GRA300

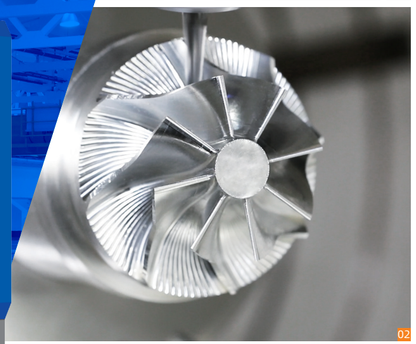
5-Axis high-speed machining center designed for the precision machining of dies, molds and complex hardware parts.

JINGDIAO

GRA300

With fully closed-loop control technology, the GRA300 is suitable for 5-axis machining of precision mold, precision parts and complex hardware parts.


01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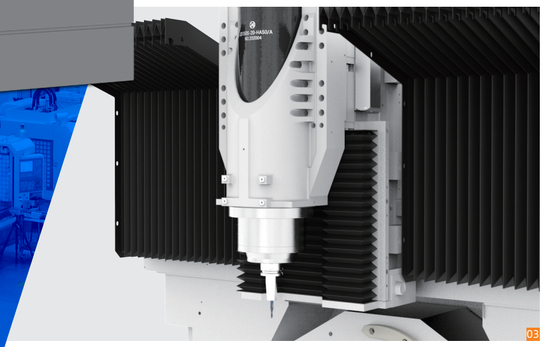
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04

Highlights

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

02 The machines are capable of milling, grinding, drilling, boring, tap-ping, and other composite processing, and side milling .

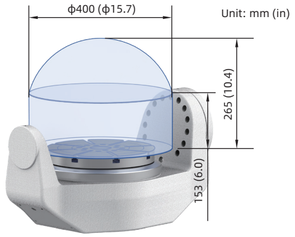
03 JINGDIAO spindles can be upgraded for precision machining and other products can achieve higher surface quality and efficient processing.

04 Cooling technology of the rotary table, bearings and screw nut and the fully enclosed covers improve the thermal stability of machine tool.

Learn More About GRA300

Machine Structure

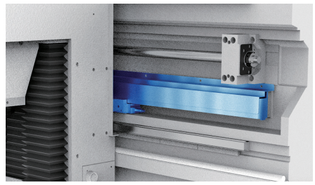
Max. Workpiece Dimension



Max. Load (kg/lb): 100/220.5

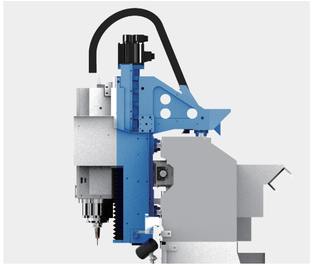
Higher Motion Accuracy

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



Better Machine Rigidity

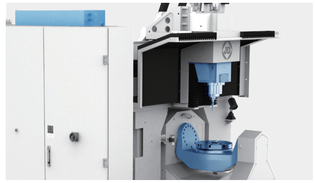
+ Inverted "L" structure.

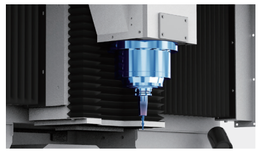


Travel (X/Y/Z) mm/(in)	390/510/300 (15.4/20.1/11.8)
A/C Rotation Angle (deg)	-110~90/360

Good Thermal Stability

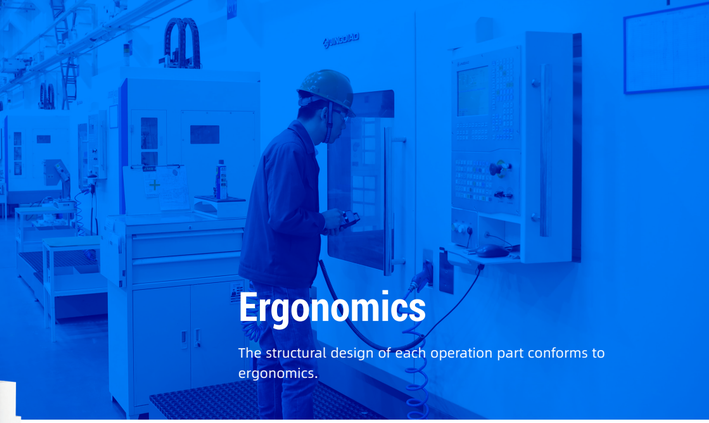
+ All round cooling design, using rotary table cooling, bearing cooling, screw cooling technology, and equipped with fully enclosed machine covers.





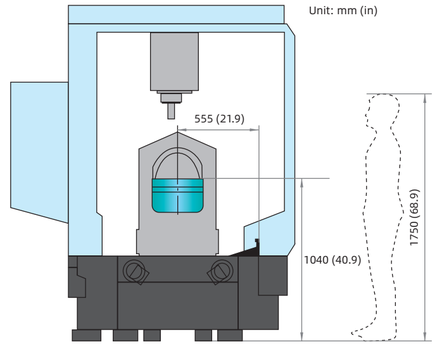
Less Interference in Five-Axis Machining

+ Making the bottom of the machine head to be sharp end, lengthening the nose end of the spindle.



