

機器人 Robot

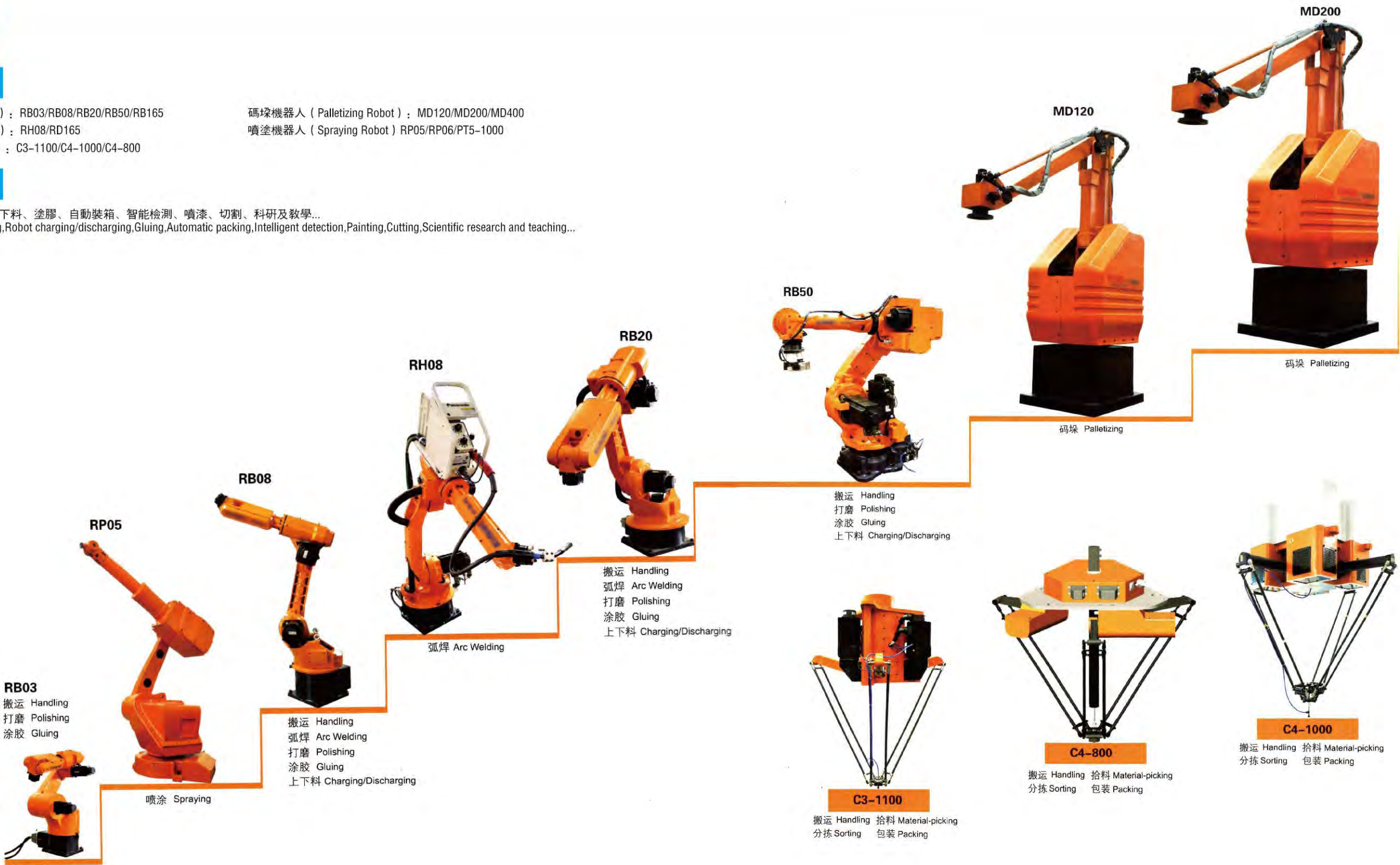
類別type

搬運機器人 (handing Robot) : RB03/RB08/RB20/RB50/RB165
焊接機器人 (Welding Robot) : RH08/RD165
并聯機器人 (Parallel Robot) : C3-1100/C4-1000/C4-800

碼垛機器人 (Palletizing Robot) : MD120/MD200/MD400
噴塗機器人 (Spraying Robot) RP05/PT5-1000

功能Function

弧焊、搬運、打磨、機床上下料、塗膠、自動裝箱、智能檢測、噴漆、切割、科研及教學...
Arc welding, Handling, Polishing, Robot charging/discharging, Gluing, Automatic packing, Intelligent detection, Painting, Cutting, Scientific research and teaching...



RB系列機器人技術參數表 Technical Parameter of RB Series Robot

型號 Model		RB03	RB08	RB20	RB50
規格項目 Item					
自由度 Degree of Freedom		6	6	6	6
驱动方式 Drive System		交流伺服驱动 AC servo motor	交流伺服驱动 AC servo motor	交流伺服驱动 AC servo motor	交流伺服驱动 AC servo motor
有效负载 Enabled Loading		3kg	8kg	20kg	50kg
重复定位精度 Repeated Positioning Accuracy		± 0.05mm	± 0.05mm	± 0.08mm	± 0.07mm
运动范围 Movement Range	J1轴 J1 Axis	± 170°	± 170°	± 170°	± 180°
	J2轴 J2 Axis	+ 150° ~ - 60°	+ 120° ~ - 85°	+ 133° ~ - 95°	+ 130° ~ - 90°
	J3轴 J3 Axis	+ 75° ~ - 170°	+ 85° ~ - 165°	+ 76° ~ - 166°	+ 280° ~ - 160°
	J4轴 J4 Axis	± 190°	± 180°	± 180°	± 360°
	J5轴 J5 Axis	± 125°	± 135°	± 133°	± 120°
	J6轴 J6 Axis	± 360°	± 360°	± 360°	± 360°
额定速度 Rated Speed	J1轴 J1 Axis	2.62rad/s, 150° /s	2.09rad/s, 120° /s	1.90rad/s, 109° /s	1.23rad/s, 70° /s
	J2轴 J2 Axis	2.62rad/s, 150° /s	2.09rad/s, 120° /s	1.30rad/s, 74.5° /s	1.12rad/s, 64° /s
	J3轴 J3 Axis	3.14rad/s, 180° /s	2.09rad/s, 120° /s	1.74rad/s, 100° /s	0.90rad/s, 51° /s
	J4轴 J4 Axis	4.71rad/s, 270° /s	3.93rad/s, 225° /s	3.93rad/s, 225° /s	2.51rad/s, 144° /s
	J5轴 J5 Axis	4.71rad/s, 270° /s	2.53rad/s, 145° /s	2.56rad/s, 147° /s	2.92rad/s, 167° /s
	J6轴 J6 Axis	4.71rad/s, 270° /s	5.24rad/s, 300° /s	5.16rad/s, 296° /s	5.10rad/s, 292° /s
周围环境 Environmental Condition	温度 Temperature	0 ~ 45℃			
	湿度 Humidity	20 ~ 80% (不结露) 20 ~ 80% (no condensation)			
	其他 Other	1、避免与易燃易爆及腐蚀性气体、液体接触; Keep away from flammable, explosive and corrosive gases and liquid; 2、勿溅水、油、粉尘; Avoid water, oil and dust; 3、远离电器噪声源 (等离子) 。 Be far away from electric appliance noise source (plasma).			
安装方式 Installation		地面安装 Installed on floor			
电柜质量 Electric Cabinet Weight		125kg			
本体质量 Robot Body Weight		75kg	180kg	245kg	600kg

