

6 数控齿条加工机床

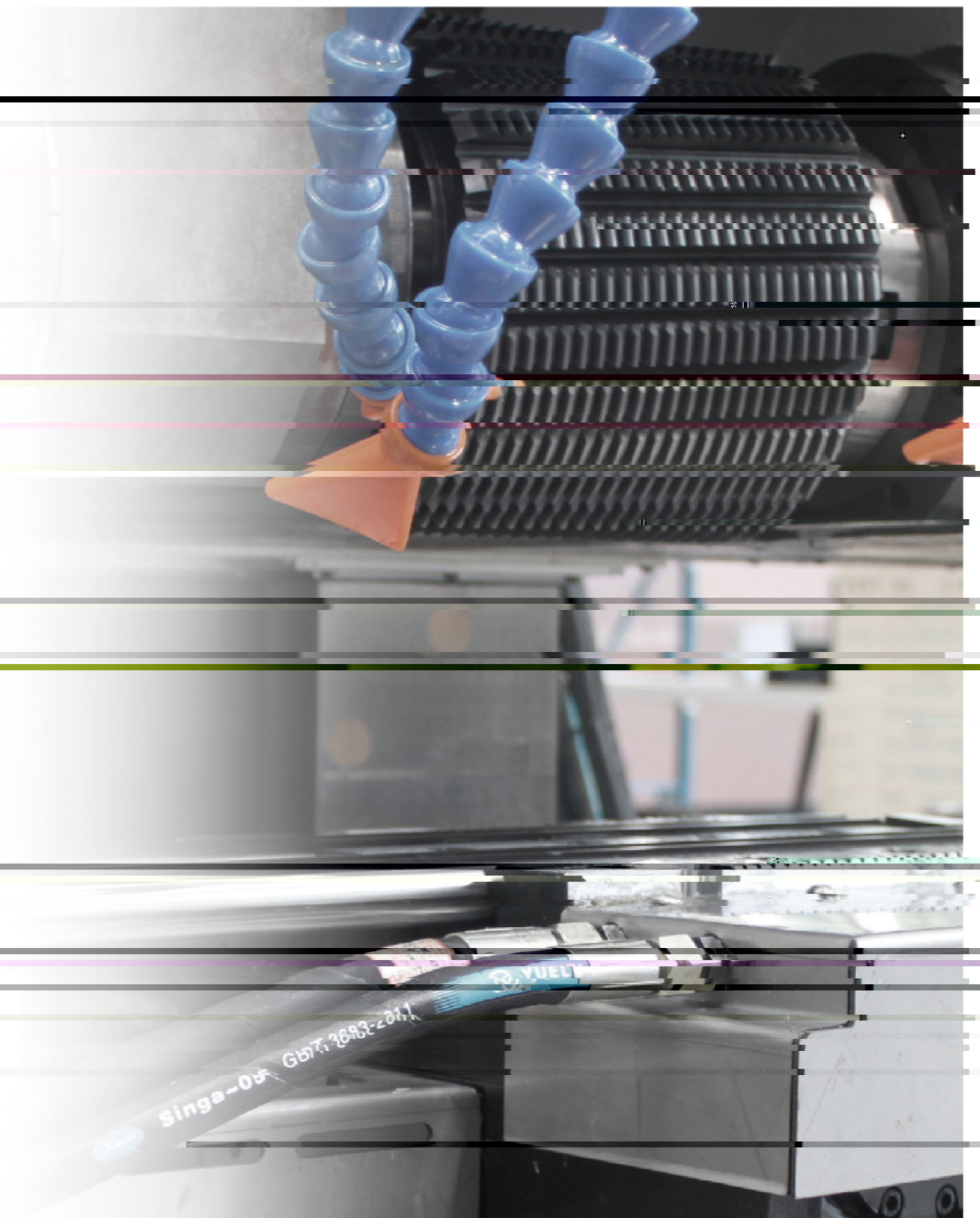
