

6 数控齿条加工机床

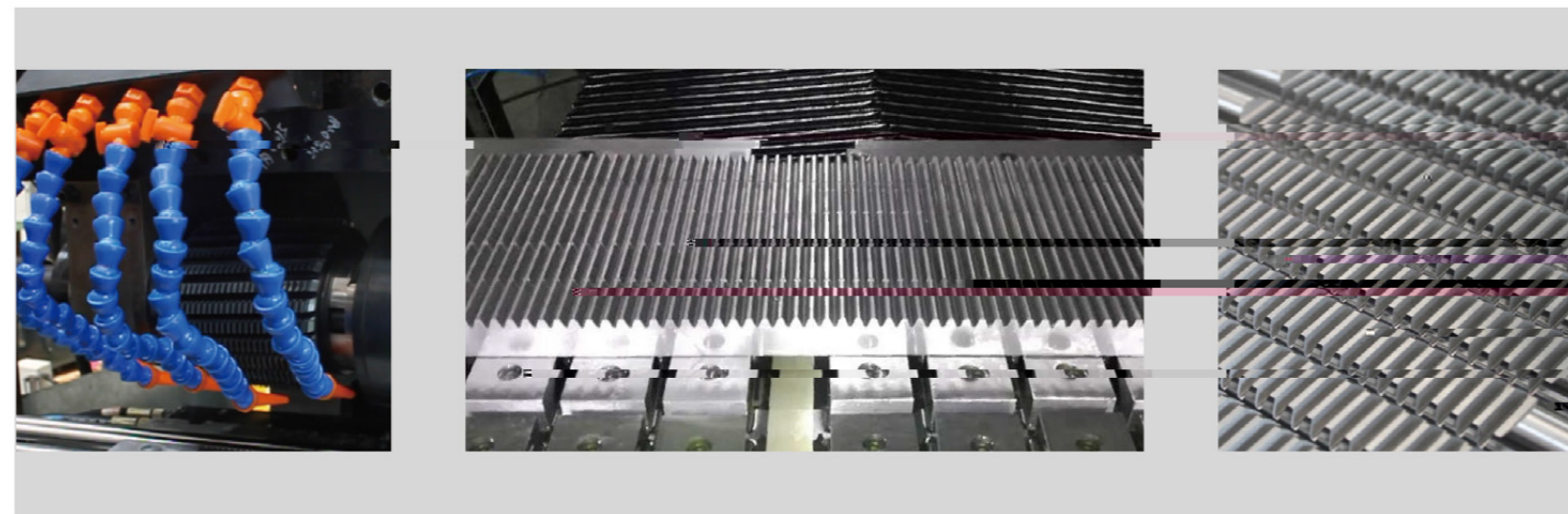
CNC RACK GEAR MACHINE SERIES

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、机床等行业的精密齿条加工，无论是单件的加工，还是高效的中小批量生产，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 tool for rack teeth provides customers with complete sets of solutions.

For precision rack processing for the automotive, elevator, engineering machinery, machine tool 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