Ergonomics

The structural design of each operation part conforms to ergonomics.



+ The worktable is close to the operator, which makes it easy to load and unloading the workpiece.
+ Pneumatic components and lubricating components are all installed on the right side of the machine, which is convenient for inspection and maintenance.
+ The tool magazine door has a large opening degree, which is convenient for the loading and unloading of tools.

Machining Samples

Spiral Bevel Gear Mold

Size (mm/in): Φ90×35/ϕ3.54×1.38
Material: DC53 (HRC62)
Highlights:
+ 5-axis simultaneous machining with carbide tools;
+ Mold accuracy reaches level 1 of DIN 3965/86.

Turbocharger Impeller

Size (mm/in): ϕ53.5×25.1
Material: Al 7075 (HB150)
Highlights:
+ GRA300 flank milling time is 4 min for each;
+ Unbalance is less than 0.08 gmm;
+ Surface roughness Ra<0.4 μm.

Breathing Mask Mold

Size (mm/in): 145×145×109/5.7×5.7×4.3 (Concave)
145×145×119/5.7×5.7×4.7 (Convex)
Material: H13 (HRC52)
Highlights:
+ Fit clearances0.01 mm (3.9×10^{-4} in);
+ Witness mark of cornerings4 μm (1.6×10^{-4} in);
+ Surface roughness<0.2 μm (7.9×10^{-6} in).

Mirror HUD Mold

Size (mm/in): 300×200×50/11.8×7.9×2.0
Material: M333 (HRC50)
Highlights:
+ Continuous finishing for 82 h with one R4 mm PCD cutting tool;
+ Surface roughness Sa<10 nm , Sv<35 nm, waviness is less than 25 nm ;
+ Surface accuracy PV<10 μm.

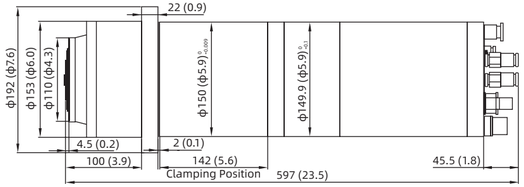
Key Components

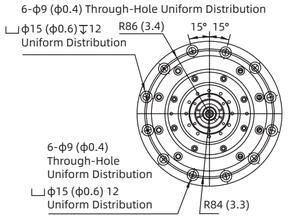
JINGDIAO High-Speed Precision Spindle

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.

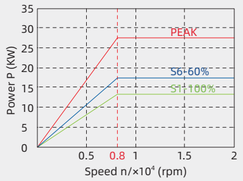
JD150S-20-HA50/A

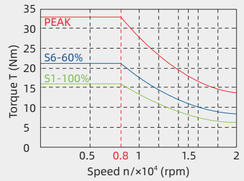
Dimension Unit: mm (in)





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)

Basic Specification

Clamping Diameter (mm/in): Φ150/Φ5.9 (0, -0.009)
Output Power (S6-60%) (KW): 18
Output Torque (S6-60%) (Nm): 21.5
Speed (rpm): 20,000
Tool Holder: HSK-A50
Weight (kg/lb): 46.5/102.5

Optional

JD150SC-20-HA50
Speed: 20,000 rpm
Tool Holder: HSK-A50

JD130S-24-BT30
Speed: 24,000 rpm
Tool Holder: BT30

JD130EF-32-HE32
Speed: 32,000 rpm
Tool Holder: HSK-E32

JD150SCG-20-HA50
Speed: 20,000 rpm
Tool Holder: HSK-A50

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 cm^3/mm
 Face Mill	Aluminum	7	ϕ80/ϕ3.15	70/2.8	6000	3200 (126.0)	448
				2/0.08			
	Steel	4	ϕ50/ϕ2.0	45/1.8	1000	1000 (39.3)	36
				0.8/0.03			
 End Mill	Aluminum	4	ϕ16/ϕ0.6	3.2/0.1	10000	3200 (126.0)	327.68
				32/1.3			
	Steel	4	ϕ16/ϕ0.6	1/0.04	3600	2400 (94.5)	76.8
				32/1.3			
 Drill	Aluminum	2	ϕ24/ϕ0.9	/	1000	200 (7.9)	/
	Steel	2	ϕ24/ϕ0.9	/	1000	100 (3.9)	/
 Tap	Aluminum	2	M20×1.5	/	700	1050 (41.3)	/
	Steel	2	M14×1.5	/	400	600 (23.6)	/

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

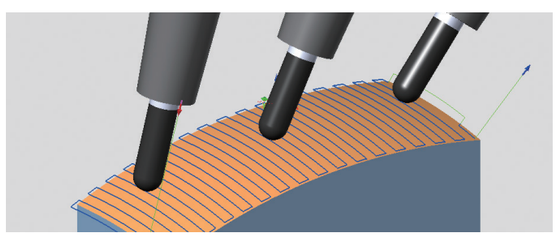
JD50 CNC System

The JD50 CNC system 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.

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.

