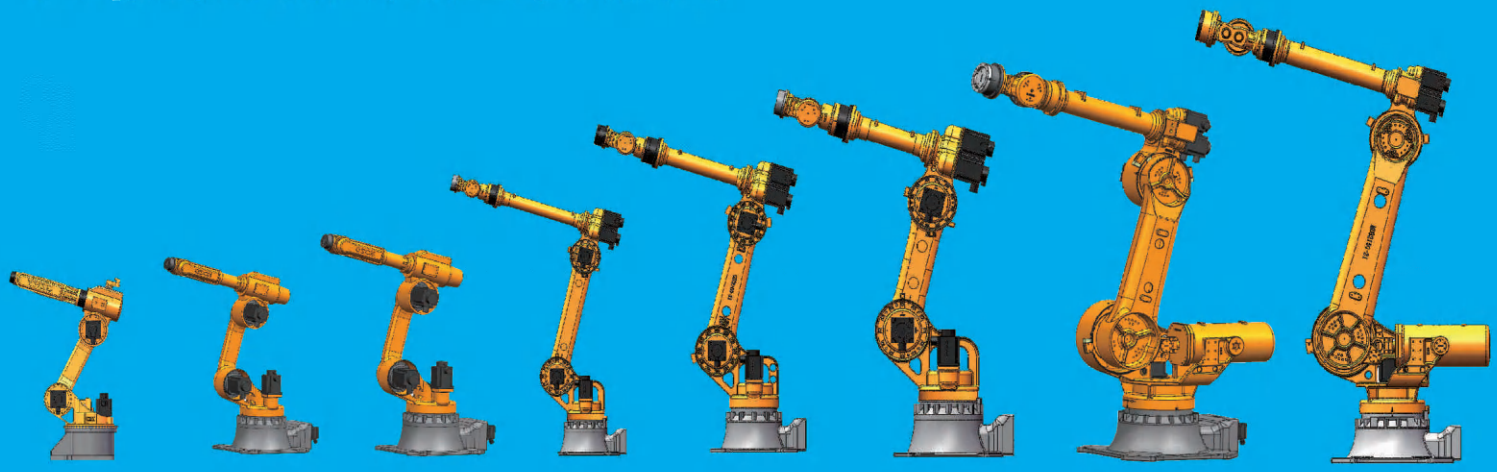
TROY INTELLIGENT

High Performance Industrial Robots
by Yaskawa Servo system + LNC Controller

六轴系列通用型机器人



Troysupply.com

四轴系列通用型机器人

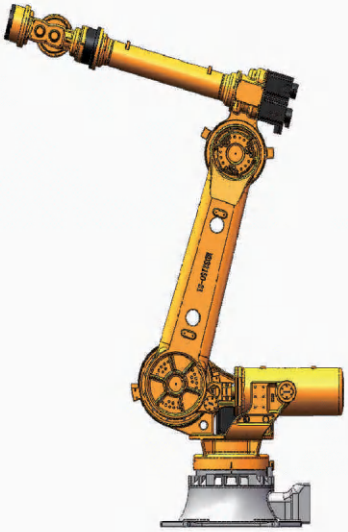


通用型六关节工业机器人：替代机床上下料、冲压、喷粉、喷漆、装配、装箱等简单而重复的工作，操作工按照预先编排好的程序，自动完成工作的取件，传送、装卸、包括工作的翻转，工序转换等一系列上下料工作任务，具有高速度，小巧的手腕，高力矩，宽广的工作范围，良好的适用不同的环境。

General-purpose six-joint industrial robot: replace machine tool loading and unloading, production line handling, stamping, dusting, painting, assembly, packing and other simple and repetitive work, operators according to pre-arranged procedures, automatic pick-up, transfer, loading and unloading, including work turnover, process conversion and a series of materials work tasks, with high speed, small wrist, Takariki moment, a wide range of work, good for different environments.

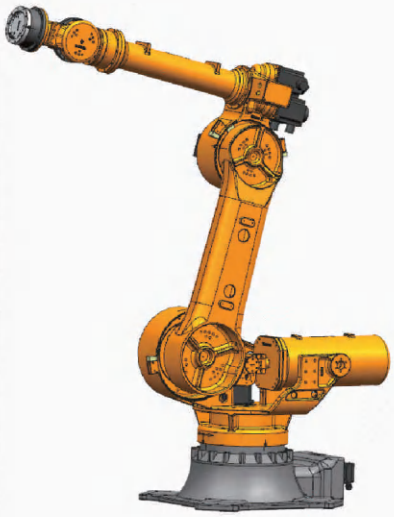


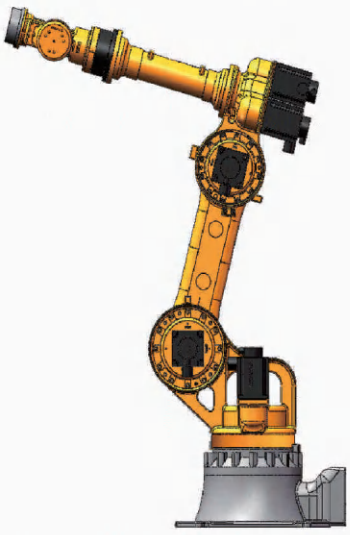
型号Models	TR10200A-300Y	TR10100A-280Y	TR1080A-250Y	TR1050A-200Y	TR1040A-160	TR1020A-180	TR1020A-150	TR1005A-080
轴数Number of axes	6轴	6轴	6轴	6轴	6轴	6轴	6轴	6轴
额定负重 Weight rating	200kg	100kg	80kg	50kg	40kg	20kg	20kg	5kg
工作最大半径Maximum working radius	3000mm	2800mm	2500mm	2000mm	1600mm	1800mm	1500mm	800mm
工作最大高度Maximum working height	2500mm	2300mm	2000mm	1500mm	1100mm	1300mm	1000mm	600mm
重复定位精度Repeat positioning accuracy	±0.05mm	±0.05mm	±0.05mm	±0.05mm	±0.05mm	±0.05mm	±0.05mm	±0.05mm
装机容量Installed capacity	三相380V26KW	三相380V20KW	三相380V16KW	三相380V16KW	三相380V5.7KW	三相380V5KW	三相380V5.7KW	三相380V 2.1KW
实际用电Actual power	三相380V13KW	三相380V10KW	三相380V8KW	三相380V8KW	三相380V2.6KW	三相380V2KW	三相380V2KW	三相380V 0.8KW
本体重量Body weight	1000kg	1000kg	890kg	860kg	575kg	568kg	560kg	120kg
驱动方式Drive mode	Ac伺服电机驱动AC servo motor drive							
控制方式Control mode	示教编程模式Teaching programming patterns							
安装方式Installation mode	地面/悬挂/移动式安装Floor/suspension/mobile installation							
环境温度Ambient temperature	+65℃ -5℃							
最大工作范围Maximum working range								
第一轴First Axis	±360°	±360°	±360°	±360°	±360°	±360°	±360°	±360°
第二轴Second Axis	+90° -70°	+90° -70°	+90° -70°	+90° -70°	+90° -70°	+90° -70°	+90° -70°	+90° -70°
第三轴The third axis	+70° -70°	+70° -70°	+70° -70°	+70° -70°	+70° -70°	+70° -70°	+70° -70°	+70° -70°
第四轴The fourth axis	±360°	±360°	±360°	±360°	±360°	±360°	±360°	±360°
第五轴Fifth axis	±110°	±110°	±110°	±110°	±110°	±110°	±110°	±110°
第六轴The sixth axis	±360°	±360°	±360°	±360°	±360°	±360°	±360°	±360°
最大单轴速度Maximum uniaxial velocity								
第一轴First Axis	120° /s	120° /s	120° /s	140° /s	140° /s	140° /s	140° /s	140° /s
第二轴Second Axis	112° /s	112° /s	112° /s	120° /s	120° /s	160° /s	160° /s	160° /s
第三轴The third axis	120° /s	120° /s	120° /s	120° /s	120° /s	160° /s	160° /s	160° /s
第四轴The fourth axis	120° /s	120° /s	120° /s	120° /s	120° /s	120° /s	120° /s	120° /s
第五轴Fifth axis	120° /s	120° /s	120° /s	200° /s	200° /s	250° /s	250° /s	250° /s
第六轴The sixth axis	120° /s	120° /s	120° /s	200° /s	200° /s	250° /s	250° /s	250° /s



