

WSK068S碳化硅切片机



设备概述

本机用于自动切割长条、坚硬、易脆材质，使用金刚石工具，切割硅、锗、石英玻璃、陶瓷、蓝宝石晶体、碳化硅等。

本机具备使用单/双向切割模式，达到设备的设计要求。设备主要由切割室、收放线室、电控柜、冷却系统等组成：

1. 设备基座为整体铸造，机械强度高而且热稳定性良好；线网和切割室设有安全保护挡板，导轮可以从台面两侧装卸和安装；导轮直径大（240mm）可以减少钢线弯曲疲劳度和金刚线颗粒的脱落，保持锋利，同时保持金刚线的切割力；切割室空间宽大，便于工件的安放，切割室内配有不锈钢防溅挡板；工作台夹紧有断电抱紧装置，防止工作时突然停机和停电时夹紧装置松动，保证切片精度和可靠性；设备配有钢线断线报警装置，断线时及时报警并防止线网被抽空；
2. 设备配有 2 个马达直接驱动 2 个钢线引导滚轮，透过特殊驱动系统，驱动马达能够同步化；钢线引导滚轮两端轴承采用高精度滚动轴承；轴承为水冷式，系统能够监控轴承温度；
3. 搅拌缸配有热交换器，以维持切割工艺的预设温度；使用流量计测量并显示研磨剂流量并对其进行流量控制，供应研磨剂至工件左右侧，研磨剂经过滤器过滤后回流至砂浆缸；
4. 电控柜配备独立温控系统，保证各控制元件正常工作；
5. 控制系统为德国西门子控制系统，整合个人计算机、数据存储与数据传输并连接至计算机；计算机具有多种接口，可提供远程操作；操作系统为中文视窗应用软件，视窗界面更直观。彩色平面屏幕显示与监控制程数据，预设钢线张力、切割工艺、钢线移动、研磨剂流量等数据文件，使其最适合于制程作业；
6. 设备具备摇摆功能，双支撑摇摆单元，优化了砂浆线切割的品质，同时该设备具备金刚线切割超硬材料的性能，缩短了切割时间，并提高了晶片的质量。

Equipment Overview

This machine is used for automatically cutting long, hard and brittle materials, using diamond tools to cut silicon, germanium, quartz glass, ceramics, sapphire crystals, SiC, etc.

This machine can use single / two-way cutting mode and meets the design requirements of the equipment. The equipment is mainly composed of cutting chamber, pay-off and take-up chamber, electric control cabinet, cooling system, etc.:

1. The base of the equipment is a whole body casting, with high mechanical strength and good thermal stability; Wire mesh and cutting chamber are equipped with safety guard baffles, the guide wheel can be loaded, unloaded and installed from both sides of the table; With large diameter (240 mm), the guide wheel can reduce the bending fatigue of steel wire and the dropping of diamond wire grain, keep the sharpness while maintaining the cutting force of the diamond wire. The cutting chamber has wide space for easy placement of the workpiece, and the cutting chamber inside is equipped with stainless steel splash-proof baffle; The working table clamp has power failure holding device to prevent the clamping device from loosening when the machine suddenly stops working and power fails, to ensure the accuracy and reliability of the slice; The equipment is equipped with a wire-breaking alarm device, to timely alarm and prevent wire mesh from being drawn empty at the time of wire breaking;
2. The equipment is equipped with 2 motors to directly drive 2 steel wire guiding rollers. Through special drive system, the driving motor can be synchronized; The bearings at both ends of the steel wire guiding roller adopt high-precision rolling bearings; The bearings are water-cooled, and the system can monitor the bearing temperature;
3. The mixing tank is equipped with a heat exchanger to maintain the preset temperature of the cutting process; Flow meter is used to measure and display the flow rate of the abrasive and control its flow rate. Abrasive is supplied to the left and right sides of the workpiece, and returns to the mortar cylinder after being filtered through the filter.
4. The electric control cabinet is equipped with independent temperature control system to ensure the normal operation of each control component;
5. The control system is German Siemens control system, integrated with personal computer, data storage and data transmission and connected to the computer; The computer has a variety of interfaces and can provide remote operation; The operating system is Chinese Windows application software, with more intuitive Windows interface. Color flat screen displays and monitors the process data, presets the steel wire tension, cutting process, steel wire movement, abrasive flow and other data files, making it most suitable for process operations;
6. The equipment features swinging function, and the dual-support swinging function unit optimizes the performance of slurry slicing quality and this machine has the diamond wire-cut hardest materials (Semi/sapphire / SiC), shortens the cutting time, and improves the wafer quality.