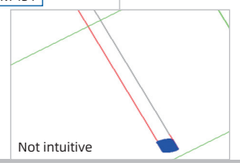
0.1μm Feed, 1μm Cutting



Fixed Point Cutting

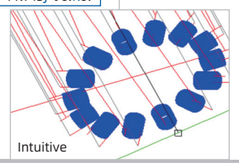
Not RTCP Program

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

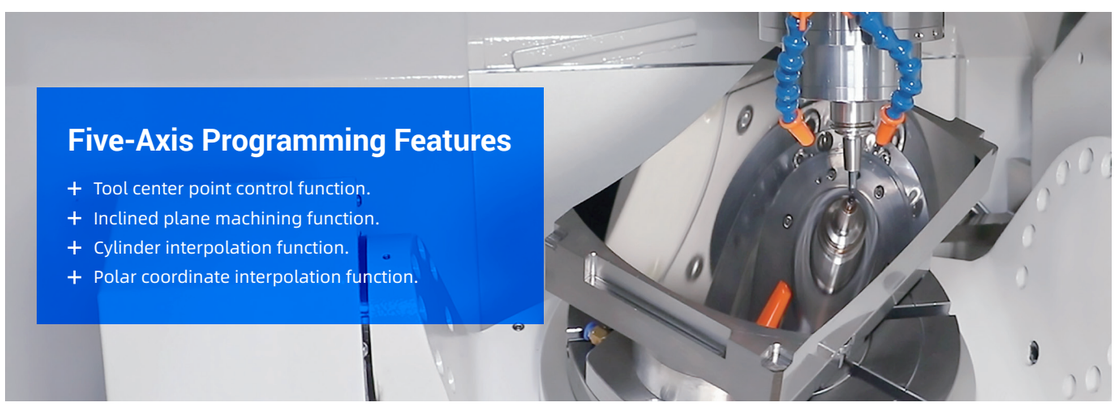


RTCP Program

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

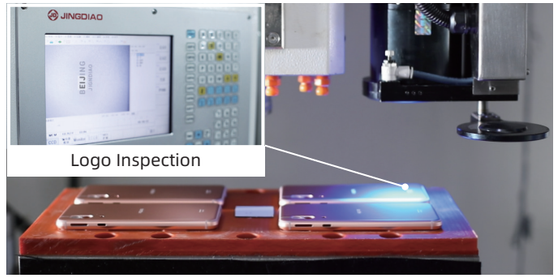
- Various programming methods and flexible technical process design.
- Abundant types of interfaces and buses, with strong peripheral expansion capabilities.
- Unique external extended function instructions (G100), which can realize instruction-level peripheral control, human-computer interaction, and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

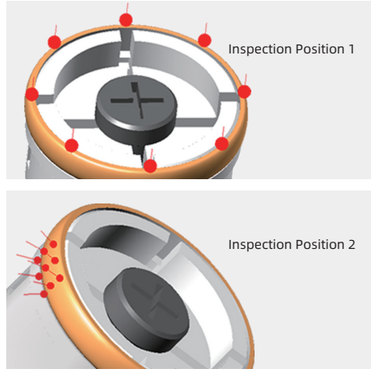
Advanced Features

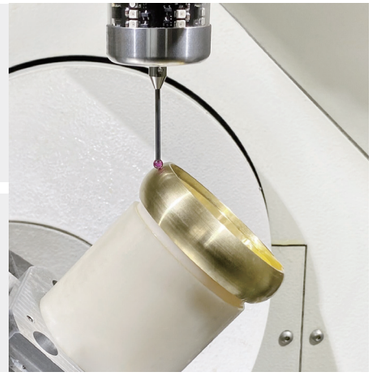
- Includes on-machine contact and non-contact measurement functions, which results in high-precision 2D and 3D measurements.
- Built-In CAM technology and intelligent modification technology supports the on-machine tool-path deformation compensation machining.
- Incorporates multiple communication protocols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



Non-Contact Measurement

Contact Measurement





Surface Deformation Compensation

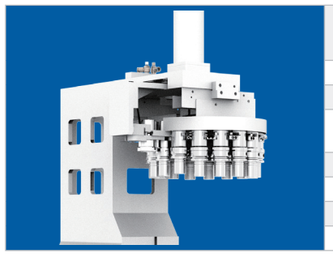
Remote Monitoring of Machines

Tool Magazine

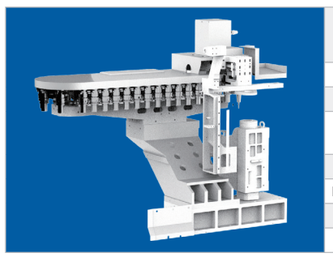
To meet your production needs, we have a variety of tool magazines to choose from.

Double Direct Drive Trunion Style Table

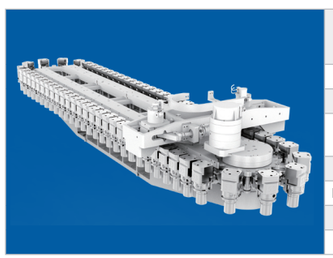
Assures high-precision multi-axis machining.



