stability resulting in a small coefficient of thermal expansion and stable cutting in conditions.



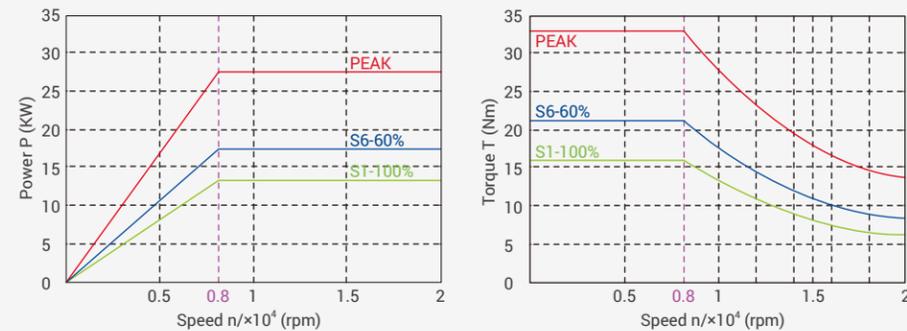
JD150S-20-HA50

The JD150S-20-HA50 spindle is suitable for machining of precision milling and grinding of die mold applications.

Dimension Unit:mm (in)



Output Performance



Basic Specification

- Clamping Diameter (mm/in): φ150 (φ5.9) (0, -0.009)
- Output Power (S6-60%) (Kw/HP): 18 (24.1)
- Output Torque (S6-60%) (Nm): 21.5
- Speed (rpm): 20,000
- Tool Holder: HSK-A50
- Weight (kg/lb): 46.5/102.5

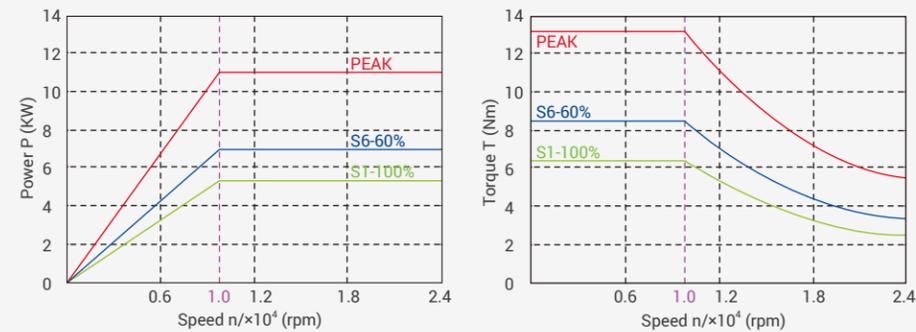
Performance

- + Taper Bore Radial Runout $\leq 1.5 \mu\text{m}$ (5.9×10^{-5} in)
- + Rotor End Face Axial Runout $\leq 1 \mu\text{m}$ (3.9×10^{-5} in)
- + Vibration at Maximum Speed $\leq 0.6 \text{ mm/s}$ (1.44 ipm)

Optional

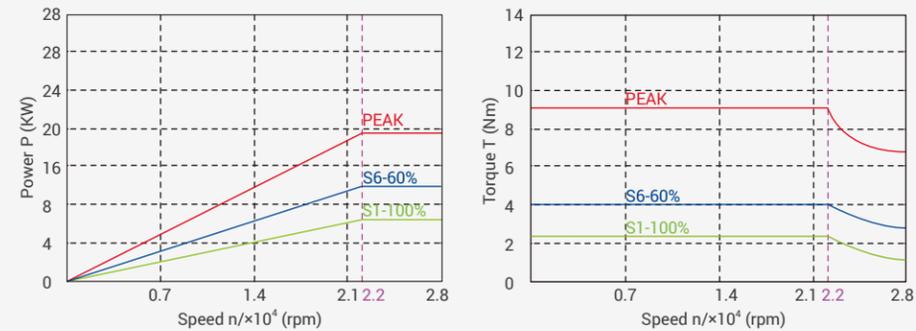
+ JD130S-24-BT30

Output Performance



+ JD105S-28-HE32

Output Performance



Cutting Test Results (Spindle Type JD150S-20-HA50)

Item	Material	Tool Size (mm/in)	Teeth Number	Cutting Width (mm/in)	Cutting Depth (mm/in)	Spindle Speed (rpm)	Cutting Feed Rate mm/min (in/min)	Cutting Capacity (cm ³ /min)
Face Mill	Aluminum	D80 (D3.1)	7	70 (2.8)	2 (0.08)	6000	3200 (126.0)	448
	Steel	D50 (D2.0)	4	45 (1.8)	0.8 (0.03)	1000	1000 (39.4)	36
End Mill	Aluminum	D16 (D0.6)	4	3.2 (0.1)	32 (1.3)	10000	3200 (126.0)	327.68
	Steel	D16 (D0.63)	4	1 (0.04)	32 (1.3)	3600	2400 (94.5)	76.8
Drill	Aluminum	D24 (D0.9)	2	/	/	1000	200 (7.9)	/
	Steel	D24 (D0.9)	2	/	/	1000	100 (3.9)	/
Tap	Aluminum	M20x1.5	2	/	/	700	1050 (41.3)	/
	Steel	M14x1.5	2	/	/	400	600 (23.6)	/

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

JD50 CNC System

The JD50 CNC system is developed independently by JINGDIAO. The control is highly efficient, reliable and very precise. Additionally, it has rich programming functions, convenient operation, flexible peripheral control, and can meet the processing Requirements of high machining accuracy and fine surface finishing.

