

6 数控齿条加工机床

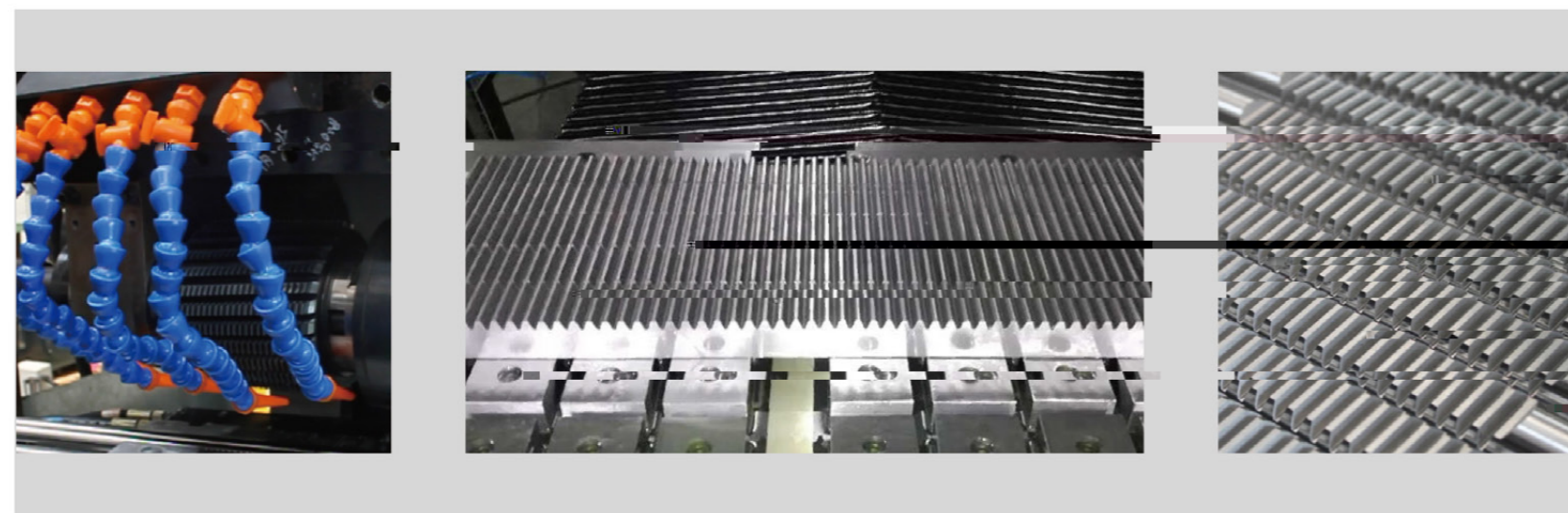
CNC RACK GEAR MACHINE SERIES

精密齿条制齿的全工艺制造机床 为客户提供全套解决方案

针对于汽车行业、电梯、工程机械、机床等行业的精密磨削加工，是单件的制造，还是高效率的批量生产，亦或是大批量成型精密加工，我们都能全面为客户提供解决方案。

The whole process manufacturing machine for precision rack teeth provides customers with complete sets of solutions.

For precision rack processing in the automotive industry, elevators, construction machinery, machine tools and other industries; whether it is single-piece processing, or efficient small-batch production, or high-volume precision processing, we can provide customers with a full set of solutions.