Type	Disc Type Tool Magazine with Manipulator	
Capacity	16	
Tool Holder	HSK-A50	BT30
Allowable Maximum Tool Length (mm/in) (From End of Spindle)	190/7.5	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)	80/3.1	80/3.1
Max. Load of Each Position (kg/lb)	3.5/7.7	3/6.6
Max. Load of Tool Magazine (kg/lb)	/	/



Type	Chain Type Tool Magazine with Manipulator	
Capacity	36	
Tool Holder	HSK-A50	BT30
Allowable Maximum Tool Length (mm/in) (From End of Spindle)	190/7.5	155/6.1
Maximum Diameter of Contiguous Tools (Full) (mm/in)	60/2.4	60/2.4
Maximum Diameter of Contiguous Tools (Vacant) (mm/in)	80/3.1	80/3.1
Max. Load of Each Position (kg/lb)	3.5/7.7	3.5/7.7
Max. Load of Tool Magazine (kg/lb)	61/134.5	61/134.5

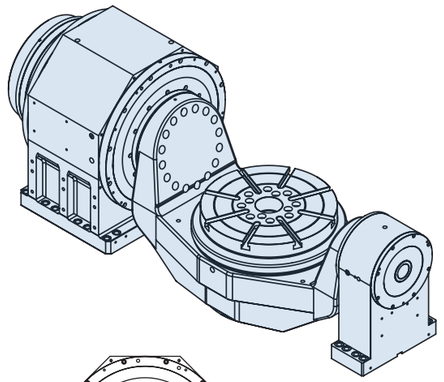


Type	Chain Type Tool Magazine with Manipulator
Capacity	63
Tool Holder	HSK-A50
Allowable Maximum Tool Length (mm/in) (From End of Spindle)	190/7.5
Maximum Diameter of Contiguous Tools (Full) (mm/in)	55/2.2
Maximum Diameter of Contiguous Tools (Vacant) (mm/in)	80/3.1
Max. Load of Each Position (kg/lb)	3.5/7.7
Max. Load of Tool Magazine (kg/lb)	/

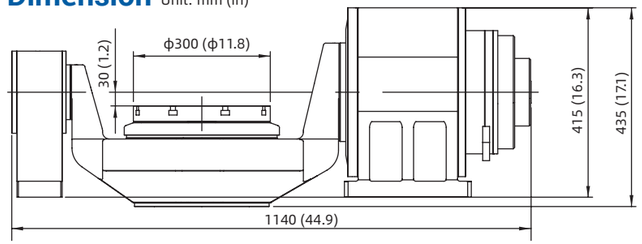
Type	Chain Type Tool Magazine with Manipulator	Disc Type Servo Tool Magazine
Capacity	53	24
Tool Holder	HSK-A50	HSK-E32

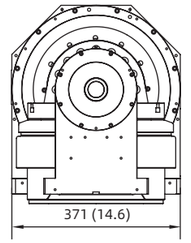
Features

- Direct drive motor, with emergency braking function.
- Bridge deck tailstock structure, high precision and stable operation.
- Circulating water cooling technology reduces the thermal deformation.
- Five axis simultaneous processing, multi surface positioning processing.
- The hollow design in the shaft makes the pipeline layout more convenient.



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	Hydraulic Locking	Pneumatic Locking
Positioning Locking Air Pressure (MPa)	5	0.6±0.02
Safety Brake	√	––

Accessories

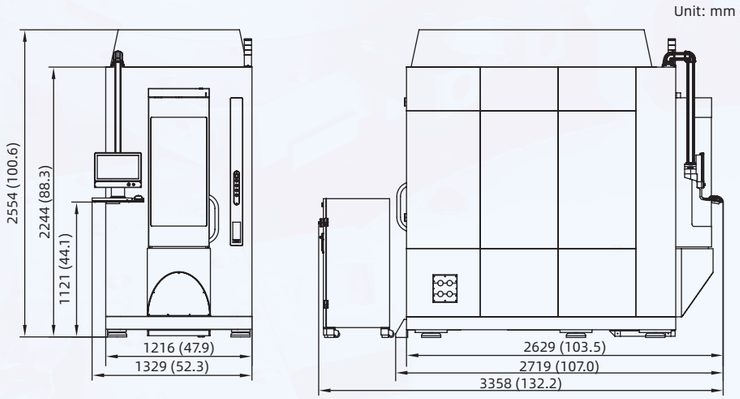
MHS60 Material Handling System

MHS60 material handling system is mainly composed of handling manipulator, storage module and 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.

Configuration

01 Processing System 02 Feeding System 03 Clamping System 04 Software System

Unit: mm (in)