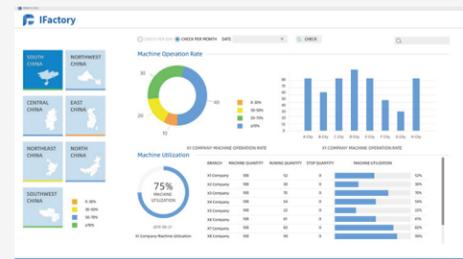


Featured Function



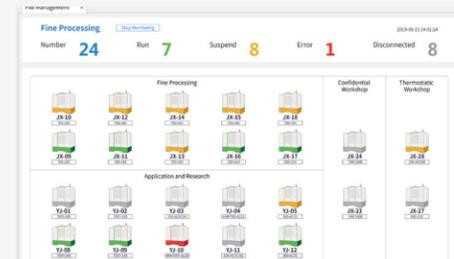
+ High-Speed High-Precision Machining

The advanced look ahead function ensures smooth transitions between line segments, which greatly improves the machining speed. The flexible motion parameter matching function and rich compensation functions improves the processing efficiency and machining accuracy.



+ Intelligent Monitoring

With a wide range of expansion interfaces, our intelligent monitoring feature can integrate various types of testing equipment to monitor machine status in real time. Complete network communication interfaces are provided for the remote monitoring of machines.

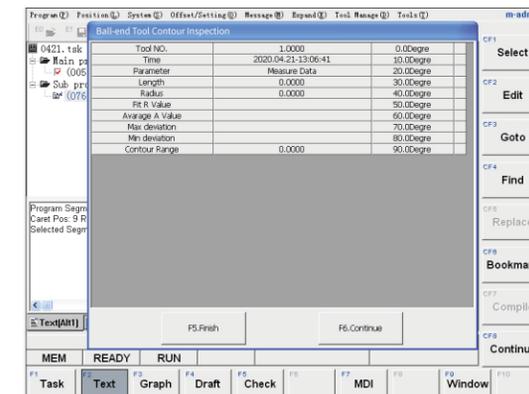


+ Safe and Convenient Operation

MPG trial cutting, authority management and test proofing function can greatly reduce the failure rate caused by operator error. Built-in auxiliary programming function and parameterized automatic programming function can improve programming efficiency.

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). It can achieve instruction-level peripheral control, human-computer interaction, and complex data operations.



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



Tool Magazine

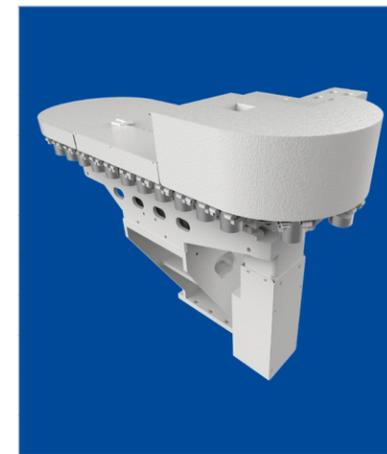
To meet your production needs, we can select a variety of tool magazine according to different Spindles.



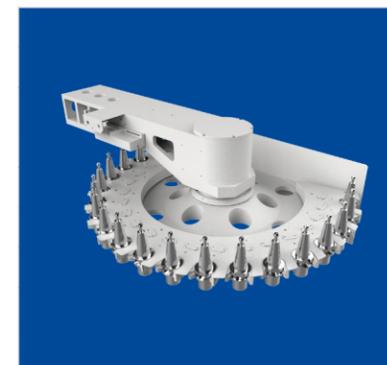
Type	Chain Type Tool Magazine with Manipulator
Tool Holder	JD150S-20-HA50
Spindle	HSK50-A
Capacity	28
Allowable Maximum Tool Length (Vacant) (From End of Spindle) (mm/in)	145 (5.7)
Allowable Maximum Tool Length (Full) (From End of Spindle) (mm/in)	165 (6.5)
Maximum Diameter of Contiguous Tools (Full) (mm/in)	50 (2.0)
Maximum Diameter of Contiguous Tools (Vacant) (mm/in)	80 (3.1)
Max.Load of Each Position (kg/lb)	3.5 (7.7)
Max.Load of Tool Magazine (kg/lb)	61 (134.5)



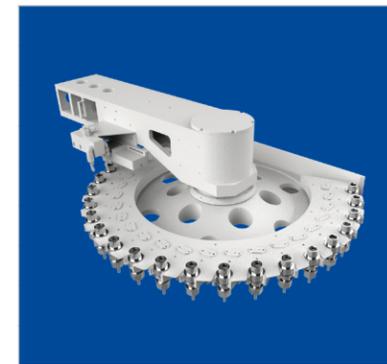
Type	Chain Type Tool Magazine with Manipulator
Tool Holder	JD105S-28-HE32
Spindle	HSK-E32
Capacity	28
Allowable Maximum Tool Length (Vacant) (From End of Spindle) (mm/in)	140 (5.5)
Allowable Maximum Tool Length (Full) (From End of Spindle) (mm/in)	160 (6.3)
Maximum Diameter of Contiguous Tools (Full) (mm/in)	50 (2.0)
Maximum Diameter of Contiguous Tools (Vacant) (mm/in)	80 (3.1)
Max.Load of Each Position (kg/lb)	1.5 (3.3)
Max.Load of Tool Magazine (kg/lb)	42 (92.6)