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数控齿条插齿机

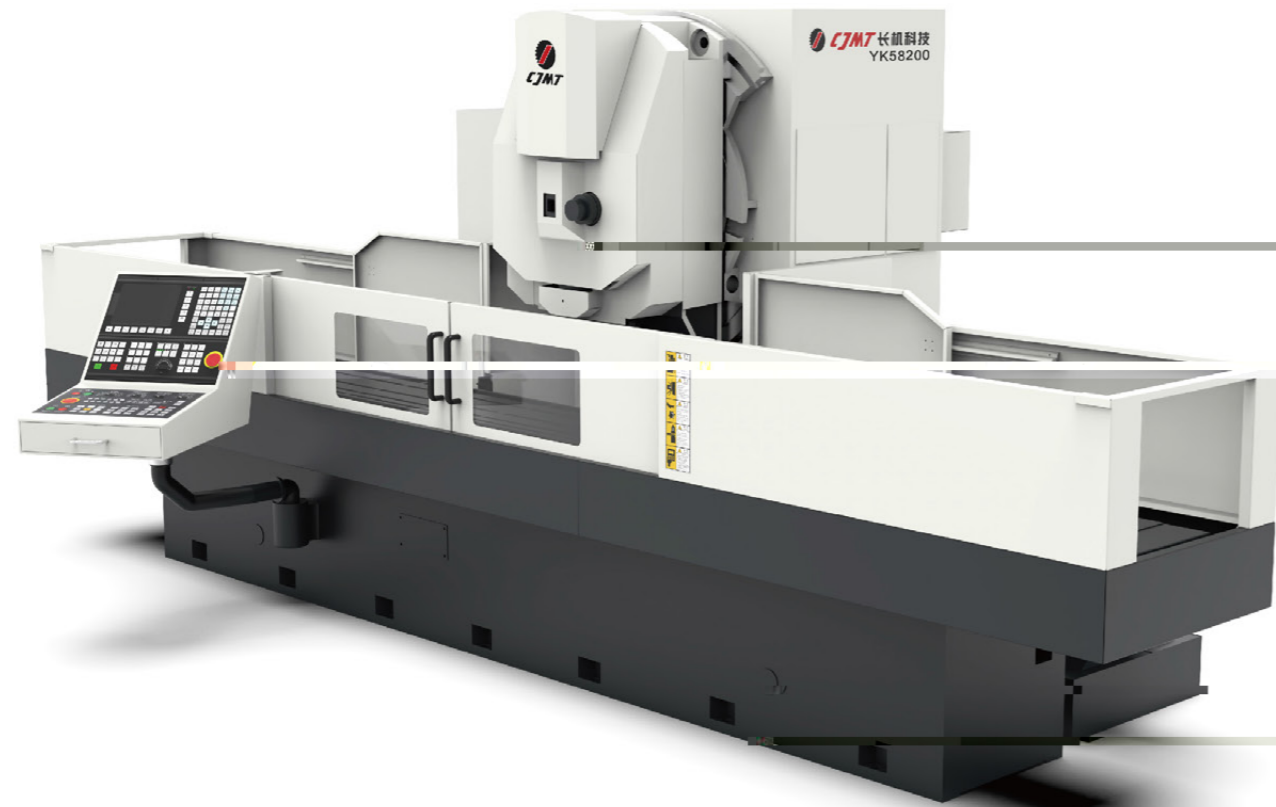
CNC RACK GEAR SHAPING MACHINE

机床特点

1. 机床刚性高: 机床铸件采用优质铸铁, 接合面高精度刮研连接; 导轨采用TF软带减摩滑轨, 抗振性好; 大直径刀轴和短的主轴传动链, 圆周吃刀深度大;
2. 机床精度高: 刀架旋转调整螺旋角, 直齿刀具加工斜齿, 结构紧凑, 更高速高精度刀架传动链, 刚性好, 使用寿命长; 高精度蜗轮蜗杆副, 传动精度高; 高精度蜗轮蜗杆副, 传动精度高; 高精度蜗轮蜗杆副, 传动精度高;
3. 机床切削效率高: 机床主轴电机11KW, 主轴冲程线速度30m/min. 圆周吃刀量大: YKR5832机床配静压刀架体, 主轴冲程线速度可达40 m/min; 设有安全保护装置, 确保加工安全;
4. 机床适配性: 机床数控系统采用SIEMENS 828D; 大流量冷却, 确保冷却充分; 可选配夹具、单机自动上下料等。