并聯機器人 主要技術參數 The Main Technology Parameter Of Parallel Robot

型號 Model		C3-1100	C4-800	C4-1000
規格項目 Item				
机械本体构成 Machine Body		3轴 (可扩展第四自由度) 3-axis (open End To The 4th Degree Of Freedom)	4轴 (并联机构) 4-axis (parallel Machinery)	
额定负载 Rated Loading		1kg	1kg	
最大负载 The Max. Loading		3kg	3kg	
重复定位精度 Repeated Positioning Accuracy		± 0.1mm	± 0.1mm	
工作范围 Working Range		φ 1000X250[mm]	φ 800X250[mm]	φ 1000X250[mm]
回转角度 Revolving Angle		—	± 180°	± 180°
最大加速度 The Max. Acceleration		100.0 m/s ²	100.0 m/s ²	120.0 m/s ²
最大速度 (空载) The Max. Speed (dry Run)		7.0 m/s	7.0 m/s	10.0 m/s
典型节拍时间 Typical Beat Time	25/305/25[mm] 30/400/30[mm]	0.35s(0.1kg)/ 0.42s(1.0kg)	0.35s(0.1kg)/ 0.45s(1.0kg)	0.33s(0.1kg)/ 0.38s(1.0kg) 0.48s(0.1kg)/ 0.50s(1.0kg)
集成真空源 Integration Vacuum Source		最高7 bar/最大真空-0.75 bar Up To 7 Bar/top Vacuum -0.75bar		
安装方式 Installation		倒置式 Inversion		
整机重量 Machine Weight		120kg	90kg	144kg

RH08技術參數表
RH08 Technology Parameter Table

型號 Model	RH08
規格項目 Item	
荷重能力 Loading Capacity	8kg
轴数 No. Of Axis	6到8轴 6~8 Axis
定位精度 Positioning Accuracy	± 1.5mm
重复定位精度 Repeated Positioning Accuracy	± 0.05mm
第7轴工作范围 The 7th Axis Working Range	± 135°
第8轴工作范围 The 8th Axis Working Range	± 370°
起弧、息弧电流范围 Striking, Arc Quenching Current Range	0~500A
起弧、息弧电压范围 Striking, Arc Quenching Voltage Range	0~42V
焊机电源控制器AD精度 Welding Power Controller AD Accuracy	16位数模转换器 16-digit Module Converter

RP05技術參數表
RH05 Technology Parameter Table

型號 Model	RH05
規格項目 Item	
机械本体构成 Machinery Body	6轴 (垂直多关节串联) The 6-axis (vertical multiple-joint series)
有效负载 Enabled Loading	5 kg
重复定位精度 Repeated Positioning Accuracy	± 0.2mm
运动范围 Movement Range	S-轴 S-axis ± 180°
	L-轴 L-axis + 150° ~ - 90°
	U-轴 U-axis + 65° ~ - 245°
	R-轴 R-axis ± 200°
	B-轴 B-axis + 115° ~ - 115°
额定速度 Rated Speed	T-轴 T-axis ± 400°
	S-轴 S-axis 1.85rad/s, 106° /s
	L-轴 L-axis 1.85rad/s, 106° /s
	U-轴 U-axis 1.75rad/s, 100° /s
	R-轴 R-axis 6.44rad/s, 369° /s
	B-轴 B-axis 7.47rad/s, 428° /s
	T-轴 T-axis 7.47rad/s, 428° /s
本体质量 Robot Body Weight	299kg

MD系列機器人技術參數表 Technical Parameter of MD Series Robot

型號 Model		MD120	MD200	MD400
規格項目 Item				
自由度 Degree of Freedom		4	4	4
驱动方式 Drive System		交流伺服驱动 AC servo motor	交流伺服驱动 AC servo motor	交流伺服驱动 AC servo motor
有效负载 Enabled Loading		120kg	200kg	400kg
重复定位精度 Repeated Positioning Accuracy		± 0.1mm	± 0.1mm	± 0.1mm
动作能力 Motion Ability		1000回/时 (注) 1000 circle/hour(note)		
消耗功率 Power Consumption		6kW	8kW	10kW
运动范围 Movement Range	J1轴(腰座) J1 Axis(Waist Basement)	± 165°	± 165°	± 165°
	J2轴(前后) J2 Axis(Front-Rear)	1500mm	1500mm	1600mm
	J3轴(上下) J3 Axis(Up and Down)	2300mm	2300mm	2400mm
	J4轴(腕部) J4 Axis(Wrist)	± 360°	± 360°	± 360°
周围环境 Environmental Condition	温度 Temperature	0 ~ 45℃		
	湿度 Humidity	20 ~ 80% (不结露) 20 ~ 80% (no condensation)		
	其他 Other	1、避免与易燃易爆及腐蚀性气体、液体接触; Keep away from flammable, explosive and corrosive gases and liquid; 2、勿溅水、油、粉尘; Avoid water, oil and dust; 3、远离电器噪声源 (等离子) 。 Be far away from electric appliance noise source (plasma).		
安装方式 Installation		地面安装 Installed on floor		
电柜质量 Electric Cabinet Weight		125kg		
本体质量 Robot Body Weight		1300kg	1500kg	1500kg

注：厂家开发的最大能力，实际的码垛能力取决于距离、产品重量、手抓方式等现场条件。

Note: The Max. capacity developed by factory and the actual palletizing ability are depended on the spot conditions, for example, distance, product weight and the fixture method.



