

检测认证 TESTING AND CERTIFICATION



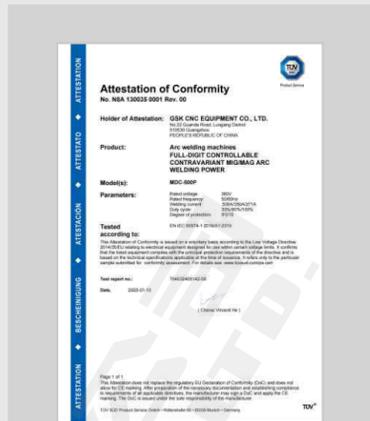
GSK MDC-500P 全数字高端焊机
GSK MDC-500P Fully Digital High-End Welding Machine

一级能效检测认证报告
Grade 1 Energy Efficiency Testing and Certification Report



增材制造试样物理性能分析检测
Physical Property Analysis and Testing for Additive Specimens

一级性能检测认证报告
Grade 1 Performance Testing and Certification Report



GSK MDC-500P 全数字高端焊机
GSK MDC-500P Fully Digital High-End Welding Machine

CE产品认证
CE Certification

专利证书 PATENT CERTIFICATE



差值复合送丝控制方法、装置、计算机设备及存储介质发明专利
Invention Patent for a Differential Composite Wire Feeding Control Method, Apparatus, Computer Device, and Storage Medium



一种热交换器 实用新型专利
Utility Model Patent for a Heat Exchanger

一种可快速拆装的电机机壳 实用新型专利
Utility Model Patent for a Quick-Detachable Motor Housing

一种具有散热结构的机壳及焊机 实用新型专利
Utility Model Patent for a Casing with a Heat Dissipation Structure and a Welding Machine

一种具有管道结构的支架、机壳以及气保焊枪 实用新型专利
Utility Model Patent for a Bracket with a Conduit Structure, a Casing, and a Gas-Shielded Welding Torch



弧焊机 (MDC02) 外观专利
Design Patent for an Arc Welding Machine (MDC02)

手推车 (MDC-HC02) 外观专利
Design Patent for a Trolley (MDC-HC02)

弧焊电源 (MDC-500P) 外观专利
Design Patent for Arc Welding Power (MDC-500P)

送丝机 (MDC-WF02) 外观专利
Design Patent for a Wire Feeder (MDC-WF02)

焊丝安装盒 (MDC-WRB02) 外观专利
Design Patent for a Welding Wire Mounting Box (MDC-WRB02)

用于智能焊机的系统图形用户界面 外观专利
Design Patent for the System Graphical User Interface of a Smart Welding Machine

液体冷却装置 (MDC-WT02) 外观专利
Design Patent for a Liquid Cooling Unit (MDC-WT02)



数控神焊

全数字控制逆变MIG/MAG弧焊电源

Full Digital Control Contravariant MIG/MAG Arc Welding Power

GSK MDC-500P全数字高端焊机

GSK MDC-500P Full Digital High-End Welding Machine



成型美观 / 飞溅量低 / 操作方便 / 安全节能 / 与GSK焊接机器人紧密配合

Beautiful shaping / Low splash / Easy operation / Safety & energy conservation / Close cooperation with GSK welding robot

广州数控设备有限公司
GSK CNC EQUIPMENT CO., LTD.

400-0512-028
地址: 广州市黄埔区观达路22号 邮编: 510530
Address: No. 22, Guanda Road, Huangpu District, Guangzhou, China, 510530

销售热线(Sales Hotline): 020-82221187
传真(Fax): 020-81994083
网址(Website): www.gsk.com.cn



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gzgsk.1688.com Alibaba Flagship Store



@广州数控设备有限公司 Douyin Account

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神焊焊接

MAGIC WELDING

神焊增材

MAGIC ADDITIVE

GSK MDC-500P

全数字高端焊机

GSK MDC-500P
Full Digital High-end Welding Machine

焊机概述

Overview

采用碳化硅作为主回路开关器件，输出回路开关频率高达128kHz,具备优秀的动态响应能力。

针对MDC焊接工艺（推拉丝）专门研制了送丝专用的伺服驱动和电机，使得送丝系统能够完成高频的送丝和回抽动作。

采用FPGA+DSP双核控制，能够实现复杂的数字化焊接电流波形控制，配合上述送丝系统实现MDC直流推拉丝、脉冲、双脉冲以及直流和脉冲复合等多种焊接工艺。

It is used the silicon carbide as the main circuit switch components and up to 128kHz of the output circuit switch frequency, and it owns excellent ability of dynamic response as well. It is studied the dedicated servo drives and motors for wiring based upon the MDC welding technology (Wire-pulling); so that the wiring system can be performed high frequency wiring and retracting motions. It is adopted with the FPGA+DSP dual-core control, which can be carried out the complicated digitization welding current waveform control and achieved the welding technologies such as the MDC DC wire-pulling, pulse, dual-pulse and DC and pulse compound etc. based upon the above-mentioned wire-feeding system. It is the Top welding velocity in the word.



焊机优势

Advantage

世界领先的焊接速度
World-class Welding Speed

世界一流的焊接质量
World-class Welding Quality

个性化智能焊缝管理
Personalized Smart Seam Management

高度集成化的远程管理
Highly integrated remote management

多种微创冷焊省电模式
Multiple Minimally Invasive Cold Welding Power-saving Modes

0.1mm焊缝轨迹重现精度
0.1mm Weld Trajectory Reproduction Accuracy

焊机特点

Features

8寸触摸屏

8 Inch Touch Screen

简单易操作,中英文交互界面

Simple and easy to operate, can be operated with gloves, Chinese and English operation interface.

首创防尘技术

Pioneer Of Dust-Proof Technology

内外隔绝, 极致防尘, 十年如新

Isolation between internal and external, extreme dustproof, ten years used as a new.

云管理系统

Cloud Management System

联网实现设备管理,数据库管理与系统维护

Networking for device management, based on the library management and system maintenance.

MDC焊接工艺

MDC Welding Process

0.3mm超薄板低飞溅高速焊

0.3mm ultra-thin plate with low splash and high velocity welding.



第三园区 机器人产业园
Park 3: Robot Industrial Park



第一园区 数控产业基地
Park 1: CNC Industry Base



第二园区 精密加工配件园
Park 2: Precision Part Machining Park



数控功能测试实验室 Testing laboratory with CNC function



SMT精密元件贴片车间 Chipping workshop of SMT precision element



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广州数控设备有限公司（简称：广州数控、GSK）成立于1991年，历经艰苦创业、勤奋创新、智能创造再起步，成为国家级高新技术企业，作为国内专业技术成熟的成套智能装备解决方案提供商，被誉为中国南方数控产业基地。

广州数控是中国机床工具工业协会理事长单位、中国机器人产业联盟副理事长单位、中国软件行业协会理事长单位、中国机械联合会理事单位、中国机电装备维修与改造技术协会理事单位。两次荣获国家科学技术进步奖二等奖，拥有国家级企业技术中心、博士后科研工作站、工程技术研发中心、工程实验室，公司拥有精良的生产设备和工艺流程，科学规范的质量控制体系保证每套产品合格出厂；拥有完善的售后服务网络和专业的技术服务团队，以“精益求精，让用户满意”的服务精神，全方位、多层次、科学高效的服务管理方式和手段，保证用户在短时间内得到快捷、可靠、有效的响应。

GSK CNC Equipment co., Ltd. (hereinafter referred to as: GSK) was established in 1991, which becomes a National high-tech enterprise after undergoing the hard work, diligent innovation and restarting with intelligent creation. As a provider of complete intelligent equipment solutions with mature professional technologies in China, it is known as the CNC industry basement in Southern China.

GSK is the company of the Chairman of China Machine Tool Industry Association, the Vice Chairman of China Robotic Industry Alliance, the Chairman of China Software Industry Association, the Director of China Machinery Federation, and the Director of China Mechanical and Electrical Equipment Maintenance and Transformation Technology Association. It won the National Science Progress Award twice. It has a national enterprise technology center, post-doctoral research workstation, engineering technology R&D center, and engineering laboratory. GSK owns excellent production equipment and technology procedure, and a scientific and standardized quality control system to ensure that each set of products are qualified; we have a perfect after-sales service network and a professional technical service team; the service spirit of "Keeping Improving and Satisfying to User"; the management methods and means of the services with all-round, multi-level and scientific and efficient and ensure that users can get a fast, reliable and effective response in a short time.

