Desktop NC Mate Intro

$5559

1. Overview

Desktop NC Mate is a desktop five-axis CNC machine with *RTCP (Rotary Tool Center Point) capability. Its major highlights include a compact design and powerful five-axis machining capabilities. It can process various common materials such as metals like aluminum and copper alloys, as well as non-metal materials like plastics, wood, stone, and wax. It is particularly suitable for small businesses, individual makers, educational institutions, and laboratories.

Compared to the Turbo model, the control panel features a separate sheet metal casing design, striking a balance between performance and cost. It comes with an upgraded offline CNC system (for detailed differences, refer to the table) and is equipped with C5 ground ball screws. Most other parameters remain consistent.

* RTCP, which stands for Rotational Tool Center Point, is a function where the tool tip follows the workpiece, and it serves as a standard for a true five-axis CNC system.

* It's worth noting that desktop-level CNC machines can process steel and titanium alloys, but the processing efficiency is very low.

2. Feature

2.1. High-Performance Spindle: With a powerful 800-watt motor, it operates at a high speed of 24,000 RPM, efficiently water-cooled, and exhibits radial runout of 3-5μm.

2.2. High-Precision Components: It includes a harmonic motor for the rotational axis, a linear axis with a direct current servo motor, ball screws, and upper silver linear guides.

2.3. Sheet Metal Casing: Designed to be dustproof and noise-reducing, with waterproof treatment for critical components and equipped with a cutting fluid circulation system.

2.4. User-Friendly Operation: Features automatic tool measurement and an electronic handwheel for simplified operation.

2.5. Cost-Effective Manufacturing: Ideal for processing aluminum alloy materials, offering a cost-effective solution.

2.6. Professional Technical Services: Provides CAM programming, simulation guidance, on-site training, custom fixture design, and component upgrades.

* Recommended CAM Software: PowerMill、Fusion360、UG
*Post-Processing Programs: Powermill、UG、Fusion360、HSM
* Motion Simulation Software: PowerMill、Vericut

3. Linux NC System

a. Optimized high-speed interpolation
b. Offline Linux system, resistant to interference, high stability
c. Support for manual guidance with a handwheel
d. Integrated EtherCAT communication, with external expansion capabilities
e. PLC programming capability
f. Support for macro programs
g. Power-off recovery for carving tasks
h. MDI mode (Manual Data Input)
i. Support for probing operations.

4. Specs

Machinery

Packing Dimension	W770×D520×H850mm	**Packaging Weight**	125kg
Equipment Dimension	W700×D500×H650mm	**Equipment Weight**	115kg
Workbench Dimension	Φ100mm	**Workbench Max. Load**	5kg
XYZ Effective Travel	X160×Y200×Z130mm	**A&C Effective Travel**	A：-30-120°,C：360°
3-Axis Machining Range	X160×Y200×Z125mm	**3-Axis Machining Range**	Cylinder:Φ150×H105mm/Φ1000×H120m Cube: W125×D125×H110mm
5-Axis Machining Accuracy	Linear axis parallelism & perpendicularity 0.02mm	**5-Axis Machining Accuracy**	5-Axis spatial accuracy<0.05mm
Ball Screw	X&Z: PMI 1204 C6 Y: PMI 1604 C6	**A&C Axis**	1:80 20 Harmonic reducer,Return <1' 1N Servomotor Torque after reduction 50N
Linear Guideway	X&Z: Hiwin MGN12, Y: Hiwin MGN15	**Frame**	Forced Parts: 45 # Quenched &Tempered Steel Others：Al6061-T6 Aviation Aluminum
Machining Speed	4000mm / min Vary by material		
Principal Axis	800w Water-cooled Spindle	**Protect**	Accordion dustproof Oil seal waterproof & dustproof.
Tool Diameter & Length	ER11 0-8mm，≤75mm	**Part Fixtures**	Steel fixture with reserved hole position Can add er50 clip holder, 63,80 Chuck
Work Material	Metal: Aluminum alloy,Copper alloy, Gold alloy, Silver alloy, * Steel, * Titanium alloy		Non-metal: Plastic, Wood, Wax, Jade, Glass, etc

Electrical

Drive Motor	36V DC Servo,1500rpm/min	**Spindle Motor**	800W, 24,000 rpm,Can Upgrade 40000 rpm
Drive Power	220V Input,36V15A output	**Control System**	Windows
Home Switch	Photoelectric Sensor	**Tool Setter**	Contact force 1.5N Repeated tool setting accuracy 2um

Software

Control Software	e2 Studio	**Program Software**	PowerMill， Fusion360，NXUG，MasterCAM etc

* Linear axis parallelism: the parallelism between the slide datum when the full length of the linear slide block is running

* Verticality of linear axis: whether the Angle between the movements of two straight axes (two straight lines) meets the requirement of 90 degrees.