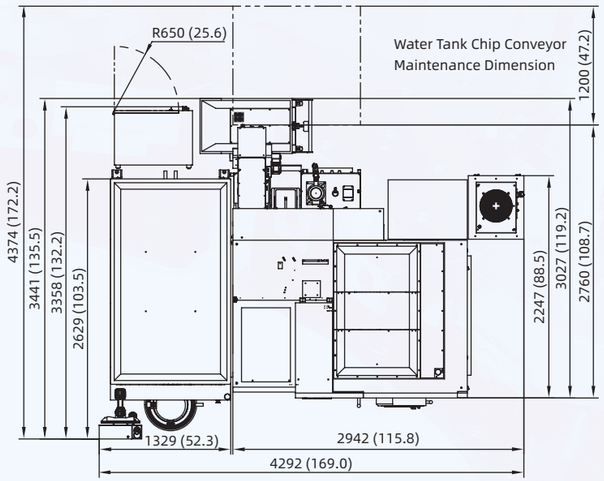
Specification

MHS60 Specifications			
Feeding System	MHS60-SF8A	MHS60-SF12A	MHS60-SF24A
Load (kg/lb)	60 (132.3)		
Storage Capacity	8	12	24
Workpiece Dimension (mm/in)	Φ400×150 (Φ15.7×5.9)	Φ300×180 (Φ11.8×7.1)	Φ300×180 (Φ11.8×7.1)
Machine Dimension	1329×3358×2554 (52.3×132.2×100.6)	1329×3358×2554 (52.3×132.2×100.6)	2019×3358×2554 (79.5×132.2×100.6)
Weight (kg/lb)	3000 (6613.9)		

Continuous Loading, Continuous Machining

When equipped with MHS60 material handling system, the GRA300 can achieve continuous and stable unattended production.

Unit: mm (in)



Production Mode

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

Customized Service

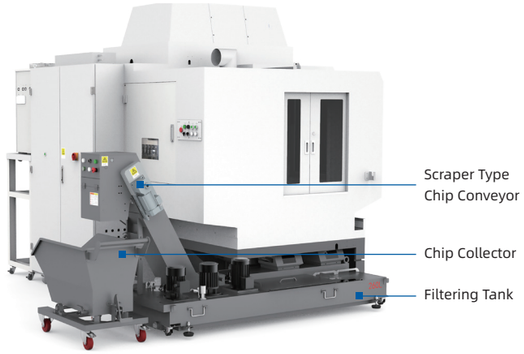
We Can Design and Develop the Structure According to Your Actual Production Needs.

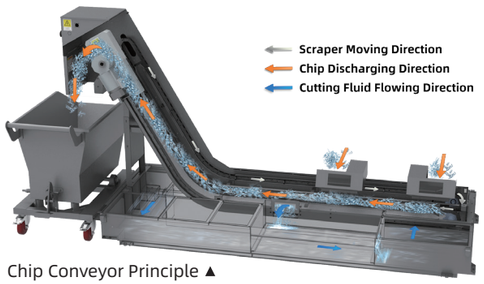
Scraper Style Chip Conveyor System

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

Features

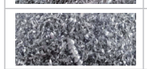
+ Improves maintenance by moving the chips into disposal container.
+ Cutting fluid service life is extended by using a multistage filtration unit.
+ Equipped with a cleaning mechanism and drop recovery mechanism which is self cleaning resulting cutting fluid recovery.





Chip Conveyor Principle ▲

Appropriate Chip Types

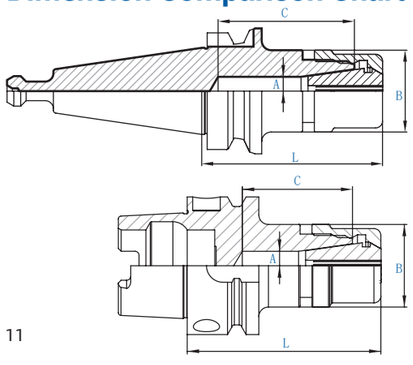
Material	Chip Form	Chip Size	Applicability
Steel		Long	●
		Short	●
		Powder	●
Cast Iron		Short	●
		Powder	●
Aluminum/ Non-ferrous Metal		Long	●
		Cumulus	●
		Short	●

● :Ideal ● :Suitable ● :Not Suitable

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. Our tool holders are available in various styled including BT30, HSK.

Dimension Comparison Chart

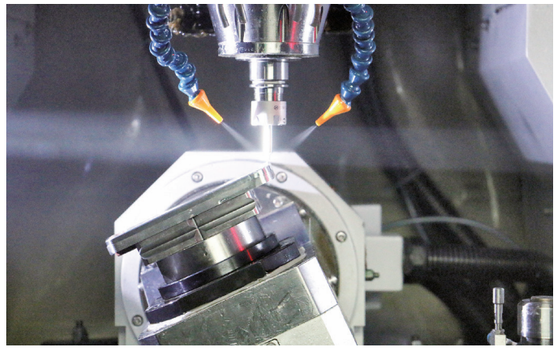


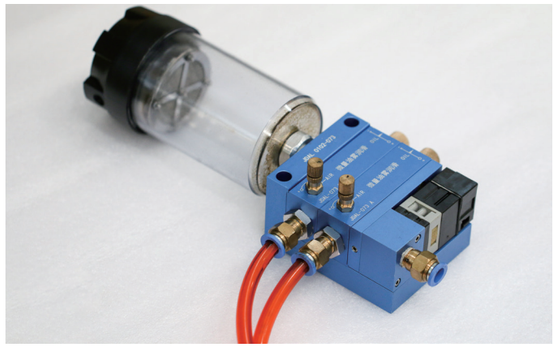
Technical Parameter

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

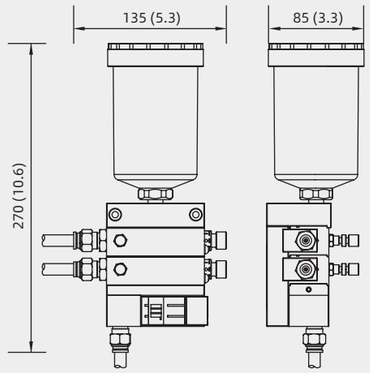
Minimal Quantity Lubrication (MQL)

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 °C (32.9 °F).