从2009年承担数控机床专项至今，广州数控每年近10万套标准型数控系统（部分高档系统）配套，2018年，广州数控实现第100万套数控系统下线交付，百万套数控系统装备上百万台“工业母机”，支撑国内一大批机床制造企业健康运行。

Nearly 100,000 sets of the standard CNC systems (high-level systems including) are configured per each year of GSK, since undertaking the Special CNC machine tool project in 2009. In 2018, GSK achieved the off-line delivery of the one millionth CNC systems and the million sets of CNC systems that equipped with millions of "Industry Main Machines", which supported the health operation of a large number of domestic machine tool manufacturers.

依托30多年积累的数字控制技术，广州数控通过大量的创新研制出掌握核心技术的系列工业机器人及全数字高端焊机产品。同时充分发挥广州数控在高档机床、高端数控系统、五轴加工机床等设备和在机床行业多年加工经验的优势，产品本体零件全部自加工，有力控制成本和保障加工质量。

GSK studied technology-cored series industry robot and high-end full digital welding products by a large number of innovations based upon the digital control technology accumulated more than 30 years. At the same time, GSK fully plays a role of advantages in high-level machine tool, high-end CNC system and five-axis machining device, etc. in the years of experience in the machine tool industry; as well, the overall main body components are processed by ourselves and properly controlled the cost and guaranteed the machine quality.

荣誉资质 HONORS AND QUALIFICATIONS



国家科学技术进步奖二等奖 (2017/2021/2023)
National Science and Technology Progress the 2nd Prize Award (2017/2021/2023)

制造业单项冠军示范企业 (机床数控系统)
Single Champion Demonstration Enterprise in Manufacturing Industry (Machine CNC System)



国家认定企业技术中心
National Recognized Enterprise Technology Center



中国机床工具工业协会第八届、第九届理事会轮值理事长单位
Rotating Chairman Unit of the 8th and 9th Councils of China Machine Tool and Tool Industry Association

产品介绍 PRODUCT INTRODUCTION

送丝系统由伺服送丝机、缓冲器与伺服焊枪等部件组成。

适用于微创冷焊、高速焊、间断焊、直流低飞溅、脉冲等多种焊接工艺应用。

The wire feeding system consists of components such as a servo wire feeder, buffer, and servo welding gun. Suitable for various welding processes such as minimally invasive cold welding, high-speed welding, intermittent welding, DC low spatter, pulse welding, etc.



GSK工业机器人电柜

GSK Industrial Robot Electric Cabinet

缓冲器

Buffer

充当伺服送丝机与伺服焊枪连接的桥梁，弹性容纳焊丝，实时反馈焊丝状态，调整送丝速度使送丝过程更加平稳。

The buffer, is acted as the bridge between the servo wire-feeding machine and servo welding machine, which can be held the flexible welding cable, feedback the state of welding in real-time, and adjusted the speed of wire-feeding so that the process of wire-feeding is more stable.



GSK RH06B1七关节机器人

GSK RH06B1 7-joint Industry Robot



伺服焊枪

Servo Welding Gun

焊丝进动速度与方向随不同工艺需求周期性变化
The wire precession speed and direction change periodically with different technology requirements.

推拉丝焊接过渡频率最高可达200Hz
Push-draw welding transition frequency up to 200Hz

推拉丝加速度最高可达745m/s²
Up to 745m/s² of push-pull acceleration

百兆以太网通信

The 100-megabit Ethernet communication

伺服送丝机

Wire-Feeding Machine Of Servo

采用定制的伺服驱动与电机，实时调节送丝速度，确保送丝精准稳定。

The customized servo drive and motor are used to adjust the speed of wire feeding in real-time and ensure accurate and stable of wire-feeding.



GSK MDC-500P

全数字高端焊机

GSK MDC-500P Full digital high-end welding machine



数字焊机水箱

Digital Welding Machine Water Tank

结构造型独特，外观新颖，品牌识别性强。
Unique structural shape, novel appearance and strong brand recognition.

结构紧凑，工艺先进，结实可靠。
Compact structure, advanced technology, strong and reliable.

具备水位高度测量、报警功能。
Water level height measurement and alarm function.

具备水流量检测报警功能。
With water flow detection and alarm function.

具备水温监测功能。
Water temperature monitoring function.



上位机软件功能 HOST COMPUTER SOFTWARE FEATURES

常用功能 Common Features



触摸屏+按钮输入
Touchscreen and Rotary Knob



文字图形描述
Text and Graphic Description



焊机工艺试用功能
Welding Process Trial Feature



焊接过程定制设置
Custom Welding Process Settings



焊接过程数据记录和操作日志
Welding Process Data Logging and Operation Log



作业模式：支持多种JOB模式调用
Operating Mode: Supports multiple JOB mode calls



整机文件一键导出
One-Click Full System File Export



实时数值显示与监控
Real-time Data Display and Monitoring



设备详细信息界面
Device Details Interface

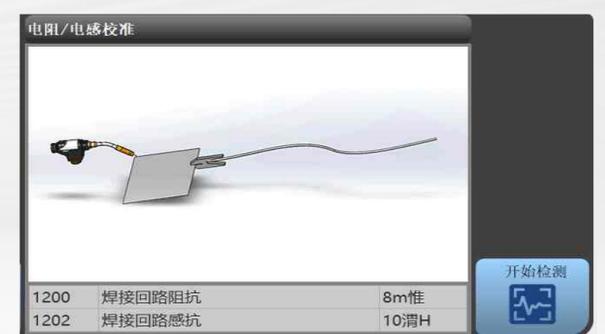


用户权限管理
User Permission Management

扩展功能 Extended Features



系统模块校准更新
System Module Calibration Update



系统模块校准
System Module Calibration

高级功能 Advanced Features



系统升级与备份/恢复
System Upgrade & Backup/Restore



一元化焊接软件包
All-in-one Welding Software Package



示波器采示
Oscilloscope Sampling



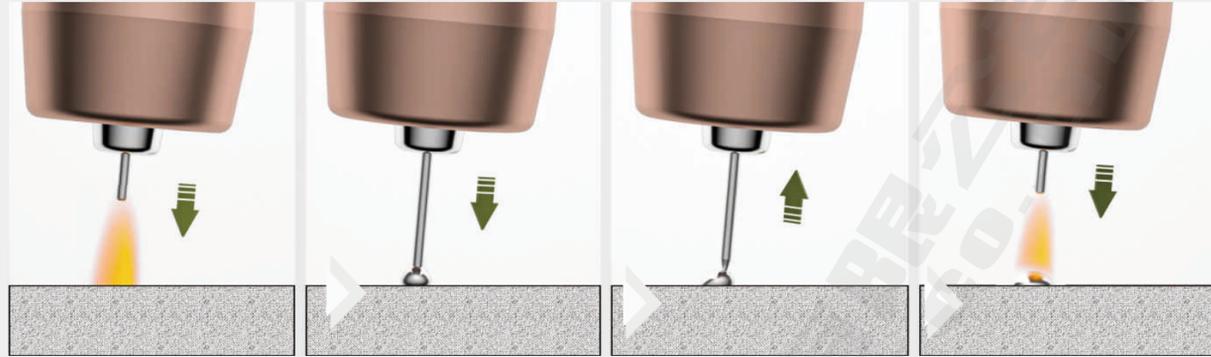
内嵌Internet智能网站
Embedded Intelligent Website

❖ 微创冷焊工艺特点 MDC Welding Process Features

◎ 超低飞溅 Ultra-low Spatter

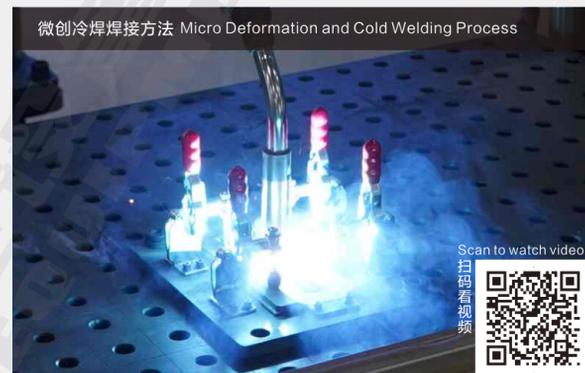
MDC焊接工艺采用双伺服电机送丝系统，依靠焊丝回抽实现熔滴过渡，相较于传统低飞溅焊接工艺，热输入更低、飞溅量更少、间隙容忍度更高。

The MDC welding process utilizes a dual-servo motor wire feeding system, achieving droplet transfer through wire retraction. Unlike conventional low-spatter welding processes, it features lower heat input, reduced spatter, and greater gap tolerance.