机器人控制器特点The Controller Character Of The Robot Controller

◆采用国内最先进的GSK-RC控制系统，机器人始终能够根据实际载荷对加减速进行优化，尽可能缩短操作周期时间；

◆该机器人通过内置服务信息系统（SIS）监测自身运动和载荷情况并优化服务需求，持续工作时间更长；

◆嵌入式机器人控制器：基于ARM+DSP+FPGA硬件结构，可控制6-8轴，运算速度达到500MIPS，具有高速运动控制现场总线/以太网/RS232/RS485/CAN任一接口，可实现连续轨迹示教和在线示教，具备远程监控和诊断功能；

◆机器人现场总线（GSK-Rbus）：具有高速实时特性，突破带宽与实时性的矛盾，兼顾通讯速率和实时控制的特点，解决不同模块间数据实时交互问题；

◆动力学自适应辨识控制技术：综合考虑机器人运动过程中重力、哥式力、离心力等外力干扰运用自适应辨识控制技术提高机器人的动态性能。

◆ It uses the advanced domestic GSK-RC control system. Throughout, the robot can be optimized to the deceleration according to the actual loading, which can be shortened the operation period time as much as possible.

◆ The robot that is monitored self-movement and loading is optimized the service requirement by the built-in servo information system (SIS); it lasts long time for the working;

◆ Built-in robot controller: It can be controlled 6-8 axes based upon the ARM+DSP+FPGA hardware structure; its calculation speed reaches to 500MIPS, which owns any interface of the high-speed control spot bus/Ethernet/RS232/RS485/CAN, carries out the consecutive path and on-line teachings, as well, it owns the remote monitoring and diagnosis function;

◆ Robot spot bus (GSK-Rbus): It owns the high-speed real-time and communication speed and real-time control characters, which breaks the contradiction between broadband and real-time; it solves data real-time interchange problem among different modules;

◆ Dynamics self-adaption identification technology: Entirely consider the foreign interference, such as the gravity, coriolis force, centrifugal force etc. during the robot operation; improve the robot dynamic capacity using the self-adaption identification control technology.

机器人控制器参数Robot Controller Parameter			
规格项目Item		GSK-RC	码垛机器人控制Palletizing robot controller
控制系统Controllable System	示教方法Teaching Method	示教再现Teaching Reappearance	
	驱动方式Drive Method	交流伺服电机AC Servo Motor	
	控制轴数量No. of Controllable Axis	6轴Six Axes	4轴Four Axes
	位置控制方式Position Control Method	PTP/CP	
	速度控制Speed Control	TCP 恒速控制TCP Constant Speed Control	
记忆Memory	坐标系统Coordinate System	轴坐标/直角坐标/用户坐标/工具坐标 Axis coordinate/Rectangular coordinate/ User coordinate/Tool coordinate	轴坐标，直角坐标 Axis Coordinate/Rectangular Coordinate
	记忆介质Memory Medium	Flash Memory(闪存)	CF
	记忆容量Memory Capacity	32M	根据CF卡容量定，标配1G Based upon the CF plate capacity, standard configuration 1G
动作Movement	记忆内容Memory Content	点，直线，圆弧，条件命令等 Point, Linear, Arc, Conditional Command etc.	位置点，条件命令等 Position Point, Conditional Command etc
	插补功能Interpolation Function	线性插补，圆弧插补 Linear Interpolation, Arc Interpolation	线性插补Linear Interpolation
外部控制输入External Control Input	手动操作速度Manual Operation Speed	4段可调4 Level Adjustable	1%~100%可调1%~100% Level Adjustable
	编辑Edition	添加，输入，删除，修改Addition, Input, Deletion, Modification	
应用Application	条件设定Coordinate System:	程序中设定条件Set Condition In Program	
	通用物理I/O General I/O:	I/O继电器I/O板，标准输入/输出各32点，可扩展 I/O relay panel, 32 points of each standard input/output, extendable	I/O继电器I/O板，标准输入/输出各16点，可扩展 I/O relay panel, 16 points of each standard input/output, extendable
保护功能Protection Function		弧焊，搬运，涂胶，码垛等 Arc Welding, Transportation, Gluing, Stacking etc	堆垛与拆垛Stacking and Destacking
保养功能Maintenance Function		焊机机械防撞传感器，伺服防撞传感器，位置软限位，控制箱 Welding Gun Mechanical Anti-collision Sensor, Servo Anti-collision Sensor, Position Soft Limiting, Controllable Cabinet	系统软限位，机械硬限位，控制箱 System Soft Limiting, Mechanical Hard Limiting, Controllable Cabinet
异常检出功能Abnormal Detection		紧急停止异常，控制时序异常，伺服异常，码盘异常，示教盒异常，用户操作异常，点焊异常，弧焊异常，传感器异常 ESP, Control Time Sequence, Servo, Encoder, TP, User Operation, Spot Welding, Arc Welding, Sensor	紧急停止异常，控制时序异常，伺服异常，码盘异常，示教盒异常，用户操作异常，传感器异常 ESP, Control Time Sequence, Servo, Encoder, TP, User Operation, Sensor
诊断功能Diagnosis Function		机器人控制箱与示教盒之间的连接诊断The Connection Diagnosis Between Robot Controllable Cabinet And Tp	
原点复位Origin Reset		由码盘电池支持，不要每次开机时做原点复位。（注：请定期更换电池） It supports by encoder; do not reset when the machine is turned on each time. (Note: It is important to replace the battery)	由德国绝对编码器提供电机绝对位置数据，不需电池供电，永久保存，不需每次开机时做原点复位。 The motor absolute position data is offered by German absolute encoder. It can be permanently saved without battery; it is not necessary to perform the origin reset when turning on the machine.
冷却系统Cooling System		风冷Cold air	
噪声Noisy		70≤dB	
环境温度范围Ambient Temperature Range		0~40℃（无霜冻）0~40℃(no frozen)	
环境湿度范围Ambient Humidity Range		0~90%RH(不结霜)0~90%RH(no condensation)	
电源Power Supply		三相AC220V 50HZ Power (Three-phase)	
接地Grounding		D类以上机器人专用接地Robot Special-purpose Grounding More Than D Types	
控制柜外形尺寸Control Cabinet Appearance Dimension		760m(W) × 560mm(D) × 1250mm(H)	630mm(W) × 520mm(D) × 1100mm(H)