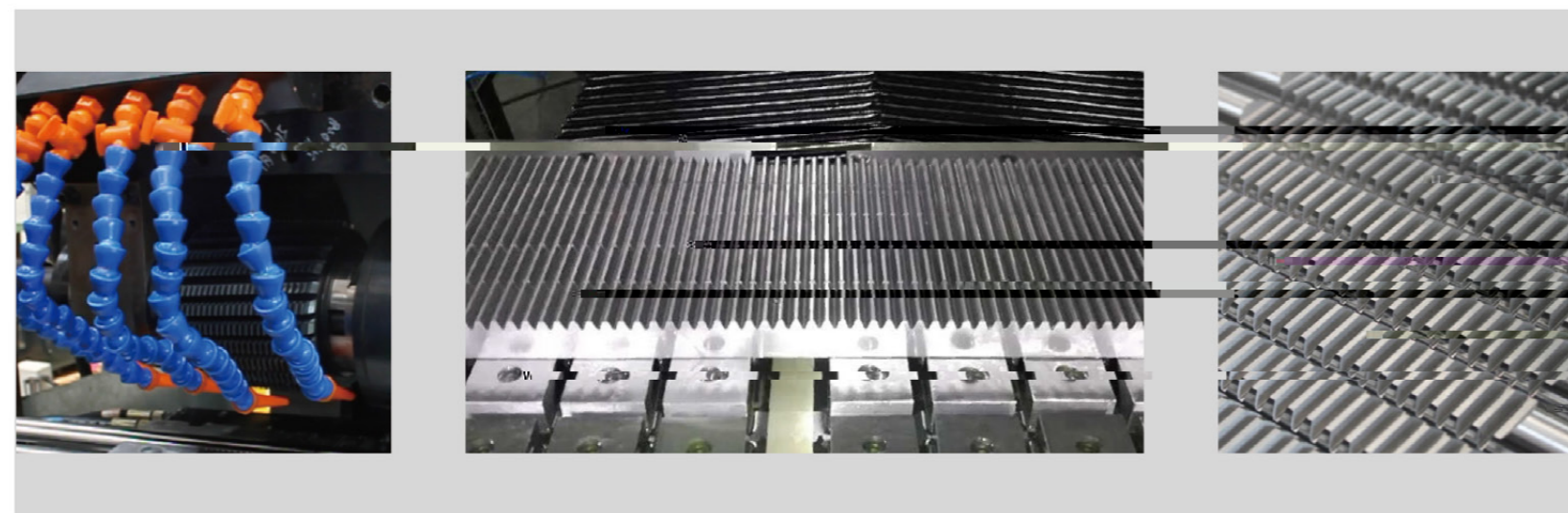
CNC RACK GEAR MACHINE SERIES

