

JINGDIAO HIGH-SPEED MACHINING CENTER

0.1 μ feed, 1 μ cutting, nano surface finish

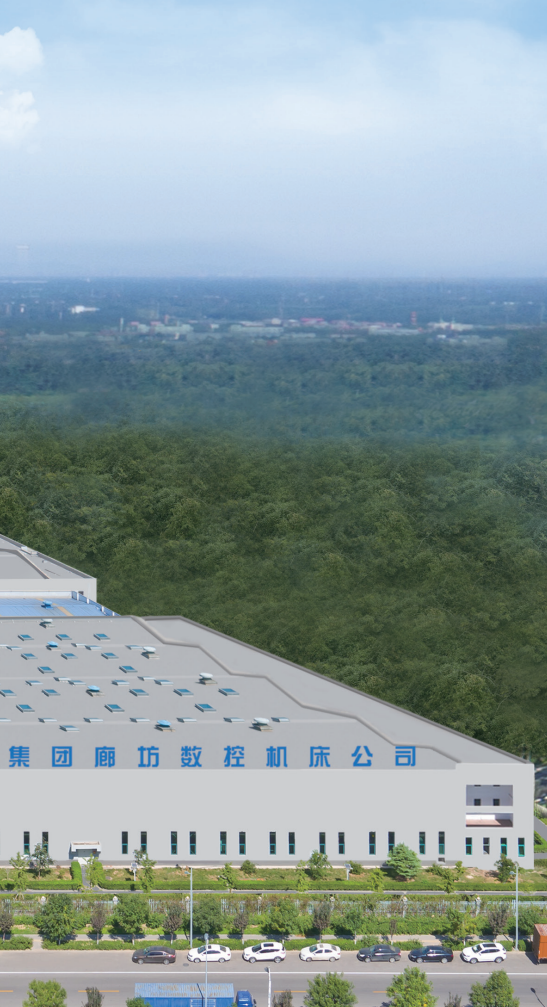




ABOUT US

Beijing Jingdiao Group is a high-tech enterprise founded in 1994 focuses on R&D and manufacture of CNC machine tools. Jingdiao's core product, high-speed machining center, has the capability of machining sub-micron surface finishes widely used by industry in the manufacture of high precision parts such as die mold.

Throughout the past two decades of development, we have taken the customers' demands as our path and continuously introduce machine tools and technology that are suitable for different industries. This is the very essence of what has helped us win wide recognition and trust of more than 15,000 customers.



