WSK022
数控蓝宝石滚磨机
WSK022 CNC Sapphire Tumbling Mill

技术规格参数 Specifications and Technical Parameters

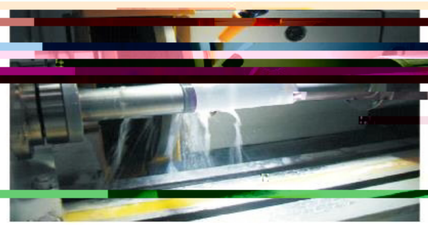
加工工件参数Work piece parameters：	
磨削长度Grinding length	300mm(max)
适用磨削直径Applicable grinding diameter	2寸~8寸inch
主要参数Main parameters	
中心高Central height	125mm
砂轮线速度Linear speed of grinding wheel	35m/s(max) 30m/s(max)
金刚石砂轮尺寸Size of diamond grinding wheel	Φ300x(15~30)xΦ127mm
头架可回转角度Rotary angle of headstock	±90°
尾架顶尖行程Top travel of tailstock(max)	250mm(max)
特制尾架主轴Special tailstock spindle	配液压顶紧夹具with hydraulic top clamp
砂轮架电机功率Motor power of grinding carriage	3kW
头架电机功率Motor power of headstock	0.75kw
头架主轴转速Speed of headstock spindle	6~100r/min(变频调速) (AC frequency conversion stepless speed regulation)
头架回转精度Rotary accuracy of headstock	径向跳动Radial run-out≤0.004mm 轴向窜动Axial run-out≤0.005mm
数控轴Axis	X轴：砂轮架进给X axis: grinding carriage feed Z轴：工作台进给Z axis: worktable feed
电源供给及配套设施Power supply and matched facility	
供电电压Power supply and voltage	交流AC 380V 50Hz
相对湿度Relative humidity	小于less than 75%
环境温度Environmental temperature	0~35℃
振源Vibration source	周围无振源
磨削精度Grinding accuracy：	
圆度Roundness	≤0.08mm
纵截面内尺寸一致性Dimensional uniformity within longitudinal section	0.1mm
表面粗糙度Surface roughness	Ra≤0.5μm

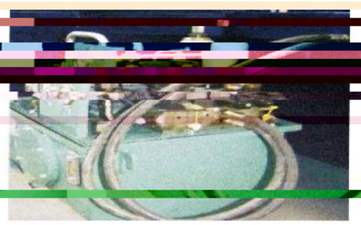
机床用途与性能特征

- 本机床用于磨削太阳能行业、单晶硅棒及蓝宝石晶棒等材料， 可磨经切方后2寸~8寸棒料的外圆（磨2寸圆棒无需更换金刚石砂轮）。
- 头架、尾架采用特制液压顶紧夹具方式磨削。
- 采用进口二轴联动数控系统，内装PLC，触摸屏液晶显示。
- 工作台纵向移动及砂轮架横向移动采用伺服电机滚珠丝杆拖动。
- 机床床身为高强度、低应力的铸铁整体铸造，采用高刚度结构，有良好的减振和热平衡性能。
- 工件长度变化在100mm内，可不移动尾架，其夹具的液压顶紧力可任意调整。
- 磨削加工具备时实现一次装夹自动磨削循环（快进、粗磨、精磨、到尺寸退出）。
- 电器电柜与床身刚性连接，避免多次拆卸联线，保证电气连接可靠。

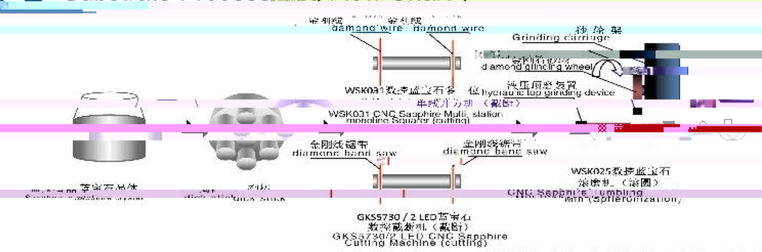
Main Applications and Structural Features

- This equipment is applied in the PV industry, processing monocrystalline silicon and sapphire bar, which can grind round outer circle of 2 -8 inch bar after cutting square (the 2 inch round bar no need to change diamond grinding wheel)
- Headstock, tailstock applies special hydraulic top clamp type grinding.
- Applies imported two-axis linkage CNC system, within with PLC touch screen display.
- Worktable longitudinal movement and grind wheel transverse apply servo motor ball screw.
- Casing is caste by high strength, low stress cast iron, with high stiffness structure good performance of shock absorption and heat balance.
- Length change of work piece shall be within 100mm，tailstock can by fixed, hydraulic top force of jig can be whatever adjusted.
- While grinding crystal bar, single set can automatic grinding circulation can come true (fast forward, coarse grinding, finish grinding to exist)
- Electric cabinet connects with body, avoiding repeated disassembly, ensuring reliable connection.


加工现场process site


周边设备peripheral equipment

衬底加工流程图 Substrate Processing Flow Chart



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