Type	Chain Type Tool Magazine with Manipulator
Tool Holder	JD130S-24-BT30
Spindle	BT30
Capacity	28
Allowable Maximum Tool Length (Vacant) (From End of Spindle) (mm/in)	140 (5.5)
Allowable Maximum Tool Length (Full) (From End of Spindle) (mm/in)	160 (6.3)
Maximum Diameter of Contiguous Tools (Full) (mm/in)	50 (2.0)
Maximum Diameter of Contiguous Tools (Vacant) (mm/in)	80 (3.1)
Max.Load of Each Position (kg/lb)	3 (6.6)
Max.Load of Tool Magazine (kg/lb)	61 (134.5)



Type	Servo Tool Magazine
Tool Holder	BT30
Spindle	JD130S-24-BT30
Capacity	20
Allowable Maximum Tool Length (From End of Spindle) (mm/in)	160(6.3)
Maximum Diameter of Contiguous Tools (Full) (mm/in)	60 (2.4)
Maximum Diameter of Contiguous Tools (Vacant) (mm/in)	80 (3.1)
Max.Load of Each Position (kg/lb)	3 (6.6)
Max.Load of Tool Magazine (kg/lb)	25 (55.1)



Type	Servo Tool Magazine
Tool Holder	HSK-E32
Spindle	JD105S-28-HE32
Capacity	24
Allowable Maximum Tool Length (From End of Spindle) (mm/in)	160 (6.3)
Maximum Diameter of Contiguous Tools (Full) (mm/in)	60 (2.4)
Maximum Diameter of Contiguous Tools (Vacant) (mm/in)	80 (3.1)
Max.Load of Each Position (kg/lb)	2 (4.4)
Max.Load of Tool Magazine (kg/lb)	25 (55.1)



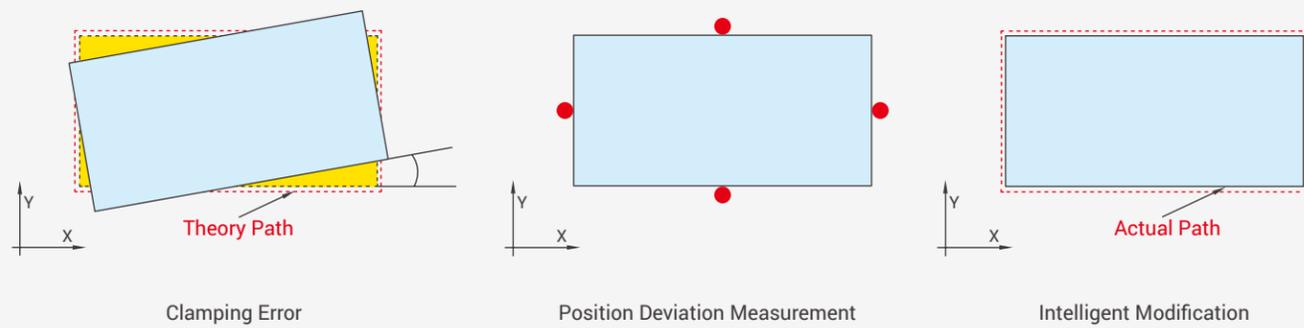
Type	Servo Tool Magazine
Tool Holder	HSK50-A
Spindle	JD150S-20-HA50
Capacity	18
Allowable Maximum Tool Length (From End of Spindle) (mm/in)	210 (8.3)
Maximum Diameter of Contiguous Tools (Full) (mm/in)	60 (2.4)
Maximum Diameter of Contiguous Tools (Vacant) (mm/in)	80 (3.1)
Max.Load of Each Position (kg/lb)	3 (6.6)
Max.Load of Tool Magazine (kg/lb)	25 (55.1)

On-machine Measurement and Intelligent Modification

These features measure both the position deviation of the fixture, and the cutting allowance at each machining step which results in precision machining.

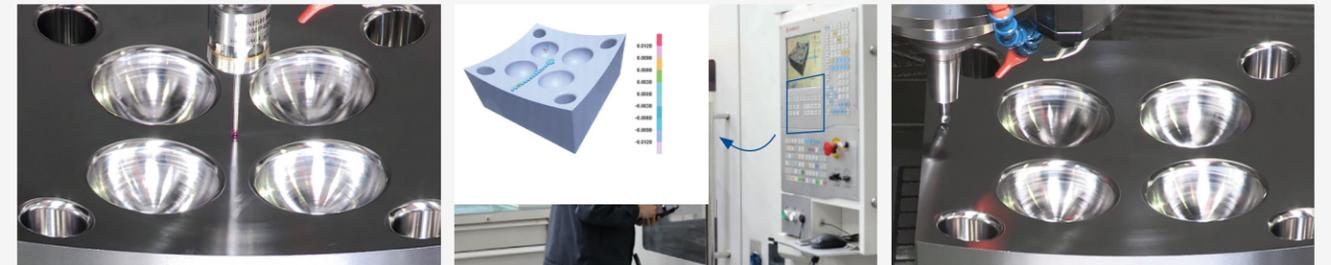
Compensation of Workpiece Position Error

There can be errors associated when clamping a workpiece to the fixture. Compensation of workpiece position error assures the accurate part position by calculating the deviation between the actual position and the theory position.



