



南京二机齿轮机床有限公司  
NANJING NO.2 MACHINE TOOL WORKS

## YW5120CNC 型 高速万能数控插齿机

CNC high speed omnipotent gear shaping machine model YW5120CNC

### 主要特点:

### Main features

该数控插齿机为八轴五联动: 径向进给运动X轴、刀具圆周运动C1轴、工件圆周运动C2轴、曲柄回转运动A轴、让刀凸轮运动B1轴、工作台摆动B2轴、刀架滑板垂直运动Z轴和冲程长度调整Y轴。

The CNC gear Shaping machine with 8 servo axes and 5 axes are gang controlled: radial feeding movement (X axis), cutter rotation motion C1 (axis), workpiece rotation movement (C2 axis), the crank shaft circular motion (A axis), the cutter relieving CAM motion (B1 axis), work table rotation (B2 axis), cutter sliding carriage vertical motion (Z axis) and stroke length adjustment (Y axis).

机床采用工作台固定, 立柱移动的布局。刀架采用静压轴和静压导轨, 让刀运动为双型面凸轮形式, 主传动采用曲柄滑块机构实现刀具上下运动。刀具圆周运动和工件圆周运动采用力矩电机直接驱动。

This machine adopts the layout of table fixed and column moving. The spindle adopt the static pressure against cutter movement, the cutter relieving are used double type surface CAM form, the spindle moving adopts slider-crank mechanism accomplish tool movement up and down. Cutter rotation motion and workpiece cutter relieving motion are droved torque motor directly.

整机运用结构动态优化技术, 具有优良的整体刚度, 机床具有2500次/分钟的冲程速度和宽范围的圆周进给量及径向进给量。

The machine use structural dynamic optimization technique, excellent overall rigidity, the machine has the 2,500 times/minutes of stroke speed and wide range of circular feeding and radial feeding.

机床采用了满足任意螺旋角插制的电子导轨技术, 可节约大量的更换螺旋导轨的费用和时间。

This machine adopts the electronic helix guide technology for any spiral Angle made, can save much time and expenses for change spiral guide.

机床工作台的分齿同步技术, 采用力矩电机驱动, 代替传统的挂轮分齿机构, 两者同步关系由数控系统来实现。

The work table used synchronous indexing technology and droved by torque motor, instead of traditional exchange gears, both controlled by synchronous relations CNC control system.

机床配备数控摆动工作台, 准确进行小锥度齿轮的角度调整。Machine equipped with CNC swinging table, it is for accurate small taper gear Angle adjustment.

机床采用高速非金属插齿机主运动万向球铰轴承, 用来联接刀具主轴和连杆, 球体材料主要为陶瓷, 通过高压润滑油带有高速运动产生的热量, 在国内属于首创。

This machine adopts high-speed nonmetal Universal ball hinge bearing for connecting the spindle and joining beam.

sports universal globe hinge used to interface tool bearing spindle and league rod, the main materials for ceramics, ball with high-speed motion with high pressure oil reduced in the heat, domestic belong to initiative.

刀具冲程长度可自动调整, 采用刀架滑板, 增大了加工范围, 使多联齿轮或深内齿等典型零件能够一次装夹加工。

Stroke length of cutter can be automatically adjusted, it increasing the cutting range of machine and realize that the split gear or deep inner teeth and other typical parts can be finished in one circle.

机床采用西门子840D数控系统, 具有电子螺旋导轨功能, 配置可数控调整角度的摆动工作台, 具有编程加工斜齿和小锥度齿的能力。

This machine adopts Siemens numerical control system model 840D. It had the electrical helix guide and equipment the tilt table (the angle adjusting is driven by the servo motor), the machine had the





function that cutting the smaller taper and helical gear by program. 机床实现参数化编程，易学易用的人机界面，操作调整极为方便。  
Parametric programming, easy to realize human-machine interface, easy operation adjustment is extremely convenient.  
机床安全可靠、传动链短、运转平稳、刚性好、生产率高、噪音低。

The machine is safe and reliable, short transmission chain, smooth operation, good rigidity, high productivity, low noise. 机床功能全、适应性广。采用圆盘插齿刀，通过连续分齿的方法插削直径在200mm以内的各种内、外圆柱直(斜)齿轮。  
The machine is full functions, wide adaptability. Adopt disk gear cutter for slotting the less than 200mm, internal and external, straight and helix cylindrical spur gear by generating method.