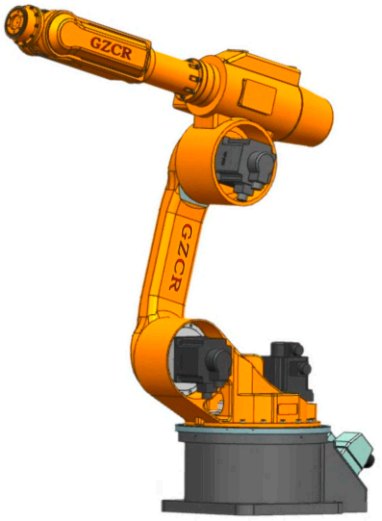
序号S/N	名称Name	工作范围Scope of work	速度Speed
1	第一轴First axis	±360°	120° /s
2	第二轴Second axis	+ 90° -70°	112° /s
3	第三轴The third axis	+ 70° -70°	120° /s
4	第四轴The fourth axis	±360°	120° /s
5	第五轴Fifth axis	±110°	120° /s
6	第六轴The sixth axis	±360°	120° /s
7	轴数Number of axes	6轴 6 axis	
8	额定负重Weight rating	200kg	
9	工作半径Working radius	3000mm	
10	工作高度Working height	2500mm	
11	重复定位精度Repeat positioning accuracy	±0.05mm	
12	装机容量Installed capacity	Three-phase380V 26KW	
13	实际用电Actual power	Three-phase380V 13KW	
14	重量Weight	1000kg	
15	驱动方式Drive mode	Ac伺服电机驱动AC servo motor drive	
16	控制方式Control mode	示教编程模式Teaching programming patterns	
17	安装方式 Installation mode	地面/悬挂/移动式安装Floor/suspension/mobile installation	
18	环境温度Ambient temperature	+65℃ -5℃	

序号S/N	名称Name	工作范围Scope of work	速度Speed
1	第一轴First axis	±360°	120° /s
2	第二轴Second axis	+ 90° -70°	112° /s
3	第三轴The third axis	+ 70° -70°	120° /s
4	第四轴The fourth axis	±360°	120° /s
5	第五轴Fifth axis	±110°	120° /s
6	第六轴The sixth axis	±360°	120° /s
7	轴数Number of axes	6轴 6 axis	
8	额定负重Weight rating	100kg	
9	工作半径Working radius	2800mm	
10	工作高度Working height	2300mm	
11	重复定位精度Repeat positioning accuracy	±0.05mm	
12	装机容量Installed capacity	Three-phase380V 20KW	
13	实际用电Actual power	Three-phase380V 10KW	
14	重量Weight	1000kg	
15	驱动方式Drive mode	Ac伺服电机驱动AC servo motor drive	
16	控制方式Control mode	示教编程模式Teaching programming patterns	
17	安装方式 Installation mode	地面/悬挂/移动式安装Floor/suspension/mobile installation	
18	环境温度Ambient temperature	+65℃ -5℃	





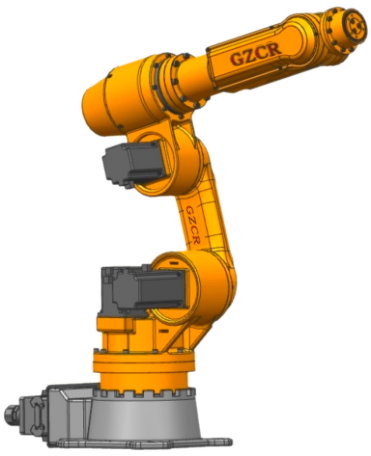
序号S/N	名称Name	工作范围Scope of work	速度Speed
1	第一轴First axis	±360°	140° /s
2	第二轴Second axis	+ 90° -70°	120° /s
3	第三轴The third axis	+ 70° -70°	120° /s
4	第四轴The fourth axis	±360°	120° /s
5	第五轴Fifth axis	±110°	200° /s
6	第六轴The sixth axis	±360°	200° /s
7	轴数Number of axes	6轴 6 axis	
8	额定负重Weight rating	50kg-80kg	
9	工作半径Working radius	2000mm-2500mm	
10	工作高度Working height	1500mm/2000mm	
11	重复定位精度Repeat positioning accuracy	±0.05mm	
12	装机容量Installed capacity	Three-phase380V 16KW	
13	实际用电Actual power	Three-phase380V 8KW	
14	重量Weight	860kg-890kg	
15	驱动方式Drive mode	Ac伺服电机驱动AC servo motor drive	
16	控制方式Control mode	示教编程模式Teaching programming patterns	
17	安装方式 Installation mode	地面/悬挂/移动式安装Floor/suspension/mobile installation	
18	环境温度Ambient temperature	+65℃ -5℃	



序号S/N	名称Name	工作范围Scope of work	速度Speed
1	第一轴First axis	±360°	140° /s
2	第二轴Second axis	+90° -70°	120° /s
3	第三轴The third axis	+70° -70°	120° /s
4	第四轴The fourth axis	±360°	120° /s
5	第五轴Fifth axis	±110°	200° /s
6	第六轴The sixth axis	±360°	200° /s
7	轴数Number of axes	6轴 6 axis	
8	额定负重Weight rating	40kg	
9	工作半径Working radius	1600mm	
10	工作高度Working height	1000mm	
11	重复定位精度Repeat positioning accuracy	±0.05mm	
12	装机容量Installed capacity	Three-phase380V 5.7KW	
13	实际用电Actual power	Three-phase380V 2 KW	
14	重量Weight	575kg	
15	驱动方式Drive mode	Ac伺服电机驱动AC servo motor drive	
16	控制方式Control mode	示教编程模式Teaching programming patterns	
17	安装方式 Installation mode	地面/悬挂/移动式安装Floor/suspension/mobile installation	
18	环境温度Ambient temperature	+65℃ -5℃	