Remaining Stock Inspection

For precision machining, it is critical to have a constant chip load and remove a consistent amount of material at each machining step. In order to achieve this, the operator needs to inspect the remaining stock before moving onto the next machining step. After inspecting the part, the JINGDIAO CNC control will give real time measurement results by displaying a accuracy heat map in which the operator can decide if the results are favorable to move onto the next machining step. This process achieves the stable machining and high precision parts.



Inspect the Remaining Stock on the Machine

Real Time Display of CNC System

Achieve Stable Precision Machining

Machining Digitization and Continuous Production

When parts have to be manually inspected, it severely interferes with continuity and stability of production process. JINGDIAO's machining digitization allows for in-process and finish inspection of the machined part. After machining, the part is inspected and if is within tolerance the part is ready to be removed from the machine. The part needs additional stock to be removed, machining will resume until the part is within tolerance. This integration of manufacturing and inspection vastly improves production and minimizes the number of operators



Without JINDIAO's on machine inspection feature, many more operators are required to run the machines since they must remove and manually inspect each part which slows down production.

Fewer operators are required after using the integration machining and inspection feature.

Accessories

Scraper Style Chip Conveyor System

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

Features

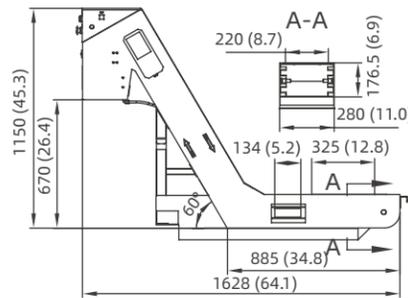
- + The chip collector improves the cleaning cycle of the of the chip waste.
- + The closed structure of the multistage filtration unit increases the service life of cutting fluid.
- + The unit is Equipped with both a cleaning and drop recovery mechanism which results in self-cleaning and cutting fluid recovery of chip conveyor system.

Side-Type Scraper Chip Conveyor

Configuration



Unit:mm (in)

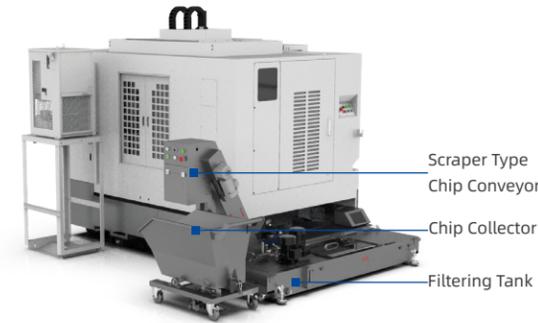


Specifications

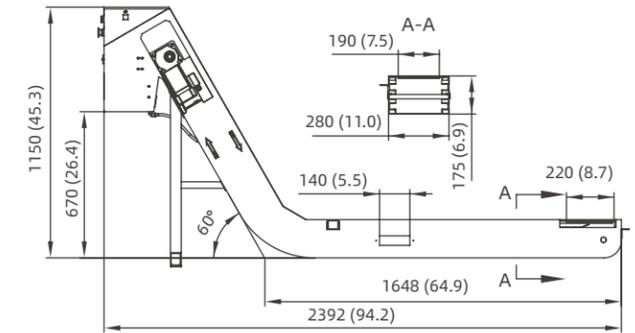
Color	Grey (Customizable)		Width(mm/in)		280 (11.0)			
Length (mm/in)	885 (34.8)		Capacity (L/gal)		130 (28.6)			
Lifting Angle	60°		Height of Exit from the Ground (mm/in)		747 (29.4)			
Water Pump Parameters	Name	Type	Power (W)	Voltage (V)	Maximum Pump Head (m/in)	Discharge (mm/in)	Quantity	Note
	Pooling Pump	LDPB2-18-TP	250	380	7 (275.6)	Φ13 (0.5)	1	
	Washer Pump	LDPB2V-60-TP	1150	380	52 (2047.2)	Φ32 (1.3)	1	
Right Angle Reduction Motor Parameters	Type		Power (W)	Voltage (V)	Motor Speed (rpm)	Motor Level	Quantity	Note
	SZG18-F-150-240-S-K-F-J		150	380	6.3	4	1	
Filtering Accuracy	Filter Screen of Primary Filter Basket (μm/in)				178 (7.0×10 ⁻³)			
	Strainer of Chip Box (μm/in)				250 (9.8×10 ⁻³) Customizable			
	Double-layered Strainer (μm/in)				250 (9.8×10 ⁻³) Customizable			
Chip Load	≤180 (396.8)							

