

# 6 数控齿条加工机床

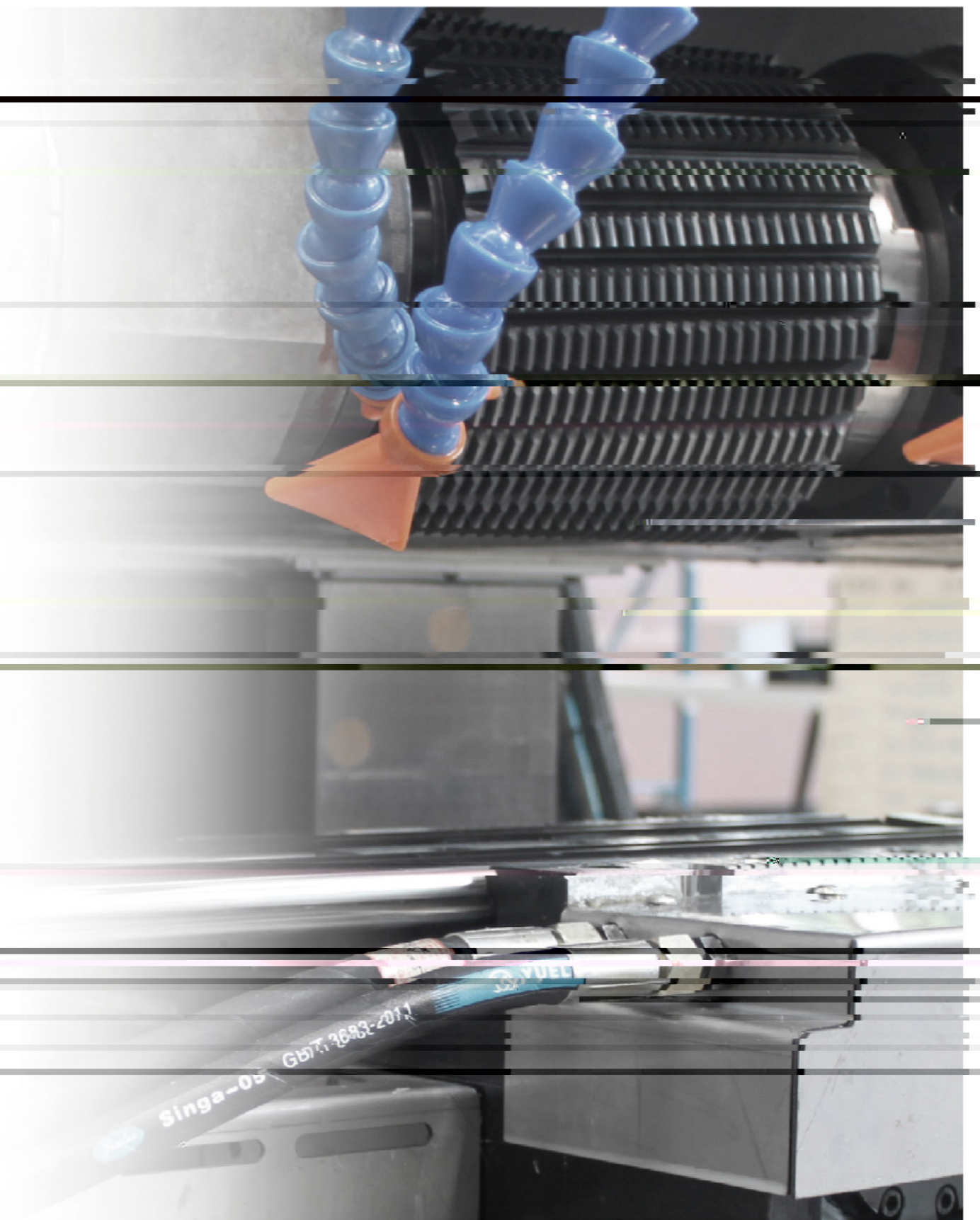