序号S/N	名称Name	工作范围Scope of work	速度Speed
1	第一轴First axis	±360°	140° /s
2	第二轴Second axis	+90° -70°	160° /s
3	第三轴The third axis	+70° -70°	160° /s
4	第四轴The fourth axis	±360°	120° /s
5	第五轴Fifth axis	±110°	250° /s
6	第六轴The sixth axis	±360°	250° /s
7	轴数Number of axes	6轴 6 axis	
8	额定负重Weight rating	20kg	
9	工作半径Working radius	1500mm/1800mm	
10	工作高度Working height	1000/1300mm	
11	重复定位精度Repeat positioning accuracy	±0.05mm	
12	装机容量Installed capacity	三相380V 5.7KW Three-phase380V 5.7KW	
13	实际用电Actual power	三相380V 2KW Three-phase380V 2KW	
14	重量Weight	560kg	
15	驱动方式Drive mode	Ac伺服电机驱动AC servo motor drive	
16	控制方式Control mode	示教编程模式Teaching programming patterns	
17	安装方式 Installation mode	地面/悬挂/移动式安装Floor/suspension/mobile installation	
18	环境温度Ambient temperature	+65℃ -5℃	





序号S/N	名称Name	工作范围Scope of work	速度Speed
1	第一轴First axis	±360°	140° /s
2	第二轴Second axis	+90° -70°	160° /s
3	第三轴The third axis	+70° -70°	160° /s
4	第四轴The fourth axis	±360°	120° /s
5	第五轴Fifth axis	±110°	250° /s
6	第六轴The sixth axis	±360°	250° /s
7	轴数Number of axes	6轴 6 axis	
8	额定负重Weight rating	8kg	
9	工作半径Working radius	800mm	
10	工作高度Working height	600mm	
11	重复定位精度Repeat positioning accuracy	±0.05mm	
12	装机容量Installed capacity	三相380V 2.1KW Three-phase380V 2.1KW	
13	实际用电Actual power	三相380V 0.8KW Three-phase380V 0.8KW	
14	重量Weight	120 kg	
15	驱动方式Drive mode	Ac伺服电机驱动AC servo motor drive	
16	控制方式Control mode	示教编程模式Teaching programming patterns	
17	安装方式 Installation mode	地面安装Floor installation	
18	环境温度Ambient temperature	+65℃ -5℃	

六轴机器人客户案例
Six Axis robot customer case



吸塑机厚片上下料机器人
Plastic suction machine thick plate feeding robot



电机定子上下料机器人
Motor stator feeding and unloading robot



锻压上下料机器人
Forging feeding and unloading robot



水切割机器人
Water cutting robot



纸箱码垛机器人
Carton stacking robot



加工中心上下料机器人
Feeding and unloading robot for machining center



玩具车削边机器人
Toy Turning Edge Robot



灌装装框机器人
Filling and framing robot



浙江台州无人车间
Unmanned workshop in Taizhou, Zhejiang Province



电机上下料机器人
Motor feeding and unloading robot



铝管上下料机器人
Aluminum tube feeding and unloading robot



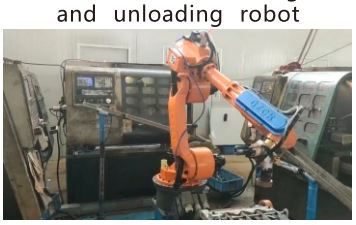
上袋机器人
Bagging robot



冲压机器人
Punching robot



CNC上下料机器人
CNC feeding robot



上下料-3台车床
Loading and unloading-3 lathes



叠框机器人
Frame-folding robot



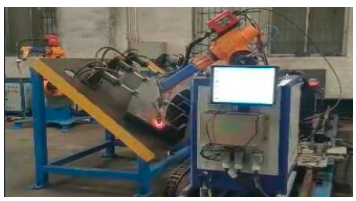
模具搬运机器人
Mold moving robot



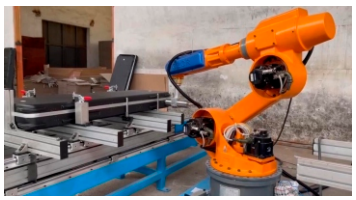
搬运机器人-黑茶砖
Carrying robot-black tea brick



上下料-激光切割
Loading and unloading-laser cutting



激光焊缝跟踪焊接
Laser seam tracking welding



钻孔机器人
Drilling robot



装箱机器人
Box-packing robot



油压机上下料机器人
Feeding and unloading robot for hydraulic press



医疗器械焊接
Welding of medical instruments



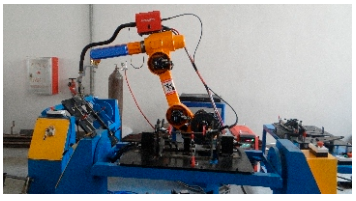
喷粉机器人
Dusting robot



喷漆机器人
Spray-paint robots



等离子喷涂机器人
Plasma spraying robot



钢结构焊接
Welding of steel structure

通用型码垛搬运机器人：码垛机是机、电一体化高新技术的码垛机器人，其结构设计优化，在码垛的过程中完全自动，码垛机器人正常运转无须人工干预，动作平稳可靠；可用于多种箱类、袋装类、板块类码垛，适用于地板、粉类包装、饲料、化肥、建材、铸造等重体力、高温、环境恶劣等工作场合。24小时工作，根据不同的产品设计不同的夹手，而成为专业的码垛机器人。高速码垛最快时速达到1200包/小时，重载码垛负载可达800KG。

Universal palletizing and handling robot: the palletizing machine is a machine-electrical integration of high and new technology palletizing robot, its structure design is optimized, in the process of palletizing fully automatic, palletizing robot normal operation without manual intervention, stable and reliable action; can be used for a variety of boxes, bags, plate type palletizing, apply to the floor, powder packaging, feed, fertilizer, building materials, casting and other heavy physical strength, high temperature, harsh environment and other work occasions. 24-hour work, according to different product design different gripper, and become a professional palletizing robot. The maximum speed of high speed palletizing is 1200 packets per hour, and the load of heavy loading palletizing is 800kg.



型号Models	TR10800B-300Y	TR10500B-300Y	TR10200B-300Y	TR10180B-320Y	TR10120B-210Y	TR1050B-170Y
轴数Number of axes	4轴	4轴	4轴	4轴	4轴	4轴
额定负重 Weight rating	800kg	500kg	200kg	180kg	120kg	50kg
工作最大半径Maximum working radius	3000mm	3000mm	3000mm	3200mm	2100mm	1700mm
工作最大高度Maximum working height	2500mm	2500mm	2500mm	2500mm	1500mm	1100mm
重复定位精度Repeat positioning accuracy	±0.05mm	±0.05mm	±0.05mm	±0.05mm	±0.05mm	±0.05mm
装机容量Installed capacity	三相380V 18KW	三相380V 17KW	三相380V 15KW	三相380V 23.8KW	二相220V 4KW	二相220V 4KW
实际用电Actual power	三相380V 8KW	三相380V 6KW	三相380V 5KW	三相380V 13KW	二相220V 1.5KW	二相220V 1.5KW
本体重量Body weight	2150kg			1370kg	525kg	376kg
驱动方式Drive mode	Ac伺服电机驱动AC servo motor drive					
控制方式Control mode	示教编程模式Teaching programming patterns					
安装方式Installation mode	地面/移动式安装Floor/mobile installation					
环境温度Ambient temperature	+65℃ -5℃					
最大工作范围Maximum working range						
第一轴First Axis	±360°	±360°	±360°	±360°	±360°	±360°
第二轴Second Axis	+65° -42°	+65° -42°	+65° -42°	+75° -50°	+70° -60°	+70° -60°
第三轴The third axis	+70° -50°	+70° -50°	+70° -50°	+70° -40°	+60° -70°	+60° -70°
第四轴The fourth axis	±360°	±360°	±360°	±360°	±360°	±360°
最大单轴速度Maximum uniaxial velocity						
第一轴First Axis	133°/s	133°/s	132°/s	132°/s	120°/s	120°/s
第二轴Second Axis	70°/s	81°/s	104°/s	119°/s	100°/s	100°/s
第三轴The third axis	70°/s	81°/s	104°/s	119°/s	100°/s	100°/s
第四轴The fourth axis	104°/s	104°/s	150°/s	150°/s	120°/s	120°/s