在焊接短路状态下焊丝回抽运动，焊丝与熔滴实现微电流分离，抑制飞溅产生。

During the short-circuit phase of welding, the wire retracts, allowing it to separate from the molten droplet at a minimal current, which suppresses spatter generation.



◎ 高速焊接 High-Speed Welding

MDC焊接工艺最高过渡频率为200Hz，支持的最大焊接速度最高可达3m/min，达到世界领先水平，实现漂亮的焊缝效果，节省焊接时间，节省能耗和焊接耗材。

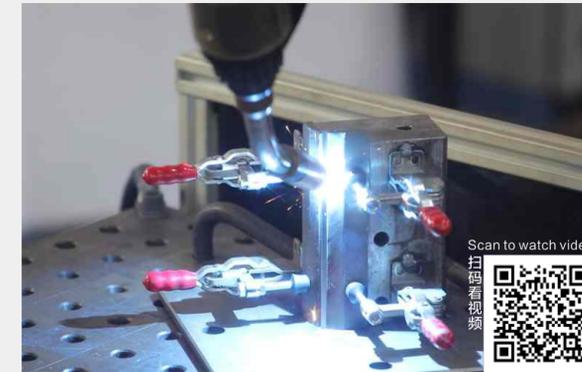
With a maximum droplet transfer frequency of 200Hz, the industry-leading MDC welding process supports welding speeds of up to 3m/min. It produces an excellent weld appearance while saving time, energy, and consumables.



◎ 超薄板焊接 Ultra-Thin Plate Welding

适宜超薄板和薄板(0.3-2mm)，间隙容忍度高，不易出现烧穿等焊接缺陷，焊接速度快，焊接质量好。

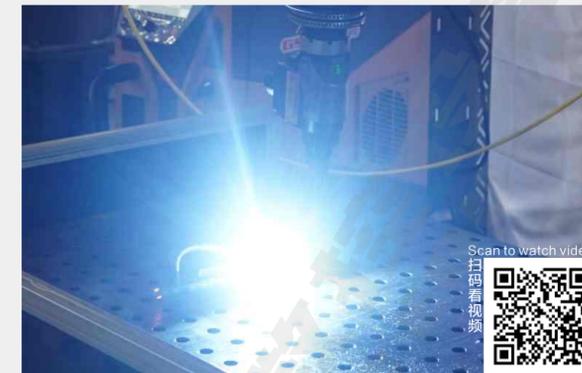
It is ideal for ultra-thin and thin plates (0.3-2mm), featuring high gap tolerance. It is resistant to weld defects such as burn-through and provides fast welding speeds with superior weld quality.



◎ 大间隙焊接 Large-Gap Welding

间隙容忍度高，间隙搭桥能力强，焊接效果好。

It features high gap tolerance and strong gap-bridging ability, ensuring excellent welding performance.

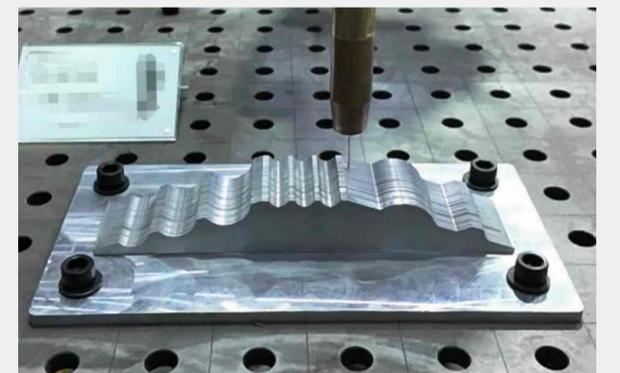
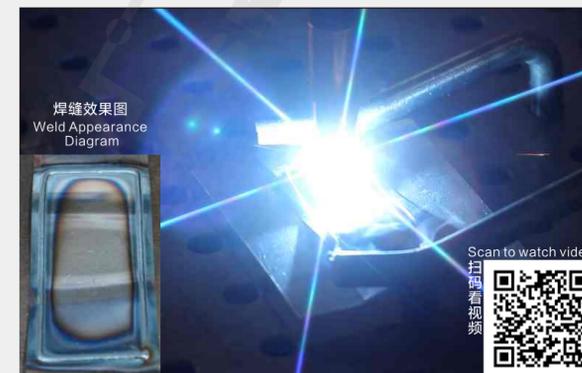


板材2mm，间隙3mm Plate: 2mm, Gap: 3mm

◎ 干伸长自适应 Adaptive Stick-out

干伸长自适应功能可保证焊接效果变化很小，即使面对复杂工件，也能达到很好的焊接效果。

Adaptive stick-out ensures minimal variation in welding quality, delivering excellent results even on complex workpieces.



焊接工艺 WELDING Process

MDC微创冷焊 Micro Deformation and Cold Welding (MDC)

微创冷焊 (Micro Deformation And Cold Welding)，广州数控创新技术，填补了国内的空白，为用户节省用电30%，焊接过程减少了高温对环境的影响，实现排放减少。专为薄板焊接设计的MDC焊接工艺，双伺服电机送丝系统控制焊丝周期送进-回抽，配合微秒级输出波形控制，实现极低热输入的熔滴过渡。可焊接0.3mm不锈钢、碳钢、硅钢、高强钢，0.5mm铝合金、铜合金，且飞溅极低。

Micro Deformation and Cold Welding (MDC) is an innovative technology developed by GSK, which fills a gap in the domestic market. It saves users 30% on power consumption, and the welding process reduces the environmental impact of high temperatures, leading to lower emissions. Specially designed for thin sheet welding, the MDC process utilizes a dual-servo motor wire feeding system to control the cyclical feeding and retraction of the welding wire. This, combined with microsecond-level output waveform control, achieves droplet transfer with extremely low heat input. It is capable of welding 0.3mm stainless steel, carbon steel, silicon steel, and high-strength steel, and 0.5mm aluminum and copper alloys with extremely low spatter.



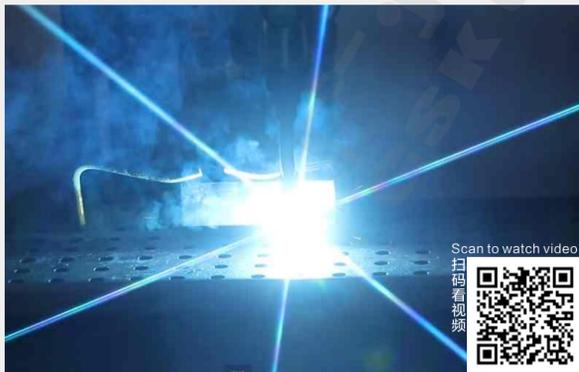
脉冲 Pulse

以强电流熔化焊丝末端，主要依靠电磁收缩力与电弧推力促进熔滴过渡到熔池中。

- 在平稳的脉冲焊接过程中，一脉一滴，没有飞溅。
- 相较于传统脉冲焊，针对中厚板研发的潜弧焊可以实现弧长更短、熔深更深。
- 工艺成熟稳定，熔宽与熔深大，焊接效果好。
- 焊接过程中送丝速度不变，熔敷效率稳定。

A high current is used to melt the wire tip, with droplet transfer into the molten pool primarily driven by electromagnetic pinch force and arc pressure.

- In a smooth pulse welding process, one droplet is transferred per pulse, ensuring a spatter-free result.
- Unlike conventional pulse welding, this process, developed for medium-to-thick plates, enables a shorter arc length and deeper penetration.
- A well-developed and stable process that produces a wide weld bead and deep penetration, ensuring excellent weld quality.
- The wire feed speed remains constant during the welding process, ensuring stable deposition efficiency.

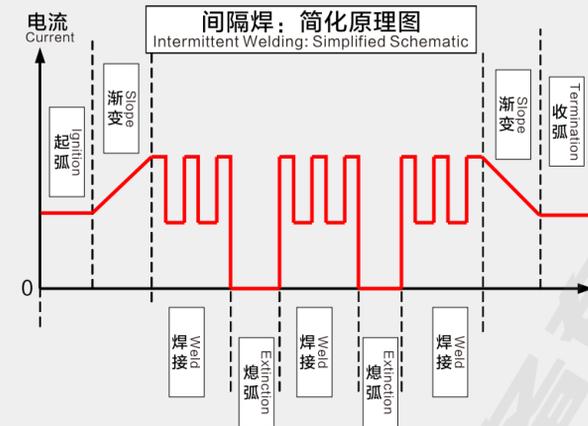


间隔焊 Intermittent Welding

焊接过程中周期性熄弧、重新燃弧，焊接不连续。

- 可实现鱼鳞纹焊接效果，热输入更低；
- 操作简单，参数调整更便捷。

The arc is periodically extinguished and re-ignited during the process, resulting in a discontinuous weld. Achieves a fish-scale weld pattern with lower heat input. Ease of operation and more convenient parameter adjustment.



