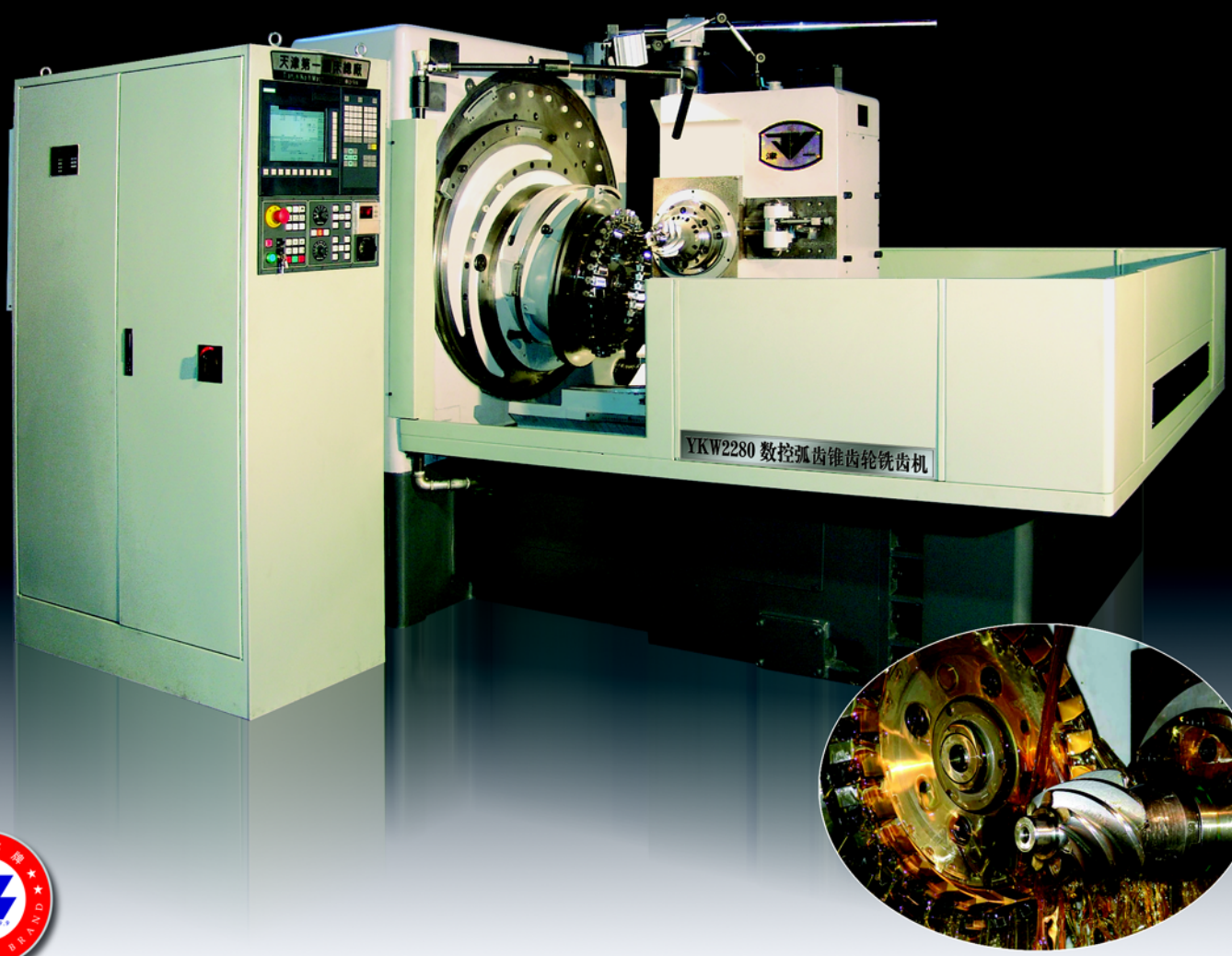
YKW2280

数控弧齿锥齿轮铣齿机

CNC SPIRAL BEVEL GEAR GENERATOR

中国天津第一机床总厂

TIANJIN NO.1 MACHINE TOOL WORKS ,CHINA



YKW2280 数控弧齿锥齿轮铣齿机

Ⅰ．机床的主要用途和特点：

本机床是能够使用多种加工方法，加工最大直径800mm，最大模数15mm的弧齿锥齿轮、零度齿锥齿轮及准双曲面齿轮的数控弧齿锥齿轮铣齿机，滚切法加工精度可达到6级，拉削法加工精度可达到7级以上。特别适于成批或大量生产，用滚切法可粗、精加工中、重型卡车、矿山机械、工程机械等主、被动齿轮，用切入法和拉削法粗、精加工被动齿轮，亦适用于新产品的试制与研发，满足用户的广泛应用。

Ⅱ．机床主要性能和结构特点：

1．本机床系三轴数控弧齿锥齿轮铣齿机，即摇台运动（X轴）、工件主轴运动（Y轴）和床鞍进给运动（Z轴）。三轴均可实现数控轴控制和联动，刀盘的旋转（S轴）速度由变频电机控制，实现无级调速。