四轴系列通用型机器人
Four-axis series universal robot



序号S/N	名称Name	工作范围Scope of work	速度Speed
1	第一轴First axis	±360°	120° /s
2	第二轴Second axis	+70° −60°	100° /s
3	第三轴The third axis	+60° −70°	100° /s
4	第四轴The fourth axis	±360°	120° /s
5	轴数Number of axes	4轴 4axis	
6	额定负重Weight rating	50kg	
7	工作半径Working radius	1700mm	
8	工作高度Working height	1100mm	
9	重复定位精度Repeat positioning accuracy	±0.05mm	
10	装机容量Installed capacity	三相380V 3.8KW Three-phase380V 4KW	
11	实际用电Actual power	三相380V 1.3KW Three-phase380V 1.5KW	
12	重量Weight	376kg	
13	驱动方式Drive mode	AC伺服电机驱动 AC servo motor drive	
14	控制方式Control mode	示教编程模式Teaching programming patterns	
15	安装方式 Installation mode	地面/移动式安装Floor/mobile installation	
16	环境温度Ambient temperature	+65℃ −5℃	

序号S/N	名称Name	工作范围Scope of work	速度Speed
1	第一轴First axis	±360°	120° /s
2	第二轴Second axis	+70° −60°	100° /s
3	第三轴The third axis	+60° −70°	100° /s
4	第四轴The fourth axis	±360°	120° /s
5	轴数Number of axes	4轴 4axis	
6	额定负重Weight rating	120kg	
7	工作半径Working radius	2100mm	
8	工作高度Working height	1500mm	
9	重复定位精度Repeat positioning accuracy	±0.05mm	
10	装机容量Installed capacity	三相380V 3.8KW Three-phase380V 4KW	
11	实际用电Actual power	三相380V 1.3KW Three-phase380V 1.5KW	
12	重量Weight	525kg	
13	驱动方式Drive mode	AC伺服电机驱动 AC servo motor drive	
14	控制方式Control mode	示教编程模式Teaching programming patterns	
15	安装方式 Installation mode	地面/移动式安装Floor/mobile installation	
16	环境温度Ambient temperature	+65℃ −5℃	





序号S/N	名称Name	工作范围Scope of work	速度Speed
1	第一轴First axis	±360°	132° /s
2	第二轴Second axis	+75° −50°	119° /s
3	第三轴The third axis	+70° −40°	119° /s
4	第四轴The fourth axis	±360°	150° /s
5	轴数Number of axes	4轴 4axis	
6	额定负重Weight rating	180kg	
7	工作半径Working radius	3200mm	
8	工作高度Working height	2500mm	
9	重复定位精度Repeat positioning accuracy	±0.05mm	
10	装机容量Installed capacity	三相380V 15KW Three-phase380V 23.8KW	
11	实际用电Actual power	三相380V 5KW Three-phase380V 13KW	
12	重量Weight	1370kg	
13	驱动方式Drive mode	AC伺服电机驱动AC servo motor drive	
14	控制方式Control mode	示教编程模式Teaching programming patterns	
15	安装方式 Installation mode	地面/移动式安装Floor/mobile installation	
16	环境温度Ambient temperature	+65℃ −5℃	

序号S/N	名称Name	工作范围Scope of work	速度Speed
1	第一轴First axis	±360°	120° /s
2	第二轴Second axis	+70° −60°	100° /s
3	第三轴The third axis	+60° −70°	100° /s
4	第四轴The fourth axis	±360°	120° /s
5	轴数Number of axes	4轴 4axis	
6	额定负重Weight rating	300kg	
7	工作半径Working radius	3000mm	
8	工作高度Working height	2500mm	
9	重复定位精度Repeat positioning accuracy	±0.03mm	
10	装机容量Installed capacity	三相380V 15KW Three-phase380V 15KW	
11	实际用电Actual power	三相380V 5KW Three-phase380V 5KW	
12	重量Weight	2800kg	
13	驱动方式Drive mode	AC伺服电机驱动 AC servo motor drive	
14	控制方式Control mode	示教编程模式Teaching programming patterns	
15	安装方式 Installation mode	地面/移动式安装Floor/mobile installation	
16	环境温度Ambient temperature	+65℃ −5℃	





序号S/N	名称Name	工作范围Scope of work	速度Speed
1	第一轴First axis	±360°	110° /s
2	第二轴Second axis	+70° −60°	90° /s
3	第三轴The third axis	+60° −70°	90° /s
4	第四轴The fourth axis	±360°	110° /s
5	轴数Number of axes	4轴 4axis	
6	额定负重Weight rating	500kg	
7	工作半径Working radius	3000mm	
8	工作高度Working height	2500mm	
9	重复定位精度Repeat positioning accuracy	±0.03mm	
10	装机容量Installed capacity	三相380V 17KW Three-phase380V 17KW	
11	实际用电Actual power	三相380V 6KW Three-phase380V 6KW	
12	重量Weight	2800kg	
13	驱动方式Drive mode	AC伺服电机驱动 AC servo motor drive	
14	控制方式Control mode	示教编程模式Teaching programming patterns	
15	安装方式 Installation mode	地面/移动式安装Floor/mobile installation	
16	环境温度Ambient temperature	+65℃ −5℃	

序号S/N	名称Name	工作范围Scope of work	速度Speed
1	第一轴First axis	±360°	110° /s
2	第二轴Second axis	+70° −60°	90° /s
3	第三轴The third axis	+60° −70°	90° /s
4	第四轴The fourth axis	±360°	110° /s
5	轴数Number of axes	4轴 4axis	
6	额定负重Weight rating	800kg	
7	工作半径Working radius	3000mm	
8	工作高度Working height	2500mm	
9	重复定位精度Repeat positioning accuracy	±0.03mm	
10	装机容量Installed capacity	三相380V 18KW Three-phase380V 18KW	
11	实际用电Actual power	三相380V 8KW Three-phase380V 8KW	
12	重量Weight	2800kg	
13	驱动方式Drive mode	AC伺服电机驱动 AC servo motor drive	
14	控制方式Control mode	示教编程模式Teaching programming patterns	
15	安装方式 Installation mode	地面/移动式安装Floor/mobile installation	
16	环境温度Ambient temperature	+65℃ −5℃	