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變位機 Positioner

型号: 单轴焊接变位机 (HBD250-1/HBD500-1) , 双轴焊接变位机 (HBS150-1)

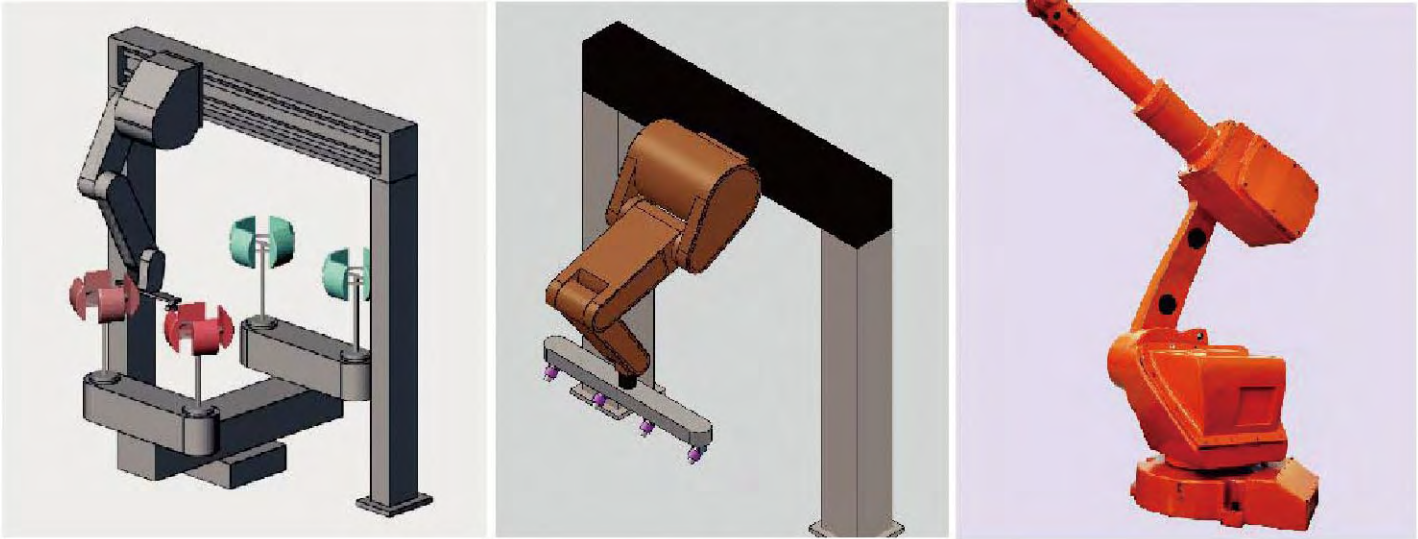
特点: 采用广州数控自主开发的减速机和伺服电机控制, 能将焊接工件的各类焊缝转动到最佳位置, 避免立焊、仰焊, 进一步提高焊接质量及生产效率。机器人控制系统不仅可以控制机器人本体的运动, 而且还可对变位机进行自动控制发出焊接开始指令, 自动控制 和调整焊接参数 (电压、电流) , 可自动检测起弧成功与否。

应用: 焊接的自动作业领域, 送料工装。

Type: Single-axis welding positioner (HBD250-1/HBD500-1) , Double-axis welding positioner (HBS150-1)

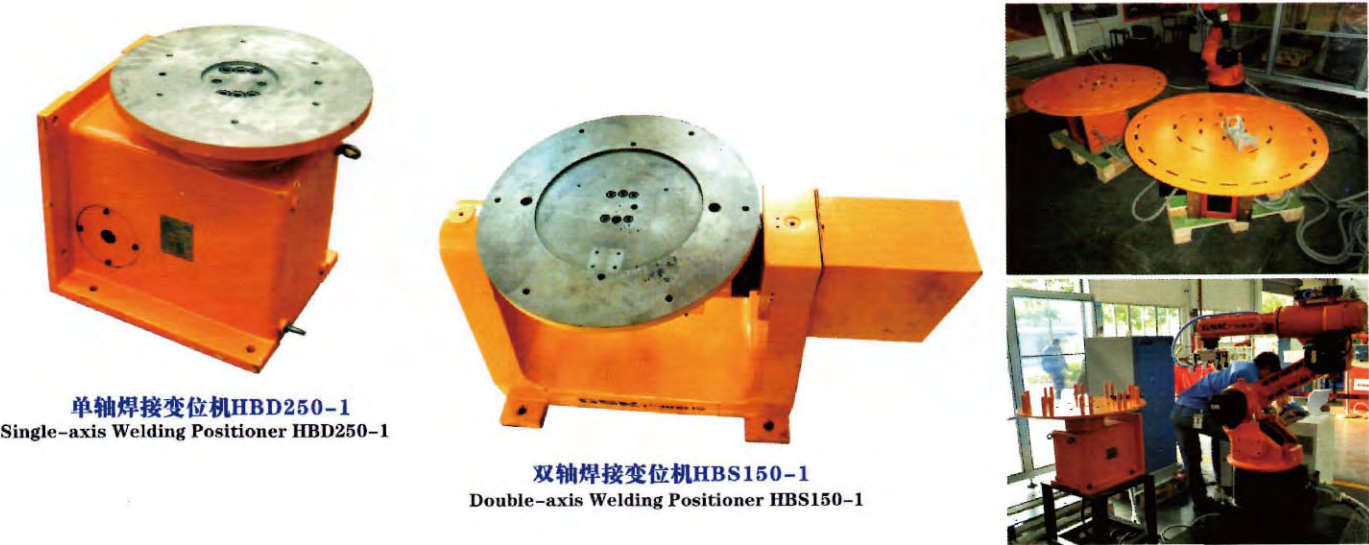
Character: It is used the decelerator and servo motor control developed by GSK, which can be turned to the optimized position of each gap of welding workpiece to avoid the vertical welding and overhead welding, further improve the welding quality and production efficiency. Robot can be controlled not only the machine body movement, but also the automatic operation of the positioner; deliver the welding beginning command, automatic control and adjustment welding parameter (pressure, current), as well, it can be automatically inspect whether the striking is performed.