Dimension Unit:mm (in)



Specification

Item	Spec
Pressure (MPa)	0.5~0.8
Rated Pressure (MPa)	0.55
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

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 (℃ / °F)	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%

Distinctive Technologies

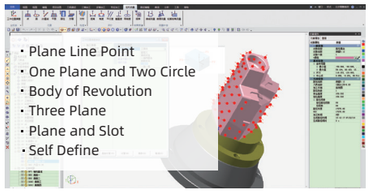
On-Machine Measurement and Intelligent Modification Technology

JINGDIAO's innovative on-machine measurement and intelligent modification technology (OMIM) is an ideal solution that integrates 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.

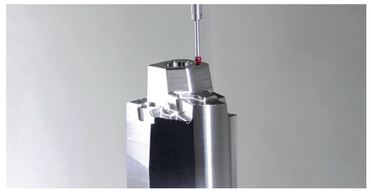
The Function of JINGDIAO OMIM is Mainly Reflected in Three Aspects

+ Intelligent Workpiece Alignment

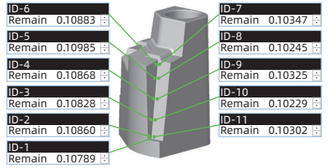
This feature automatically corrects the workpiece deviation through inspecting the offset of workpiece on machine and adjusting the program in control system. This reduces workpiece setup time, improves machining quality and increases production.



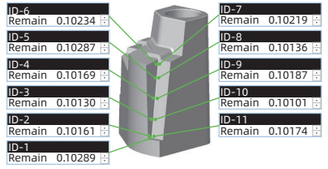
01-Support Multiple Workpiece Position Compensation Methods



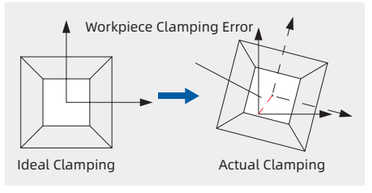
02-Obtain Actual Position on the Machine



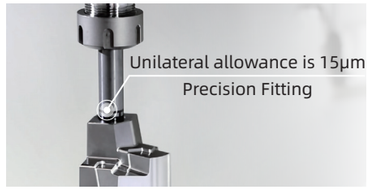
Before Modification: 7 μm



After Modification: 4 μm



03-Workpiece Position Compensation

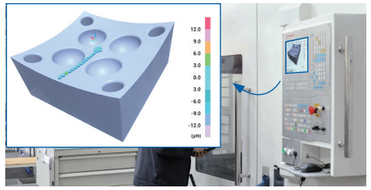


04-Verification of Position Compensation Accuracy

+ 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

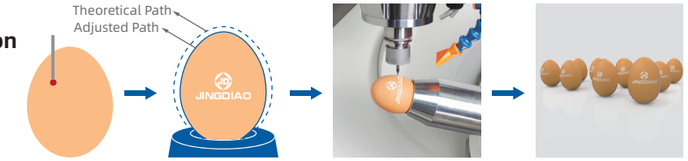


Real Time Display of CNC System

Achieve Stable Precision Machining

+ 5-Axis Path On-Machine Compensation

The CAM function embedded in the CNC system can compensate the inaccurate machining path, which caused by workpiece deformation, clamping deformation and clamping deviation, achieve five-axis adaptive machining.



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

A New Model of Numerical Control Processing

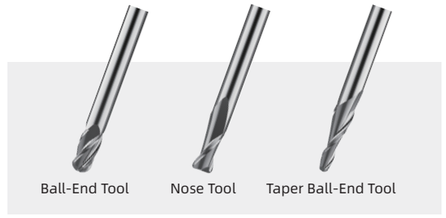
+ Machining and inspection are achieved on one machine, forming a new model of "integration of machining and inspection".
+ The digitalization of CNC machining experience enables a entry-level operator to complete precision machining.
+ The actual processing time proportion of CNC machines has increased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

Before Using Integration of Machining and Inspection

After Using Integration of Machining and Inspection

Tool Inspection System

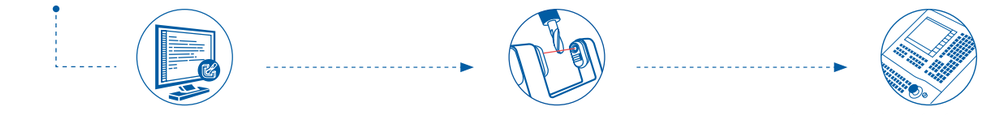
During the 5-axis machining process, JINGDIAO tool inspection system can inspect the errors of different positions of the tool contour of the bull nose tool, ball-end tool and other tools for precision machining and compensate intelligently. This can effectively reduce the unqualified workpiece accuracy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