**机床主要参数: Main specification:**

序号	项 目 内 容	单 位	技术参数
1	最大工件直径 Max. Diameter	mm	200
	外 齿 轮 extend gears		
	内 齿 轮 Inner gears	mm	100+d刀
2	最大模数 Max. module	mm	6
3	最大行程长度 Max. stroke length	mm	70
4	最大加工齿宽 Max. width	mm	60
5	主轴冲程数(无级) Stroke speed (variable)	str/min	400-2500
6	主轴直径 Spindle Diameter	mm	95
7	刀具安装面至工作台面距离(未考虑行程长度) The Dist. From the face spindle to the face of the worktable	mm	185-365
8	刀具中心线至工作台中心线的距离 The center dist. From the cutter to the worktable	mm	-50-185
9	工作台面直径 Diameter of worktable	mm	200
10	工作台主轴孔径 Bore of worktable	mm	65
11	刀具主轴最高位置的径向让刀量 The Max. cutter relieving	mm	>0.5
12	立柱的径向进给量(无级调速) Radial feeding of column	mm/str	0.001
13	立柱径向快速 Rapid feeding of big column	mm/min	2000
14	工作台快速运转时的最高转速 Max. rotation speed of worktable	rpm	10.4
15	刀架滑板行程长度 Max. travel of cutter carriage	mm	200
16	主电机功率 Power of main motor	kW	11
17	工作台摆动角度 The angel of Tilt table	deg	± 10
18	最大切削速度 Max. cutting speed	m/min	80
19	刀架和工作台数控回转定位精度 Rotation accuracy of cutter carriage and worktable	"	6
20	回转重复定位精度 Repeat accuracy of rotation	"	3
21	插削任意斜齿螺旋角 Helix angle of shaping	deg	≤ ± 35
22	加工精度 Accuracy of machining		6级
23	机床总功率 Total power	kW	50
24	机床外形尺寸(长×宽×高) Size (LxWxH)	mm	3305×2680×2800
25	机床总重量 Total weight	kg	约10000

**选购配置**

**Optional attachaments**

主机 machine  
液压系统润滑系统 Hydraulic system & lubricating system  
西门子840D控制系统 Siemens CNC system model 840D  
恒温控制的电箱 electrical cabin with A/C  
冷却排屑系统 cooling system and chip conveyor  
全封闭防护罩 enclosed safety guard  
刀具芯轴(φ 31.743) arbor (φ 31.743)

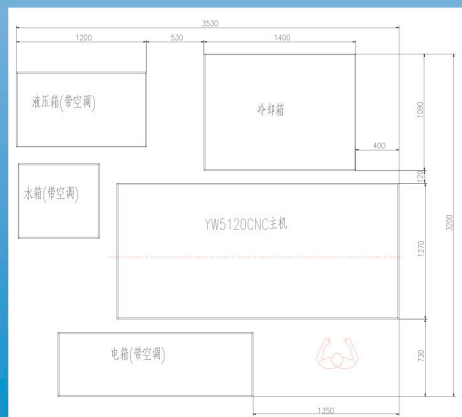
**标准配置**

**Standard collocation**

选购配置 Option  
工件夹具 Fixtures  
特殊刀具芯轴 Special arbor

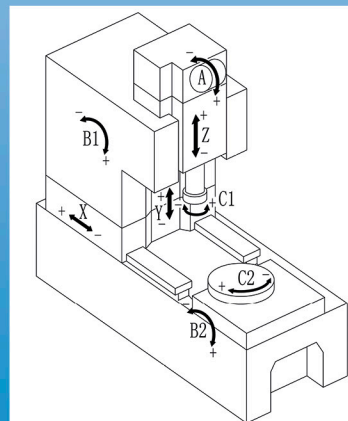
**机床平面布置图**

**Machine layout**



**机床坐标示意图**

**schematic diagram of Axes**



规格、参数若有改变，恕不另行通知，客户如有特殊要求，敬请垂询。

All the specifications are subject to revision without notice in advance .Please contact the manufacturer for special request on the machine.

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