Back-Type Scraper Chip Conveyor

Configuration



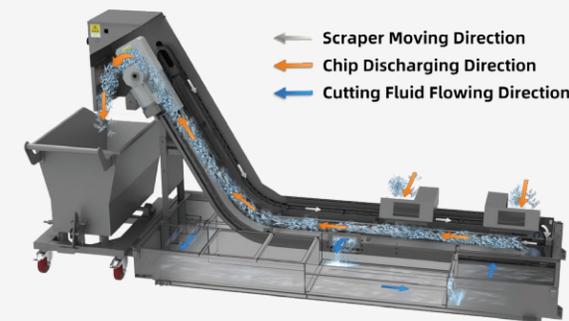
Unit:mm (in)



Specifications

Color	Grey (Customizable)		Width(mm/in)		280 (11.0)			
Length (mm/in)	1649 (64.9)		Capacity (L/gal)		200 (44.0)			
Lifting Angle	60°		Height of Exit from the Ground (mm/in)		766 (30.2)			
Water Pump Parameters	Name	Type	Power (W)	Voltage (V)	Maximum Pump Head (m/in)	Discharge (mm/in)	Quantity	Note
	Pooling Pump	LDPB2-18-TP	250	380	7 (275.6)	Φ13 (0.5)	1	
	Washer Pump	LDPB2V-60-TP	1150	380	52 (2047.2)	Φ32 (1.3)	1	
Right Angle Reduction Motor Parameters	Type		Power (W)	Voltage (V)	Motor Speed (rpm)	Motor Level	Quantity	Note
	SZG18-F-150-240-S-K-F-J		150	380	6.3	4	1	
Filtering Accuracy	Strainer of Chip Box (μm/in)				380 (1.5×10 ⁻²)			
	Double-layered Strainer (μm/in)				250 (9.8×10 ⁻³) Customizable			
Chip Load	≤180 (396.8)							

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	●

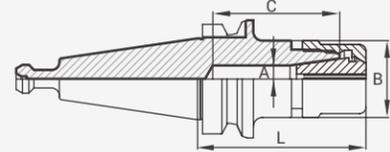
● :Ideal ● :Suitable ● :Not Suitable

Tool Holders

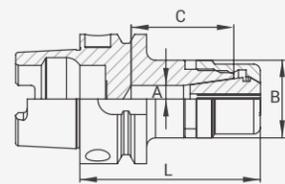
Tool holders require good clamping performance such as high clamping accuracy, low vibration and the ability minimize oil mist during high-speed machining. JINGDIAO tool holders have anticorrosive properties, minimize air resistance, and are designed good dynamic balance.

Dimension Chart

BT30 High-Speed Tool Holder Dimension



HSK High-Speed Tool Holder Dimension



Specification

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-A50-ER25-080S	18 (0.71)	41.8 (1.65)	42 (1.65)	83 (3.27)	M32×1.5
	HSK-A50-ER25-188BS	18 (0.71)	41.8 (1.65)	42 (1.65)	188 (7.40)	M32×1.5
	HSK-A50-ER25-138BS	18 (0.71)	41.8 (1.65)	42 (1.65)	138 (5.43)	M22×1.5
HSK-E	HSK-E32-ER16M-050S	10.5 (0.41)	22 (0.87)	27.5 (1.08)	50 (1.97)	M19×1

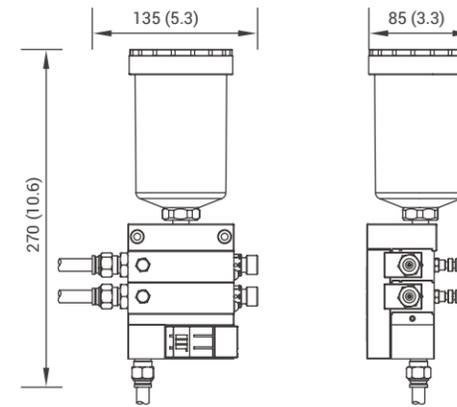
Spindle Chiller

Specification Type		ZLJE-18-380
Material Code		6297.0121.000000
Product Illustration		
Technical Parameter	Number of Air Outlets	1
	Wind Direction	Ejection Wind
	Power Type	380V 50Hz
	Compressor Type	Frequency Conversion
	With Casters and Packing Cases	Yes
	Control Accuracy (°C / °F)	±0.1 (±1.8)
	Refrigerating Capacity (KW)	1.8
	Pump Head (m/in)	35 (1378.0)
Boundary Dimension (L ×W× H) (mm/in)		482×422×870 (19.0×16.6×34.3)

Minimal Quantity Lubrication

MQL cooling is used in precision grinding and micro milling. MQL reduces temperature fluctuation in machine tool ensures high quality workpiece surface finishes. MQL is essential for high accuracy work.

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 (0~6.6×10 ⁻³)
Nozzle Quantity	2
Weight (kg/lb)	1.5 (3.3)
Mounting Pitch (mm/in)	70 (2.8)

GL370 Oil Mist Collector

The oil mist separator helps maintain a constant temperature within the cutting zone by removing the accumulation of the oil mist. It also improves the air quality in shop area.