四轴机器人客户案例
Four Axis robot customer case



800KG 16桶桶装水码垛机器人
800KG 16barrels of barreled water palletizing robot



800KG桶装水机器人
800KG barrel water robot



800KG 铝搬运机器人
800KG aluminum rod handling robot



500KG木框码垛机器人
500KG wooden frame palletizing robot



500KG胶框拆剁机器人
500KG plastic frame dismantling robot



300KG CKD码垛机器人
300KG CKD palletizing robot



300KG球桌码垛机器人
300kg table palletizing robot



300KG地板砖码垛机器人
300KG floor brick stacking robot



300KG钢琴码垛机器人
300KG piano palletizing robot



300KG整车码垛机器人
300KG vehicle palletizing robot



300KG大纸箱码垛机器人
300KG Carton palletizing robot



200KG纸箱码垛机器人
200KG carton palletizing robot



石英粉码垛机器人
Quartz powder palletizing robot



3D自动拆包破包机器人
3D automatic unwrapping robot



双线纸箱码垛机器人
Double-line carton palletizing robot



铝合金锭码垛机器人
Aluminum alloy ingot stacking robot



发动机码垛机器人
Engine palletizing robot



大木箱码垛机器人
Wooden Box palletizing robot



数控冲床下料机器人
CNC punching machine feeding and discharging robot



三个夹手纸箱码垛机器人
Three hand-gripper carton palletizing robots



碳酸钙码垛机器人
Calcium carbonate palletizing robot



饲料码垛机器人
Feed palletizing robot

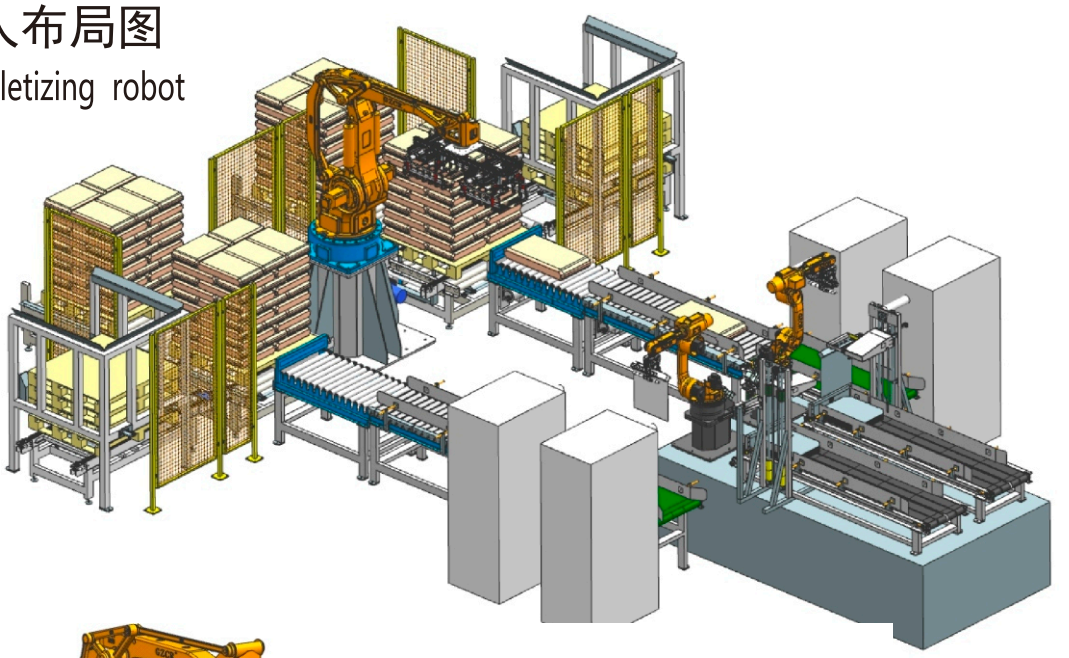


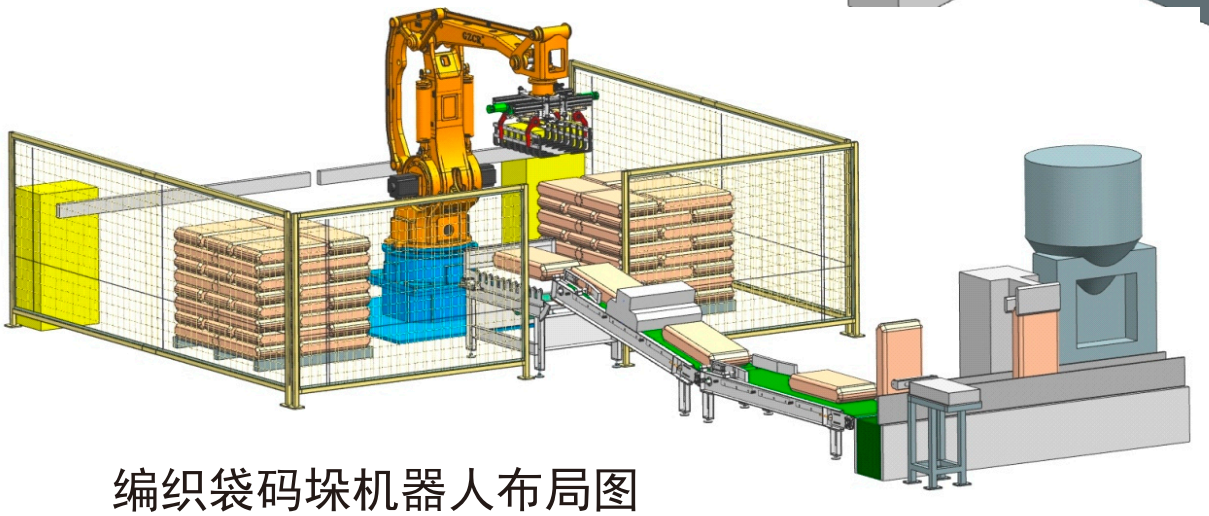
五轴机器人
Five-axis robot



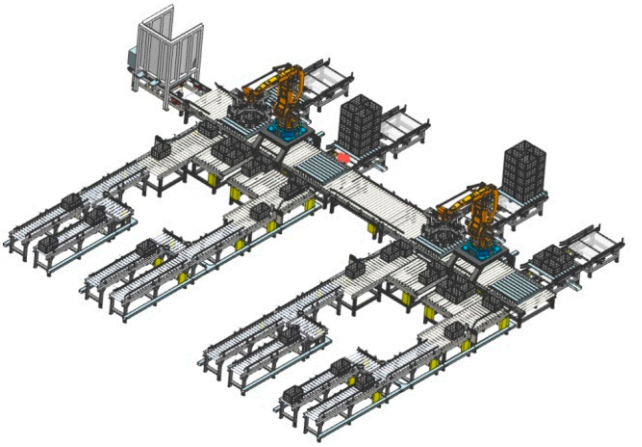
雕刻下料机器人
Engraving robot for loading and unloading

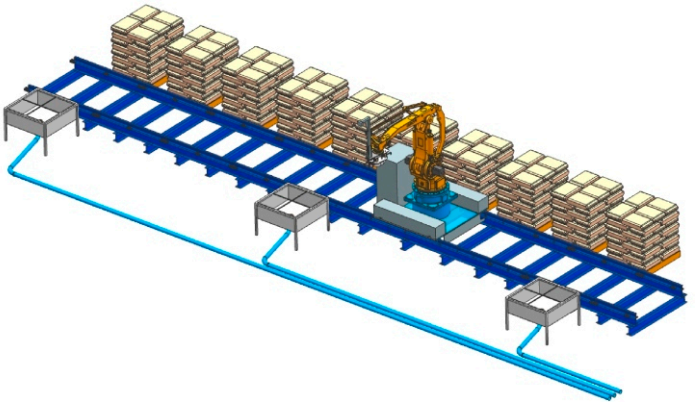
上袋码垛机器人布局图
The layout of the bag palletizing robot