Application: The automatic operation area of welding, feeding workpiece.



變位機主要技術參數 Main Technology Parameter of The Positioner

規格項目 Item		HBS150-1	HBS250-1
驱动方式 Drive Method		交流伺服电机 Ac Servo Motor	
最大负载 The Max. Loading		150kg	250kg
重复定位精度 Repeated Positioning Accuracy		±0.1mm(R250mm)	
运动范围 Movement Range	倾动轴 Tilting Axis	± 135°	/
	回转轴 Revolvng Axis	± 360°	± 370°
额定转速 Rated Torque	倾动轴 Tilting Axis	125° /s	/
	回转轴 Revolvng Axis	124° /s	124° /s
额定转矩 Rated Speed	倾动轴 Tilting Axis	330N.m	/
	回转轴 Revolvng Axis	144N.m	200N.m
环境温度 Ambient Temperature	温度 Temperature	0~45°	
	湿度 Humidity	20~80%RH	
	其它 Others	1、避免与易燃易爆及腐蚀性气体、液化体接触； Do not contact with the inflammable and explosive and corrosion gas and liquid; 2、勿溅水、油、粉尘。 Do not splash the water, oil and dust.	
安装方式 Installation		地面安装 Installed on floor	
本体重量 Machine Weight		200kg	105kg



单轴焊接变位机HBD250-1
Single-axis Welding Positioner HBD250-1

双轴焊接变位机HBS150-1
Double-axis Welding Positioner HBS150-1

機器人 Robot

類別type

搬運機器人 (handing Robot) :
ER16-1600/ER50-2100/ER170-2605/ER220-2605/ER300-4-3300/ER5-4B-800
裝配機器人 (Assembly Robot) : ER16-1600B/ER5-4B-800
碼垛機器人 (Palletizing Robot) :
ER50-2100/ER170-2605/ER220-2605/ER300-4-3300

功能Function

弧焊、搬運、打磨、機床上下料、塗膠、自動裝箱、智能檢測、噴漆、切割、科研及教學...
Arc welding,Handling,Polishing,Robot charging/discharging,Gluing,Automatic packing,Intelligent detection,Painting,Cutting,Scientific research and teaching...

ER300
搬運Handling
碼垛Palletizing



ER220
碼垛Palletizing
點焊Spot welding
搬運Handling



ER170
點焊Spot welding
搬運Handling
碼垛Palletizing



ER16
弧焊Arc Welding
搬運Handling
裝配Assembling
衝壓/折彎 Punching/Bending



ER50
搬運Handling
碼垛Palletizing

規格項目 Item		型號 Model	ER16-1600	ER16-1600B	ER50-2100
最大負載(kg)		Max. loading capacity	16	16	50
臂展(mm)		Arm span	1600	1600	2100
重复定位精度(mm)		Repeatability positioning accuracy	±0.1	±0.04	±0.15
防护等级		Protection degree	IP65	IP65	IP65
工作范围	Working range	轴1 Axis 1	-180°~+180°	-180°~+180°	-180°~+180°
		轴2 Axis 2	-60°~+140°	-60°~+140°	-90°~+160°
		轴3 Axis 3	-170°~+80°	-170°~+80°	-170°~+80°
		轴4 Axis 4	-360°~+360°	-360°~+360°	-360°~+360°
		轴5 Axis 5	-120°~+135°	-135°~+135°	-135°~+135°
		轴6 Axis 6	-360°~+360°	-360°~+360°	-360°~+360°
最大速度	Max. speed	轴1 Axis 1	145°/s	145°/s	93°/s
		轴2 Axis 2	105°/s	105°/s	89°/s
		轴3 Axis 3	170°/s	170°/s	115°/s
		轴4 Axis 4	320°/s	320°/s	149°/s
		轴5 Axis 5	320°/s	320°/s	130°/s
		轴6 Axis 6	450°/s	450°/s	170°/s
重量(kg)		Weight	170	175	600
安装方式		Installation	地面/支架 Ground/rack	地面/支架 Ground/rack	地面/支架 Ground/rack
主要应用	Main applications	弧焊 Arc welding		●	
		點焊 Spot welding			
		搬運 Handling	●		●
		裝配 Assembling		●	
		碼垛 Palletizing			●
		其他 Other	衝壓/折彎 Punching/Bending		