5. Standard & Optional

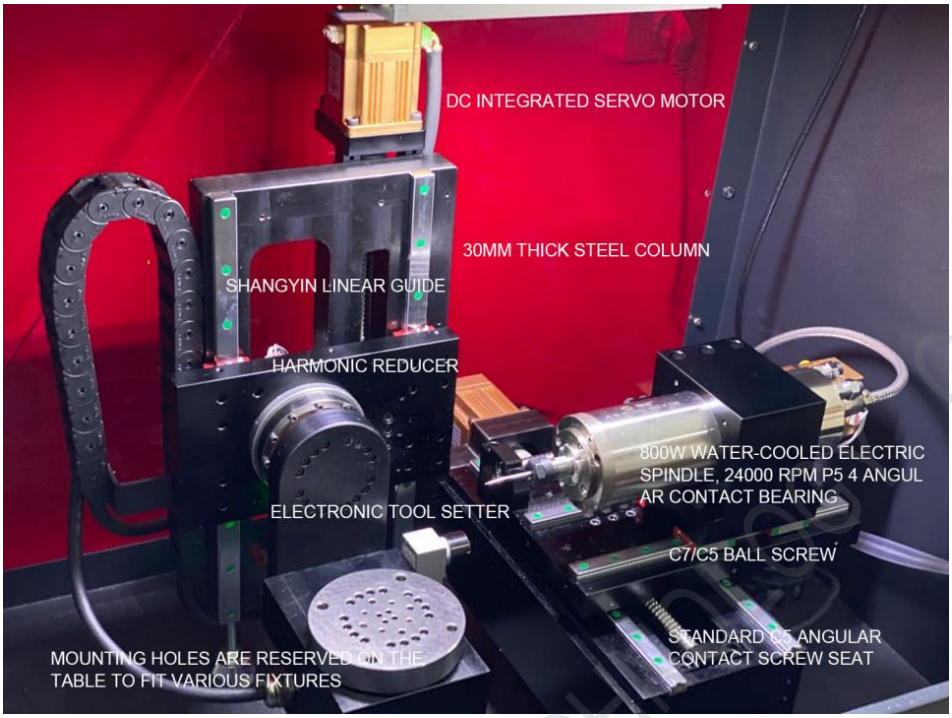
5.1. Standard List

No.	Type	Name	Description	PCS
1	Equipment	Host	Bare machine, excluding sheet metal	1
2	Material Fixture	A-Type Self-Centering Vise	Clamps for 8-55mm square materials	1
3	Tool Holder	ER11 Collet	ER11-4 & ER11-6	2
4	Tools	End Mills, Ball Mills	0.2mm End Mills (for engraving) × 10, 2, 4, 6mm End Mills × 2, R-Ball Mills × 2	18
5	Electrical	Power Box	Motor Control Inverter	1
6	Electrical	Power Cable	Equipment's total power supply	1
7	Electrical	USB Data Cable	Connects the computer to the host	1
8	Electrical	Electronic Handwheel	Axis movement control	1
9	Tools	Hex Key Set	1.5-10mm, 9PCS	1
10	Tools	Spindle Wrench Set	14 & 17mm open-end wrenches	2
11	Material	Substitute Wood Blocks	For practice	4

5.2. Optional and Upgrade

No.	Type	Name	Description	PCS	Price
1	ATC	Automatic tool changer	1500w 60000rpm water-cooled spindle,4 tool stations, with 50L air compressor.	1	$1099
1	Spindle	40000rpm	800W, 65mm Diameter	1	$150
2	Tool Holder	Main Spindle ER11 Collet	Complete set, 2~8mm	10	$25
3	Material Fixture	A-Type Self-Centering Vise	Clamping range 50-75mm	1	$30
4		B-Type Larger Self-Centering Vise	Clamping range 0-100mm	1	$140
5	Square Material Fixture	Hand-Tightening 80 Chuck (4-Jaw)	Height: 48mm stroke, can clamp bars and square materials	1	$60
6		Metalworking 80 Chuck (3-Jaw)	Height: 66mm stroke, better concentricity than four-jaw	1	$65
7		ER40 Chuck (ER50, ER40 optional)	High concentricity, used with ER40 collet (clamp Φ4~30mm)	1	$40
9	Rod Material Fixture	ER40 Collet Set	6.8.10.12.15.18.20.25.28.30mm Collets (for the same diameter bars)	10	$65
10		ER50 Chuck	Used with ER50 Collet (clamp Φ4-36mm)	1	$40
11		ER50 Collet, optional size	Self-selected size within 4~36mm	1	$12

6. Structure



7. Warranty

1.1 The warranty period is one year, and replacement parts are available at cost after the warranty expires.

1.2 If natural damage occurs during the warranty period, we will provide parts and remote guidance free of charge.

1.3 Warranty does not cover incorrect operation, unauthorized product disassembly, or deliberate human damage.

8. Show