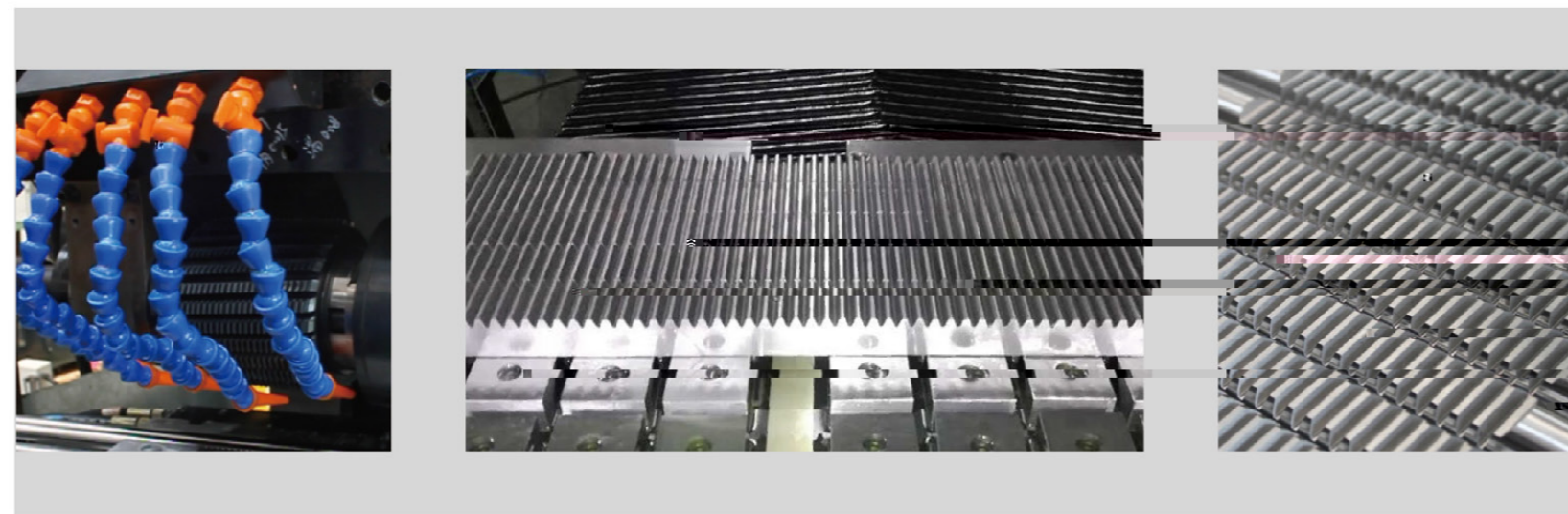
CNC RACK GEAR MACHINE SERIES