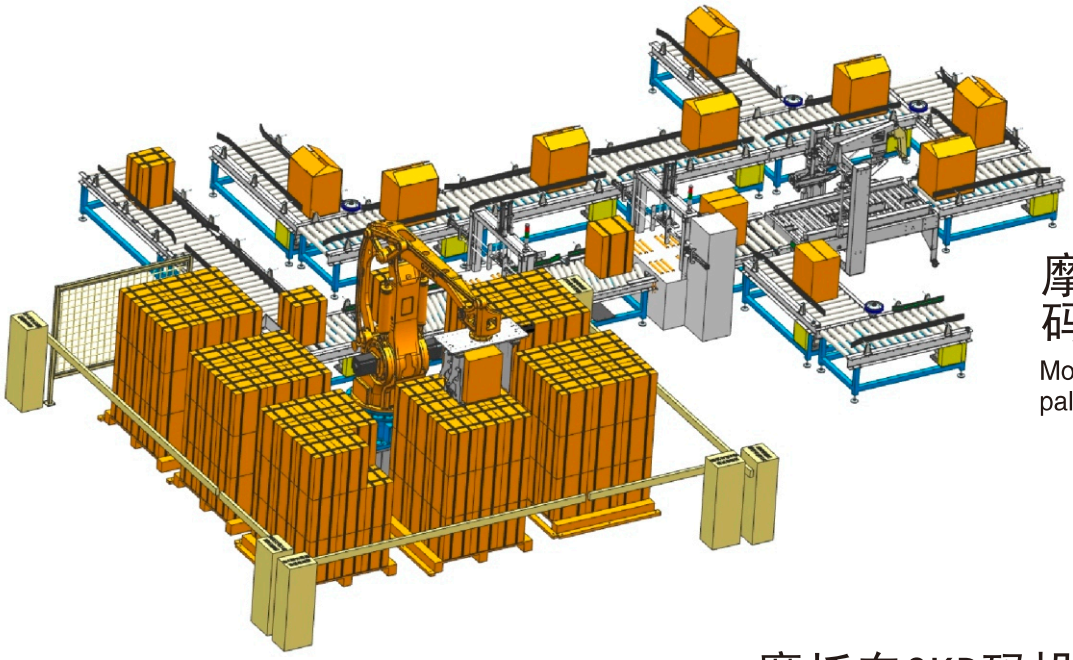
编织袋码垛机器人布局图
The layout of the braided bag palletizing robot





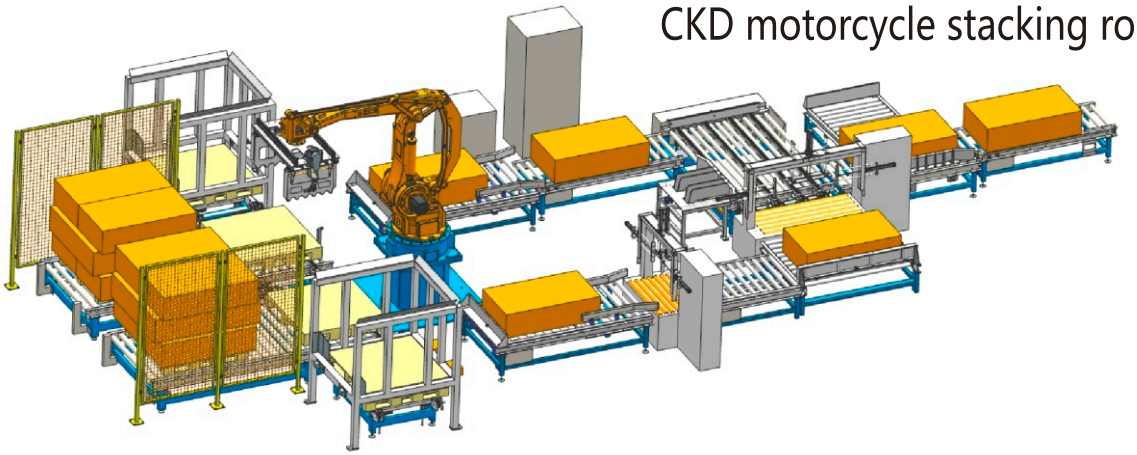
3D拆包破包配料机器人
3D split package ingredient robot

栈板库自动输送码垛机器人
Stack board library automatically transport palletizing robot

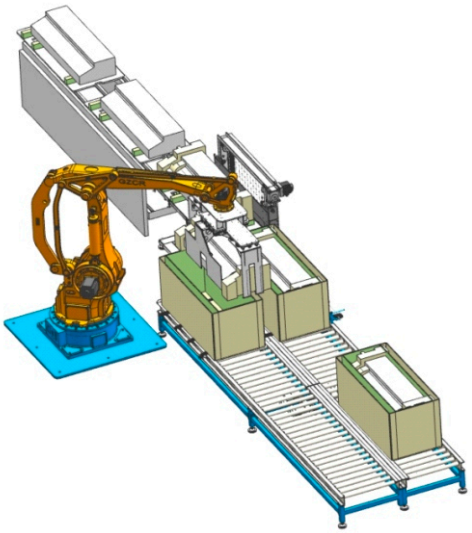


摩托车双线发动机码垛机器人布局图
Motorcycle double–line engine palletizing robot layout

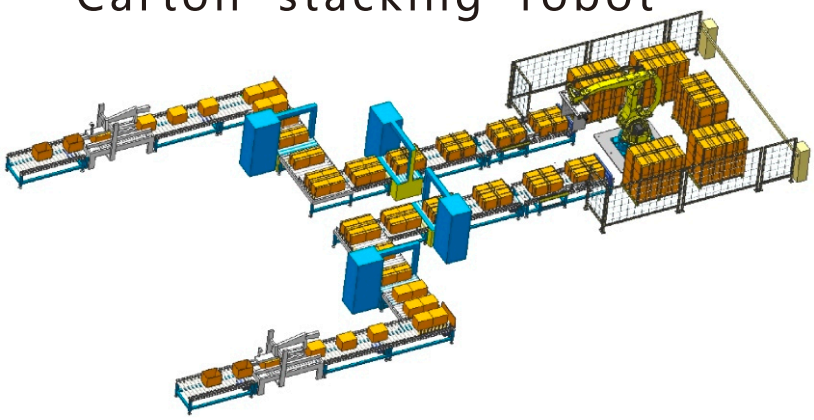
摩托车CKD码垛机器人布局图
CKD motorcycle stacking robot layout