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

* Tool Type

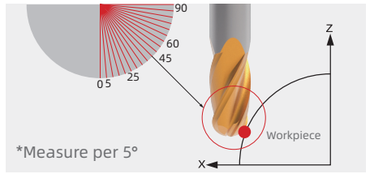
Realization



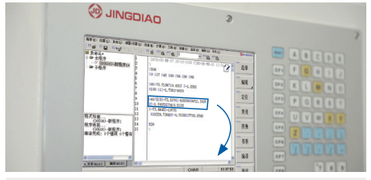
JIGNDIAO CAM Software | Standard Laser Tool Set | JIGNDIAO CNC System

Path Verify	All
Shank Collis...	0.2
Holder Colli...	0.5
Path Edit	No Edit
Avoid Settings	
Set start point	☐
Set end point	☐
Motion Settings	
Safe area	Auto.
Clearance plane	5
Retract mode	Optimized mode
Relative retract	2
Plunge distance	0.5
Coolant	Air
Wear comp. mode	Tool Contour Compensation

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

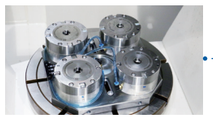
JINGDIAO Digital Twin (DT) Technology

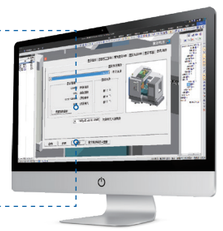
With JINGDIAO's software, the actual production materials and process parameters are digitized to ensure the correct information is selected by the process personnel, material preparation personnel and the operator. This creates a seamless integration process development, material preparation and machine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


Machine

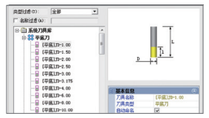

Tool

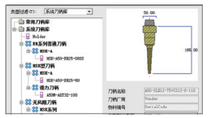

Tool Holder

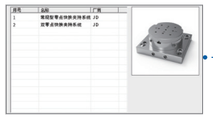

Fixture




Machine Bank

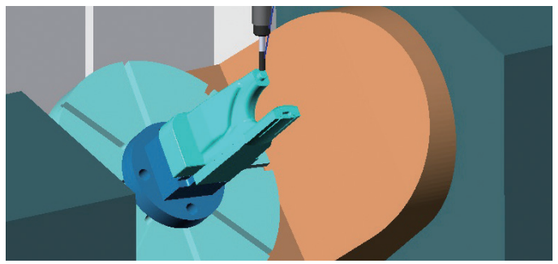

Tool Bank


Tool Holder Bank

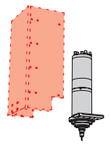
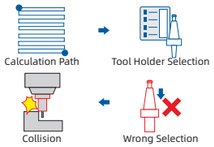
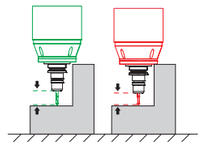
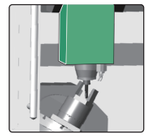
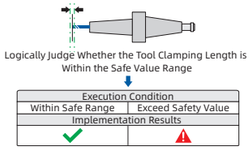

Fixture Bank

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.



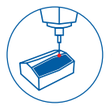
Application Scenarios of JINGDIAO DT Technology

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

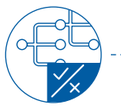
Easy Start

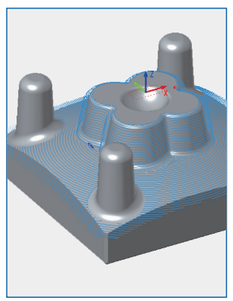
With this software, the program processing, measurement, preparation and logical judgment are combined into one program. The operator only needs to press the start button to begin the processing of the part which reduces machine setup time.

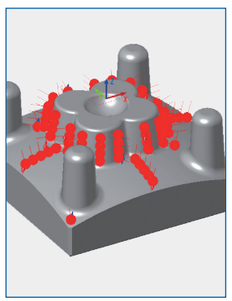

Processing Program


Measurement Program


Preparation Program


Logical Judgment





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

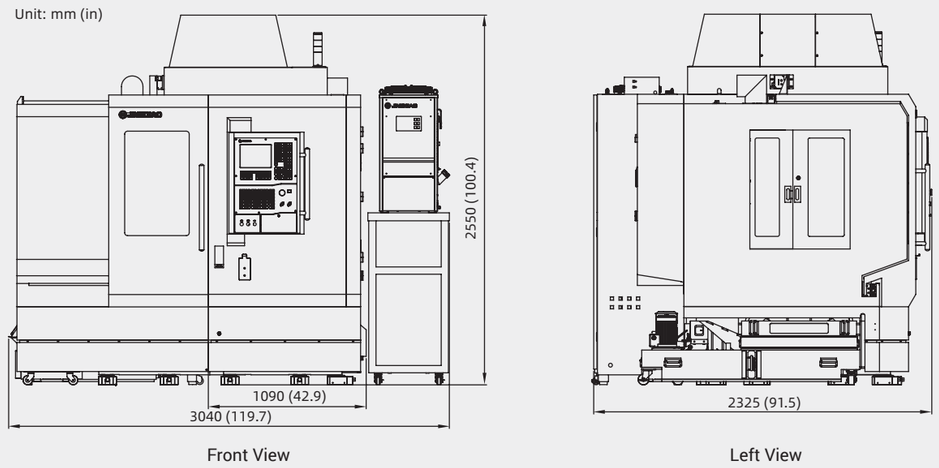
...
M98 P5001 (Warm up Machine)
M98 P5002 (Tool Inspection)
M98 P5003 (Calibration)
M98 P5004 (Path Travel Fool-Proof)
M98 P5005 (Processing Program)
...