MACHINE TOOL FEATURES

1. The machine rigidity is good: the machine casting is made of high quality cast iron, high precision scraping joint connection; the guide rail uses TF soft belt frictionless guide rail, which has good vibration resistance; Large diameter tool shaft and short spindle driving chain, large circumference cutting depth.
2. High precision of machine tool: the tool holder rotates to adjust the spiral angle, the straight tooth tool processes the helical tooth, and the structure is simple; variable lead high-precision turret worm gear pair and servo motor coaxially driven high-precision ball screw lead screw, with high generation accuracy, high precision screw lead screw, high precision worm gear pair, high precision worm gear pair, high precision worm gear pair.
3. The cutting efficiency of the machine is high: the machine spindle motor is 11KW, the main shaft stroke speed is 30m/min. The circumferential cutting amount is large; YKR5832 machine tool is equipped with static pressure tool holder, and the linear speed of the main shaft stroke can reach 40m/min with the safety protection device to ensure processing safety;
4. Machine tool adaptability, The CNC system of machine tool adopts SIEMENS 828D, large flow cooling to ensure adequate cooling; Optional fixture, single machine automatic loading and unloading, etc.

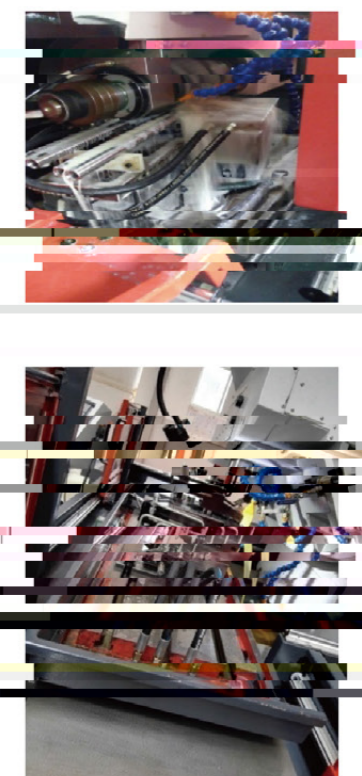


技术参数 THE MAIN PARAMETERS

名称 Description	型号 Type				
	YKR5832	YK58125	YK58200	YK58300	
最大加工工件直径 Max. machining diameter (straight tooth)	mm	200	125	200	200
最大模数 Max. module	mm	4	12	12	12
最大加工工件倾斜角 Max. angle of tilt	°	±20	±30	±30	±30
插齿刀最大冲程长度 Max. cutter stroke length	mm	100	160	160	160
插齿刀主轴冲程数 Cutter stroke speed		100-150	20-300	20-300	20-300
插齿刀行程位置调整量 Adjusting amount of cutter travel	mm	±5	±5	±5	±5
工作台切向进给速度 Tangent feed speed of worktable	mm/min	0~3000	0~1000	0~1000	0~1000
插齿刀让刀量 Cutter relieving	mm	0.3	≥0.5	≥0.5	≥0.5
插齿刀安装轴径直径 Cutter arbor diameter	mm	31.743	31.743	31.743	31.743
工作台面尺寸 Worktable size	mm	740x400	1350x490	2150x490	3150x490
插齿刀轴线至工作台中心平面距离 Center distance cutter/worktable	mm	-	-110-270	-110-270	-110-270
插齿刀安装端面至工作台面距离 Distance cutter mounting surface/worktable surface	mm	110-300	160-370	160-370	160-370
机床总功率 Total power	kW	约8.5	约30	约30	约30
机床重量 Total weight	t	约6	约11	约13	约15
主机外形尺寸(长×宽×高) Main Machine Dimension	m	2.73x1.9x2.3	2.4x4x3	2.4x6x3	2.4x9x3

注:
1. 重量仅供参考, 实际产品以实物为准;
2. 外观防护分为半防护、全防护, 可根据实际需要选择;
3. 公司持续创新研发设计, 本手册中各系列产品参数将持续优化。

Note:
1. The weight is for reference only, and the actual product shall prevail;
2. The appearance protection of this machine tool has two options: semi-protection and full protection, which can be selected according to actual needs;
3. We continue to innovate machine tool design. The parameters of each series of products in this manual are for reference only. If you have any inquiry, please contact us for update.