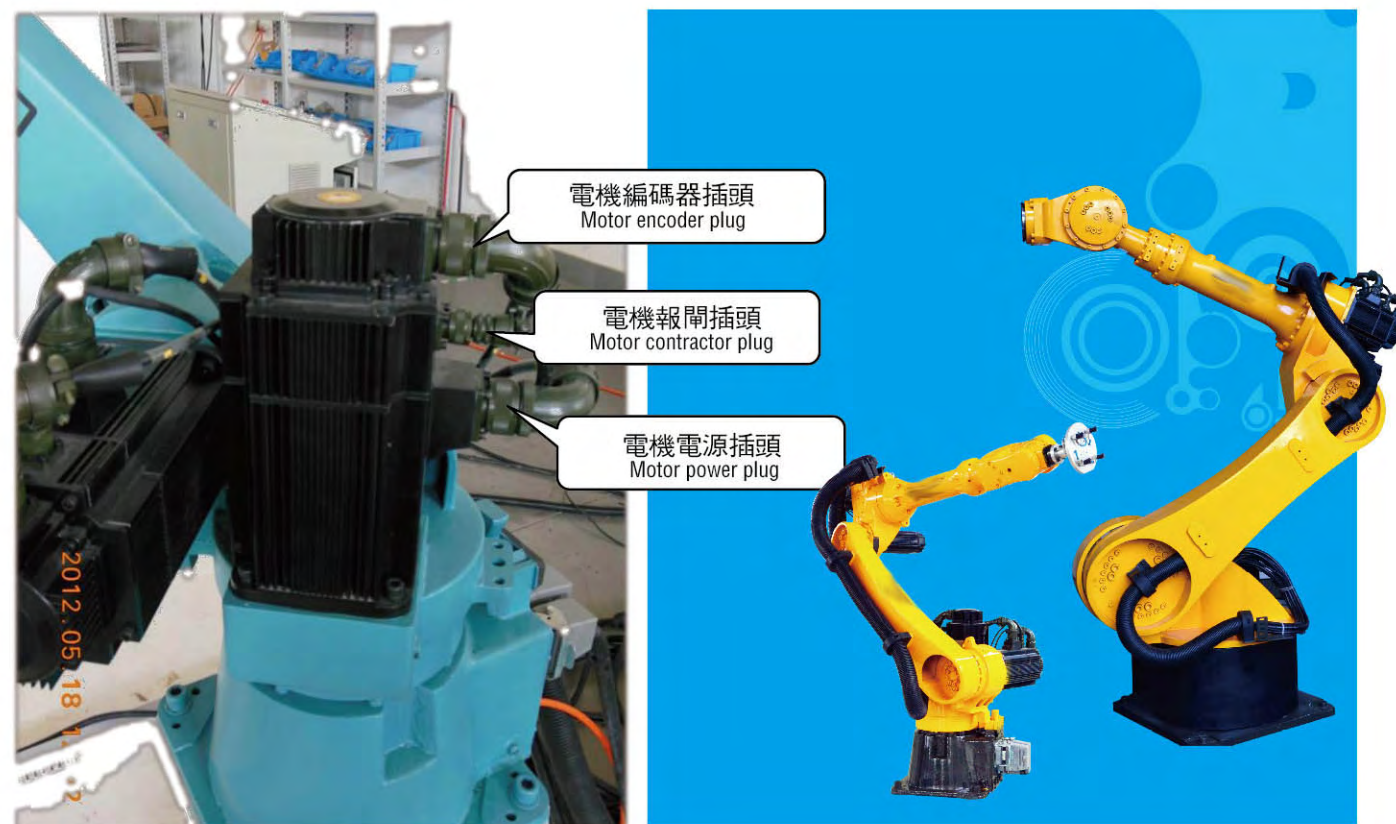
注：機器人列出的主要應用為通常情況，機器人具體應用是否適合您的應用情況請諮詢銷售人員。

ER170-2605		ER220-2605	ER300-4-3300		ER5-4B-800	ER3-4C	
170		220	300		5	3	
2600		2600	3300		800	-	
±0.2		±0.2	±0.5		±0.04	±0.1	
IP65		IP65	IP65		IP54	IP65 ~ IP69	
-180°~+180°		-180°~+180°	-180°~+180°		-130°~+130°	-83°~+128°	
-55°~+80°		-55°~+80°	-40°~+95°		-145°~+145°	-83°~+128°	
-195°~+80°		-195°~+80°	-10°~+110°		300mm	-83°~+128°	
-360°~+360°		-360°~+360°	-360°~+360°		-360°~+360°	-	
-125°~+125°		-120°~+120°	-		-	-	
-360°~+360°		-360°~+360°	-		-	-	
85°/s		85°/s	115°/s		333°/s	6.5m /s	10m/s
80°/s		70°/s	105°/s		333°/s		
89°/s		82°/s	105°/s		1.45m /s	生 产 节 拍 Cycle time	25/305/25 0.54s
114°/s		114°/s	300°/s		1150°/s		
110°/s		75°/s	-		-		90/400/90 0.7s
153°/s		164°/s	-		-		
1375		1400	2300		30	130	
地面/支架 Ground/rack		地面/支架 Ground/rack	地面/支架 Ground/rack		地面/支架 Ground/rack	懸挂 Suspending	
●		●					
●		●	●		●	●	
					●		
●		●	●				
						分揀 Picking	

機器人 Robot

機器人本體為6軸串聯結構，由機器人底座、大臂、小臂、手腕、6個伺服電機、6個減速機、電機電纜組成。本體上6個電機，電機電纜接頭如圖所示有電機編碼器插頭、電機報閘插頭、電機電源插頭，在運輸和安裝機器人時請勿擊打或碰撞編碼器。

The Robot's body is built in a 6-axis cascaded structure, consisting of base, large arm, armlet, wrist, 6 servo motors, 6 reducers and motor cables. Robot's 6 motors and motor cables joint section is equipped with a encode plug, contractor plug, and power plug. Please avoid strikes and collisions to the encoder in course of transportation and installation.



機器人電櫃結構 Robot Electric Cabinet Structure

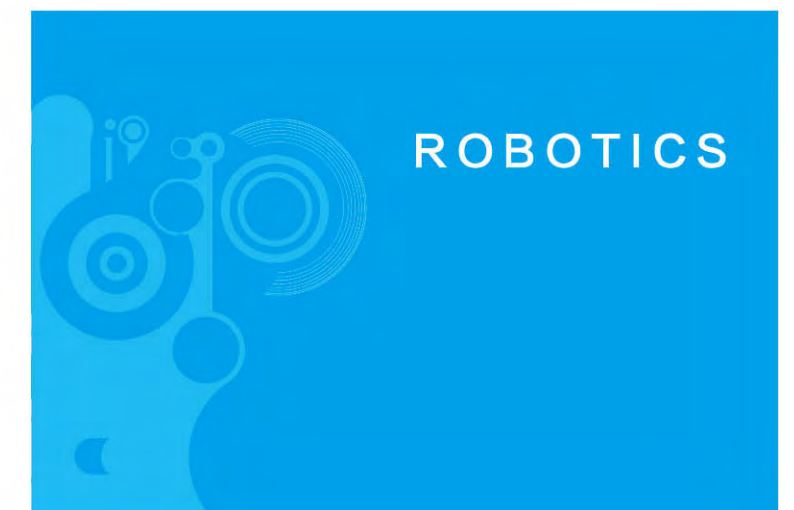


機器人電控系統是在機器人電櫃內，機器人的運動通過控制器和驅動器來控制伺服電機的轉動從而實現機器人的聯動。

Robot's electric controlling system is based on the coordination between controller and drive to control servo motor and robot's motions.