Technical Parameter

Item	Spec
Voltage (V)	AC380±10%
Power (W)	370
Current (A)	0.95
Frequency (Hz)	50±2%
Ambient Temperature (°C / °F)	5~40 (41~104)
Environmental Pressure	Atmospheric Pressure
Weight (kg/lb)	80 (176.4)
Max. Air Volume (m³/gal)	450 (98986.2)
Filtration Efficiency	> 99%



GL370 Oil Mist Collector

Coolant Refrigerator

Specification Type		ZLQE-30-380-1	ZLQ-30-380-S1
Material Code		6297.1104.000000	6297.1110.000000
Product Illustration			
Technical Parameter	Number of Air Outlets	3	1
	Wind Direction	Side Wind	Ejection Wind
	Power Type	380V 50/60Hz	380V 50/60Hz
	Compressor Type	Fixed Frequency	Fixed Frequency
	With Casters and Packing Cases	Yes	No
	Control Accuracy (°C / °F)	±0.5 (±0.9)	±0.5 (±0.9)
	Refrigerating Capacity (Kw)	3	3
	Pump Head (m)	NO	NO
	Weight (kg/lb)	96 (211.6)	65 (143.3)
	Boundary Dimension (L × W × H)(mm/in)	510×490×1000 (20.1×19.3×39.4)	490×535×980 (19.3×21.1×38.6)

Rotary Table

JINGDIAO made optional rotary tables make it possible for high-precision multi-axis machining. In addition to the following types of rotary table, we can customized it according to your application.

CNC Single-Axis Vertical Rotary Table RTU85-HB



Item	Specification	Item	Rotation Axis
Overall Dimension (mm/in)	161×243×165 (6.3×9.6×6.5)	Position Accuracy (")	30
Weight (kg/lb)	20 (44.1)	Repeatability (")	20
Load (kg/lb)	25 (55.1)	Rated Speed (r/min)	20
Worktable Dimension (mm/in)	Φ160 (Φ6.3)	Maximum Speed (r/min)	40
/	/	Cooling Mode	Natural Cooling
/	/	Positioning and Locking	Pneumatic Locking
/	/	Positioning Locking Air Pressure (MPa)	0.6-0.7

CNC Double-Axis Rotary Table CRTM115-H



Item	Specification	Item	Tilt Axis	Rotation Axis
Overall Dimension (mm/in)	494×318×230 (19.4×12.5×9.1)	Position Accuracy (")	8	30
Weight (kg/lb)	70 (154.3)	Repeatability (")	5	20
Load (kg/lb)	15 (33.1)	Rated Speed (r/min)	25	20
Worktable Dimension (mm/in)	Φ150 (Φ5.9)	Maximum Speed (r/min)	50	40
/	/	Cooling Mode	Natural Cooling	Natural Cooling
/	/	Positioning and Locking	Optional	/
/	/	Safety Brake	Optional	/

