

YX3150CNC型 数控滚齿机



主要特点:

YX3150CNC为六轴数控高效滚齿机, 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)。本机床除可加工圆柱直齿轮、斜齿轮、短花键轴、链轮、蜗轮等外, 还可以加工多种小锥度齿、鼓形齿等特殊齿向修形的齿轮。

标准配置采用FANUC-0iF数控系统, 配有常用通讯接口。

- 1、本机床刀架主轴电机安装在刀架上, 经过三对高精度齿轮副传至滚刀主轴, 末级齿轮副采用一齿差消除机构, 大大降低了传动误差, 提高了传动精度和平稳性, 并增强了相关的传动特性和传动刚性。主轴电机功率达15kw, 可使用多头滚刀进行大进给量滚齿。
- 2、工作台采用高精度双导程蜗轮蜗杆传动, 并设计有阻尼机构, 工作台下方还设有主轴卸荷油缸, 以降低C轴电机的负荷和延长工作台圆导轨的寿命。
- 3、主要导轨副采用了矩形大平面导轨且移动面注塑的工艺方法, 滚珠丝杆传动, 传动刚性好, 支承能力大, 运动直线度高。
- 4、Z轴运动采用立柱上的平衡油缸与链条连接的新结构, 降低了机床的整体高度, 使得刀架滑板上下运动时能够更好地平衡。
- 5、机床可根据用户要求配置盘类及轴类零件的辅助上下料装置。

Main features:

This YX3150CNC machine is a six-axis CNC high-efficiency 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 can be used for machining of various gears with special axial modifications, including small taper gears and drum gears, besides the cylindrical spur gears, spiral gears, short spline shafts, sprockets, and worm gears.

The standard model is installed with FANUC-0iF CNC system and is provided with common communication interfaces.

1. The motion of the toolpost spindle motor installed on the toolpost is transmitted to the hobbing cutter spindle by three high-precision gear pairs and a tooth difference anti-backlash mechanism is installed on the end gear pair to remarkably reduce the drive error, improve the drive accuracy and stability, and enhance the related drive characteristics and drive stiffness. The multi-head hobbing cutter can be used for high feed hobbing, with the spindle motor power at 15kw.
2. The worktable is applied with high-precision double-lead worm gear drive and is designed with damping mechanism. The spindle unloading cylinder is installed beneath the worktable to reduce the load of C-axis motor and prolong the life of worktable circular slideways.
3. The main guiderail pairs adopt rectangular large-plane guiderails with injection molded movement faces and the ball screw drive is applied to ensure good drive stiffness, high support capacity, and high motion linearity.
4. The new connection structure between balance cylinder on the column and the chain is applied for Z-axis motion to reduce the overall height of machine and better balance the vertical motion of toolpost slide.
5. This machine can be installed with auxiliary loading/unloading device for disc and shaft parts, depending on the user's needs.

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

主要规格	Main specification		单位Unit
加工范围	Machining scope		
最大工件直径	Maximum workpiece diameter	φ500	mm
最大模数	Maximum modulus	12	mm
加工斜齿轮螺旋角	Helical angle of machined helical gear	±45	°
尺寸规格	Dimensions		
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	
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	70~400	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	145~745	mm
后立柱顶尖到工作台台面距离	Distance from rear column center to worktable surface	420~880	mm
工作台台面直径	Diameter of worktable surface	500	mm
工作台台面至床身底面距离	Distance from worktable surface to bed bottom	1165	mm
运动参数	Motion parameters		
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)	2880	mm/min
径向进给速度范围 (X轴)	Radial feeding speed range (X-axis)	2~1000	mm/min
径向快速移动速度范围 (X轴)	Radial quick movement speed range (X-axis)	4000	mm/min
切向运动最大速度 (Y轴)	Maximum tangential motion speed (Y-axis)	960	mm/min
工作台最大转速范围	Maximum speed range of worktable	30	rpm
刀架回转速度	Rotating speed of toolpost	2.6	°/s
机床体积 (长×宽×高)	Machine volume (Length × Width × Height)	330×220×300	cm
机床净重	Net weight of machine	15000	Kg