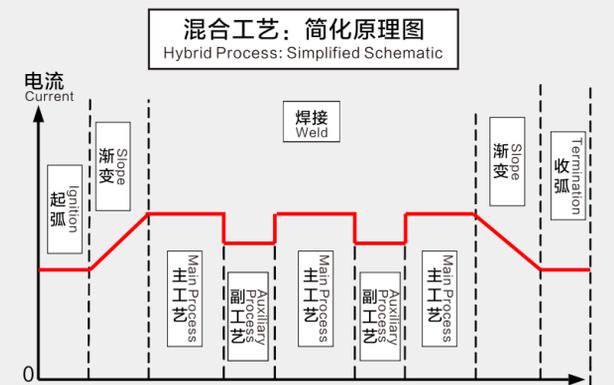
混合工艺 Hybrid Process

焊接过程中连续焊接，但周期性切换两种工艺。

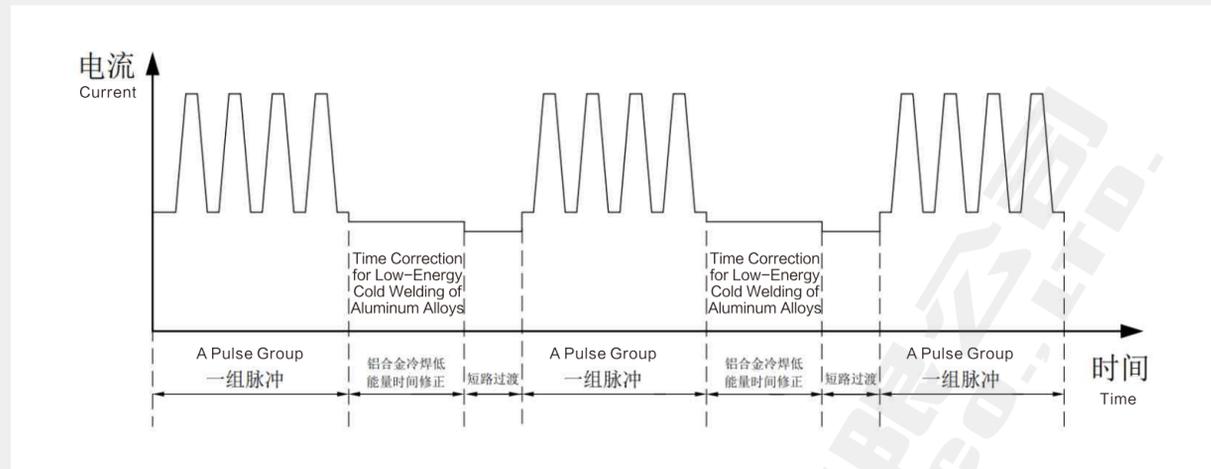
- 专为铝合金焊接设计，可实现鱼鳞纹焊接效果；
- 焊接过程中不熄弧，相较于间断焊，大幅度减少气孔缺陷；
- 支持选择同种工艺，切换不同电流，实现双脉冲功能；
- 支持MDC工艺与脉冲工艺混合，提升焊缝性能。

It is continuous welding that periodically switches between two processes.

- Specially designed for aluminum alloy welding to produce a fish-scale pattern.
- Continuous arc during welding, significantly reducing porosity defects compared to intermittent welding.
- Enables dual-pulse functionality by switching between different currents within the same welding process.
- Supports a hybrid of MDC and pulse processes to enhance weld performance.



铝合金MDC工艺的拓展应用 Extended Applications of the MDC Process for Aluminum Alloys



针对铝合金鱼鳞纹的焊接需求，在MDC工艺上复合了一段定频脉冲和一段低能量的直流电弧，通过定频脉冲获得鱼鳞纹鳞片，通过调整低能量时间来控制鳞片的间距，低能量的直流电弧可起到减少气孔增加焊缝光亮度的效果，在每个鳞片周期开始时通过MDC动作重新矫正弧长，保证电弧长度的稳定性。

To achieve a fish-scale bead when welding aluminum alloys, the MDC process is enhanced by superimposing a fixed-frequency pulse and a low-energy DC arc. The fixed-frequency pulse forms the individual ripples of the bead, while their spacing is controlled by adjusting the duration of the low-energy phase. This low-energy DC arc also serves to reduce porosity and enhance the sheen of the weld seam. To ensure consistent arc length, the MDC action recalibrates it at the start of each ripple cycle.

角焊
Fillet weld



平焊
Flat weld



焊接工艺库 Welding Process Library

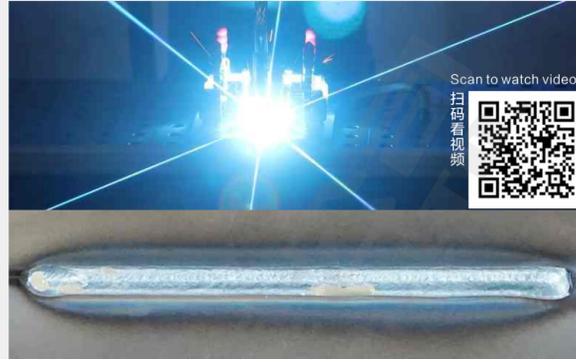
工艺 Process	填充金属 Filler Metal	焊丝直径 Wire Diameter	保护气体 Shielding Gas	工艺名 Process Name	推荐板厚范围 Recommended Plate Thickness Range	
MDC	碳钢 Carbon Steel	1.0mm	80%Ar+20%CO ₂	M102ST04	0.3mm~6mm	
		1.2mm	80%Ar+20%CO ₂	M102STP1	0.3mm~5mm	
	碳钢 Carbon Steel	1.0mm	100%CO ₂	M122ST05	0.3mm~8mm	
		1.2mm	100%CO ₂	M122STP1	0.3mm~5mm	
	不锈钢 Stainless Steel CrNi 19-9/ 19-12-3	1.0mm	97.5%Ar+2.5%CO ₂	M104ST01	0.5mm~5mm	
				M124ST02	0.5mm~6mm	
		1.2mm	97.5%Ar+2.5%CO ₂	M103CN05	0.3mm~5mm	
				M103CN06	0.3mm~5mm	
		1.2mm	97.5%Ar+2.5%CO ₂	M123CN01	0.3mm~6mm	
				M123CNP1	0.3mm~5mm	
脉冲 Pulse	碳钢 Carbon Steel	1.0mm	80%Ar+20%CO ₂	P102ST01	2mm~17mm	
		1.2mm	80%Ar+20%CO ₂	P122ST01	3mm~20mm	
	不锈钢 Stainless Steel CrNi 19-9/ 19-12-3	1.0mm	97.5%Ar+2.5%CO ₂	P103CN06	2mm~17mm	
		1.2mm	97.5%Ar+2.5%CO ₂	P123CN06	3mm~20mm	
	MDC	铝镁 Aluminum-Magnesium AlMg 5	1.2mm	100%Ar	M121AMP7	0.5mm~6mm
					M121AMP8	0.5mm~5mm
纯铝 pure aluminum Al 99.5		1.2mm	100%Ar	100%Ar	M121AC01	0.5mm~5mm
					M121AS01	0.5mm~3mm
铝硅 Aluminum-Silicon AlSi 5		1.2mm	100%Ar	100%Ar	M121ASP6	0.5mm~4mm
					M121ASP8	0.5mm~5mm
					M121ASP9	0.5mm~5mm
铝硅 Aluminum-Silicon AlSi		1.6mm	100%Ar	100%Ar	M121AC01	0.5mm~5mm
		铝青铜 Aluminum Bronze CuAl 8	1.0mm	100%Ar	100%Ar	M101CA01
1.2mm			100%Ar	100%Ar	M121CA02	0.5mm~5mm
锡青铜 Tin Bronze CuSn 8	1.2mm	100%Ar	100%Ar	M121CS04	0.5mm~5mm	
				M121CS08	0.5mm~4mm	
脉冲 Pulse	铝镁 Aluminum-Magnesium AlMg 5	1.2mm	100%Ar	P121AM02	1.5mm~18mm	
		1.6mm	100%Ar	P161AM02	3mm~20mm	
	铝硅 Aluminum-Silicon AlSi 5	1.2mm	100%Ar	P121AS01	1.5mm~17mm	
		1.6mm	100%Ar	P161AS08	3mm~20mm	
	硅青铜 silicon bronze CuSi 3	1.2mm	100%Ar	100%Ar	P121CS01	1.5mm~15mm