1-Machine Tools Assembly Workshop

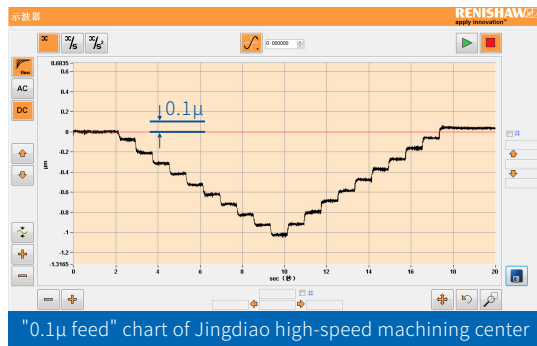


2-Main Building Hall - Jingdiao Monument

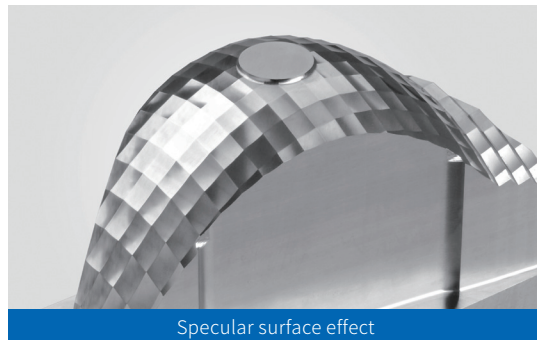


3-Part Manufacturing Workshop

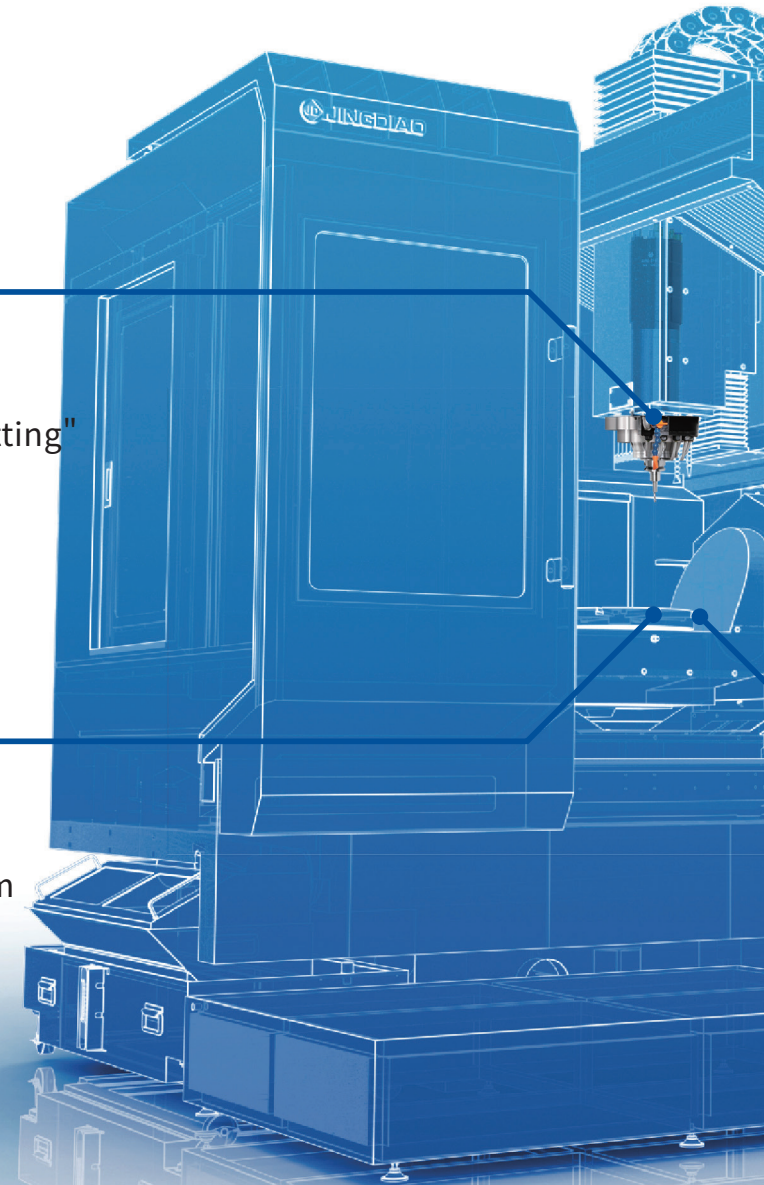
Distinctive Capabilities

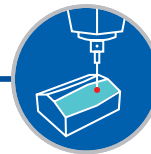
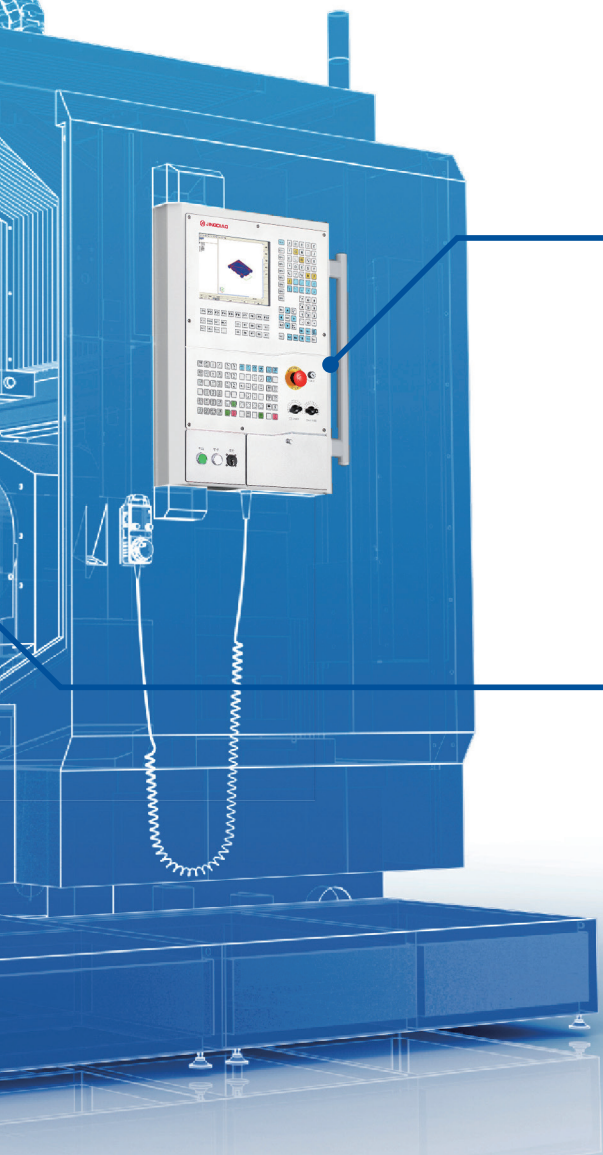


Consistently provides "0.1μ feed, 1μ cutting"

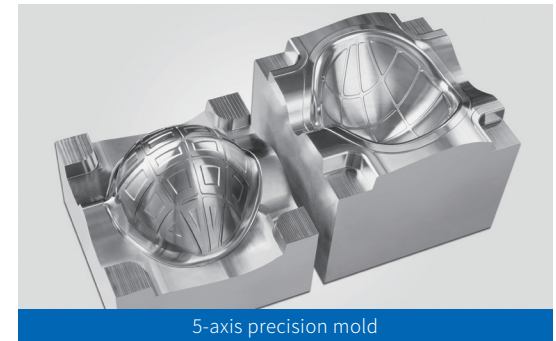


Hard material surface finishing Sa<10nm





3-axis machining accuracy $< 8\mu$
 5-axis machining accuracy $< 10\mu$



5-axis precision mold



Multiple machining capability of
 more than 10 process types



Versatile machining capability

JINGDIAO 5-AXIS HIGH-SPEED MACHINING CENTER

Specialized closed loop 5-axis high-speed machining center, suitable for complex multi-axis machining of optical molds, precision molds, precision parts and complex hardware.