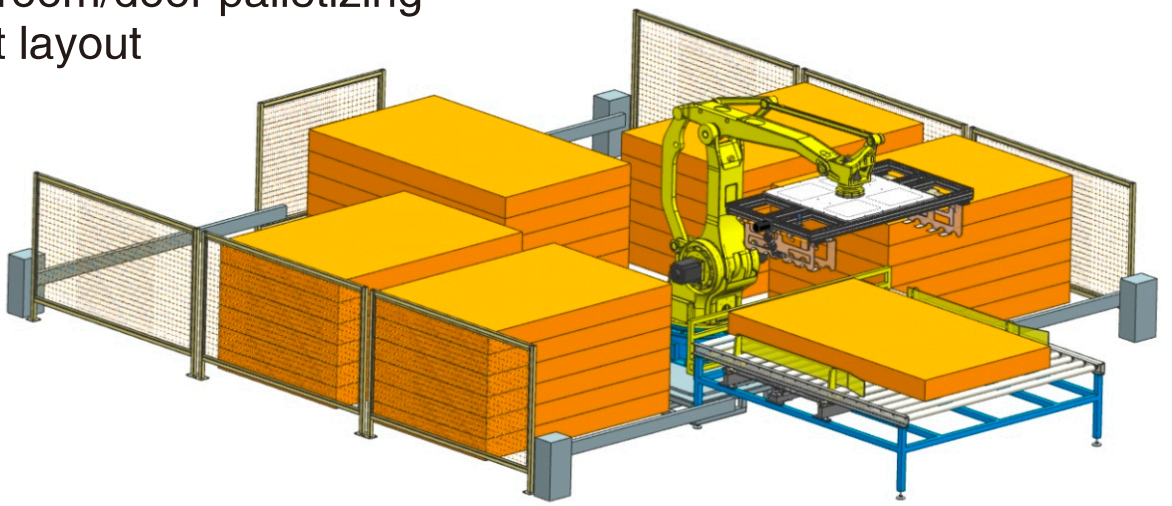
钢琴装箱机器人布局图
Piano packing robot layout



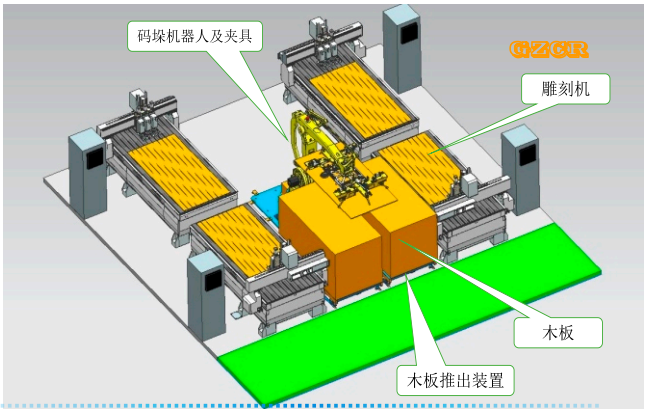
双线纸箱码垛机器人布局图
Layout of double-line Carton stacking robot

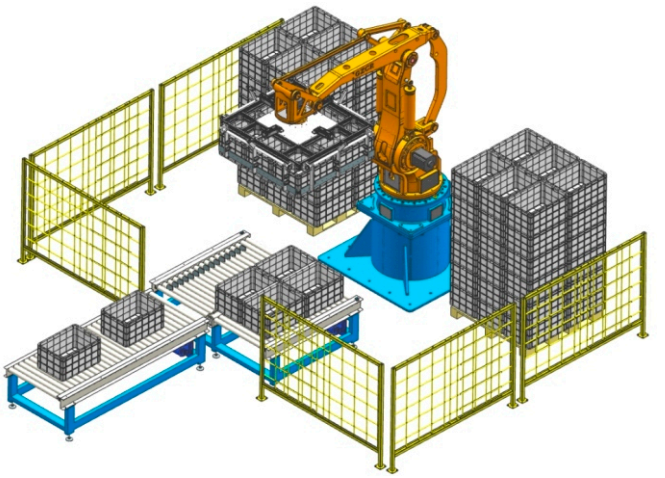


卫浴/门码垛机器人布局图
Bathroom/door palletizing robot layout



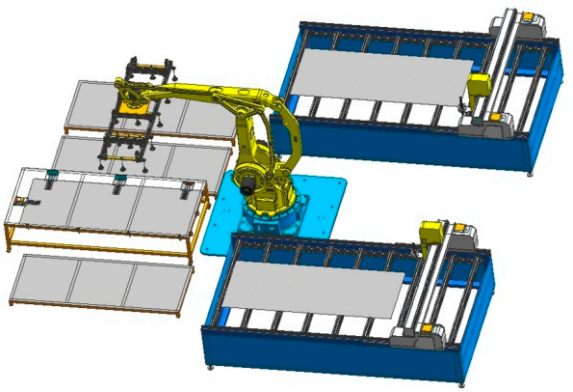
雕刻机上料机器人布局图
Layout of Engraving Machine Loading Robot

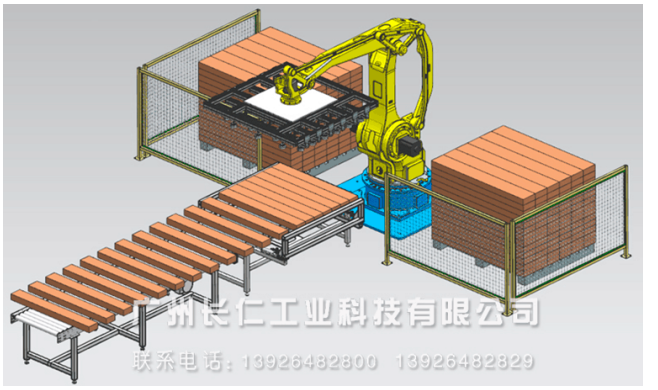




框类码垛机器人布局图
Frame type stacking robot layout

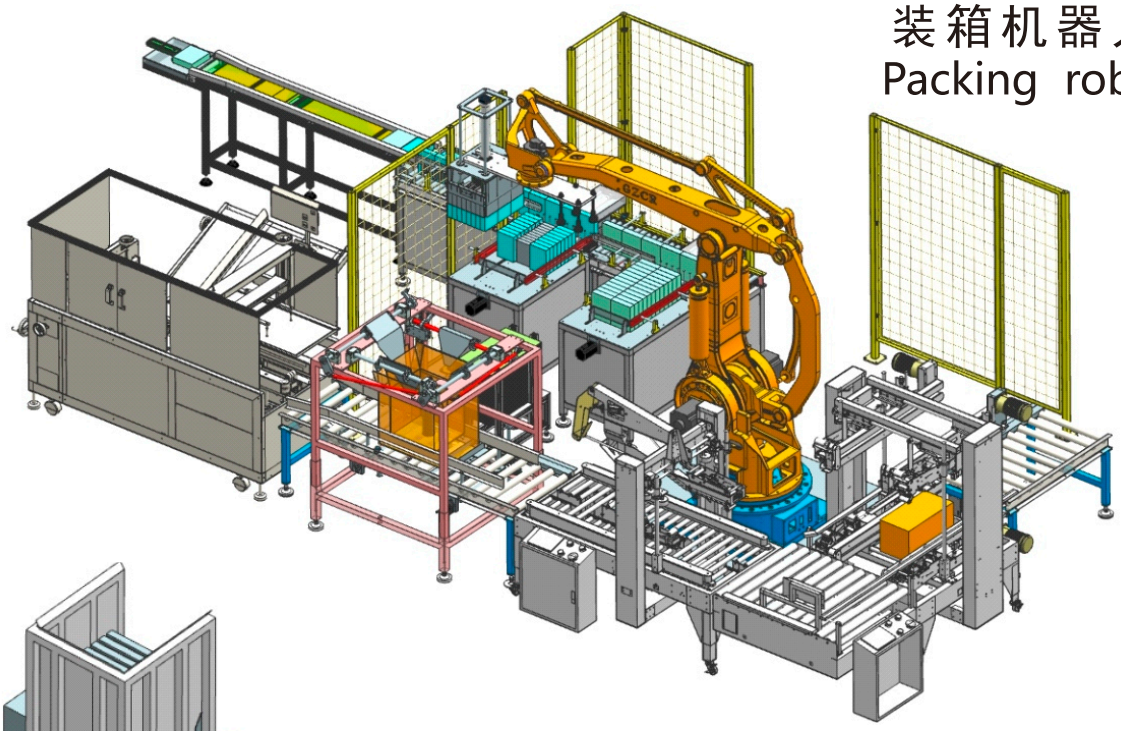
数控机床上下料机器人布局图
NC machine tool feeding and unloading robot layout