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数控齿条铣齿机

CNC RACK GEAR MILLING MACHINE

机床特点

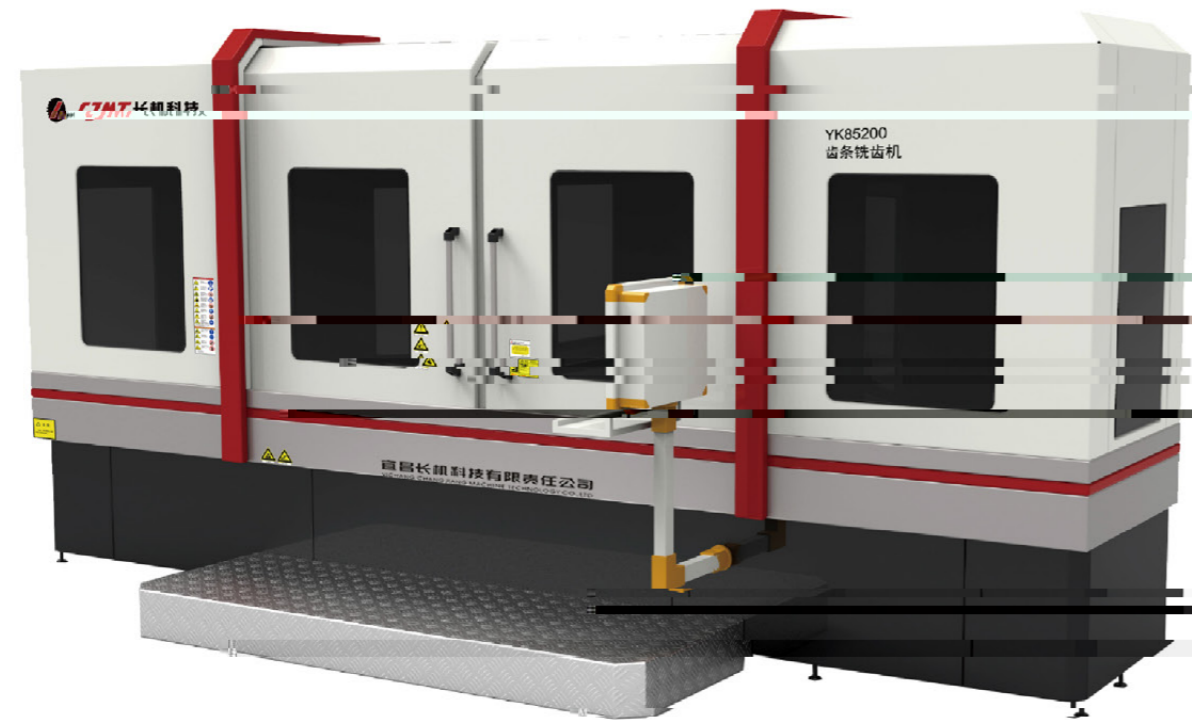
YK85125A和YK85200A是大改进机型，精度更稳定和效率提高50%；

1. 机床刚性高：机床铸件采用高强度铸件+拓扑优化设计；钢制导轨+浮动支撑+重载导轨+静压导轨，确保机床刚性；
2. 机床精度高：工作台全闭环，静压导轨，确保分度高精度；主轴驱动轮独立支撑，HSK刀柄定位，回转精度高；双AA级齿条铣刀，切削精度达到国际先进水平；
3. 机床切削效率高：机床主轴电机45KW(S3)，利用率可达85%；设计刀具保护和全保护装置，确保高速加工安全；
4. 机床适配性：机床数控系统采用SIEMENS 828D；排屑系统配三级过滤净化、大流量冷却、冲屑；导轨防护大升级，确保大流量冲屑安全；全防护或半防护，确保机床冲洗、冷却充分；可选配夹具、单机自动上下料等。