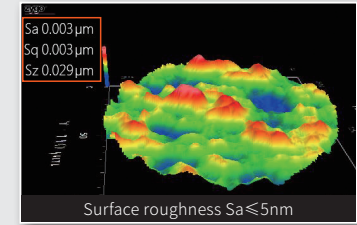
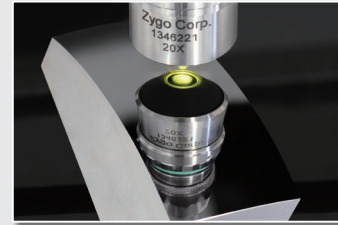


Test Workpiece

Nano Surface Finish Mirror Workpiece

Material: STAVAX(HRC50) Size: 75×30×40mm

Test Result: + 14 hours continuous simultaneous 5-axis machining with R1 PCD cutting tool;
+ Surface roughness **Sa ≤ 5nm**.



Micron Dimensional Accuracy Freeform Surface Fitting Workpiece

Material: cavity S136(HRC52) | core DC53(HRC60)

Size: cavity 50×50×25mm | core 30×30×35mm

Test Result: + Fitting clearance: 2μm~5μm;
+ Surface roughness **Ra < 0.1μm**.

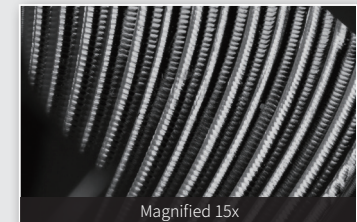
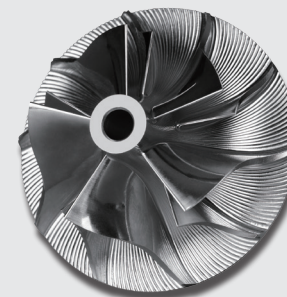


High-efficient Complex Machining Impeller

Material: 7075Al Size: Φ60mm

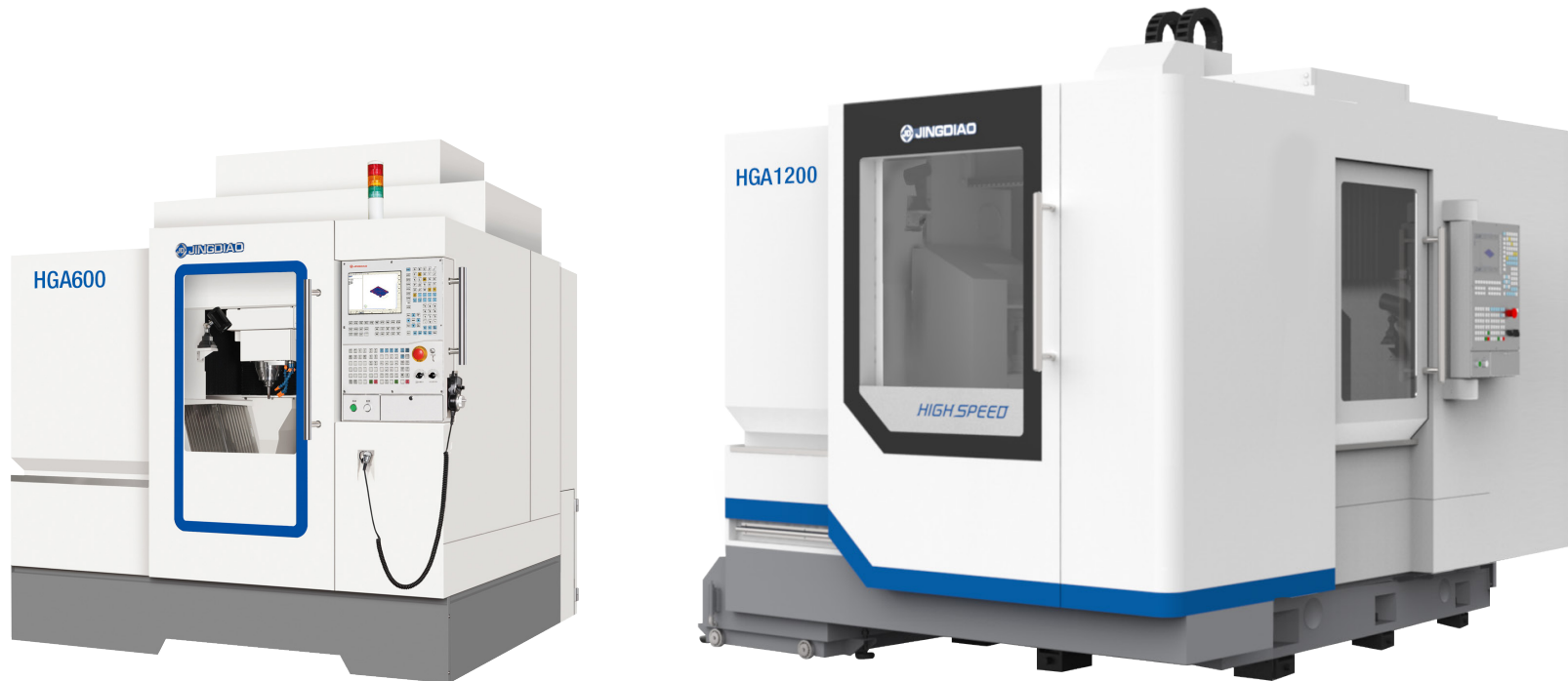
Test Result: + Machining time for one impeller is 4min30s;
+ Surface roughness **Ra < 0.2μm**;
+ Dynamic balance < 0.15gmm.