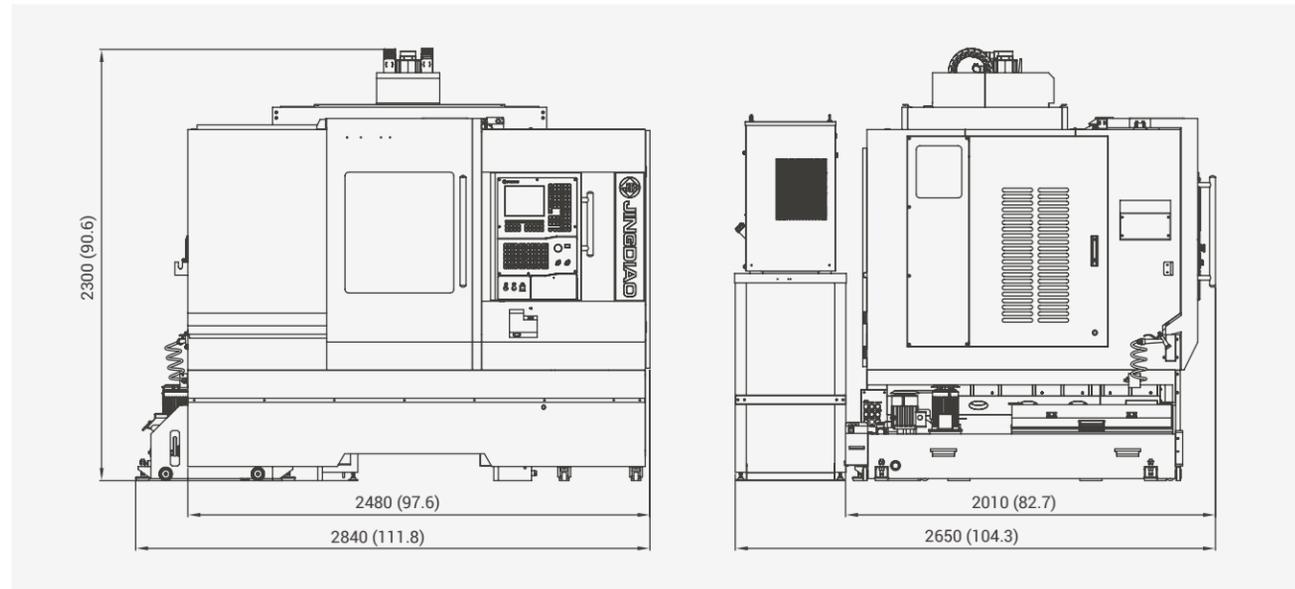
CNC Double-Axis Rotary Table PRTM45-HB



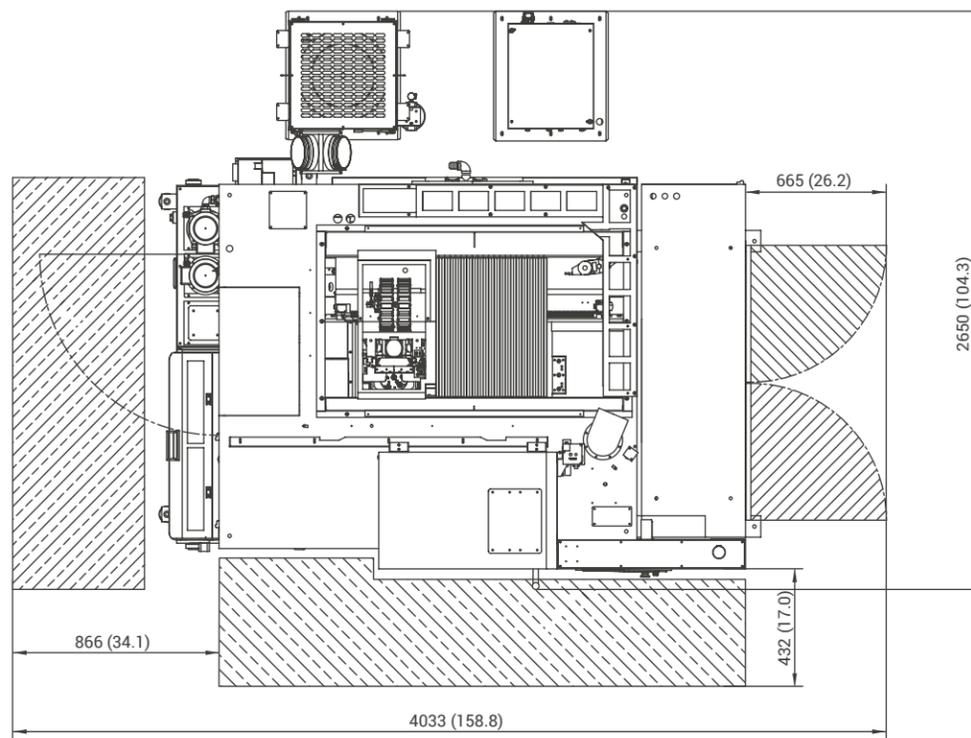
Item	Specification	Item	Tilt Axis	Rotation Axis
Overall Dimension (mm/in)	605×285×333 (23.8×11.2×13.1)	Position Accuracy (")	8	30
Weight (kg/lb)	95 (209.4)	Repeatability (")	5	20
Load (kg/lb)	15 (33.1)	Rated Speed (r/min)	100	20
Worktable Dimension (mm/in)	Φ180 (Φ7.1)	Maximum Speed (r/min)	200	40
/	/	Cooling Mode	Circulating Water Cooling	Natural Cooling
/	/	Positioning and Locking	Pneumatic Locking	/
/	/	Positioning Locking Air Pressure (MPa)	0.6±0.02	/
/	/	Safety Brake	√	/

Technical Specification

Dimension Unit:mm (in)



Layout Unit:mm (in)



Items	Standard Value		
Position Accuracy (X/Y/Z) mm/ (in)	0.008/0.008/0.006 (0.0003/0.0003/0.0002)		
Repeatability (X/Y/Z) mm/ (in)	0.005/ 0.005/ 0.005(0.0002/ 0.0002/ 0.0002)		
Travel (X/Y/Z) (mm/in)	600/500/300 (23.6/19.7/11.8)		
Table Size (mm/in)	650×650 (25.6×25.6)		
Max. Load (kg/lb)	300 (661.4)		
Spindle Type	JD150S-20-HA50	JD130S-24-BT30	JD105S-28-HE32
Max. Spindle Speed (rpm)	20000	24000	28000
Tool Holder Type	HSK-A50	BT30	HSK-E32
Tool Magazine/Capacity	Servo Tool Magazine/Chain Type Tool Magazine with Manipulator		
Rapid Speed (X/Y/Z) m/min (in/min)	18 (708.7)		
Max. Cutting Feed Speed (X/Y/Z) m/min (in/min)	10(393.7)		
Drive System	AC servo		
Voltage	3-Phase,480V/60Hz		
Air Pressure (MPa/PSI)	≥0.52 (75.4)		
Machine Weight (kg/lb)	6000 (13227.7)		