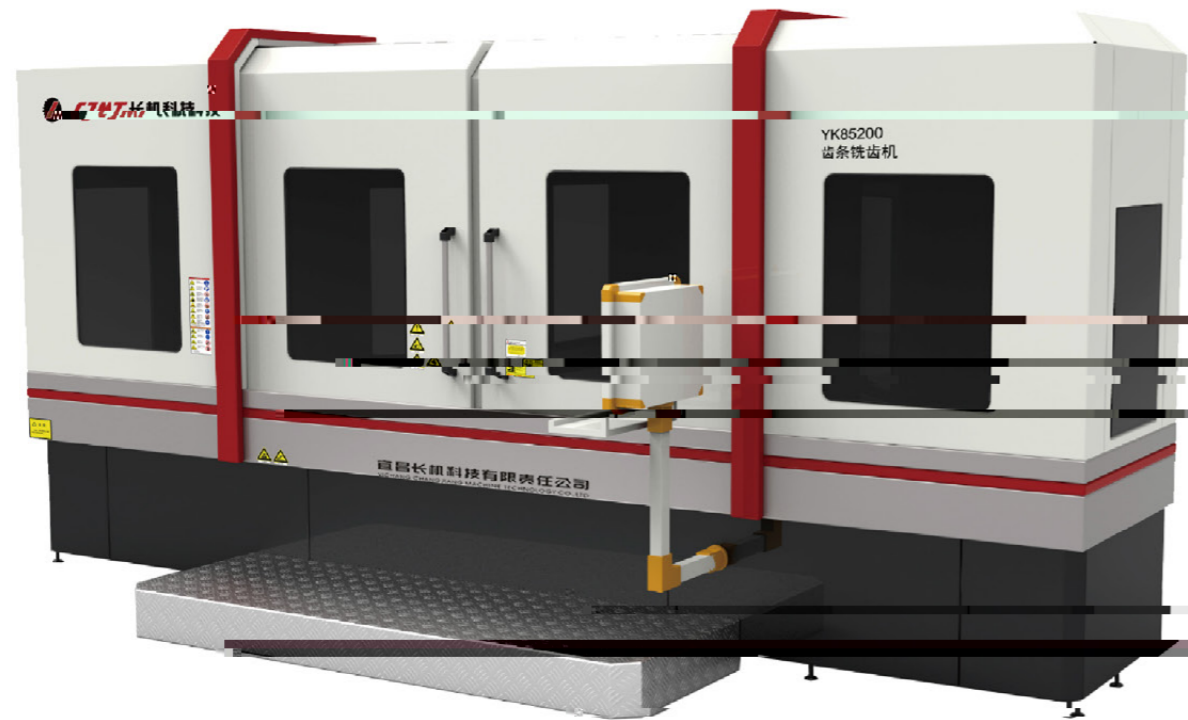
YK85125A和YK85200A是大改进机型，精度更稳定和效率提高50%；

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、整压固定架、SIEMENS伺服主轴电机驱动，齿坯装夹好；
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，切削精度超国标；
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

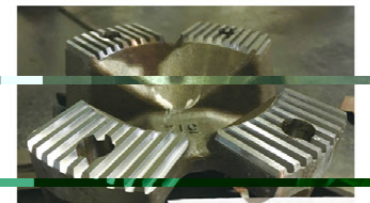
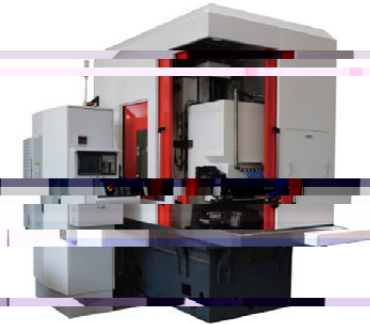
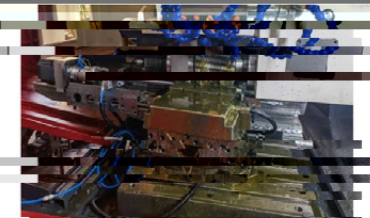
YK85125A and YK85200A are greatly improved models with more stable accuracy and 50 % higher efficiency.

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 servomotor 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 the machine tool adopts SIEMENS 828D; chip removal system is equipped with three-stage filtration and 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 adequate flushing and cooling of the machine; optional fixtures, single machine automatic loading and unloading, etc.



技术参数 THE MAIN PARAMETERS

名称 Description	单位	型号 type	
		YK85125A	YK85200A
最大加工工件长度(直齿) Max. workpiece length (straight tooth)	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 capacity	kg	3000	5000
工作台尺寸 Worktable diameter	mm	600 x 1250	805 x 2900
铣刀最大尺寸 Max. Size of milling cutter	mm	φ200 x 180 x 2倍齿深	φ200 x 180 x 2倍齿深
最大装刀宽度 Max. Max. tooling width of milling cutter	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
主机外形尺寸(长×宽×高) Main Machine Dimension	m	3.56x4.17x3.1	3.72x7.35x3.1



- 注:
1. 重量为运输重量，实际重量以实物为准。
 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仅供参考。

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 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. 砂轮修整金刚石滚轮采用电主轴直驱，运转精度及可靠性能高；
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

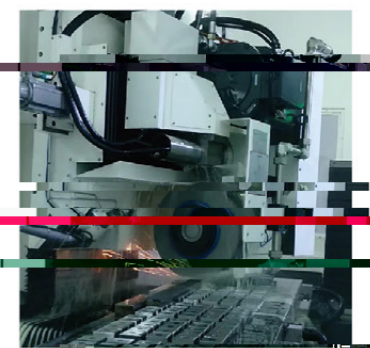
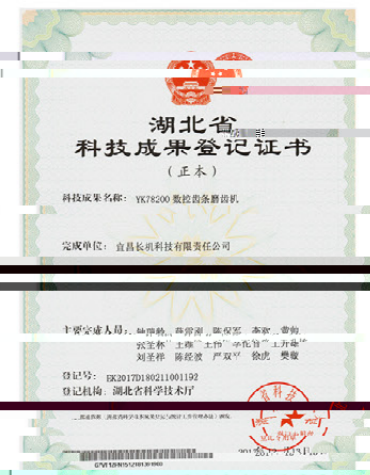
CNC rack gear grinding machine is widely used for grinding process of all kinds of spur and helical rack gears, it is especially suitable for grinding various of precision hard rack gears. Machine tool main technical Feature:

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 is directly drive by motorized spindle. With high precision accuracy and stability.
4. Equipped with high sensitivity and high precision in place measurement system.
5. The Chip conveyor 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
最大加工模块 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	15
砂轮转速 Grinding wheel speed	14000
最大砂轮宽度 Maximum grinding wheel width	105
砂轮直径 Grinding wheel diameter	Φ220
砂轮轴安装直径 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:
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，可根据客户需求进行选择；
 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优化。