In 100-piece production, CPK of dynamic balance is **1.58**.



JINGDIAO 3-AXIS HIGH-SPEED MACHINING CENTER

3-axis high-speed machining center with closed-loop control system, suitable for machining of precision parts and high-precision die mold.



Test Workpiece

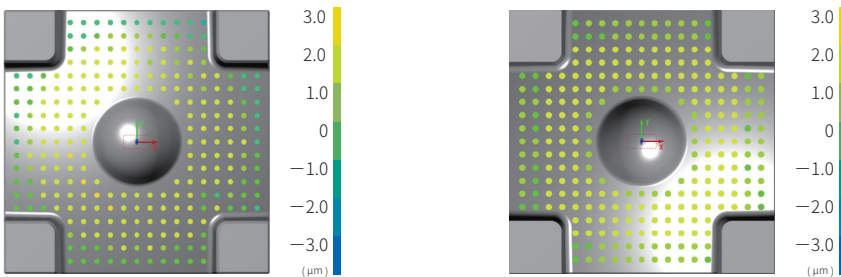
Precision 3-axis Machining Micron Level 4-Direction Fitting Workpiece

Material: H13(HRC52) Size: 80×80×40mm

- Test Result: +All surface dimension accuracy is within 5μm;
 +Concave and convex part fit in four directions;
 +Interchangeable fit between all sets.