2．本机床摇台和工件箱部件均采用高精度蜗轮副传动，并采取了多项增强结构刚性和传动刚性的措施，保证本机床加工精度，并提高机床生产率和使用寿命。

3．本机床装有最大刀倾角为30°的刀具主轴倾斜机构。

4．本机床调整无需更换挂轮，减少机床调整时间。

5．横梁夹紧装置用以固定摇台与工件箱之间的位置，当用拉削法加工时，横梁即由液压夹紧，在整个切削过程中始终处于夹紧状态，组成高刚性的框形结构。

6．本机床采用数控设定的进给运动，简化了用户操作并有利于提高切齿效率。

7．机床的数控系统、主要电气、液压元件、轴承和密封件均采用国内外名牌配套件，保证机床的可靠性。

8．本机床配置独立密封的电气控制柜，可选配空调或热交换器。

9．本机床可配置安全防护罩和自动排屑器。

Ⅲ．动力电源参数：380V　50HZ

Ⅳ．电气主要参数：

主驱动交流变频电机：	7.5KW	1440rpm
摇台伺服电机：	50NM	2000rpm
工件箱伺服电机：	27NM	2000rpm
进给运动伺服电机：	27NM	2000rpm
机床电气总容量：	35KVA	

Ⅰ.Machine Applications

This machine is a CNC spiral bevel gear generator designed to cut the spiral bevel gears, zero bevel gears and hypoid gears with the maximum work diameter of 800mm and maximum module of 15mm using several cutting methods. The machining accuracy on this machine with the generating method can reach Grade 6. Grade 7 and higher accuracy may be obtained when Formate method is adopted. This machine is especially suitable for the batch production or mass production. It can rough and finish the pinions and gears used in the medium-sized and heavy-duty trucks, the mining machinery, the construction machinery, etc. with the generating method, and the gears with the infeed method and the Formate method. In order to meet the needs of wide applications of the

customers, the machine is also suitable for the trial production and research & development of the new products.

II. Performances and Structural Characteristics of Machine

1. This is a CNC spiral bevel gear generator with three NC axes, or the cradle roll (X-axis), the work spindle rotation (Y-axis) and the sliding base movement (Z- axis), which can be controlled and moved simultaneously. The rotation of cutter spindle (S-axis) is controlled by a frequency variable motor for its stepless speed control.
2. High-precision worm and worm wheel pairs are adopted for the cradle and the workhead, and several measures have been taken to enhance both the structural rigidity and the transmission rigidity so as to guarantee the machining accuracy, increase the productivity and prolong the service life of the machine.
3. A cutter spindle tilt mechanism with the maximum cutter tilt angle of 30° is equipped on the machine.
4. To minimize the setting-up time, no replacement of the change gears will be needed for the machine adjustments.
5. A tie bar is used to fix the position between the cradle and the workhead. When cutting with the Formate method, the tie bar is chucked hydraulically and in the clamped condition during the whole cutting operation to form a high-rigidity frame structure.
6. Feed movement set by the CNC control system is adopted on the machine. This simplifies the machine operation and facilitates the efficiency of the gear production.
7. In order to ensure the reliability of the machine, all the CNC system, the major electrical and hydraulic components, bearings and sealing parts are the famous brands at home and abroad.
8. An independent and sealed electrical cabinet is equipped for the machine, for which an air conditioner or a heat exchanger may be available.
9. A safety enclosure and an automatic chip conveyor may be equipped on the machine.

III. Power Supply : 380V 50HZ

IV. Electrical Specifications:

Main drive AC frequency-variable motor:	7.5KW 1440rpm
Servo motor for the craedle:	50NM 2000rpm
Servo motor for the work head:	27NM 2000rpm
Servo motor for the feed movement:	27NM 2000rpm
Total capacity of the machine:	35KVA

Ⅴ．机床主要技术规格 Technical Specifications

1、被加工工件尺寸 Workpiece Dimensions		
最大加工模数 Maximum module	mm	15
加工齿数 Teeth number		5–100
最大传动比 Extreme ratio		10：1
最大切齿深度 Maximum cutting depth	mm	30
最大齿圈宽度 Maximum face width	mm	100
最大节圆直径 Maximum pitch diameter	mm	800
根锥角： Root angle：		最大 Max.90° 最小 Min. −8°
2、工件主轴 Work Spindle		
主轴锥孔大端直径 Diameter of taper hole at large end	mm	203.2
锥　度 Taper	mm	1：20
主轴通孔直径 Diameter of through hole	mm	180
主轴端面直径 Diameter of spindle end	mm	280
3、刀盘直径 Cutter Diameter		6″、$7^{1}/_{2}$″、9″、12″、18″
4、工件箱调整量 Workhead Setup		
主轴最大垂直位移 Maximum offset of work spindle	mm	± 110
主轴端面至机床中心距离 Machine center to spindle nose	mm	125～600
5、刀盘调整量 Cutter Setup		
刀盘转速（无级）Cutter speed (stepless)	rpm/min	8～104
进给速度 Feedrate	s/tooth	7～140
最大刀倾角 Maximum tilt angle		30°
6、床位 Position of Sliding Base		
自中心最大位移 Maximum displacement from center	mm	向前 Forward 30 向后 Backward 170
7、机床净重 Net Weight	t	15
8、外形尺寸（长×宽×高） Overall Dimensions (L × W × H)	mm	2940 × 2350 × 2200

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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