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

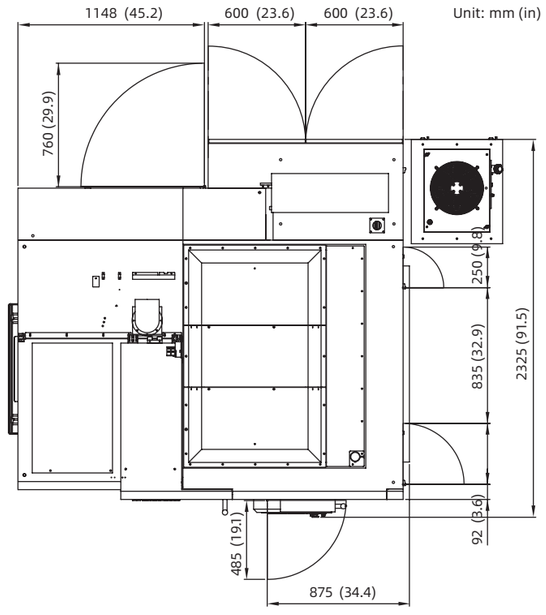
Dimension



Front View

Left View

Layout



Items	Standard Value
Position Accuracy (X/Y/Z) mm/ (in)	0.002/0.002/0.002 (0.00008/0.00008/0.00008)
Position Accuracy (A/C) sec	8/8
Repeatability (X/Y/Z) mm/ (in)	0.0018/ 0.0018/ 0.0018 (0.00007/0.00007/0.00007)
Repeatability (A/C) sec	5/5
Travel (X/Y/Z) (mm/in)	390/510/300 (15.4/20.1/11.8)
A/C Rotation Angle deg	-110~90/360
Table Diameter (mm/in)	ϕ300/ϕ11.8
Max. Load (Kg/lb)	100/220.5
Max. Spindle Speed (rpm)	20,000 (HSK-A50)
	24,000 (BT30)
	32,000 (HSK-E32)
Tool Magazine/Capacity	HSK-A50&BT30: 16/36/63 Chain Type Tool Magazine with Manipulator
	HSK-E32: 24 Disc Type Servo Tool Magazine
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)	≥0.52
Machine Weight (kg/lb)	7400/16314.2

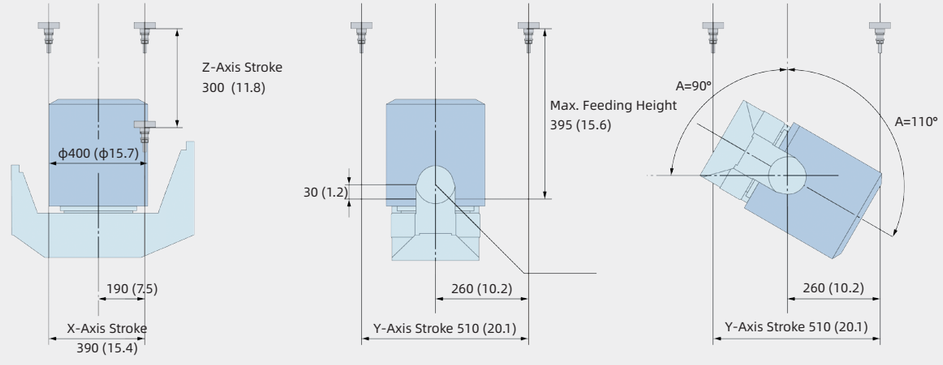
Standard Features and Options

Items	Configuration
Control System	
JD50 CNC System	●
CAM Software	
JDSoft SurfMill 8.0	○
Spindle	
JD130EF-32-HE32 (HSK-E32, Precision Machining)	○
JD130S-24-BT30 (BT30)	○
JD130SC-24-HA40(HSK-A40,Coolant Through)	○
JD130SCG-24-HA40(HSK-A40,Coolant Through,Grinding)	○
JD150S-20-HA50/A (HSK-A50)	●
JD150SC-20-HA50 (HSK-A50, Coolant Through)	○
JD150SCG-20-HA50 (HSK-A50, Coolant Through, Grinding)	○

Items	Configuration
Tool Magazine	
Chain Type Tool Magazine with Manipulator (63 Tools)	○ (HSK-A50)
Chain Type Tool Magazine with Manipulator (53 Tools)	○ (HSK-A50)
Chain Type Tool Magazine with Manipulator (36 Tools)	●
Disc Type Servo Tool Magazine (24 Tools)	○ (HSK-E32)
Disc Type Tool Magazine with Manipulator (16 Tools)	○
Cooling System	
Coolant Device (Half Ring Nozzle, 4 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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