MACHINE TOOL FEATURES

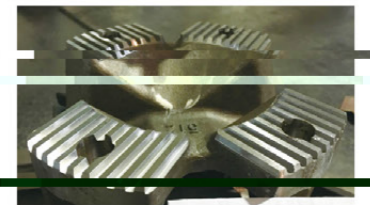
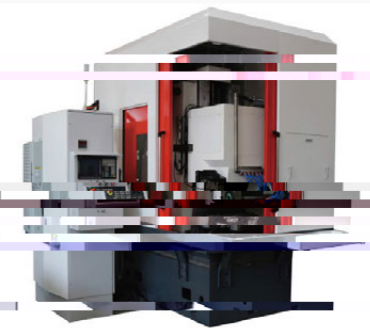
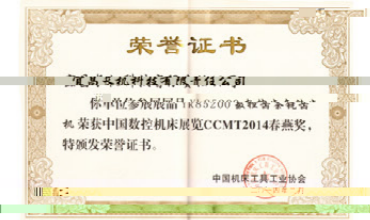
YK85125A and YK85200A are greatly improved models with more stable accuracy and 50 % higher efficiency.

1. Good rigidity of machine tool: machine tool castings adopt high strength castings and Topology optimization design; inlaid steel guide rail, follow-up locking; tool spindle drive chain full clearance, bearing static pressure double support, SIEMENS servo spindle motor drive, good torque characteristics.
2. High accuracy of the machine tool: full closed-loop workbench, static guide to ensure high precision indexing; Spindle drive wheel independent support, HSK shank positioning, high rotation accuracy; Double AA grade rack milling tool, cutting accuracy reaches national standard 7;
3. The cutting efficiency of the machine tool is high: the spindle motor of the machine tool is 45KW (S3), and the utilization rate can reach 85%; design tool protection and safety protection devices to ensure the safety of high-speed machining;
4. Machine tool adaptability: the CNC system of machine tool adopts Siemens 828D, and the chip removal system is equipped with three-stage filtration, large flow cooling and chip punching. The guide rail protection is greatly upgraded to ensure the safety of large flow chip punching; fully-guarded or semi-guarded to ensure accurate flushing and cooling of the machine; optional fixture, single machine automatic loading and unloading, etc.



技术参数 THE MAIN PARAMETERS

名称 Description	型号 Type	YK85125A		YK85200A	
最大加工工件长度(直齿) Max. workpiece length (straight teeth)	mm	1250		2000	
最大加工模数 Max. module	mm	30		30	
加工斜齿条角度范围 Max. helix angle	°	±25		±25	
最大加工宽度 Max. workpiece width	mm	400		400	
工作台最大承重 Max. load on worktable	kg	3000		5000	
工作台尺寸 Worktable diameter	mm	600 x 1250		805 x 2900	
最大装刀宽度 Max. width of cutter holder	mm	300		300	
主轴电机功率 Main spindle motor power	kW	37 (S1)		37 (S1)	
主轴转速 Main spindle speed	r/min	40~350		40~350	
主轴装刀直径 Max. diameter of spindle cutter holder	mm	Φ60		Φ60	
刀具纵向进给速度 Speed of cutter longitudinal feed	mm/min	3000		3000	
刀具垂直进给速度 Speed of cutter vertical feed	mm/min	2000		2000	
工作台横向进给速度 Speed of worktable transverse feed	mm/min	10000		10000	
机床重量 Total weight	t	约17		约21	
机床外形尺寸(长x宽x高) Main Machine Dimension	m	3.56x4.7x3.1		3.72x7.35x3.1	



- 注:
1. 外观防护分半防护、全防护，用户可根据实际需求进行选择。
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 3. 公司持续创新机床设计，本手册中各系列产品参数将持续优化。

Note:

1. The weight of the actual product shall prevail.
2. The appearance protection of the machine tool has two options: semi-protection and full protection, which can be selected according to actual needs.
3. We continue to innovate machine tool design, the parameters of each series of products in the manual will be continuously updated. If you have any inquiry, please contact us for the update.