碳钢材料中的应用 Applications in Carbon Steel

超低飞溅(CO₂)

Ultra-low Spatter (CO₂)

工艺号 Process No.	M104ST01
焊缝位置 Weld Position	平角焊 Flat Fillet Weld
适用行业 Applicable Industries	五金零件、两轮车及配件、三轮车、运动器材、汽车零部件、家电家具等部件 Hardware components, two-wheeled vehicles and accessories, tricycles, sports equipment, automotive parts, home appliance and furniture components, etc.
焊接条件 Welding Conditions	焊接材料: 碳钢 Welding Material: Carbon steel 焊接电流: 135A Welding Current: 135A 焊接速度: 12mm/s Welding Speed: 12mm/s 板材规格: 2.0*150*50mm Plate Specification: 2.0*150*50mm



脉冲

Pulse

工艺号 Process No.	P122ST01
焊缝位置 Weld Position	平角焊 Flat Fillet Weld
适用行业 Applicable Industries	造船、钢构、工程机械、矿山设备、机座、农机、重工行业等部件 Components for shipbuilding, steel structures, construction machinery, mining equipment, machine bases, agricultural machinery, heavy industry, etc.
焊接条件 Welding Conditions	焊接材料: 碳钢 Welding Material: Carbon steel 焊接电流: 300A Welding Current: 300A 焊接速度: 4mm/s Welding Speed: 4mm/s 板材规格: 12*200*50mm Plate Specification: 12*200*50 mm



大间隙焊接

Large-Gap Welding

工艺号 Process No.	M122STP1
焊缝位置 Weld Position	间隙搭接焊 Gapped Lap Weld
适用行业 Applicable Industries	五金零件、两轮车及配件、三轮车、运动器材、汽车零部件、家电家具等部件 Hardware components, two-wheeled vehicles and accessories, tricycles, sports equipment, automotive parts, home appliance and furniture components, etc.
焊接条件 Welding Conditions	焊接材料: 碳钢 Welding Material: Carbon steel 焊接电流: 190A Welding Current: 190A 焊接速度: 6mm/s Welding Speed: 6mm/s 板材规格: 2.0*150*50mm Plate Specification: 2.0*150*50mm



高速焊接

High-Speed Welding

工艺号 Process No.	M122ST05
焊缝位置 Weld Position	平焊 Flat weld
适用行业 Applicable Industries	汽车零部件、箱体、家电家具等部件 Automotive components, cabinets, enclosures, and parts for home appliances and furniture
焊接条件 Welding Conditions	焊接材料: 碳钢 Welding Material: Carbon steel 焊接电流: 190A Welding Current: 190A 焊接速度: 50mm/s Welding Speed: 50mm/s 板材规格: 1.0*500*50mm Plate Specification: 1.0*500*50mm

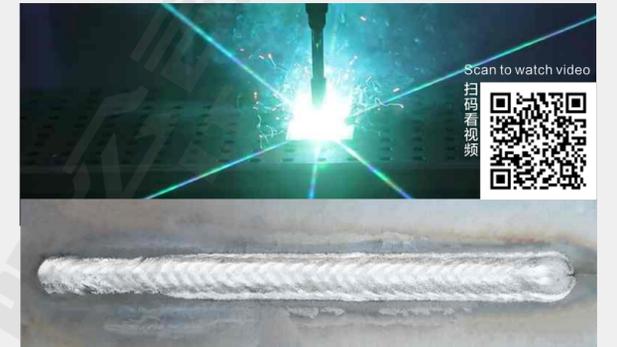


铝合金材料中的应用 Applications in Carbon Steel

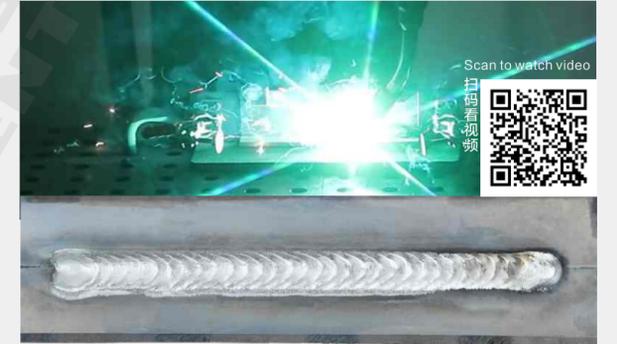
超低飞溅(CO₂)

Ultra-low Spatter (CO₂)

工艺号 Process No.	P121AM02
焊缝位置 Weld Position	平焊 Flat Weld
适用行业 Applicable Industries	铝模板、铝游艇、铝运输车厢、铝油罐等部件 Components such as aluminum formwork, aluminum yachts, aluminum truck bodies, and aluminum oil tanks
焊接条件 Welding Conditions	焊接材料: 5356铝合金 Welding Material: 5356 aluminum alloy 焊接电流: 320A-160A Welding Current: 320A-160A 焊接速度: 8mm/s Welding Speed: 8 mm/s 主工作周期: 80 Main Duty Cycle: 80 副工作周期: 60 Secondary Duty Cycle: 60 板材规格: 8.0*200*50mm Plate Specification: 8.0*200*50 mm



工艺号 Process No.	P121AM02
焊缝位置 Weld Position	角焊 Fillet Weld
适用行业 Applicable Industries	铝模板、铝游艇、铝运输车厢、铝油罐等部件 Components such as aluminum formwork, aluminum yachts, aluminum truck bodies, and aluminum oil tanks
焊接条件 Welding Conditions	焊接材料: 5356铝合金 Welding Material: 5356 aluminum alloy 焊接电流: 320A-160A Welding Current: 320A-160A 焊接速度: 8mm/s Welding Speed: 8 mm/s 主工作周期: 80 Main Duty Cycle: 80 副工作周期: 60 Secondary Duty Cycle: 60 板材规格: 8.0*200*50mm Plate Specification: 8.0*200*50 mm



工艺号 Process No.	M104ST01
焊缝位置 Weld Position	搭接平焊 Lap Flat Weld
适用行业 Applicable Industries	新能源汽车、共享车业、风机、舞台管架、家具、散热器等部件 Components for industries such as new energy vehicles, shared mobility, fans, stage trusses, furniture, and radiators
焊接条件 Welding Conditions	焊接材料: 4043铝合金 Filler Material: 4043 aluminum alloy 焊接电流: 130A Welding Current: 130A 焊接速度: 8mm/s Welding Speed: 8 mm/s 板材规格: 2.0*150*50mm Plate Specification: 2.0*150*50mm



工艺号 Process No.	M121ASP9
焊缝位置 Weld Position	平角焊 Flat Fillet Weld
适用行业 Applicable Industries	新能源汽车、共享车业、风机、舞台管架、家具、散热器等部件 Components for industries such as new energy vehicles, shared mobility, fans, stage trusses, furniture, and radiators
焊接条件 Welding Conditions	焊接材料: 4043铝合金 Filler Material: 4043 aluminum alloy 焊接电流: 120A Welding Current: 120A 焊接速度: 8mm/s Welding Speed: 8 mm/s 板材规格: 2.0*150*50mm Plate Specification: 2.0*150*50mm

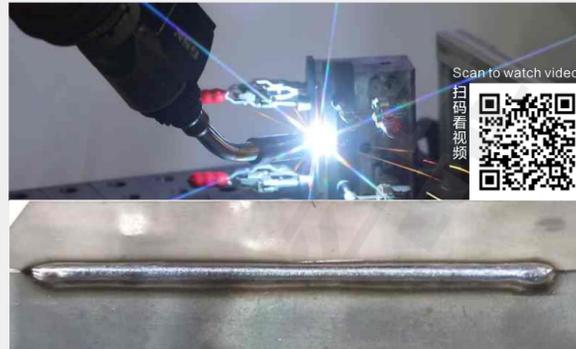


不锈钢材料的应用 Applications of Stainless Steel

超薄板焊接

Ultra-Thin Plate Welding

工艺号 Process No.	M103CNP1								
焊缝位置 Weld Position	外角立焊 Outside Corner Vertical Welding								
适用行业 Applicable Industries	水箱储罐、汽车排气系统部件、机箱等部件 Components such as water tanks, storage tanks, automotive exhaust system parts, and chassis								
焊接条件 Welding Conditions	<table border="0"> <tr> <td>焊接材料: 不锈钢</td> <td>Welding Material: Stainless steel</td> </tr> <tr> <td>焊接电流: 45A</td> <td>Welding Current: 45A</td> </tr> <tr> <td>焊接速度: 18mm/s</td> <td>Welding Speed: 18 mm/s</td> </tr> <tr> <td>板材规格: 0.5*150*25mm</td> <td>Plate Specification: 0.5*150*25 mm</td> </tr> </table>	焊接材料: 不锈钢	Welding Material: Stainless steel	焊接电流: 45A	Welding Current: 45A	焊接速度: 18mm/s	Welding Speed: 18 mm/s	板材规格: 0.5*150*25mm	Plate Specification: 0.5*150*25 mm
焊接材料: 不锈钢	Welding Material: Stainless steel								
焊接电流: 45A	Welding Current: 45A								
焊接速度: 18mm/s	Welding Speed: 18 mm/s								
板材规格: 0.5*150*25mm	Plate Specification: 0.5*150*25 mm								