## 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。是单件的加工，是适高质的中小批量生产，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 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.



# 数控齿条插齿机

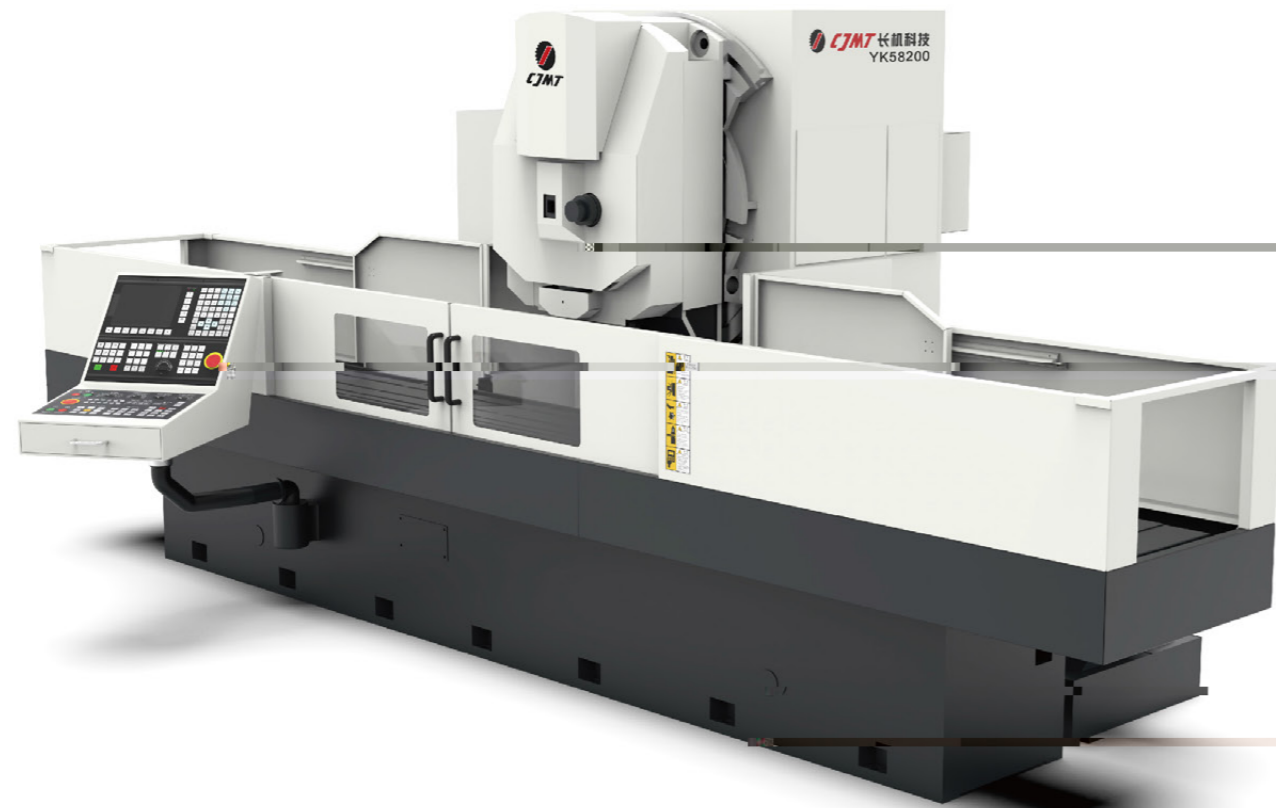
## CNC RACK GEAR SHAPING MACHINE

### 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, 高齿工具加工斜齿, 结构刚性强; 采用高精度刀架蜗轮副传动电机驱动蜗轮蜗杆传动蜗轮蜗杆在工作台, 展成精度高; 精密的蜗轮蜗杆; 双V级精度插齿刀, 切削精度国标2级;
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40m/min; 设计安全保护装置, 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。

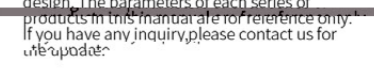
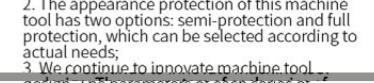
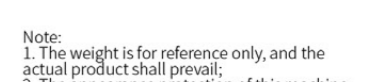
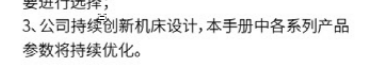
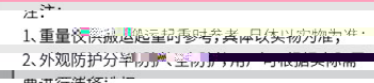
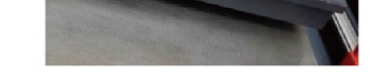
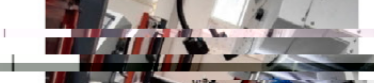
### MACHINE TOOL FEATURES

