

YS3140CNC型 数控滚齿机



主要特点:

本机床为六轴数控滚齿机, 数控轴分别为: 径向进给轴(X轴); 切向进给轴(Y轴); 轴向进给轴(Z轴); 刀架转角回转轴(A轴); 滚刀主轴回转轴(B轴); 工作台回转轴(C轴)。

标准配置采用SIEMENS-828D数控系统, 配有常用通讯接口。

1、主运动由安装在刀架上的交流主轴电机经过三对高精度圆柱齿轮传至滚刀主轴, 主轴电机功率为17.5kw, 刀具主轴末端齿轮副采用一齿差消除机构, 可使用多头滚刀进行大进给量滚齿。

2、工作台采用大直径、高精度圆柱斜齿轮传动加滚动轴承支承形式, 显著提高了机床加工精度和效率。

3、主要导轨副均采用了矩形大平面注塑与镶钢淬硬导轨工艺, 传动刚性好, 支承能力大, 抗振性好, 导轨磨擦系数小, 运动直线度高。特别是X轴采用三条导轨结构形式布局, 中间导轨作导向、两边导轨作承载, 刚性增强的同时导向精度和热稳定性等性能也大大提高。

4、床身等基础构件均采用双层壁结构, 筋板布局经过优化设计, 增加主梁壁的厚度, 确保了机床基础构件具有足够的结构刚性。先进的设计使整机具有充裕的刚性及稳定性。

Main features:

This machine is a six-axis CNC gear hobbing machine, of which the CNC shafts are radial feeding shaft (X-axis), tangential feeding shaft (Y-axis), axial feeding shaft (Z-axis), toolpost angle rotating shaft (A-axis), hobbing cutter spindle rotating shaft (B-axis) and worktable rotating shaft (C-axis).

This machine is installed with SIEMENS 828D CNC system and with common communication interface.

1. The main motion is transmitted from the AC spindle motor on the toolpost to the hobbing cutter spindle by three pairs of high-precision cylindrical gears, with the spindle motor power at 17.5kw. A tooth difference anti-backlash mechanism is installed on the end gear pair of cutter spindle and the multi-head hobbing cutter can be used for high feeding rate hobbing.

2. The large-diameter high-precision cylindrical helical gear drive and the rolling bearing support are applied for the worktable to remarkably improve the machining accuracy and efficiency of the machine.

3. The main slideway pairs are applied with rectangular large-plane injection molded and steel-embedded hardened slideway process to realize excellent drive stiffness, high support capacity, good vibration resistance, low friction coefficient, and high motion linearity. Especially, the three-slideway structure is arranged for the X-axis slideways, of which the middle slideway is functioned for guiding and the two side slideways are functioned for carrying, to enhance the stiffness and remarkably improve the guide accuracy and thermal stability.

4. The fundamental components, including bed, adopt the double-wall structure and the arrangement of the ribbed plates are optimized to increase the thickness of main beam wall and guarantee the sufficient structural stiffness for the fundamental components of the machine. The advanced design guarantees abundant stiffness and stability for the machine.

主要技术规格参数： Main technical specification parameters

主要规格	Main specification	YS3140CNC	单位Unit
最大工件直径	Maximum workpiece diameter	φ400	mm
最大模数	Maximum modulus	12	mm
加工斜齿轮螺旋角	Helical angle of machined helical gear	±45	°
可安装滚刀最大直径	Maximum diameter of installed hobbing cutter	170	mm
可安装滚刀最大长度	Maximum length of installed hobbing cutter	220	mm
滚刀最大轴向移动量	Maximum axial movement of hobbing cutter	180	mm
滚刀可换芯轴直径	Replaceable mandrel diameter of hobbing cutter	27、32、40、50	mm
滚刀主轴锥孔锥度	Conicity of hobbing cutter spindle taper bore	SK50	mm
滚刀中心到工作台中心水平距离	Horizontal distance from center of hobbing cutter to center of worktable	60~310	mm
滚刀中心到工作台台面垂直距离	Vertical distance from center of hobbing cutter to surface of worktable	180~580	mm
后立柱顶尖到工作台台面距离	Distance from rear column center to worktable surface	280~780	mm
工作台台面直径	Diameter of worktable surface	400	mm
工作台台面至床身底面距离	Distance from worktable surface to bed bottom	1210	mm
滚刀主轴最高转速	Maximum speed of hobbing cutter spindle	700	rpm
轴向进给速度范围(Z轴)	Axial feeding speed range (Z-axis)	1~1000	mm/min
轴向快速移动速度范围(Z轴)	Axial quick movement speed range (Z-axis)	1000~3000	mm/min
径向进给速度范围(X轴)	Radial feeding speed range (X-axis)	1~1000	mm/min
径向快速移动速度范围(X轴)	Radial quick movement speed range (X-axis)	1000~3000	mm/min
切向运动最大速度(Y轴)	Maximum tangential motion speed (Y-axis)	2000	mm/min
工作台最大转速范围	Maximum speed range of worktable	100	rpm
刀架回转速度	Rotating speed of toolpost	3	°/s
机床体积(长×宽×高)	Machine volume (Length × Width × Height)	333×325×323	cm
机床净重	Net weight of machine	15000	Kg