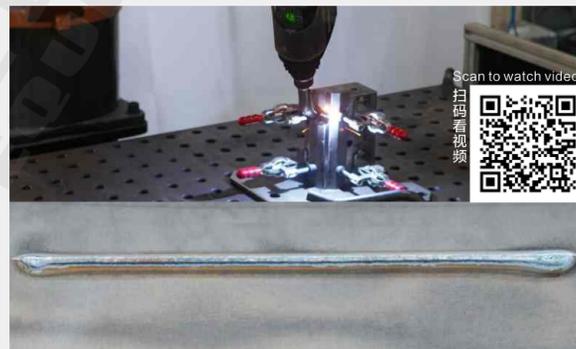


硅钢材料的应用 Applications of Silicon Steel

超薄板焊接

Ultra-Thin Plate Welding

工艺号 Process No.	M122ST05								
焊缝位置 Weld Position	外角立焊 Outside Corner Vertical Welding								
适用行业 Applicable Industries	水箱储罐、汽车排气系统部件、机箱等部件 Components such as water tanks, storage tanks, automotive exhaust system parts, and chassis								
焊接条件 Welding Conditions	<table border="0"> <tr> <td>焊接材料: 硅钢</td> <td>Welding Material: Silicon steel</td> </tr> <tr> <td>焊接电流: 50A</td> <td>Welding Current: 50 A</td> </tr> <tr> <td>焊接速度: 33mm/s</td> <td>Welding Speed: 33mm/s</td> </tr> <tr> <td>板材规格: 0.3*150*25mm</td> <td>Plate Specification: 0.3*150*25mm</td> </tr> </table>	焊接材料: 硅钢	Welding Material: Silicon steel	焊接电流: 50A	Welding Current: 50 A	焊接速度: 33mm/s	Welding Speed: 33mm/s	板材规格: 0.3*150*25mm	Plate Specification: 0.3*150*25mm
焊接材料: 硅钢	Welding Material: Silicon steel								
焊接电流: 50A	Welding Current: 50 A								
焊接速度: 33mm/s	Welding Speed: 33mm/s								
板材规格: 0.3*150*25mm	Plate Specification: 0.3*150*25mm								



工艺号 Process No.	M122ST05								
焊缝位置 Weld Position	平焊 Flat weld								
适用行业 Applicable Industries	电机零部件 Motor Components								
焊接条件 Welding Conditions	<table border="0"> <tr> <td>焊接材料: 波浪形硅钢</td> <td>Welding Material: Wavy silicon steel</td> </tr> <tr> <td>焊接电流: 50A</td> <td>Welding Current: 50 A</td> </tr> <tr> <td>焊接速度: 35mm/s</td> <td>Welding Speed: 35mm/s</td> </tr> <tr> <td>板材规格: 0.3*150*50mm</td> <td>Plate Specification: 0.3*150*50mm</td> </tr> </table>	焊接材料: 波浪形硅钢	Welding Material: Wavy silicon steel	焊接电流: 50A	Welding Current: 50 A	焊接速度: 35mm/s	Welding Speed: 35mm/s	板材规格: 0.3*150*50mm	Plate Specification: 0.3*150*50mm
焊接材料: 波浪形硅钢	Welding Material: Wavy silicon steel								
焊接电流: 50A	Welding Current: 50 A								
焊接速度: 35mm/s	Welding Speed: 35mm/s								
板材规格: 0.3*150*50mm	Plate Specification: 0.3*150*50mm								

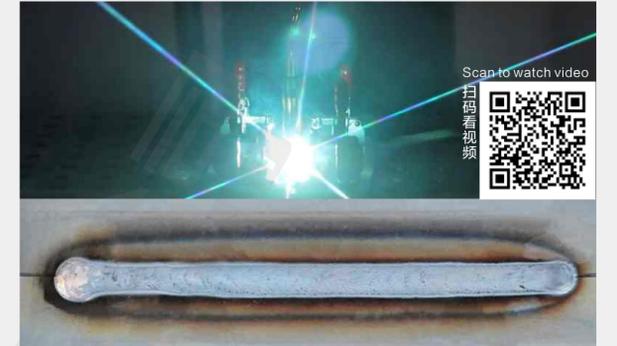


混合材料的应用 Applications of Hybrid Materials

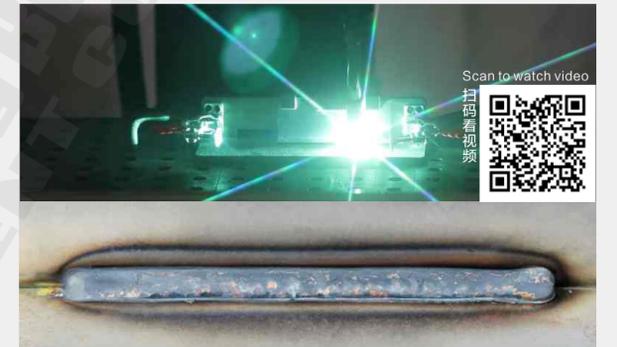
碳钢、锡青铜

Carbon Steel, Tin Bronze

工艺号 Process No.	M121CS04								
焊缝位置 Weld Position	平焊 Flat Weld								
适用行业 Applicable Industries	轴套、液压杆等部件 Bushings, hydraulic rods, and other components								
焊接条件 Welding Conditions	<table border="0"> <tr> <td>焊接材料: 锡青铜、碳钢</td> <td>Welding Materials: Tin bronze, carbon steel</td> </tr> <tr> <td>焊接电流: 160A</td> <td>Welding Current: 160A</td> </tr> <tr> <td>焊接速度: 10mm/s</td> <td>Welding Speed: 10mm/s</td> </tr> <tr> <td>板材规格: 2.0*150*50mm</td> <td>Plate Specification: 2.0*150*50mm</td> </tr> </table>	焊接材料: 锡青铜、碳钢	Welding Materials: Tin bronze, carbon steel	焊接电流: 160A	Welding Current: 160A	焊接速度: 10mm/s	Welding Speed: 10mm/s	板材规格: 2.0*150*50mm	Plate Specification: 2.0*150*50mm
焊接材料: 锡青铜、碳钢	Welding Materials: Tin bronze, carbon steel								
焊接电流: 160A	Welding Current: 160A								
焊接速度: 10mm/s	Welding Speed: 10mm/s								
板材规格: 2.0*150*50mm	Plate Specification: 2.0*150*50mm								



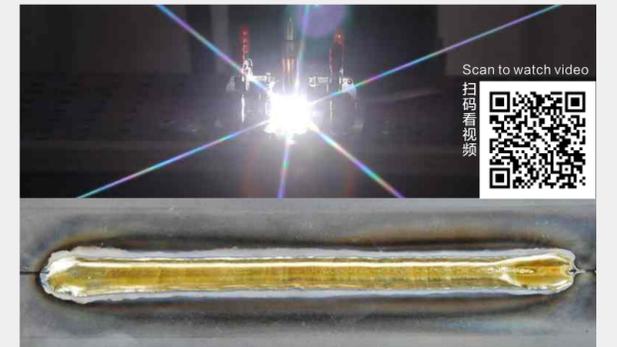
工艺号 Process No.	M121CS04								
焊缝位置 Weld Position	角焊 Fillet Weld								
适用行业 Applicable Industries	轴套、液压杆等部件 Bushings, hydraulic rods, and other components								
焊接条件 Welding Conditions	<table border="0"> <tr> <td>焊接材料: 锡青铜、碳钢</td> <td>Welding Materials: Tin bronze, carbon steel</td> </tr> <tr> <td>焊接电流: 160A</td> <td>Welding Current: 160A</td> </tr> <tr> <td>焊接速度: 15mm/s</td> <td>Welding Speed: 15mm/s</td> </tr> <tr> <td>板材规格: 2.0*150*50mm</td> <td>Plate Specification: 2.0*150*50mm</td> </tr> </table>	焊接材料: 锡青铜、碳钢	Welding Materials: Tin bronze, carbon steel	焊接电流: 160A	Welding Current: 160A	焊接速度: 15mm/s	Welding Speed: 15mm/s	板材规格: 2.0*150*50mm	Plate Specification: 2.0*150*50mm
焊接材料: 锡青铜、碳钢	Welding Materials: Tin bronze, carbon steel								
焊接电流: 160A	Welding Current: 160A								
焊接速度: 15mm/s	Welding Speed: 15mm/s								
板材规格: 2.0*150*50mm	Plate Specification: 2.0*150*50mm								



