

# YK2080G 数控弧齿锥齿轮磨齿机

## 一. 机床的用途及使用范围:

YK2080G 型数控弧齿锥齿轮磨齿机是采用数控技术, 用于加工模数 $\leq 15\text{mm}$ , 直径 $\leq 800\text{mm}$ 的高精度弧齿锥齿轮及准双曲面齿轮的精加工设备。

本机床的设计是万能性的, 适用于大量及小批量生产。

本机床的使用范围为生产机械制造工业中各种中等直径的高精度弧齿锥齿轮及准双曲面齿轮。

本机床采用德国西门子公司 (SIEMENS) 802D 数控系统, 数控分辨率 $0.001\text{mm}$ , 具有三个数控轴: 摇台 (X 轴)、工件 (Y 轴)、床鞍 (Z 轴), 可实现三轴联动。砂轮主轴 (S 轴) 采用交流变频调速, 使机床无任何挂轮, 运动可程序设定, 操作直观、方便、柔性强。该机床还可采用对话式编程, 使只具有机械铣齿机操作调整经验的人员能简单、直观地操作本机床, 用户也可以通过随机提供的软件, 将常用的 YKT2250 (或 Y225)、YKD2280 等机床调整卡有关参数转换为本机床相应参数使用。

## 二. 机床主要特点:

本机床采用交流变频电机作主驱动力源, 摇台、工件主轴由伺服电机带动精密蜗轮副驱动, 床鞍进给由伺服电机通过精密滚珠丝杠驱动, 简化了传统的机械传动, 无需更换挂轮, 缩短了机床调整时间, 简化了传动链, 进一步提高了加工精度, 而且使操作更准确、方便。

本机床配置独立密封的电气柜, 可选配空调。

本机床配置安全防护罩及独立的冷却箱。

## 三. 动力源参数: 380V 50Hz

## 四. 电气主要参数:

主驱动交流变频电机	4 kw	2890 rpm
摇台伺服电机	36 Nm	3000 rpm
工件及床鞍进给伺服电机	27 Nm	3000 rpm
机床电气总功率	38 kw	

## 1. Machine Usage and Its Application

Model YK2080G CNC Spiral Bevel Gear Grinder is designed as a CNC control high precision finishing equipment for grinding Spiral Bevel and Hypoid Gears with module up to  $15\text{mm}$  and diameter up to  $800\text{mm}$ .

This is an universal machine and it is most suitable for mass production as well as jobbing production of gears.

This machine is widely applied for finishing the high precision Spiral Bevel and Hypoid Gears in Machine Building Industry.

The machine is equipped with SIEMENS 802D CNC Control System (resolution ratio  $0.001\text{mm}$ ) and it is of a three-axes CNC machine, i.e. cradle (X axis), work spindle (Y axis) and sliding base (Z axis) being simultaneously controlled by CNC control system. The rotation of grinding wheel spindle (Saxis) is controlled by a frequency variable motor for the advantages of stepless control, no change gears, programmable order, direct operation, convenience and flexibility. Also, dialogue programme can be

# YK2080G CNC SPIRAL BEVEL GEAR GRINDER

available on the machine. In this case, the operator with mechanical operating experience can easily and observably control the machine. In addition, the relative calculated settings of Machine Summary used for Model YKT2250 (Y225) and YKD2280 Machines can be converted into the machine settings by using the provided soft documents attached with machine.

## 2. Machine Main Features

A.C. frequency variable motor is adopted as the main driving motor of grinding wheel spindle. The cradle and work spindle are driven by servo motors through precision worm gear sets while the sliding base is driven by servo motor via precision ball screw. So, the conventional mechanical driving system has been simplified for the purpose of no change gears, minimizing the setting time of machine, shorting the transmission chain and increasing the machine accuracy as well as making the machine operation correctness and convenience. The machine is adopted with an independent sealed electrical cabinet, which may be equipped with an air conditioner.