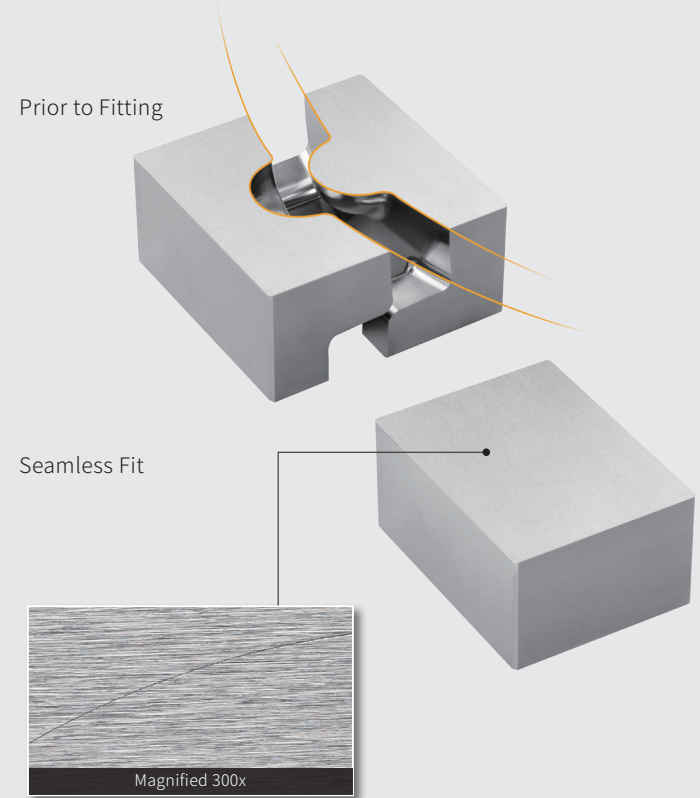


Mold Tolerance



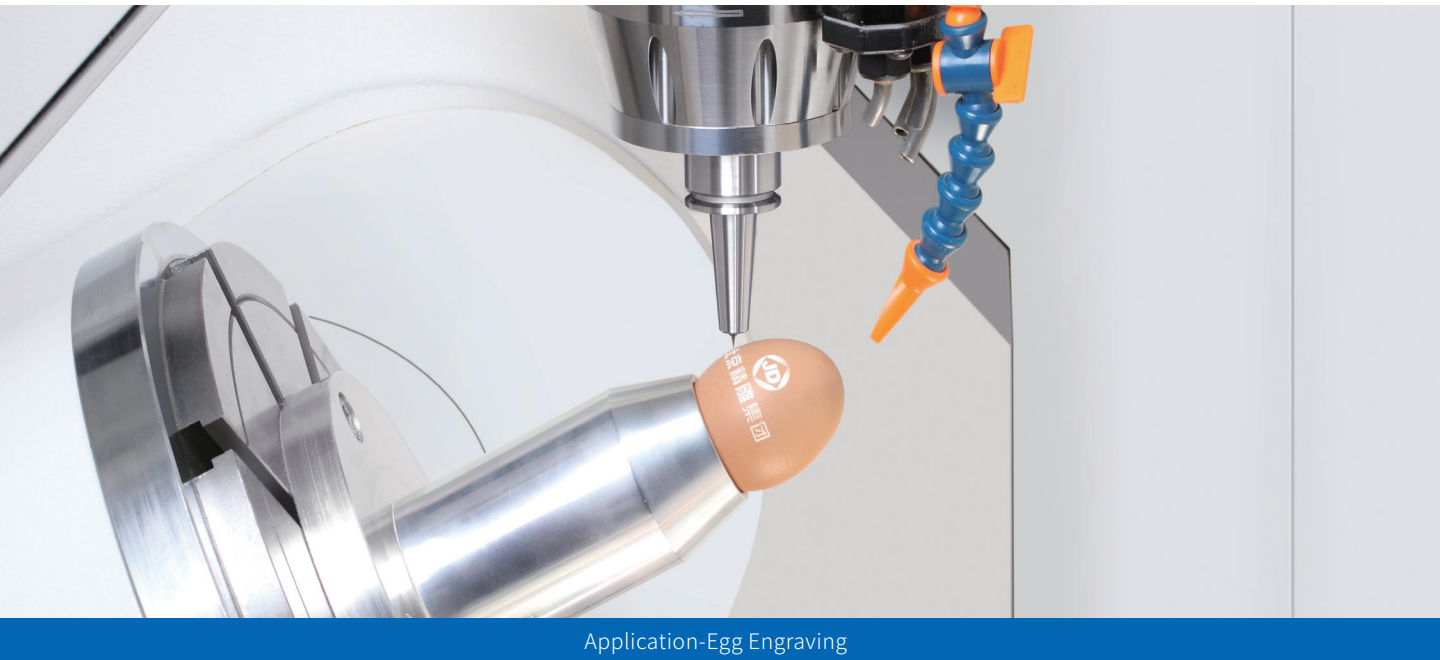
Standardized Mold Making

With No Secondary Operation



CORE TECHNOLOGY

Jingdiao On-machine Measurement and Intelligent Modification Technology (OMIM) Continuous Machining Process



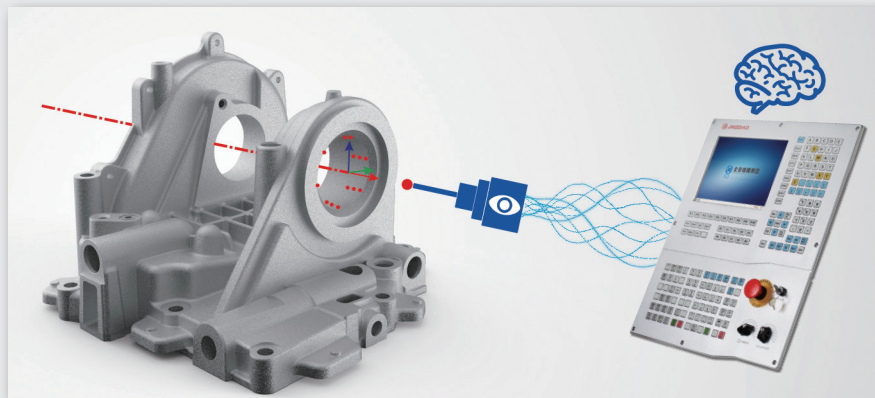
Application-Egg Engraving

For parts quality control, inspection process is required normally performed off machine which means interruption of continuous production process and instability considering manual operation process. JD on machine measurement and intelligent modification technology (OMIM) makes Jingdiao cnc machine perceptive and smart. Based on Jingdiao unique integration capability of CAD/CAM software and control system, JD OMIM helps the operator, machine tool, process, and quality inspection, collaborates more effectively and achieve smooth production process without any interruption.

Application

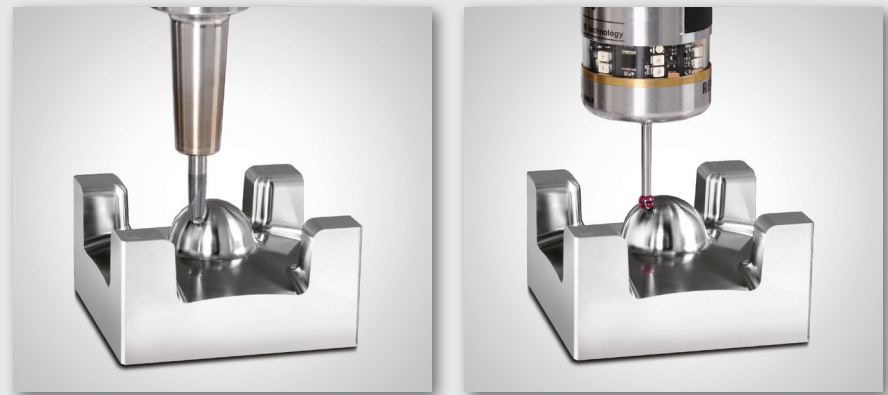
Intelligent Alignment in 5-axis Machining

OMIM can realize efficient dynamic compensation of work origin and solve uneven wall thickness and poor hole coaxiality problems due to fuzzy work datum in die cast part machining.



On-machine Measurement of Machining Accuracy

Accurate control of production process with OMIM technology guarantees parts precision over time.