碳钢、铝青铜

Carbon Steel, Aluminum Bronze

工艺号 Process No.	M121CA02								
焊缝位置 Weld Position	平焊 Flat Weld								
适用行业 Applicable Industries	阀门、活塞杆等部件 Valves, piston rods, and other components								
焊接条件 Welding Conditions	<table border="0"> <tr> <td>焊接材料: 铝青铜、碳钢</td> <td>Welding Materials: Tin bronze, carbon steel</td> </tr> <tr> <td>焊接电流: 150A</td> <td>Welding Current: 150A</td> </tr> <tr> <td>焊接速度: 15mm/s</td> <td>Welding Speed: 15mm/s</td> </tr> <tr> <td>板材规格: 2.0*150*50mm</td> <td>Plate Specification: 2.0*150*50mm</td> </tr> </table>	焊接材料: 铝青铜、碳钢	Welding Materials: Tin bronze, carbon steel	焊接电流: 150A	Welding Current: 150A	焊接速度: 15mm/s	Welding Speed: 15mm/s	板材规格: 2.0*150*50mm	Plate Specification: 2.0*150*50mm
焊接材料: 铝青铜、碳钢	Welding Materials: Tin bronze, carbon steel								
焊接电流: 150A	Welding Current: 150A								
焊接速度: 15mm/s	Welding Speed: 15mm/s								
板材规格: 2.0*150*50mm	Plate Specification: 2.0*150*50mm								



工艺号 Process No.	M121CA02								
焊缝位置 Weld Position	角焊 Fillet Weld								
适用行业 Applicable Industries	阀门、活塞杆等部件 Valves, piston rods, and other components								
焊接条件 Welding Conditions	<table border="0"> <tr> <td>焊接材料: 铝青铜、碳钢</td> <td>Welding Materials: Aluminum bronze, carbon steel</td> </tr> <tr> <td>焊接电流: 160A</td> <td>Welding Current: 160A</td> </tr> <tr> <td>焊接速度: 10mm/s</td> <td>Welding Speed: 10mm/s</td> </tr> <tr> <td>板材规格: 2.0*150*50mm</td> <td>Plate Specification: 2.0*150*50mm</td> </tr> </table>	焊接材料: 铝青铜、碳钢	Welding Materials: Aluminum bronze, carbon steel	焊接电流: 160A	Welding Current: 160A	焊接速度: 10mm/s	Welding Speed: 10mm/s	板材规格: 2.0*150*50mm	Plate Specification: 2.0*150*50mm
焊接材料: 铝青铜、碳钢	Welding Materials: Aluminum bronze, carbon steel								
焊接电流: 160A	Welding Current: 160A								
焊接速度: 10mm/s	Welding Speed: 10mm/s								
板材规格: 2.0*150*50mm	Plate Specification: 2.0*150*50mm								



行业应用 Industrial Applications

铝合金行业应用 Industrial Applications of Aluminum Alloys



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Scan to watch video



滑板车
Scooter



离心泵叶轮
Centrifugal Pump Impeller



摩托车铝架
Aluminum Motorcycle Frame



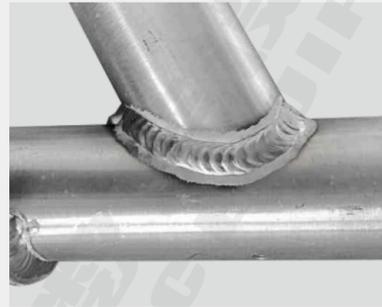
自行车车架
Bicycle Frame



瓦片
Tile



铝风机叶片
Aluminum Fan Blade

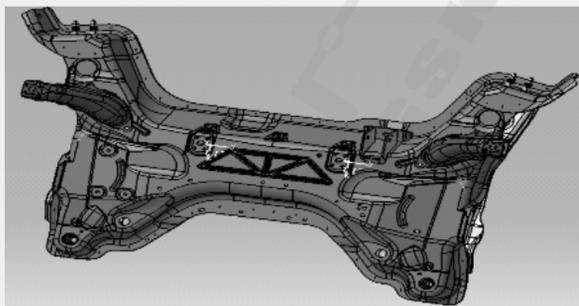


轮椅管架
Wheelchair Frame



新能源电池箱
New Energy Vehicle Battery Housing

镀锌板行业应用 Industrial Applications of Galvanized Steel Sheets



汽车底盘
Automotive Chassis



通风管道
Ventilation Duct

碳钢行业应用 Industrial Applications of Carbon Steel



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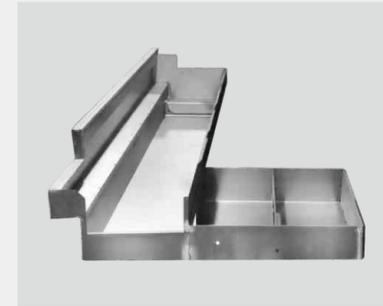
割草机化油器支架
Lawn Mower Carburetor Bracket



割草机消声器
Lawn Mower Muffler



冰箱压缩机
Refrigerator Compressor



机床水箱
Machine Tool Water Tank



合金钻头
Alloy Drill Bit

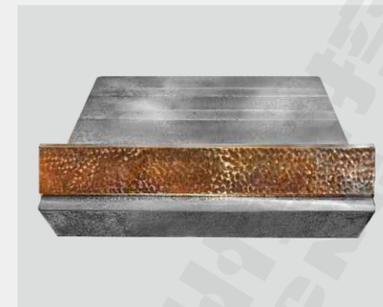


卡车高压油箱结构件
High-Pressure Fuel Tank Structural Components for Trucks

增铜行业应用 Industrial Applications of Copper Plating



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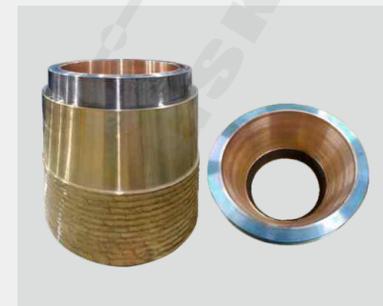
机床导轨增铜
Copper Plating for Machine Tool Guide Rails



开关活塞
Switch Piston



风电
Wind Power



钢管内外堆铜样件
Sample of Copper Cladding on Interior & Exterior of Steel Pipe



电弧增铜件
Arc Copper Plating Component



注塑机铜套增材
Copper Bushing Additive for Injection Molding Machines

不锈钢行业应用 Industrial Applications of Stainless Steel



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U形不锈钢缝焊样件
U-shaped Seam-welded Stainless Steel Sample



不锈钢灌水箱
Stainless Steel Water Box



消防柜
Fire Cabinet



设备管套
Equipment Pipe Sleeve



不锈钢管道
Stainless Steel Piping



不锈钢管材
Stainless Steel Pipe

电弧增材行业应用 Industry Applications of Arc Additive



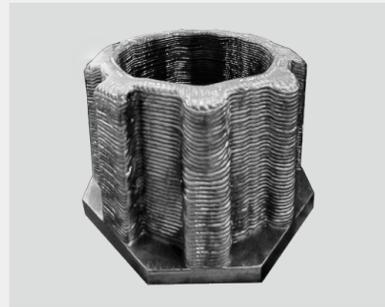
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阀门内壁增材零件
Additive Component for Valve Inner Wall