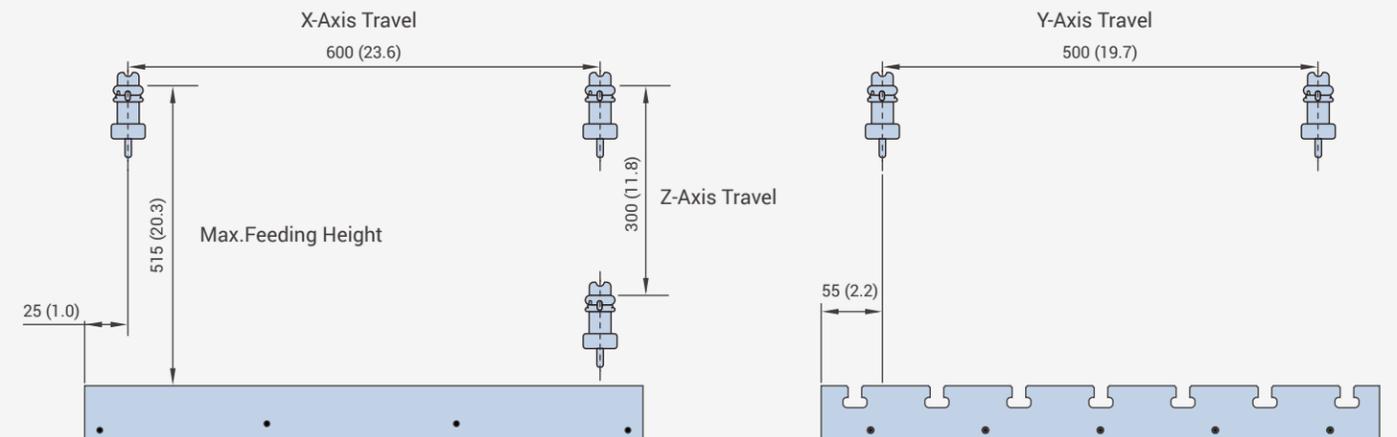
+ Parameters above calibration with reference to international standard ISO 230-2.

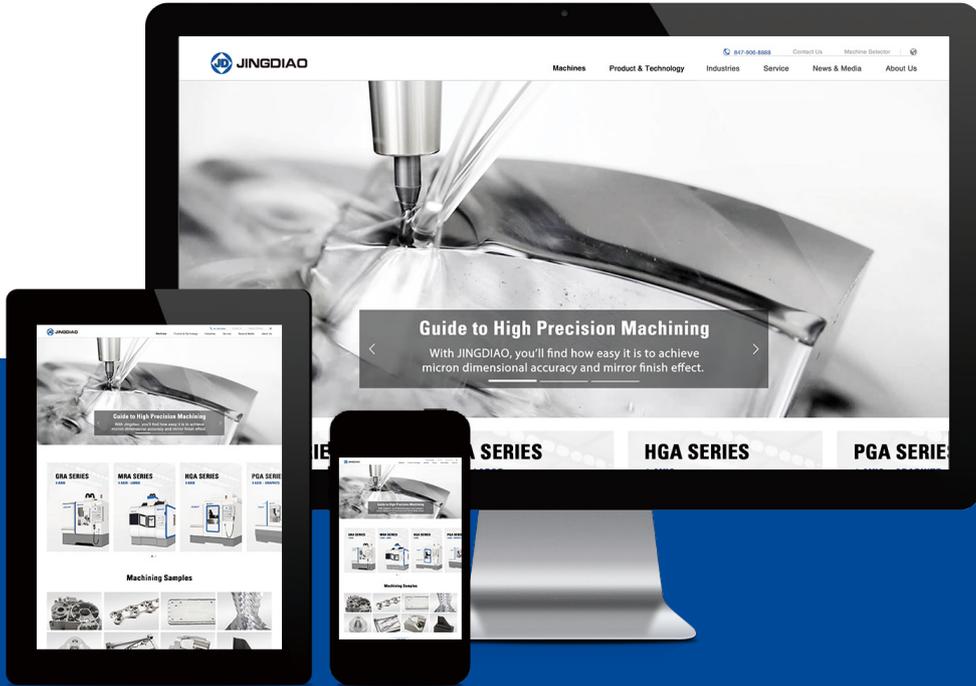
Standard Features and Options

Items	Configuration
Control System	
JD50 CNC System	●
CAM Software	
JDSOFT SurfMill 9.0	●
Spindle	
JD150S-20-HA50	●
JD105S-28-HE32	○
JD130S-24-BT30	○
Tool Magazine	
Chain Type Tool Magazine with Manipulator (HSK50-A)	●
Chain Type Tool Magazine with Manipulator (HSK-E32)	○
Chain Type Tool Magazine with Manipulator (BT30)	○
Servo Tool Magazine R24	○
Servo Tool Magazine R20	○
Servo Tool Magazine R18	○
Cooling System	
Coolant Tank	●
Cutting Air Cooling System	●
Cutting Fluid Cooling System	●
Spindle Cooling	●
Control Cabinet Cooling	●
Oil Mist Separation System	○
Disc Type Oil Water Separating System	○
Chip Conveyor	
Scraper Type Chip Conveyor	○
Internal Spiral Chip Conveyor	●
Measurement System	
Contact-Type Tool Set	●
Probe	●
Laser Tool Set	○
JINGDIAO On-machine Measurement System	●
Others	
Manual Pulse Generator (MPG)	●
Bag Type Filtration System FBS10	○
Coolant Refrigerator (Self-Produce)	○
Refrigerator ZLJE-18-380	●
Automatic Back Door	○
Alarm	●
Internal Lighting Switch	●

●: Standard ○: Optional

Travel Dimension Unit:mm (in)





You can find more information at
us.jingdiao.com



Add: 1400 E. Business Center Drive, Ste. 103, Mount Prospect, IL 60056
Phone: (847) 906-8888
Fax: (847) 906-8800
Email: usa@jingdiao.com
Website: us.jingdiao.com

The pictures of the equipment are for your reference only. The configurations and parameters are subject to change without notice. The final interpretation of this brochure is owned by Beijing JINGDIAO Group Co., Ltd.
Print Date: 2021.01