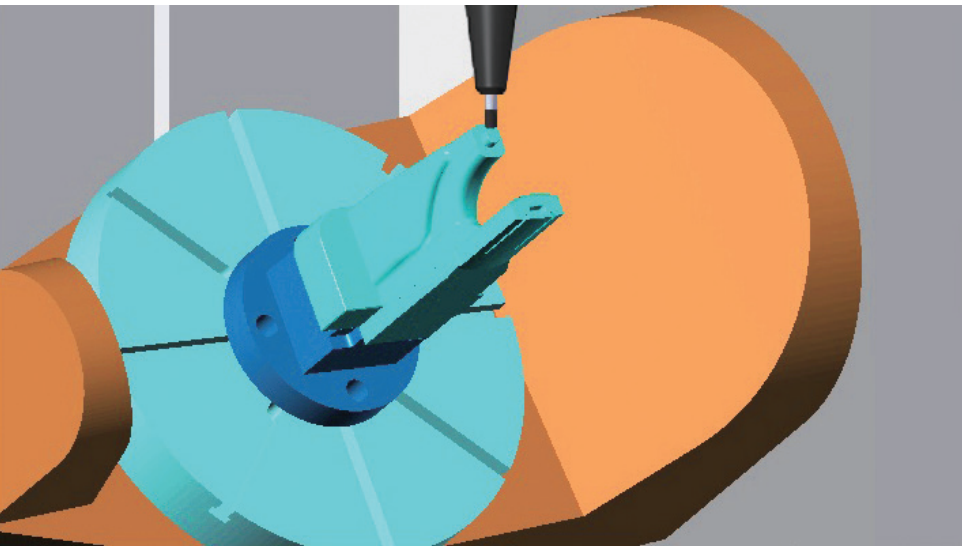
Objective	Before Using OMIM		After Using OMIM	
Wall Thickness		Misposition of 0.1mm causes uneven wall thickness.		Missposition is within 0.02mm, gets even wall thickness.
Coaxiality		0.010mm		0.005mm

Process	Tolerance	Before Using OMIM	After Using OMIM
Semi Finishing 1	0.01 $\begin{matrix} +0.005 \\ 0 \end{matrix}$	 Unknown Tolerance without Inspection	0.01~0.015
Semi Finishing 2	0.005 $\begin{matrix} +0.003 \\ 0 \end{matrix}$		0.005~0.007
Finishing	0 $\begin{matrix} +0.002 \\ -0.002 \end{matrix}$		-0.002~0.0015

CORE TECHNOLOGY

Jingdiao Virtual Processing Technology

Worry-free 5-axis Machining

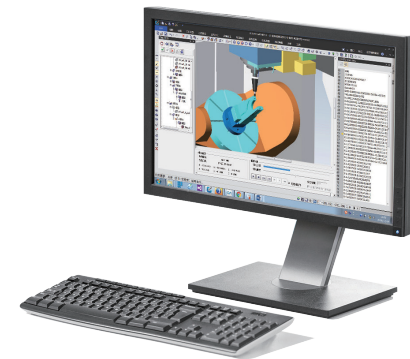


Jingdiao CAM software machine tool virtual simulation

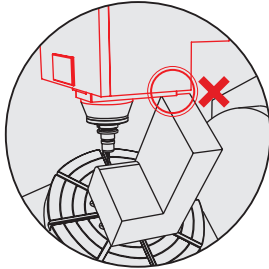
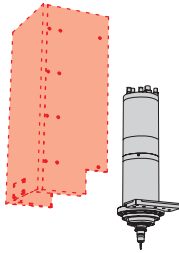
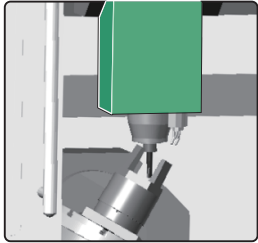
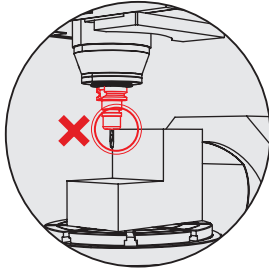
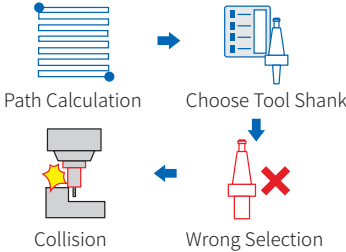
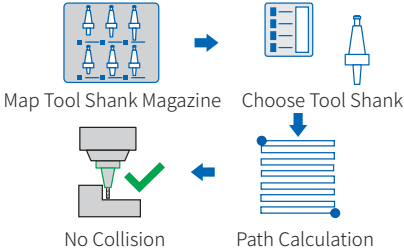
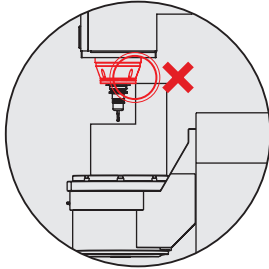
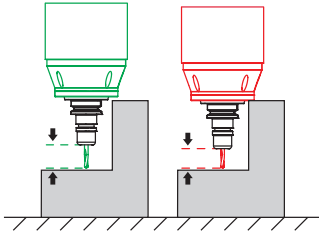
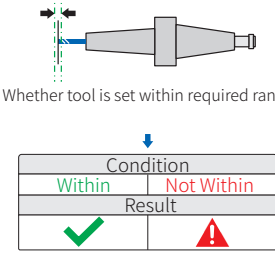


Jingdiao machine tool actual processing

For 5-axis machining, movement of the CNC machine tool is complicated, and the machining process is not intuitive and difficult to predict which embed high risk of collision, Jingdiao Virtual Processing Technology constructs the identical virtual model in the CAM software, simulates the entire process, detect and eliminates collision risk in the programming phase, making 5-axis processing safer.