機器人電櫃面板有主電源開關、電源指示燈、啓動按鈕、停止按鈕、狀態按鈕、報警指示燈、手動/自動切換按鈕、急停按鈕。通過電櫃面板和示教盒實現機器人的操作。

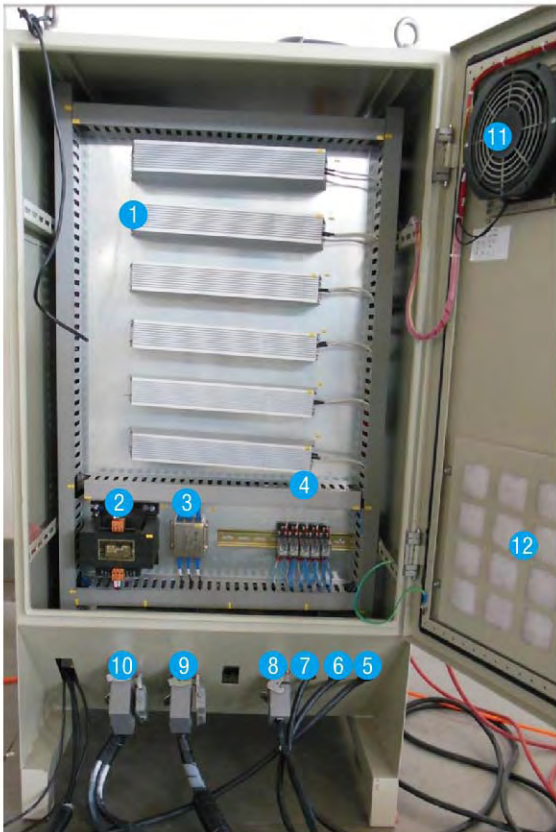
The electric cabinet control panel is equipped with power switch, power indicator, start button, stop button, status button, alarm indicator, manual/auto switch, quick-stop button. Robot's is operated through cabinet control panel and teaching-box.





- 1 空開-通斷伺服驅動器主電進綫 Dry run-on/off servo drive main power inlet
- 2 交流接觸器-通過啓動按鈕控制驅動器主電通斷 AC Contactor-start button to control on/off of drive power inlet
- 3 控制器-機器人控制器和IO端子 Controller-robot controller and IO terminals
- 4 保險絲座 Fuse socket
- 5 斷路器 Braker
- 6 中間繼電器 Intermediate relay
- 7 驅動器-每個驅動器對應一個電機，用來控制電機運動方向、速度 Drive-each drive responds to a motor to control motor' s moving directions and speed

- 1 制動電阻-用于驅動器能耗制動 Braking resistor-for drive dynamic braking
- 2 變壓器-380V-220V變壓 Transformer-380V/220V voltage switch
- 3 濾波器 Filter
- 4 中間繼電器 Intermediate relay
- 5 380v主電源進綫 380V main power inlet
- 6 變壓器進綫(380V) Transformer inlet (380V)
- 7 變壓器出綫(200V) Transformer outlet (220V)
- 8 I/O綫航插-連接到機器人本體或外圍設備用 I/O line aviation plug-connecting to robot body or attached equipments
- 9 編碼器電纜航插-連接到機器人本體 Encoder cable aviation plug-connecting to robot body
- 10 電機電纜航插-連接到機器人本體電機 Motor cable aviation plug-connecting to robot motor
- 11 冷卻風扇 Cooling fan
- 12 空氣過濾棉-需要定期更換，防止灰塵堵住後電櫃冷卻不好 Air filtering cotton-renewed regularly to ensure cooling functions not affected by dust



示教盒 Teaching-Box

- : 預留
- : 用戶——登陸，語言選擇，權限轉換等
- : 變量——變量查看、添加和修改等
- : 工程——新建，打開程序，下載程序，關閉文件等
- : 程序——修改、復制、粘貼、打開、刪除等；
- : 坐標——進入點動操作界面
- : 報警、報告——文字形式顯示報警或報告內容
- F1~F2 : 功能擴展鍵，（在焊接機器人F1大開，F2閉合）
- Mot : 開關伺服；
- Jog : 坐標變換，在關節坐標系、直角坐標系、工具坐標系之間進行切換
- F/B : 程序運行位置設定
- Step : 單步/連續；
- V+,V- : 速度增大、減小鍵；
- Start : 程序開始運行；
- Stop : 程序停止運行；
- 軸運動鍵：使用這12個鍵來手動操作機器人；
- Rob、2nd鍵：預留按鍵，暫無功能；
- 模式轉換：在手動、自動、關閉三個模式之間切換
- 急停按鈕：機器人急停

- : Reserve
- : User-login, language options, authority switch etc
- : Variables-checking, adding and modifying variables etc
- : Project- establishing, opening program, downloading program and closing files
- : Program- modifying, copying, pasting, opening and deleting etc
- : Coordinates-inching operation interface
- : Alarm, report-verbal alarm or report
- F1~F2 : function control (F1 on, F2 off for welding robot)
- Mot : turning on/off servo
- Jog: coordinates changes, switching between joint coordinates system, rectangular coordinates system and tool coordinates system.
- F/B: position setting for program operation
- Step : single step/continuous
- V+,V- : increasing/reducing speed
- Start : program running
- Stop : program stops
- Axis motion button: use the 12 buttons to control robot manually
- Rob, 2nd buttons: reserved for pending functions
- Mode switch: switching between manual, auto and close modes
- Quick-stop: emergency stop of robot operation

Robot's applications
機器人應用領域



◀ 回龍某公司焊接
Welding in one Company
in Huilong



▲ 廣東某公司鉗子打磨應用
The pliers burnishing
application in one
Company in Guangzhou

◀ 機床上下料(電機轉軸加工生產線)
MachineTool Charging/discharging(Motor spindle
machine production line)



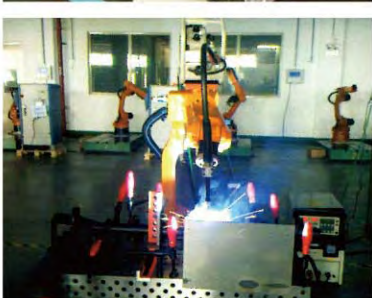
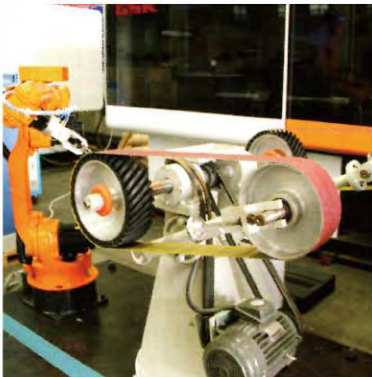
▶ 浙江某制磚廠應用
The application of
brickmaking factory
in Zhejiang