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。无论是单件加工，还是高效率大批量生产，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 rack teeth provides customers with complete sets of solutions.

For precision rack processing in the automotive, elevator, engineering 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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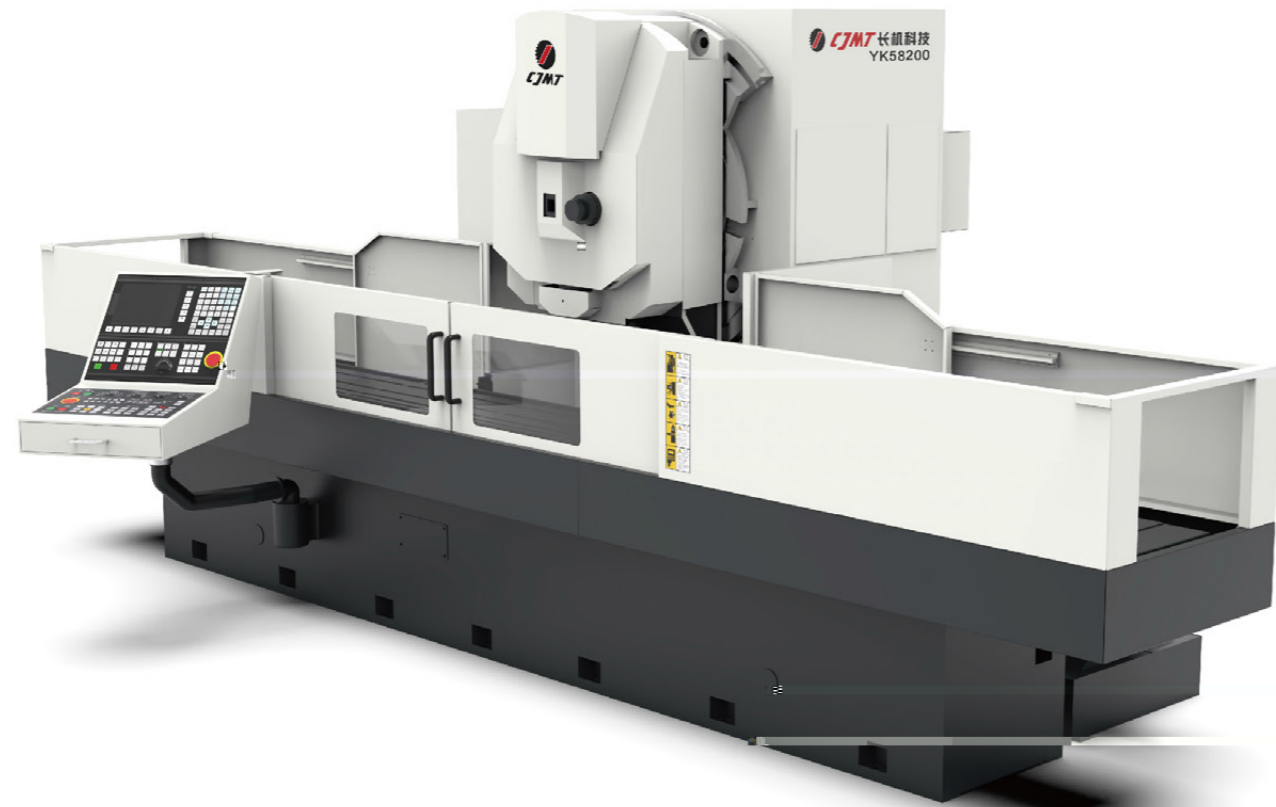
CNC RACK GEAR SHAPING MACHINE

机床特点

1. 机床刚性: 机床铸件采用优质铸铁, 接合面高精度刮研联接; 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, 结构精度高, 受导件高精度刀架的刮研, 刮研后齿形轴动高刚性球珠丝杠在工作台, 滚珠精度, 精密的研等齿, 刚性好; 双A级齿条插齿刀, 刀架精度, 齿形精度;
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。

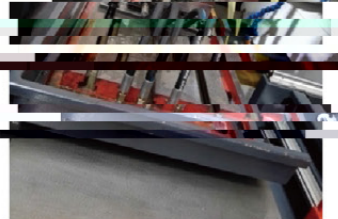
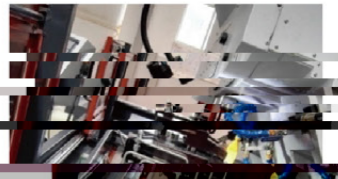
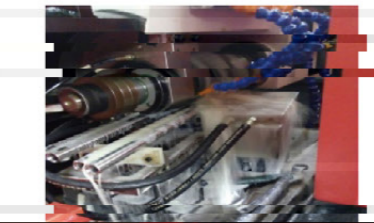
MACHINE TOOL FEATURES

1. The machine rigidity is good: the machine casting is made of high quality cast iron, high precision scraping 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 leads; with high-precision guide sleeve, high-precision scraping guide sleeve, good rigidity, double A grade rack gear shaper cutter, and the cutting accuracy reaches national standard;
3. The cutting efficiency of the machine tool is high: the spindle motor of the machine tool is 11KW, the linear speed of the spindle stroke is 30m/min and the amount of cutting in the circumference is large; YKR5832 machine tool is equipped with static pressure tool holder, and the linear speed of spindle stroke can reach 40 m/min, designed 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, ensure adequate cooling; optional machine automation, automatic loading and unloading, etc.