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WSK068S 碳化硅切片机规格参数

Specification of WSK068S SiC Slicing Machine

设备参数 Equipment Parameters

工件 workpiece	
端面尺寸 Dimension	4~8寸(摇摆) 4~8 inch(rocking)
设计长度 Design Length	0~600mm
厚度 Thickness	0.2~10mm >0.2mm
切割速率 Cutting Rate	
进给速率 Feed rate	0-200mm/min 可调 0-200mm/min can adjust
线速度 Line speed	40m/s (最大) 40m/s (maximum)
工作行程 Working stroke	最大295mm 295mm (maximum)
钢线 Steel Wire	
芯线径 Core wire diameter	0.090 ~ 0.40mm
长度 Length	按线轮而定(300km/卷,最大500km)depending on the reel(300km/spool, max.500km/spool)
切割方向 Cutting direction	前进或后退切割/双向切割 forward or reverse cutting/two-way cutting
周期时间 Cycle time	可设定(前进或后退切割) can be set (forward or reverse cutting)
预先张力 Pre-tension	3~50最大50N(视钢线直径Φ而定) 3 to 50, 50N as maximum (depending on steel wire diameter Φ)
导轮 Guide Wheel	
导轮直径 Guide wheel diameter	240mm
导轮长度 Guide wheel length	620mm
导轮个数 Number of guide wheels	2
轴距 Wheelbase	490mm
摇摆角度 Swinging Angle	
摇摆角度 Swinging angle	±12° (option parts)
摇摆类型 Swinging Type	工件摇摆 workpiece swinging
钢线偏转滑轮 Steel Wire Deflecting Pulley	
直径 Diameter	Φ160mm (个数: 6) Φ160mm (quantity: 6)
切削液供应 Cutting Fluid Supply	
切削液箱最大容量 capacity of cutting tank	100 -200L
显示屏 Display Screen	15"西门子触控屏 15" Siemens touch screen
断线保护机制	具备
冷却方式	水冷(马达/电柜/切割液) & 油冷(轴承箱)
机器重量	约12000 kg
机台尺寸(长、宽、高)	4.57米、2.1米、3.2米
语言设置	中文

厂务参数 Factory parameters

电源要求 Power requirements	
电压 Voltage	380V±10% 频率: 50Hz 380V ± 10% Frequency: 50Hz
设备功率 Equipment power	
最大功率容量 Maximum power capacity	90KW 平均功率: 35KW 90KW Average power: 35KW
压缩空气 compressed air	
连接气管内径 Connecting air tube inner diameter	13mm
平均耗气量 Average air consumption	15m³/h
最大耗气量 The maximum air consumption	30m³/h
设备冷却水 Equipment Cooling Water	
连接管 Connecting pipe	G2"
用水量 Water consumption	2500kg/h
最大用水量 Maximum water consumption	5000kg/h
制冷功率 Cooling power	20kw
水温 Water temperature	12 ~ 17°C恒温(constant temperature)
地基要求 Foundation Requirements	
地基满足 The foundation meets	平±5mm/3m C25/30 (300mm厚) C25/30 (300mm thick)
地面水平 Ground level	±5mm/3m