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, with 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 coaxial drive high-precision gear pair; the worm gear pair is located on the worktable, with high accuracy; the worm gear pair is double A grade rack gear shaper cutter, and the cutting accuracy reaches national standard 2;
3. The cutting efficiency of the machine tool is high: the spindle motor of the machine is 11KW, the main shaft stroke speed is 30m/min, the circumference cutting depth is large; YKR5832 machine tool is equipped with static pressure tool holder, and the linear speed of the stroke can reach 40m/min, equipped with 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
最大加工直径 Max. machining diameter (right hand)	300	1250	2000	3000
最大模数 Max. module	4	12	12	12
最大加工工件倾斜角 Max. angle of obliquity	±20°	±30°	±30°	±30°
插齿刀最大冲程长度 Max. axial stroke length	100	160	160	160
插齿刀冲程速度 Stroke speed	125-1250	30-300	30-300	30-300
插齿刀行程位置调整量 Adjusting amount of cutter travel	30	50	50	50
工作台切向进给速度 Tangent feed speed of worktable	0~3000	0~1000	0~1000	0~1000
插齿刀让刀量 Cutter relieving	0.3	≥0.5	≥0.5	≥0.5
插齿刀安装轴径直径 Cutter arbor diameter	31.743	31.743	31.743	31.743
工作台面尺寸 Worktable size	740x400	1350x490	2150x490	3150x490
插齿刀轴线至工作台中心平面距离 Center distance cutter/worktable	-	-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	110-300	160-370	160-370	160-370
机床总功率 Total power	约8.5	约30	约30	约30
机床重量 Total weight	约6	约11	约13	约15
主机外形尺寸(长×宽×高) Main Machine Dimension	2.73x1.9x2.3	2.4x4x3	2.4x6x3	2.4x9x3



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注意:  
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和全防护, 可根据实际需求进行选择;  
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 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.

# 数控齿条铣齿机

## CNC RACK GEAR MILLING MACHINE

### 机床特点

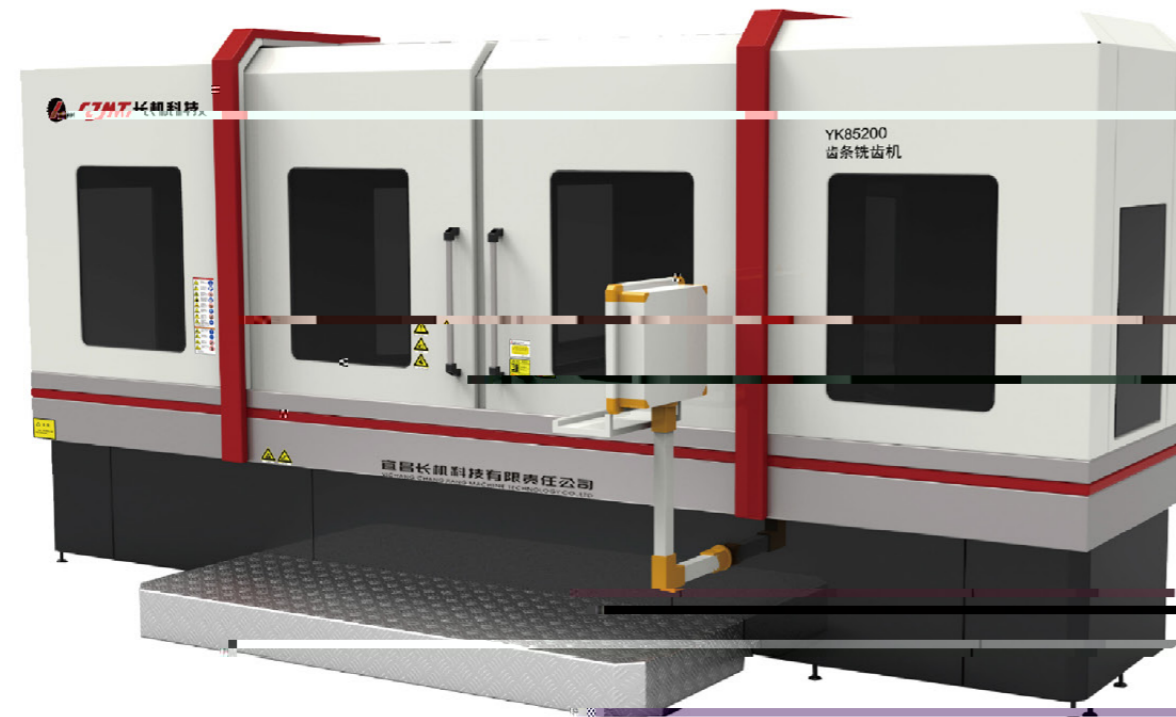
YK85125A和YK85200A是大改进机型，精度更稳定和效率提高50%；

1. 机床刚性好：机床铸件采用高强度铸件，经拓扑优化设计，钢制导轨，动静锁紧；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：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