◀ 武漢某公司焊接
Welding in one Company in Wuhan



Robot's applications
機器人應用領域



◀ 武漢某公司焊接
Welding in one Company
in Guangzhou



▶ 機床上下料(環類工件)
Machine charging/discharging
(Loops workpiece)



機器人導軌		Robot guide rail				
	機器人移動導軌 Moving Rail	最高速度 Max. Speed	防護等級 Protection Level	安裝方式 Installation Method	移動距離 Movement Distance	加 / 減速 Acceleration/Deceleration
		1.06m/s	標準	落地	1.7-11.7m(增幅 1m)	1.5m/s² Maraton-Pac
		2.0m/s	鑄造, IP65	落地	1.9-19.9m(增幅 1m)	2.5m/s² Bobin
	物料搬運導軌 Piece moving guide rail	最大速度 Max. Speed	2.0	最大軌道長度(m) Max. Length of Rail	2.1-105	
		荷重(kg) Max. Load	900	寬度(m) Width of Rail	0.66	
		最大移動距離(m) Max. Shifting Distance	25	加 / 減速(m/s²) Acceleration/Deceleration	2	

數控變位機		CNC Positioner			
PL		PA		PB	
					
最大荷重能力(kg) Max.Load	300	250	250(每側)		
最大範圍(mm) Max. Range	φ 1500	φ 1000	φ 1000		
最大長度(mm) Max.Length	4000	900	900		

工藝設備		Equipments and techniques				
焊槍額定規格 Welding torch rated specifications		產品序列號 Product serial number			YT-35CS4HSE	
	額定焊接電流		Rated current for welding		350A	
	額定負載持續率	Rated duty cycle	10 分鐘周期	10min cycle	350A、60%(CO ₂)/350A、35%(20%CO ₂ +80%Ar)	
			連續	continuous	270A、100%(CO ₂)/200A、100%(20%CO ₂ +80%Ar)	
	適用焊絲		Applicable wire		實芯焊絲 / 藥芯焊絲 Solid welding wire/flux-cord wire	
	適用焊絲直徑		Wire diameter		0.8/1.0/1.2/1.4mm	
	電纜長度		Cable length		3/5	
	重量(包括電纜)		Weight(with cables)		2.8kg	
	適用氣體		Applicable gas		CO ₂ 、20%CO ₂ +80%Ar	
	氣體壓力	Air pressure	最小 minimum		0.35MPa	
			最大 maximum		0.1MPa	
	槍管形狀		Torch shape		R=80MM	
					θ =55°	
					L=121mm	
	執行標準		Standard		GB/T15579.7-2005	
	額定電壓		Rated voltage		113V	
	焊槍開關電壓		Torch switch voltage		24V	
	導向方式		Directing method		手工 Manual	
	冷卻方式		Cooling method		空冷 Air cooling	

碼垛		Palletizing			
	夾爪 Gripper	可處理產品數 No. of products handled	1	指間距 Distance between fingers	75mm
		單次拾取最大重量 Max. single picking weight	50kg	包裝尺寸 (長度 * 寬度 * 高度範圍) Packing dimension(length*width*height range)	
		抓料器重量 Feeder weight	70kg	(300-750)*(300-550)*(120-250)mm	
	主要應用：包裝碼垛 Main application: packing and palletizing				
	夾具 Clamp	可處理產品數 No. of products handled	1-2	區數 Number of blocks	單區 Single block
		單次拾取最大重量 Max. single picking weight	40kg	箱盒尺寸 (長度 * 寬度 * 高度範圍) Packing dimension(length*width*height range)	
		抓料器重量 Feeder weight	45kg	(200-650)*(200-500)*(150-330)mm	
		可處理產品數 No. of products handled	1-5	區數 Number of blocks	雙區 Double blocks
		單次拾取最大重量 Max. single picking weight	60kg	箱盒尺寸 (長度 * 寬度 * 高度範圍) Packing dimension(length*width*height range)	
		抓料器重量 Feeder weight	80kg	(200-1200)*(200-500)*(150-330)mm	
	主要應用：包裝碼垛 Main application: packing and palletizing				
模塊化解決方案 Modularized solutions					
機加工工作站 Machine tooling work station		該標準化、“交鑰匙”精加工工作站是一種歷經考驗的機器人系統解決方案，經編程可配用多種刀具，滿足不同零部件的生產要求。該工作站便于在客戶現場集成，性價比優異，融合 Force Control 技術，能顯著提升中小型零件加工質量。 The standardized Turnkey precision machining station is a durable robot system solution, with multiple tools used through programming, which responds to needs of different parts' production. The work station provides on-site integration with sound performance. With Force Control technologies, machining quality of middle and small sized accessories can be improved significantly.			
					
即插即用解決方案 Plug-in-and-use solution					
弧焊工作站 Arc welding work station					
基于 A 型變位機的工作站 A positioner work station		基于 B 型變位機的工作站 B positioner work station		基于 R 型變位機的工作站 R positioner work station	
					
機器人 Robot	IRB1520ID、IRB1600(ID)、IRB2600(ID)、IRB4600				
機器人數量 No. of robots	1-2	1-2 (按要求，最多可用 3 個) 1-2 (up to 3 per request)		1-2 (按要求，最多可用 4 個) 1-2 (up to 4 per request)	
變位機 Positioner	IRBP A-250、IRBP A-500、IRBP A-750		IRBP C-500、IRBP C-1000		IRBP K-300、IRBP K-600、IRBP K-1000
荷重能力 Loading capacity	最大 750kg Max		最大 1000kg Max		最大 1000kg Max
工藝設備組件 Equipments	Fronius、SKS、ESAB、Kemppi		Fronius、SKS、ESAB、Kemppi		Fronius、SKS、ESAB、Kemppi
焊嘴 Welding torch	Fronius、Dinse、Binzel、SKS		Fronius、Dinse、Binzel、SKS		Fronius、Dinse、Binzel、SKS
安全設備 Safety kit	完整的安全系統特性 -- 安全柵欄、光幕、激光掃描儀、卷門、安全鎖、安全 PLC Complete safety system features—safety barrier、screen、laser scanner、roll-up door、safety lock、safety PLC				