技术参数 THE MAIN PARAMETERS

名称 Description	型号 Type			
	YKR5832	YK58125	YK58200	YK58300
最大加工工件长度 Max. machining length (Cutting length)	700	1200	2000	3000
最大模数 Max. module	4	12	12	12
最大加工工件倾角 Max. angle of inclination	±20°	±30°	±30°	±30°
插齿刀最大冲程长度 Max. cutter stroke length	100	160	160	160
插齿刀主轴冲程数 Stroke speed	125-1250	60-300	60-300	60-300
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	mm/min	0~3000	0~1000	0~1000
插齿刀让刀量 Cutter relieving	mm	0.3	≥0.5	≥0.5
插齿刀安装轴径直径 Cutter arbor diameter	mm	31.743	31.743	31.743
工作台尺寸 Worktable size	mm	740x400	1350x490	2150x490
插齿刀轴线至工作台中心平面距离 Center distance cutter/worktable	mm	-	-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	170-300	160-370	160-370
机床总功率 Total power	kW	约8.5	约30	约30
机床重量 Total weight	t	约6	约11	约15
主机外形尺寸(长×宽×高) Main Machine Dimension	m	2.73x1.9x2.3	2.4x4x3	2.4x6x3



- 注:
1. 重量仅供参考, 实际产品以实物为准;
 2. 外观防护分半防护和全防护, 可根据实际需要选择;
 3. 公司持续创新机械设计, 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 other series of products in this manual are for reference only. If you have any inquiry, please contact us for the update.

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CNC RACK GEAR MILLING MACHINE

机床特点

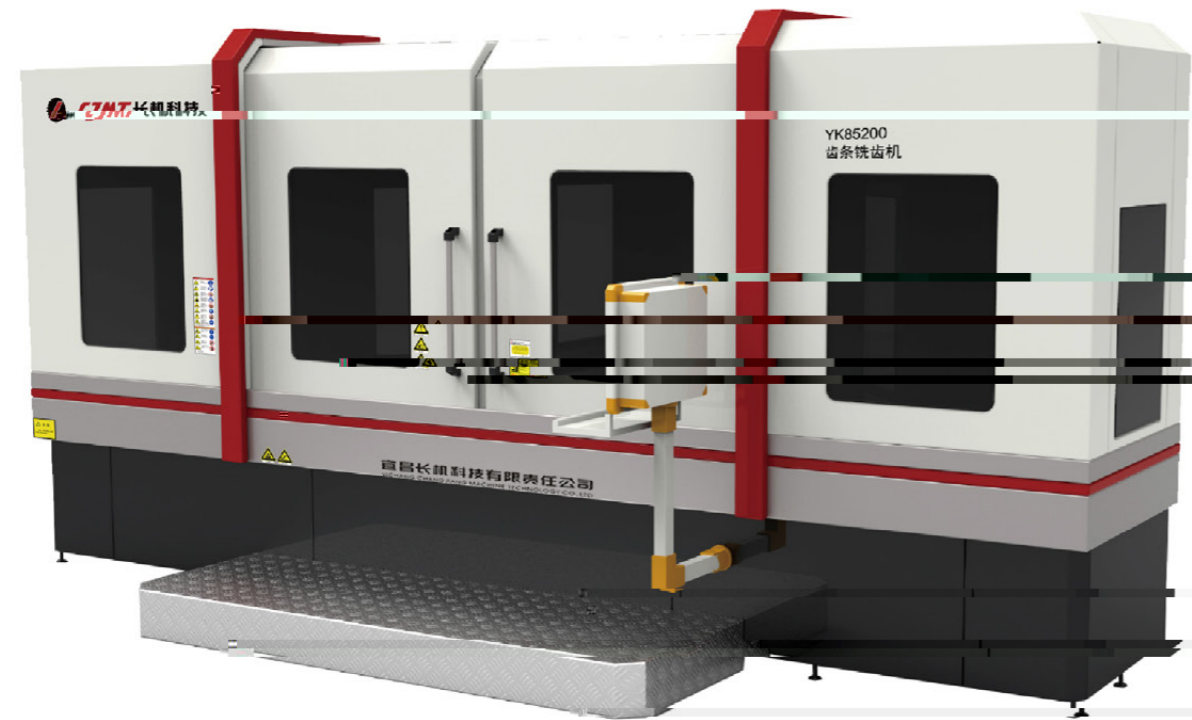
YK85125A和YK85200A是大改进机型，精度更稳定和效率提高50%；

1. 机床刚性高：机床铸件采用高强度铸件、拓扑优化设计，镶钢导轨、随动锁紧、静压导轨、全闭环、静压导轨、双AA级齿条铣刀，切削精度达到国际级；
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；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

