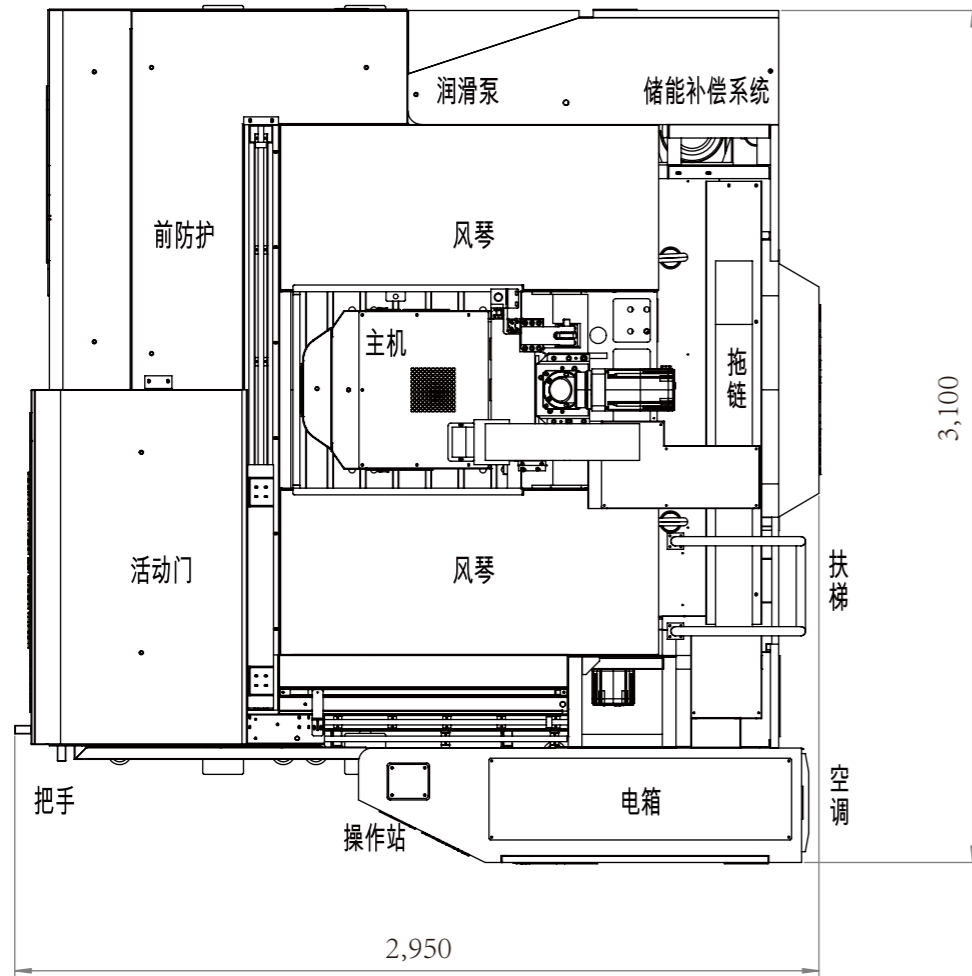


超高速龙门980型搅拌摩擦焊接机床平面布局图

Layout Plan Of 980 Style Friction Stir Welding Machine



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超高速龙门980型搅拌摩擦焊接机床

High-speed Gantry-Style of 980 FSW Machine



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2024版本



超高速龙门 980 型搅拌摩擦焊接机床

秉承“做品牌，用好料”的焊接机床制造初表，为客户提供高精度、高可靠性、高使用性价比的搅拌摩擦焊接机床。超高速龙门980型搅拌摩擦

焊接机床基于世佳博“精密搅拌摩擦焊接机床制造理念”研发的高端焊

接机型。设备配备3T/6T载荷及6,000/4,000/3,000RPM焊接机头，可实

现铝合金单面8/10/12/16mm焊接，铜合金单面3/6mm焊接。设备具备

XY轴15,000mm/min快速移动速度，配套恒压力控制系统、断针检测系统、二维码扫描系统、DNC管理系统等功能，可实现焊接数据监测及质量追溯、精准恒压力控制及3,000mm/min的高速焊接。

主要特点

● 依照机床行业规范及制造标准，并结合搅拌摩擦焊接工艺特点，进行搅拌摩擦焊接机床独特设计及制造。

● 设备主体结构均采用HT300高强度精密铸造结构，经过多次热处理和时效处理。设备三轴采用两线一硬结构，XY轴采用P级滚柱线轨，Z轴采用进口复合贴塑硬轨并经过淬火。基于以上配置和工艺控制，设备整体具有较高的刚性、稳定性和良好的抗震性能；

● 机床为5轴数控，可实现“五轴四联动”焊接功能；各运动轴均由西门子原装进口独立交流伺服电机驱动，可实现高运行稳定性；

● 设备配备3T/6T载荷及6,000/4,000/3,000RPM焊接机头，可实现铝合金单面8/10/12mm焊接，铜合金单面3/6mm焊接。可实现前焊后铣、一键启动、精准恒压力控制及3,000 mm/min的高速焊接；

● 实行“交钥匙”工程服务。在机床交付的同时，提供目标产品全套工艺资料，确保机床交付与产品生产无缝对接；

● 机床拥有功能强大的可选及升级配置，轻松提升焊接机床使用性能并最大化投入产出比；可实现无人化及数字化智能焊接加工；

● 机床外防护采用全新工业设计理念，在满足工业安全要求的前提下，结合现代简约风格，给人以美的享受。

关键件配置

名称	品牌	属地
● HT300精密铸造床身	● 世佳博	● 中国云南
● 主轴电机	● 西门子	● 德国
● 四轴伺服电机	● 西门子	● 德国
● 焊接主轴	● 世佳博	● 台湾
● 减速机	● 精 锐	● 台湾
● C3级滚珠丝杠	● THK	● 日本
● XY轴P级滚柱导轨	● THK	● 日本
● Z轴复合贴塑硬轨	● 世佳博	● 西班牙
● 电气	● 施耐德	● 法国