Application

Technical Points	Collision Type	Collision Cause	Solution								
<p>1</p> <p>Simulate real world condition ensure accuracy of interference collision check.</p>	 <p>Z-axis and Workpiece</p>	 <p>Absent of Machine Model</p>	 <p>Complete Model</p>								
<p>2</p> <p>Material informatization avoids collision caused by wrong material selection.</p>	 <p>Tool Shank and Workpiece</p>	 <p>Path Calculation → Choose Tool Shank</p> <p>Collision ← Wrong Selection</p> <p>Choose Wrong Material</p>	 <p>Map Tool Shank Magazine → Choose Tool Shank</p> <p>No Collision ← Path Calculation</p> <p>Material Informatization</p>								
<p>3</p> <p>NC program foolproof avoids collision caused by misoperation.</p>	 <p>Spindle and Workpiece</p>	 <p>Incorrect Tool Length Set</p>	 <p>Whether tool is set within required range</p> <table border="1" data-bbox="1613 1341 1874 1442"> <thead> <tr> <th colspan="2">Condition</th> </tr> </thead> <tbody> <tr> <td>Within</td> <td>Not Within</td> </tr> <tr> <th colspan="2">Result</th> </tr> <tr> <td>✓</td> <td>⚠</td> </tr> </tbody> </table> <p>Tool Setup Foolproof</p>	Condition		Within	Not Within	Result		✓	⚠
Condition											
Within	Not Within										
Result											
✓	⚠										

Machine Specification



		GRA200(BC-axis)	GRA400(AC-axis)	MRA600(AC-axis)
Accuracy				
X/Y/Z position accuracy	mm(in)	0.002/ 0.002/ 0.002 (0.00008"/ 0.00008"/ 0.00008")	0.002/ 0.002/ 0.002 (0.00008"/ 0.00008"/ 0.00008")	0.003/ 0.003/ 0.003 (0.00012"/ 0.00012"/ 0.00012")
A(B)/C position accuracy	sec	8/8	8/8	5/5
X/Y/Z repeatability	mm(in)	0.0018/ 0.0018/ 0.0018 (0.00007"/ 0.00007"/ 0.00007")	0.0018/ 0.0018/ 0.0018 (0.00007"/ 0.00007"/ 0.00007")	0.002/ 0.002/ 0.002 (0.00008"/ 0.00008"/ 0.00008")
A(B)/C repeatability	sec	5/5	5/5	3/3
Travel				
X/Y/Z	mm(in)	500/ 280/ 300 (19.7"/ 11.0"/ 11.8")	450/ 680/ 400 (17.7"/ 26.8"/ 15.7")	650/ 600/ 500 (25.6"/ 23.6"/ 19.7")
A(B)/C	deg	-120~90/ 360	-120~90/ 360	-120~90/ 360
Table				
Table size	mm(in)	φ260 (φ10.2")	φ400 (φ15.7")	φ630 (φ24.8")
Max. load	kg(lb)	30 (66.2)	150 (330.8)	400 (882)
Feed				
X/Y/Z feed	m/min(in/min)	10 (393)	10 (393)	10 (393)
A(B)/C feed	rpm	15/ 25	15/ 25	15/ 25
X/Y/Z rapid traverse	m/min(in/min)	15 (590)	15 (590)	15 (590)
A(B)/C rapid traverse	rpm	30/ 50	30/ 50	30/ 50
Spindle				
Spindle speed	(r/min)	28,000	24,000	20,000
Tool magazine				
Max. capacity		36	36	53
Machine weight				
	kg(lb)	5,600 (12,348)	10,000 (22,050)	12,000 (26,460)



		HGA400	HGA600	HGA800	HGA1200
Accuracy					
X/Y/Z position accuracy	mm(in)	0.002/ 0.002/ 0.002 (0.00008"/ 0.00008"/ 0.00008")	0.002/ 0.002/ 0.002 (0.00008"/ 0.00008"/ 0.00008")	0.002/ 0.003/ 0.002 (0.00008"/ 0.00012"/ 0.00008")	0.002/ 0.003/ 0.002 (0.00008"/ 0.00012"/ 0.00008")
X/Y/Z repeatability	mm(in)	0.0018/ 0.0018/ 0.0018 (0.00007"/ 0.00007"/ 0.00007")	0.0018/ 0.0018/ 0.0018 (0.00007"/ 0.00007"/ 0.00007")	0.0018/ 0.0025/ 0.0018 (0.00007"/ 0.00010"/ 0.00007")	0.0018/ 0.0025/ 0.0018 (0.00007"/ 0.00010"/ 0.00007")
Travel					
X/Y/Z	mm(in)	400/ 400/ 200 (15.7"/ 15.7"/ 7.9")	600/ 500/ 260 (23.6"/ 19.7"/ 10.2")	800/ 800/ 350 (31.5"/ 31.5"/ 13.8")	1,200/ 800/ 350 (47.2"/ 31.5"/ 13.8")
Table					
Table size	mm(in)	530×430 (20.9"×16.9")	650×650 (25.6"×25.6")	850×850 (33.5"×33.5")	1,250×850 (49.2"×33.5")
Max. load	kg(lb)	300 (661.5)	300 (661.5)	1,000 (2,205)	1,000 (2,205)
Feed					
X/Y/Z feed	m/min(in/min)	10 (393)	10 (393)	10 (393)	10 (393)
X/Y/Z rapid traverse	m/min(in/min)	15/ 15/ 15 (590/ 590/ 590)	18/ 18/ 18 (708/ 708/ 708)	18/ 18/ 18 (708/ 708/ 708)	15/ 15/ 15 (590/ 590/ 590)
Spindle					
Spindle speed	(r/min)	28,000	24,000	24,000	20,000
Tool magazine					
Max. capacity		20	20	32	32
Machine weight	kg(lb)	4,600 (10,143)	5,500 (12,128)	9,000 (19,845)	11,000 (24,255)