Safety guards and independent cooling tank are provided with the machine.

3. Power Source: 380V, 50 HZ

## 4. Main Electrical Parameters

Main driving A.C. frequency variable motor	4 KW	2890 rpm
Cradle servo motor	36 NM	3000 rpm
Servo motors for workhead and sliding base	27 NM	3000 rpm
Total power of electrical equipment	38 KW	

## 机床规格参数 Specifications of Machine

被加工工件的尺寸 Dimensions of work to be cut					
最大加工模数 Max. module			15	mm	
最大节锥母线长 Max. pitch cone distance	螺旋角 Spiral angle		0°	285 mm	
			15°	350 mm	
			30°	350 mm	
工件的节锥角 Pitch angle of workpiece	最大 Max.		90°		
	最小 Min.		5°		
被磨齿轮副轴间角为90°的最大传动比 Max. gear ratio (shaft angle 90°)			10: 1		
被加工齿轮的 最大节圆直径 Max. pitch diameter of workpiece	被加工齿轮副 传动比 Gear ratio	10: 1	螺旋角 Spiral angle	0°	575 mm
				15°	700 mm
				30°	800 mm
	2: 1	1: 1	0°	520 mm	
			15°	635 mm	
			30°	750 mm	
			0°	395 mm	
			15°	500 mm	
			30°	600 mm	
最大齿宽 Max. face width			100	mm	
螺旋角 Spiral angle			0° ~ 60°		

## 机床规格参数 Specifications of Machine

压力角	Pressure angle	20°	
最大齿高	Max. tooth depth	33	mm
齿数	Number of teeth	4~100	
砂轮直径	Diameter of grinding wheel	6" 9" 12" 18"	
<b>工 件 箱 Workhead</b>			
从主轴端面至机床中心的距离		最大 Max.	600 mm
Distance from face of spindle to machine center		最小 Min.	125 mm
表示主轴端面至机床中心距离游标尺每一格的读数		直尺 Scale	1 mm
Reading of each graduation for vernier & scale showing the distance		游标 Vernier	0.02 mm
主轴从中心位置的 向下垂直移动	当主轴端面至机床中心调整位置为右列各值时 When the distance from face of spindle to machine center being at	125~270	25 mm
		270~330	70 mm
		330~540	90 mm
主轴从中心位置的向上垂直移动		Upward from center position	90 mm
主轴垂直移动游标尺每格读数		直尺 Scale	1 mm
		游标 Vernier	0.02 mm
主轴锥孔尺寸		大端直径 At large end	153 mm
		锥度 Taper	1: 20
		锥长 Length of taper	180 mm
Taper hole of spindle			
主轴通孔直径		Diameter of through hole	125 mm
主轴发蓝直径		Coloured diameter of spindle	235 mm
<b>摇 台 Cradle</b>			
摇台安装角		最大 Max.	360°
		最小 Min.	0°
摇台安装角每一刻线值		圆周上 Scale	30'
		游标上 Vernier	1'
摇台偏心调整角		最大 Max.	180°
		最小 Min.	0°
砂轮主轴的相应径向位移		最大 Max.	340 mm
		最小 Min.	0 mm
偏心量调整角每一刻线位		圆周上 Scale	20'
		游标上 Vernier	1'
摇台最大摆角		Max. cradle roll	60°
<b>床 鞍 Sliding Base</b>			
由中心位置移动最大距离		向前 Forward	25 mm
		向后 Backward	150 mm
<b>其 它 Miscellaneous</b>			
机床外形尺寸 (长×宽×高)		Overall dimensions of machine(L × W × H)	2900 × 2750 × 2200 mm
机床净重		Net weight of machine	13 t

注：随着产品不断更新，技术数据将有所变更，届时请联系我们。

Note: The specifications are reference for you only, because of the continuous development of our product.

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CNC SPIRAL BEVEL GEAR GRINDER

中国天津第一机床总厂

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