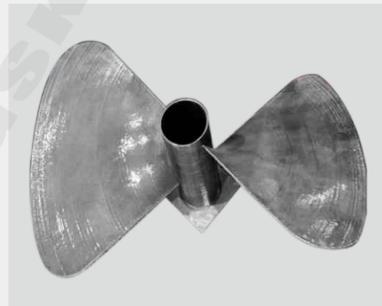
球阀门
Ball Valve



多边形钢体电弧增材样件
Polygonal Steel Arc Additive Specimen



管罩
Shroud



浆片
Blade



螺旋体电弧增材件
Helical Arc Additive Component

规格参数 SPECIFICATIONS

项目 Item	参数 Parameters		
焊机主机 Welder Main Unit	型号 Model	GSK MDC-500P	
	输入电压 Input Voltage	三相AC380V ± 15% Three-phase AC380V ± 15%	
	能效等级 Energy Efficiency Level	一级能效 Level 1 Energy Efficiency	
	输出电流范围 Output Current Range	30A-500A	
	输出电压范围 Output Voltage Range	12V-39V	
	开关频率 Switch Frequency	128kHz	
	焊接适用材料 Applicable Materials	碳钢、不锈钢、铝镁合金、铝硅合金、铜铝合金等 Carbon steel, stainless steel, aluminum-magnesium alloy, aluminum-silicon alloy, copper-aluminum alloy, etc.	
	防护等级 Protection Class	IP21S	
	绝缘等级 Insulation Class	F	
	起弧成功率 Arc Ignition Success Rate	大于99.9% Greater than 99.9%	
	过渡频率 Transfer Frequency	最高200Hz Up to 200Hz	
	重量 Weight	66kg	
	外形尺寸 Overall Dimensions	786mm x 366mm x 675mm	
焊机水箱 Welder Water Tank	型号 Model	GSK MDC-WT02	
	电源电压 Power voltage	交流380V AC 380V	
	水泵功率 Water Pump Power	160W	
	额定最大压力 Rated Maximum Pressure	0.25MPa	
	水容量 Water Capacity	5.9L	
	工作温度 Operating Temperature	-15℃ ~ 60℃	
	重量(不含冷却液) Weight (without coolant)	35.5kg	
	尺寸 Dimensions	773mm x 366mm x 268mm	
	送丝机构 Wire Feed Mechanism	型号 Model	GSK MDC-WF02
		额定电流 Rated current	3.5A
额定电压 Rated Voltage		48V	
送丝速度 Wire feed rate		0.4m/min-20m/min	
焊丝直径 Wire Diameter		0.8mm-1.6mm	
重量(裸机/含送丝架) Weight (Bare Machine/with Wire Feeder Rack)			
外形尺寸 Wire Diameter		222mm x 187mm x 256mm	
重量(裸机/含送丝架) Overall Dimensions	4.7kg/14.7kg		
推拉丝机构 Push-Pull Wire Feed Mechanism	型号 Model	GSK MDC-WG02	
	冷却方式 Cooling Method	水冷 Water Cooling	
	焊丝直径 Wire Diameter	1.0-1.2mm	
	电机最大加速度 Maximum Motor Acceleration	745m/s ²	
	重量(含焊枪) Weight (incl. welding torch)	2.3kg	
缓冲器 Buffer	型号 Model	GSK MDC-WB02	
	适用机器人 Compatible Robots	不同的安装板可适配不同的机器人 Different mounting plates are compatible with different robots	
	外形尺寸 Overall Dimensions	467mm x 221mm x 126mm	
重量(含4.4m线缆) Weight (incl. 4.4m cable)	13.6kg		

∴ GSK数控神焊单元 GSK MAGIC WELDING UNIT

数控神焊单元构成

CNC Magic Welding Unit Composition

GSK MDC-500P全数字高端焊机+GSK RH系列高性能中空机器人。

广数自主研发，融合了先进的焊接工艺技术和机器人控制技术，有效解决1.0mm以下的薄板和超薄板MIG/MAG焊接工艺存在热输入量大、变形严重、焊接飞溅等焊接问题，更好实现机器人自动化焊接应用。

GSK MDC-500P digital high-end welder +GSK RH series high performance hollow robot.

Developed independently by Guangzhou Shukong, it integrates advanced welding technology and robot control technology to effectively solve the welding problems of thin and ultra-thin plate MIG/MAG welding process of 1.0mm or less, such as large heat input, serious deformation, welding splash and so on, so as to better realize the application of robot automatic welding.



GSK RH系列中空焊接机器人

GSK RH Series Hollow Welding Robot



七关节机器人

7-joint Industry Robot
GSK RH06B1-1605



六关节机器人

6-joint Industry Robot
GSK RH06A2-1490
GSK RH06A2-2000

应用领域 Application Areas

汽车及配件、摩托车及配件、农业机械、工程机械等五金焊接领域。

Hardware welding fields such as automobiles and accessories, motorcycles and accessories, agricultural machinery, engineering machinery, etc.

规格参数

Specification parameters

项目	GSK RH06B1-1605	GSK RH06A2-2000	GSK RH06A2-1490
自由度	7	6	6
驱动方式	交流伺服驱动	交流伺服驱动	交流伺服驱动
有效负载(kg)	6	6	6
重复定位精度(mm)	±0.05	±0.05	±0.05
运动范围(°)	J1	±170	±170
	J2	+110~-70	+140~-70
	E	±90	/
	J3	+80~-150	+75~-140
	J4	±180	±180
	J5	±135	±135
最大单轴速度(°/s)	J6	±360	±360
	J1	200	175
	J2	173	165
	E	200	/
	J3	200	195
	J4	288	282
本体质量(kg)	J5	375	370
	J6	630	630
		215	265

结构配置

STRUCTURAL CONFIGURATION

全新一体化驱动

New Integrated Drive

焊接机器人配置全新一体化驱动，安全可靠、故障较低；一体式伺服配置电柜体积减小约50%，重量降低约30%，使用的现场布局更为灵活；采用共母线整流技术，各轴加减速运行时实现能量互馈补偿，机器人在同一运动状态下耗电量降低约30%，更为低耗环保节能；集成电机抱闸闭环检测及动态制动功能，更为安全。

The welding robot is equipped with a new integrated drive, which is safe and reliable and low failures; the volume of the configured cabinet of integrated servo is reduced by about 50%, and the weight is decreased by about 30%, and the site layout used is more flexible. The common Bus rectification technology is adopted and the energy mutual feedback compensation is carried out when the acceleration or deceleration of each axis is performed. In the same motion state, the power consumption of robot is decreased about 30%, which can be saved the energy for low consumption and environmental protection. The integrated motor brake closed-loop detection and dynamic braking function are safer.



电机运行速度波动降低30%

Fluctuation Of motor's OperationSpeed Reduces 30%

采用全新高速电机，机器人运动过程更平稳、更可靠。

With the new high-speed motor, the robot movement process is more stable and reliable.



GSK RH06B1七关节机器人

GSK RH06B1 7-joint Industry Robot

亮点

Highlights

焊接范围灵活
Flexible connection range
小工件全周焊接
Full welding of small workpieces

使用成本能耗成本更低
Lower cost of use and energy consumption
提升经济效益
Improve economic benefits

设备部署周期短
Short cycle of equipment department
运行调试简单
Simple operation and debugging

集成化作业
Integrated operations
减少工序 提升效率
Reduce the procedures

减少机器人数量
Reduce the number of robots
提高厂房利用率
Improve the utilization of workshop

未来市场增速较高
Higher speed-up in the future market
机器人需求量大
Wider demands of robot

+ 提升市场效益
+ 降低焊接成本
+ Improve Market Efficiency
+ Reduce Welding Cost



优势

Advantage

+ 可以躲避某些特定的目标
+ It can be avoided some certain targets

+ 实现对焊接件的多方位焊接
+ To realize multi-directional welding of welded parts

+ 减少焊接过程的工序
+ To reduce the processes during the welding

+ 灵活适应某些特殊工作环境
+ To flexibly adapt some special working environment

高运动灵活性

High Mobility And Flexibility

有利于焊接工序集成化，减少焊接工序，进而减少焊接夹具、焊接机械手数量。

It is beneficial to the integration of the welding technologies and reduces the welding technologies, thereby reduces the number of welding fixtures and welding manipulators.



七关节机器人在汽车车体内焊接的应用
Application Of 7-joint Industrial Robot In Welding Of Car body.

中空结构设计

Hollowed Areas

七关节与中空型腕部结构结合，解决走线缠绕，部件互相干涉的问题。

The combination of seven joint and hollow wrist structure solves the problem of entanglement in wiring, The problem of interference between components.



优异的七关节能力

Excellent seven joint capability

六关节工业机器人
6-joint industrial robot
无法避开障碍
Can't avoid obstacles

VS

七关节工业机器人
7-joint industrial robot
完美避开障碍
Perfect to avoid obstacles