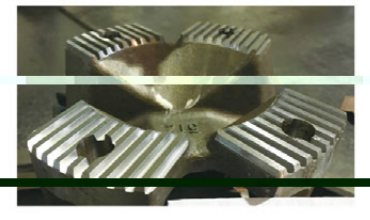
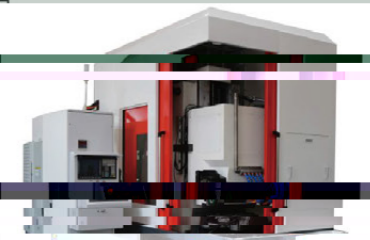
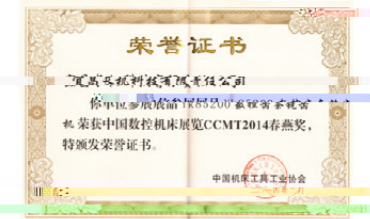
YK85125A and YK85200A are greatly improved models with more stable accuracy and higher efficiency.

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 of knife 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 machine tool CNC system adopts SIEMENS 828D; chip removal system is equipped with three-stage filtration, large flow cooling, chip punching, etc. 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.



### 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	1750	1750	2000	2000
最大加工模数 Max. module	mm	30	30	30	30
加工斜齿条角度范围 Max. helix angle	°	±25	±25	±25	±25
最大加工宽度 Max. workpiece width	mm	400	400	400	400
工作台最大承重 Max. load for worktable	kg	3000	3000	5000	5000
工作台尺寸 Worktable diameter	mm	600 x 1250	600 x 1250	805 x 2900	805 x 2900
最大装刀直径 Max. diameter of spindle cutter holder	mm	Φ180	Φ180	Φ180	Φ180
最大装刀宽度 Max. mounting width for milling cutter	mm	300	300	300	300
主轴电机功率 Main spindle motor power	kW	37 (S1)	37 (S1)	37 (S1)	37 (S1)
主轴转速 Main spindle speed	r/min	40~350	40~350	40~350	40~350
主轴装刀直径 Max. diameter of spindle cutter holder	mm	Φ60	Φ60	Φ60	Φ60
刀具纵向进给速度 Speed of cutter longitudinal feed	mm/min	5000	5000	5000	5000
刀具垂直进给速度 Speed of cutter vertical feed	mm/min	2000	2000	2000	2000
工作台横向进给速度 Speed of worktable transverse feed	mm/min	10000	10000	10000	10000
机床重量 Total weight	t	约17	约17	约21	约21
机床外形尺寸(长×宽×高) Main Machine Dimension...	m	3.56x4.7x3.1	3.56x4.7x3.1	3.72x7.35x3.1	3.72x7.35x3.1



注：  
1. 机床重量仅供参考，实际产品以实物为准。  
2. 外观防护分半防护、全防护，用户可根据实际需要进行选择。  
3. 公司将持续创新机床设计，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 for 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, and the parameters of each series of products in this manual will be continuously optimized. 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，运转精度及转速精度高；
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

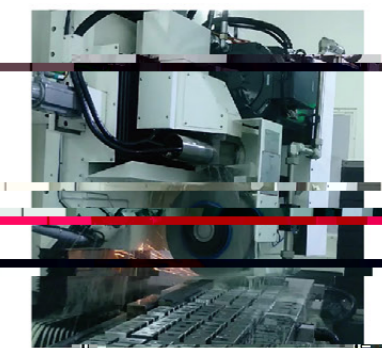
CNC rack gear grinding machine is widely used in the grinding process of various precision rack gears, it is especially suitable for grinding various precision hard rack gears. Machine tool main technical Feature:

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 adopts direct drive by motorized spindle, running precision and speed accuracy are high.
4. Equipped with high sensitivity and high precision in-position measurement system.
5. The chip removal system realizes the constant temperature control of grinding oil.
6. Automatically retract function in the 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	15kw
砂轮主轴转速 Grinding wheel spindle speed	124000
最大砂轮宽度 Maximum grinding wheel width	105
砂轮直径 Grinding wheel diameter	Φ200-400
主轴砂轮孔安装直径 Mounting diameter of spindle grinding wheel hole	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	100
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	5.98×3.77×3.4