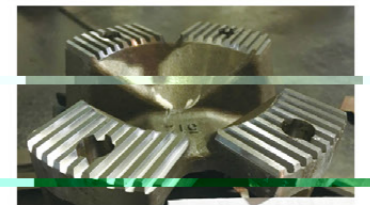
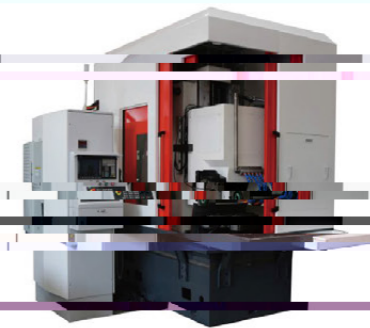
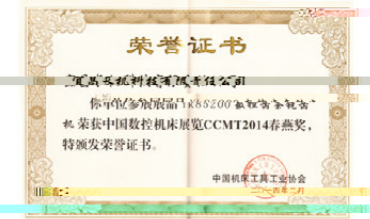
YK85125A and YK85200A are greatly improved in rigidity, accuracy and 50% higher efficiency.

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, torque characteristics, high rotation accuracy; Double AA grade rack milling tool, cutting accuracy reaches national standard 7;
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 is 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 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	型号 Type	YK85125A		YK85200A	
最大加工工件长度(直齿) Max. workpiece length (straight teeth)	mm	1250	1250	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. helical 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. table load capacity	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
铣刀最大直径 Max. size of milling cutter	mm	Φ320~180+2倍齿深	Φ320~180+2倍齿深	Φ320~180+2倍齿深	Φ320~180+2倍齿深
最大装刀宽度 Max. mounting width of 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
主机外形尺寸(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. 重量仅供参考，最终以实际产品为准；
2. 外观防护分半防护、全防护，用户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 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. 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，特别适用于各种精密齿条齿面的磨削。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，回转精度及承载能力强；
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

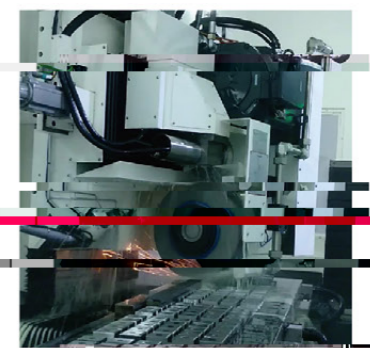
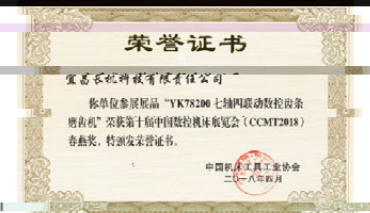
CNC rack gear grinding machine is widely used for grinding various of precision rack gears, it is especially suitable for grinding various of precision hard rack gears. Machine tool main technical Feature:

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 adopts direct drive by motorized spindle with high rotation accuracy and reliability.
4. Equipped with high sensitive and high precision in-position detection system.
5. The chip removal system realizes the constant temperature control of grinding oil temperature.
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. axial work length	2000
加工斜齿条最大角度 Max. helical angle	±20
主轴电机功率 Spindle motor power	45
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	φ220-400
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	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	5.98×3.77×3.34



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 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;
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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、全封闭的吸尘罩, 确保机床换液和冷却液, 防止飞溅, 防止污染环境。

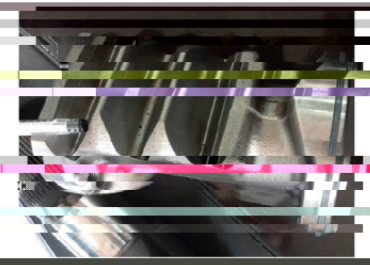
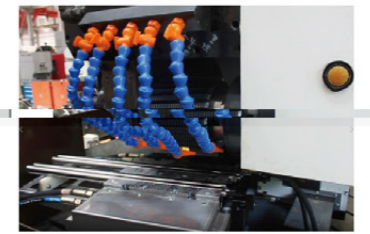
MACHINE TOOL FEATURES

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 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 and large flow cooling and chip punching. The dust extraction is fully enclosed to ensure that the machine is flushed and cooled adequately, optional fixture, single machine 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. 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
最大切削宽度 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:
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3. 公司持续创新的研发设计, 部分参数可能随产品参数将持续优化。

Note:
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