数控齿条磨齿机

CNC RACK GEAR GRINDING MACHINE

机床特点

适用于各类直、斜齿条齿面的磨削加工，特别适合于各种精密齿条硬齿面的磨削。机床主要技术特点：

- 1、机床砂轮机械主轴由西门子主轴伺服电机驱动，内置动平衡仪，自动监测并实现砂轮的自动平衡，砂轮恒线速度磨削；
- 2、机床配AE自动对刀系统；
- 3、砂轮修整金刚滚轮采用电主轴直驱，运转精度高，使用寿命长；
- 4、配备了高灵敏性高精度的在位检测系统；
- 5、机床排屑系统实现了磨削油温度的恒温控制；
- 6、机床具有断电自动回退功能，确保机床运行的安全。

MACHINE TOOL FEATURES

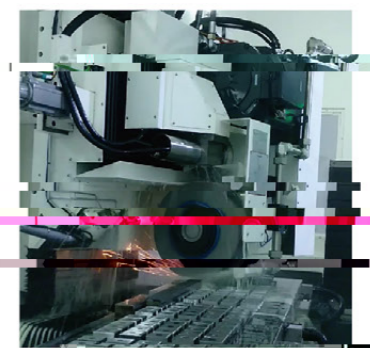
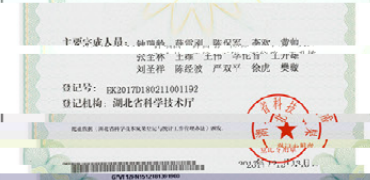
CNC rack gear grinding machine is suitable for grinding various types of rack gears. Machine tool main technical Feature:

- 1.The Spindle is driven by Siemens servo motor, built-in dynamic balancing instrument to automatically monitor and realize the automatic balance of grinding wheel.And keep Constant linear grinding speed.
- 2.Machine with AE automatic cutter match system.
- 3.Grinding wheel dressing diamond roller adopts direct drive by motorized spindle with high rotation accuracy and reliability.
- 4.Equipped with high sensitivity and high precision in-position detection system.
- 5.The chip removal system realizes the constant temperature control of grinding oil.
- 6.Automatically retract function when power off to ensure the machine safety.



技术参数 THE MAIN PARAMETERS

名称 Description	型号 Type
	YK78200
最大加工模数 Max. module	18
最大加工工件长度 Max. workpiece length	2000
加工斜齿条最大角度 Max. helical angle	±20
主轴电机功率 Spindle motor power	150
砂轮线速度 Grinding wheel speed	24000
最大砂轮宽度 Maximum grinding wheel width	105
砂轮直径 Grinding wheel diameter	φ220~400
砂轮轴径 Mounting diameter of spindle grinding wheel	φ152.4 (6inch)
金刚滚轮直径 Diameter of diamond roller	φ200
X轴最大行程 Max. stroke of X-axis	500
X轴最大进给速度 Maximum feed speed of X-axis	6000
Y轴最大行程 Max. stroke of Y-axis	2000
Z轴最大行程 Max. stroke of Z-axis	400
Z1轴最大行程 Max. stroke of Z1-axis	105
Y1轴最大行程 Max. stroke of Y1-axis	125
机床总功率 Total machine power	约110
机床重量 Total weight	约23
主机外形尺寸(长×宽×高) Main Machine Dimension	5.98×3.77×2.34



- 注意:
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 - 2.外观防护分半防护、全防护,由用户根据实际需要进行选择;
 - 3.公司持续创新机床设计,本手册中各系列产品参数将持续更新。

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CNC POWER RACK GEAR MILLING MACHINE

机床特点

1. 机床刚性好: 机床铸件采用高强度铸件、拓扑优化设计; 镶钢导轨、随动锁紧; 刀具主轴传动链全消隙, 轴承、静压双支撑, SIEMENS伺服主轴电机驱动, 力矩特性好;
2. 机床精度高: 主轴驱动轴轮独立支撑, 主轴回转速度高; 双A级齿条齿刀, 切削精度6级;
3. 机床切削效率高: 机床主轴电机45KW(S3), 利用率可达85%; 设计刀具保护和全保护装置, 确保高速加工安全;
4. 机床适配性: 机床数控系统采用SIEMENS 828D; 排屑系统配三级过滤净化、大流量冷却、冲屑, 全面的排屑系统, 确保机床和工件的安全, 并可处理各种材料。