- 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、防护罩可拆卸三种，可根据客户需求进行选配。
  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。

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, which can be selected according to actual needs.  
3. We continue to innovate machine tool design. The parameters of each series of products will be updated 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. 机床刚性好: 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, 确保机床和工件的安全。

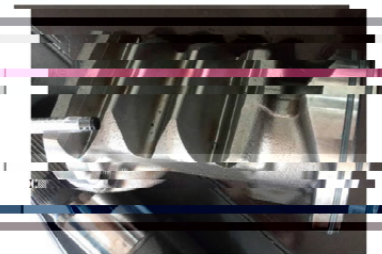
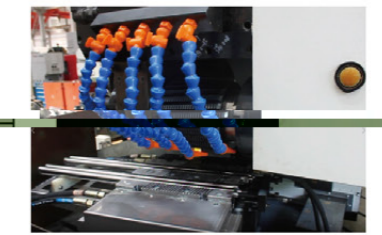
### MACHINE TOOL FEATURES

1. Good rigidity of machine tool: machine tool castings adopt high strength castings and Topology optimization design ; inlaid steel guide and auto-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. The accuracy of the rack and pinion gear 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, large flow cooling, chip punching, etc. to ensure the safety of the machine and the workpiece.



### 技术参数 THE MAIN PARAMETERS

名称 Description	型号 Type
	YK8532A
最大加工模数 Max. Module	mm 12
最大加工工作长度 Max. Length	mm 300
加工斜齿条最大角度 Max. Incline 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
铣刀外圆直径 Milling Cutter Diameter	mm $\Phi 180+2$ 倍刀深- $\Phi 320$
主轴装刀杆直径 Milling Cutter Arbor Diameter	mm $\Phi 60$
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. 外观防护分半防护、全防护, 用户可根据实际需要进行选择;
  3. 公司持续创新, 机床参数将持续优化。

Note:  
1. The weight is for reference only when lifting and moving 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:机床结构采用专用重载轴承,高强度磨齿砂轮,优化机床,双层导轨设计,采用未淬火主轴承,大功率水冷伺服主轴驱动,确保加工精度;采用自动上下料系统,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,才来流温溢流,保持恒温;
- 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;配有中心回温功能,确保安全;配有循环冷却液过滤系统,大流量恒温冷却冲屑,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;能满足在修修整等要求;防尘罩设计,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 special heavy-duty bearings, high-strength grinding wheels, optimized machine tool, double-layer guide rail design, untempered main bearings, high-power water-cooled servo spindle drive, ensuring processing accuracy; automatic loading and unloading system, constant line grinding; ensure safety; spindle shaft diameter design, drive, positioning separation design, ensuring 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. The closed-loop design ensures positioning accuracy. External motor or water cooling ensures constant temperature cooling to ensure high 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 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 processing workpiece, equipped with different grinding software; configure the table-mounted dresser, optional top-mounted dresser can meet the requirements of on-line dressing, fully equipped with electrostatic dust separator; optional fixture, single machine automatic loading and unloading, etc.



### 技术参数 TECHNICAL PARAMETERS

名称 Description	单位	型号 Model	
		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	320	320
主电机功率 Spindle motor power	KW/HP	115/155	50/68
SP1轴转速 SP1 Shaft Speed	r/min	12000	12000
SP2轴转速 SP2 Shaft Speed	r/min	9000	9000
最大砂轮宽度 Max. Grinding wheel width	mm	740	740
最大砂轮直径 Grinding wheel diameter	mm	Φ600	Φ500
主轴砂轮孔安装直径 Mounting diameter of spindle 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 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	3150X375X2100	3150X375X2100



注:  
1. 重量仅供参考,不作为交货依据,最终以实物为准;  
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。

Note:  
1. The weight is for reference only, and the actual weight 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. You will have a new version manual for the update.

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