Machine Specification



		PGA600 (Graphite Machining Center)
Accuracy		
X/Y/Z position accuracy	mm(in)	0.002/ 0.002/ 0.002 (0.00008"/ 0.00008"/ 0.00008")
X/Y/Z repeatability	mm(in)	0.0018/ 0.0018/ 0.0018 (0.00007"/ 0.00007"/ 0.00007")
Travel		
X/Y/Z	mm(in)	600/ 500/ 260 (23.6"/ 19.7"/ 10.2")
Table		
Table size	mm(in)	620×520 (24.4"×20.5")
Max. load	kg(lb)	300 (661.5)
Feed		
X/Y/Z feed	m/min(in/min)	10 (393)
X/Y/Z rapid traverse	m/min(in/min)	18 (708)
Spindle		
Spindle speed	(r/min)	28,000
Tool magazine		
Max.capacity		36
Machine weight	kg(lb)	8,500 (18,742)

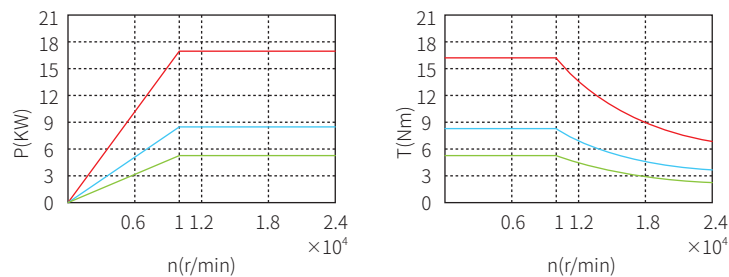
Spindle Specification

Jingdiao High-speed Spindles



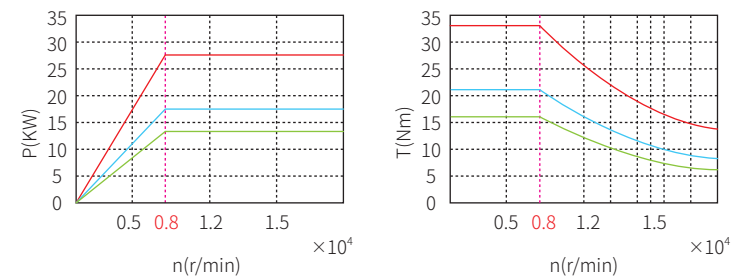
Jingdiao high-speed spindles are the key parts of Jingdiao high-speed machining centers that ensure process precise and efficient. Jingdiao high-speed spindles have many advantages such as compact structure, large speed range, high rotation accuracy, light weight, low inertia, slight vibration, and low noise. The latest spindles have composite machining capabilities of milling, drilling, thread tapping, turning, grinding, polishing and scraping.

JD130S-24-BT30 Output Performance



— PEAK — S6-60% — S1-100%

JD150S-20-HA50 Output Performance



Spindle Specification

Modle	Max.Speed (r/min)	Rated Power S6-60% KW(HP)	Rated Torque S6-60% Nm(lbf.ft)	Runout of Taper Bore mm(in)	Tool Holder Type	Motor Type
JD83-36-ISO20	36000	2.4 (3.26)	1.9 (1.4)	≤0.0015 (0.000059)	ISO20	Asynchronous Motor
JD105-28-ISO25	28000	5.0 (6.80)	2.4 (1.77)	≤0.0015 (0.000059)	ISO25	Asynchronous Motor
JD105-32-HSK32	32000	5.0 (6.80)	2.4 (1.77)	≤0.0015 (0.000059)	HSK-E32	Asynchronous Motor
JD105C-32-HE32(CTS)	32000	5.0 (6.80)	2.4 (1.77)	≤0.0015 (0.000059)	HSK-E32	Asynchronous Motor
JD105S-28-ISO25	28000	9.2 (12.51)	4.0 (2.95)	≤0.0015 (0.000059)	ISO25	Synchronous Motor
JD105S-28-HE32	28000	9.2 (12.51)	4.0 (2.95)	≤0.0015 (0.000059)	HSK-E32	Synchronous Motor
JD105SC-32-HE32(CTS)	32000	9.2 (12.51)	4.0 (2.95)	≤0.0015 (0.000059)	HSK-E32	Synchronous Motor
JD130-20-BT30	20000	3.2 (4.35)	5.1 (3.76)	≤0.0015 (0.000059)	BT30	Asynchronous Motor
JD130S-24-BT30	24000	8.9 (12.10)	8.5 (6.27)	≤0.0015 (0.000059)	BT30	Synchronous Motor
JD130SC-24-HA40(CTS)	24000	8.9 (12.10)	8.5 (6.27)	≤0.0015 (0.000059)	HSK-A40	Synchronous Motor
JD150S-20-HA50	20000	18 (24.47)	21.5 (15.85)	≤0.0015 (0.000059)	HSK-A50	Synchronous Motor
JD150SC-20-HA50(CTS)	20000	18 (24.47)	21.5 (15.85)	≤0.0015 (0.000059)	HSK-A50	Synchronous Motor



Website QR Code



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The pictures of the equipment are for your reference only. The configurations and parameters are subject to change without notice.

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