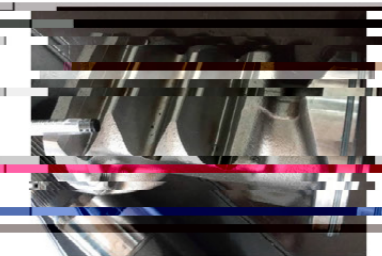
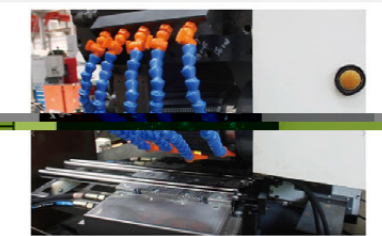
MACHINE TOOL FEATURES

1. Good rigidity of machine tool: machine tool castings adopt high strength castings and Topology optimization design ; inlaid steel guide rail, follow-up locking; tool spindle drive chain full clearance, bearing, static pressure double support, SIEMENS servo spindle motor drive, good torque characteristics;
2. High precision of the machine tool: the spindle drive wheel is independently supported, and the spindle rotation precision is high; double A rack milling gear and the cutting accuracy reaches national standard 6.
3. The cutting efficiency of the machine tool is high: the spindle motor of the machine tool is 45KW (S3), and the utilization rate can reach 85%. design tool protection and safety protection devices to ensure the safety of high-speed machining;
4. Machine tool adaptability ; the CNC system of machine tool adopts SIEMENS 828D ; and the chip removal system is equipped with three-stage filtration purification, large flow cooling and chip punching. The guide rail protection is directly supported to ensure that the machine is durable and adapted to various materials, ensure the machine's automatic loading and unloading, etc.



技术参数 THE MAIN PARAMETERS

名称 Description	单位	型号 Type
		YK8532A
最大加工模数 Max. Module	mm	12
最大加工工件长度 Max. Length	mm	300
加工斜齿条最大角度 Max. Helix Angle	°	±25(夹具保证)
主轴电机功率 Main Motor	kW	37
主轴转速 Spindle Speed	r/min	40-3000
最大齿宽 Max. Cutter Width	mm	300
铣刀外径 Milling Cutter Diameter	mm	φ180-2倍刀深-φ320
主轴装刀杆直径 Milling Cutter Arbor Diameter	mm	φ60
X轴最大进给速度 Max. Feeding speed of X Axis	mm/min	1200
X轴最大行程 Max. Travel range of X Axis	mm	500
Z轴最大行程 Max. Travel range of Z Axis	mm	400
Z轴最大进给速度 Max. Feeding speed of Z Axis	mm/min	500
机床总功率 Total power	kW	约51
机床总重量 Total weight	t	约10
主机外型尺寸(长X宽X高) Main Machine Dimension	mm	3.3X2X2.8



注:
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数控强力齿条磨齿机

CNC POWER RACK GEAR GRINDING MACHINE

机床特点

1. 机床刚性好: 机床结构采用典型刚性床身结构, 高强度铸铁, 经优化双层路设计; 主轴承采用水冷主轴, 大功率水冷伺服主轴电机同轴驱动; 内置全自动平衡仪, 防止磨削过程中, 恒线度磨削; 确保安全; 修整主轴等轴径设计, 驱动、定位分离设计, 确保修整高精度。
2. 机床精度高: 机床导轨采用直线导轨和静压阻尼块组合方式, 提高导轨抗振性; 全闭环设计, 确保定位高精度; 电机外置散热, 完全密封冷却, 确保机床精度。
3. 机床切削效率高: 机床配最大电机功率115KW, 利用率最大可达99%; 适用于深齿磨齿工艺; 配备断屑回温功能, 确保安全; 配备循环冷却液排屑系统, 大流量排屑冷却冲屑, 流量开关保护, 确保冷却可靠。
4. 机床适配性: 机床数控系统采用SIEMENS 828D或840DSL; 根据加工工件的不同, 配不同磨削软件; 配置台置式修整器, 可选配顶置式修整器, 能满足在线修整要求; 全封闭罩设计, 配静电式油雾分离器; 可选配夹具、单机自动上下料等。