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

数控强力齿条铣齿机

CNC POWER RACK GEAR MILLING MACHINE

机床特点

1. 机床刚性高: 机床铸件采用高强度铸件、拓普优化设计; 镶钢导轨、随动锁紧; 刀具主轴传动链全消除, 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: 主轴驱动轮独立支撑, 主轴回转精度高; 双AA级齿条铣刀, 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、冲屑等功能的装置; 机床安全门可任意位置打开; 机床可实现自动换刀、自动上下料等。

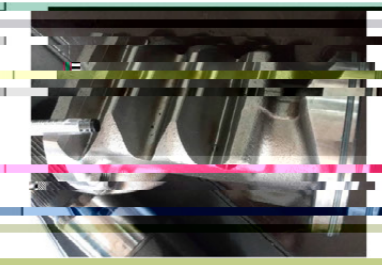
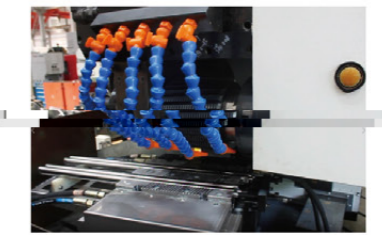
MACHINE TOOL FEATURES

1. Good rigidity of machine tool: machine tool castings adopt high strength castings and Topology optimization design ; inlaid steel guide rail and 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 AA rack milling tool 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 greatly improved to ensure that the machine is durable and reliable. In addition, the machine tool can realize automatic tool changing, automatic loading and unloading, etc.



技术参数 THE MAIN PARAMETERS

名称 Description		型号 Type
		YK8532A
最大加工模数 Max. Module	mm	12
最大加工工件长度 Max. Work 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
最大铣刀宽度 Max. Cutter Width	mm	300
铣刀外径直径 Milling Cutter Diameter	mm	φ180φ2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:
1. 重量仅供搬运起吊时参考, 具体以实物为准;
2. 外观防护分为半防护、全防护, 用户可根据实际需要进行选择;
3. 本厂将持续创新研发, 针对用户需求, 机床参数将持续优化。

Note:
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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: 机床结构采用高强度铸铁, 拓扑优化, 双壁设计, 主轴采用静压导轨, 确保精度; 修整主轴等轴径设计, 驱动、定位分离设计, 确保修整高刚性。
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; 电机外置或水冷, 大功率温升控制, 确保长期稳定。
3. 机床切削效率高: 机床配最大电机功率115KW, 利用率高达90%; 适用于深齿磨齿工艺; 配备断屑回温功能, 确保安全; 配备断屑回温或冷却系统, 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; 能满足在线修整等要求; 安全防护设计, 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 machine tool: The machine tool structure adopts typical strong grinding structure, high strength cast iron, topology optimization, double wall design, the spindle adopts a water-cooled spindle, and the high-power water-cooled motor serves spindle motor to ensure high rigidity; the built-in automatic dresser, air and oil suction, tool setting system, constant speed grinding, reverse rotation, dressing, suction, and automatic chip removal design, to ensure the high rigidity dressing.
2. High precision of machine tool: The guide rail of machine tool adopts the combination of linear guide rail and static pressure damping block to improve the vibration resistance of guide rail. Full closed loop design to ensure high positioning accuracy, automatic temperature control, long flow control temperature control, to ensure the thermal stability.
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 90%, suitable for deep grinding process, equipped with power-off back function to ensure safety, with suction circulation belt filter chip removal system, to ensure safe grinding; equipped with cooling system, 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 processing workpiece, equipped with different grinding software; configure the table-mounted dresser, optional top-mounted dresser; can meet the requirements of online dressing; full automatic grinding with automatic oil mist separator; optional fixture, single machine automatic loading and unloading, etc.



技术参数 TECHNICAL PARAMETERS

名称 Description	单位	型号 Type	
		YK7832	YKA7832
最大加工模数 Max. Module	mm	20	12
最大加工齿顶圆直径 Max. Addendum diameter	mm	330	330
主轴电机功率 Spindle motor power	KW	110	50
SP1轴转速 SP1 Shaft speed	rpm/min	~30000	~30000
SP2轴转速 SP2 Shaft speed	rpm/min	~4500	~4500
最大砂轮宽度 Maximum grinding wheel width	mm	240	240
最大砂轮直径 Grinding wheel diameter	mm	Φ600	Φ700
主轴砂轮孔安装直径 Mounting diameter of spindle grinding wheel hole	mm	Φ203.2mm (8inch)	Φ203.2mm (8inch)
X轴最大行程 Max. Travel range of X-axis	mm	1250	1250
X轴最大进给速度 Max. Feeding speed of X-axis	m/min	10	10
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	200-680	200-680
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 workbench	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	3150X2300X2100	3150X2300X2100

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