High-speed Gantry-Style of 980 FSW Machine

High-speed Gantry-Style of 980 FSW Machine is an advanced machine that designed on the idea of Sooncable making precise FSW Machine. It is equipped with 3T (4,000/6,000RPM)/6T (3,000/4,000RPM)welding spindle and possesses the capacity of Al-alloy for one side within 8/10/12/16mm, Cu-alloy for one side within 3/6mm.The rapid moving speed of X/Y Axis is up to 15,000mm/min, which can realize such functions as Constant Force Control System, Broken needle detection, QR code scanning system, DNC function System , etc. It can achieve welding data monitoring and quality traceability, precise constant pressure control, and high-speed welding of 3,000 mm/min.

Main Features

● The FSW Machine is specially developed and built for Friction Stir Welding Process, which based on the National Specifications and Standards of precise FSW Machine.

● The main structure of the equipment adopts HT300 high strength precision casting structure, which has been heat treated and aged for many times. The three-axis adopts two-wire and one-hard structure, the XY-axis adopts p-class roller track, and the z-axis adopts imported composite hard track and quenched. Based on the above configuration and process control, the overall equipment has high rigidity, stability and good seismic performance.

● The FSW Machine has 5-axis and can achieve 4 axes coordinated welding control. Each motion axis is driven by an Siemens AC Servo Motor for nice stability of continuous long term running.

● The rapid moving speed of X Axis is up to 15,000mm/min, which can realize such functions as front welding and rear milling system, one key start, accurate constant pressure control system and efficient welding speed of 3,000mm/min.

● Technical trainings and welding trials based on FSW process is also served as key part of “Turn-key” project along with the machine delivery.

● Great optional configurationrealizing automatically welding, thus increasing annual work efficiency.

● The machine reflects the development trend of manufacturing industrial, i.e. environment-friendly automatic, flexible, high efficient and function composite, making your enjoying its working environment.

Key Attachments

Description	Outsourcing component
● Lathe bed	● Customized, China
● Main axis motor	● Siemens, Germany
● Servo motor	● Siemens, Germany
● Main axle	● Customized, Taiwan
● Reducers	● Apex, Taiwan
● C3-level ball screws	● THK
● P-level roller guide	● THK
● Hard Rail	● Spain
● Electric control	● Schneider, France

主要技术参数

项 目	Description	Unit	SCB-LM980-2D-3T/6T	
床身材质	Bed material	/	HT300	
机床结构	Machine tool structure	/	两线一硬（Z轴硬轨）	
工作台尺寸	Work-piece size	mm	900×800	
各轴最大行程	Each axial travel	mm	800×800×400	
Z向焊接空间	Max. welding space	mm	0- 400 / 200-600/ 300-700	
龙门跨距	LM span	mm	900	
主轴顶锻力	Max. Z-axis down forth	T	3	6
最大铝合金焊接厚度	Max. welding thickness	mm	8/10	12/16
最大铜合金焊接厚度	Max. welding thickness	mm	3	6
焊接主轴最高转速	Max. spindle speed	r/min	4,000/6,000	3,000/4,000
X/Y/Z轴快移速度	X axial Y axial Z axial	mm/min	15,000/15,000/6,000	10,000 / 10,000 /3,000
X/Y/Z轴定位精度	X axial Y axial Z axial	mm/1,000mm	0.015 / 0.015 / 0.015	
X/Y/Z重复定位精度	X axial Y axial Z axial	mm	0.01	
T型槽工作尺寸	T-groove specification	mm	7×18×120	
搅拌头夹持柄直径	Holder diameter of Tool	mm	20	
刀柄规格	Handle specificationsT	—	BT50	
数控系统	Control System	—	828D/840Dsl	
主轴倾角	Spindle inclination	°	±3	
C轴行程(选配)	C axis travel	°	N×360	
机床主电机功率	Main motor power	kw	12/22	22
机床电力总负荷	Total power	kw	30/40	45
机床尺寸	Machine size	mm	3,100×2,950×3,400/3,600	
机床重量	Total weight	kg	8,600	10,200

标准配置及功能

功能

● 急速气冷系统

● 电控系统空调系统

● 搅拌头寿命监控系统

● 焊接过程参数记录系统

● 断针检测

可选配置及功能

功能

● 自动门

● 安全门锁装置

● 点触式对刀

● DNC管理系统

● 恒压力控制系统

● 二维码扫描系统

● 焊接机头自适应平衡系统

功能描述

● 5分钟内气雾温度可达3°

● 电控系统恒温恒湿

● 拌头寿命实时监测

● 焊接过程参数记录及调取

● 焊前判定搅拌针是否断裂

Main Specifications

Function	Description
● Rapid air cooling Device	● Mist TEMP can reach 3° in 5mins
● Air Condition for ECC	● Temperature controlling of ECC
● Life Monitoring System	● Monitoring lifetime of FSW tool
● Parameters Recording System	● Recording & copying manually
● Broken needle detection	● Fracture judgment of tool needle

Optional Attachments

Function	Description
● Automatic-door	● Door opens and closes automatically
● Safety door lock device	● Door and equipment linkage
● Point contact tool setting	● Press the key to complete tool setting
● DNC function System	● Monitoring, controlling on line
● Constant Force Control system	● Constant down force output
● QR code scanning system	● Generate and store database files
● Spindle Responsive System	● Eliminate FSW keyhole