MACHINE TOOL FEATURES

1. Good rigidity of the machine tool: The machine tool adopts a typical rigid bed structure, high strength cast iron, optimized double-layer design; the main bearing uses a water-cooled spindle, and the high-power water-cooled servo spindle motor is coaxially driven; the built-in automatic balancer, automatic compensation, tool setting system, constant line grinding; ensure safety; grinding spindle diameter design, drive and positioning separation design, ensure high precision dressing.
2. High precision of machine tool: The guide rail of the machine tool adopts the combination of linear guide and static pressure damping block to improve the guide rail's resistance to vibration. The closed-loop design ensures high positioning accuracy. The motor is externally cooled and fully sealed to ensure machine accuracy.
3. The cutting efficiency of machine tool is high: the maximum motor power of machine tool is 115KW, and the utilization rate is up to 99%. It is suitable for deep tooth grinding process, equipped with power-off back function to ensure safety, with suction circulation belt filter chip removal system, large flow constant temperature cooling and chip removal, flow switch protection, to ensure reliable cooling.
4. Machine tool adaptability; the CNC system of machine tool adopts SIEMENS 828D or 840DSL, according to the different grinding workpiece, the different grinding software is configured; the table-mounted dresser is configured, optional top-mounted dresser can meet the requirements of online dressing; fully enclosed design, with electrostatic oil mist separator, optional fixture, single machine automatic loading and unloading, etc.



技术参数 THE MAIN PARAMETERS

名称 Description	单位	型号 Type	
		YK7832	YKA7832
最大加工模数 Max. Module	mm	20	12
最大加工齿长 Max. Tooth Length	mm	320	320
主机电机功率 Spindle Motor Power	kw	110	50
SP1轴转速 SP1 Shaft Speed	rpm	1-10000	1-10000
SP2轴转速 SP2 Shaft Speed	rpm	4500	4500
最大砂轮宽度 Max. Grinding Wheel Width	mm	240	240
最大砂轮直径 Grinding wheel diameter	mm	Φ500	Φ500
主轴砂轮孔安装直径 Main spindle hole mounting diameter	mm	Φ203.2mm (8inch)	Φ203.2mm (8inch)
X轴最大行程 Max. Travel range of X-axis	mm	1250	1250
Y轴最大行程 Max. Move Distance of Y-axis	mm	480	480
Y轴最大进给速度 Max. Feeding speed of Y-axis	m/min	5	5
Z轴最大行程 Max. Move Distance of Z-axis	mm	450	450
Z轴最大进给速度 Max. Feeding speed of Z-axis	m/min	10	10
金刚砂轮直径 Emery wheel diameter	mm	160	160
砂轮中心至工作台面距离 Distance from grinding wheel center to worktable	mm	200-600	200-600
工作台面安装尺寸(长度X宽度) Workbench mounting dimension (length X width)	mm	1250X375	1250X375
移动工作台最大承重 Maximum load-bearing capacity of mobile worktable	kg	1500	1500
机床总重量 Total weight	t	约12	约12
主机外型尺寸(长X宽X高) Main Machine Dimension	mm	2150X3200	2150X3200

- 注:
1. 重量仅供参考, 具体以实物为准;
2. 外观防护分半防护、全防护, 用户可根据实际需要选择;
3. 公司持续创新机床设计, 本手册中各系列产品参数将持续优化。

- 注:
1. The weight is for reference only, and the actual product's appearance;
2. The appearance protection of this machine tool has two options: semi-protection and full protection, which can be selected according to actual needs;
3. We continue to innovate machine tool design. The parameters of each series of products in this manual are for reference only. We will have a timely update to meet the update.