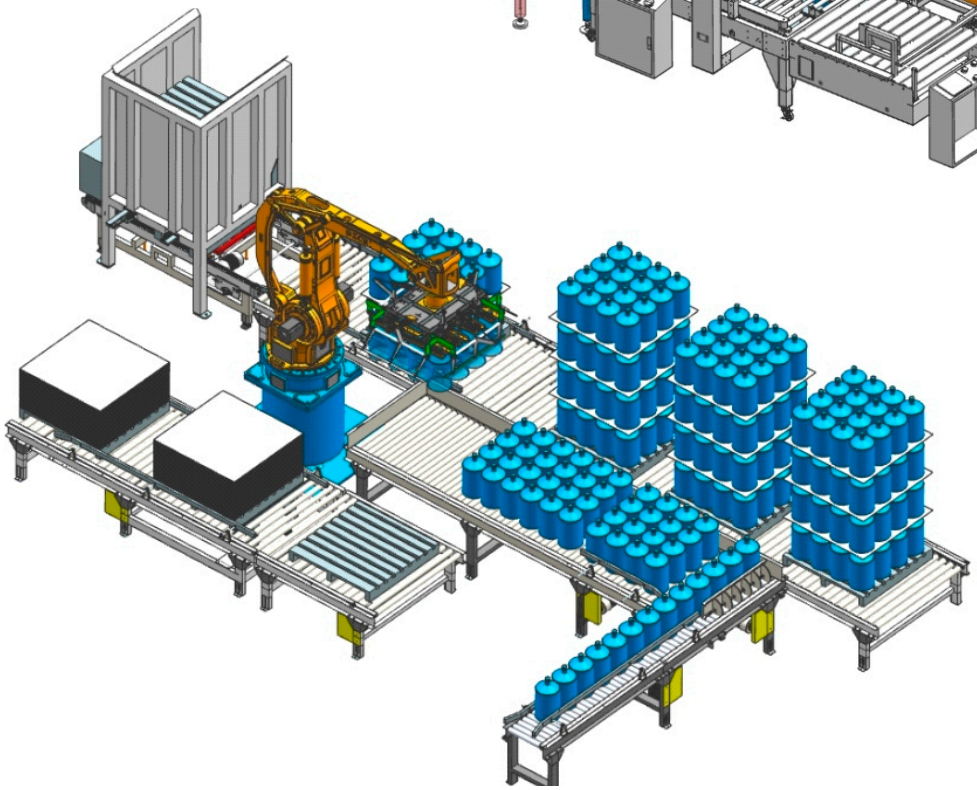




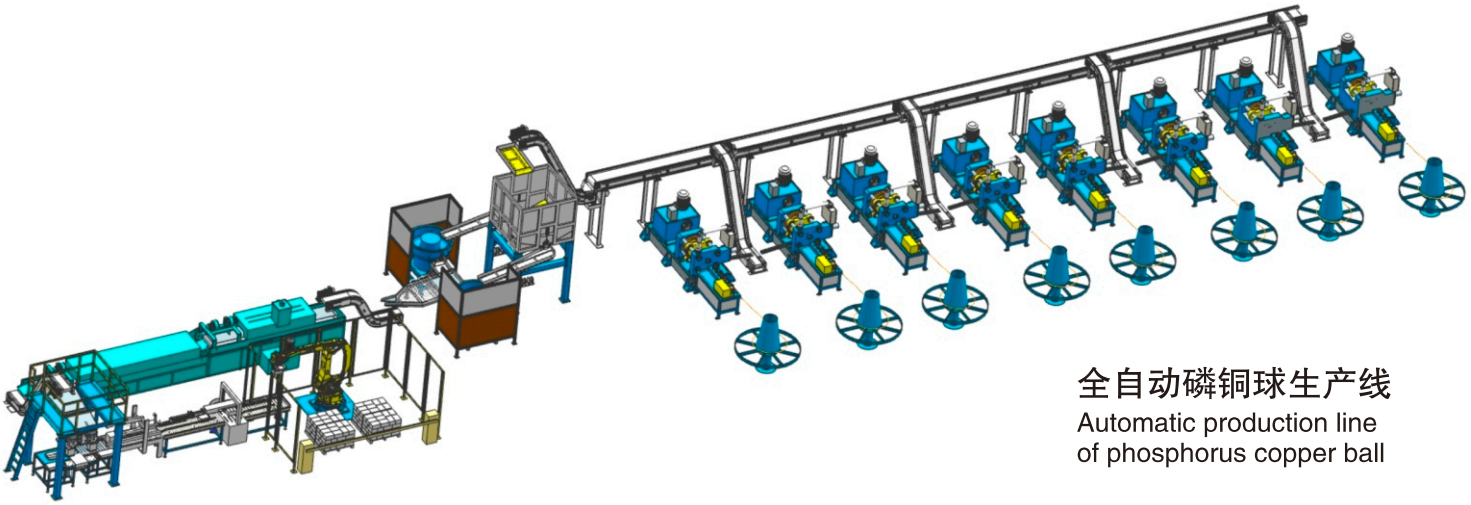
塑料地板砖码垛机器人布局图
Plastic floor tile stacking robot layout

装箱机器人布局图
Packing robot layout



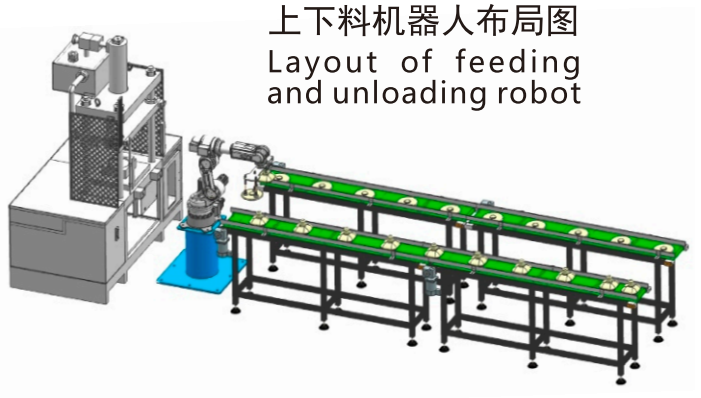


16桶桶装水800KG
码垛机器人布局图
16 barreled water 800KG
palletizing robot layout

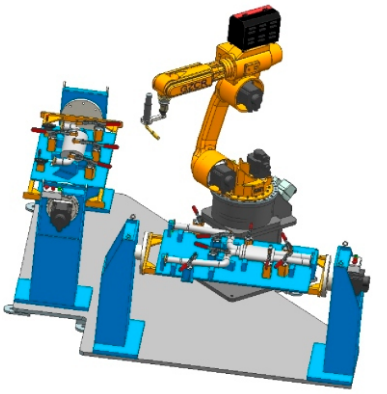


全自动磷铜球生产线
Automatic production line
of phosphorus copper ball

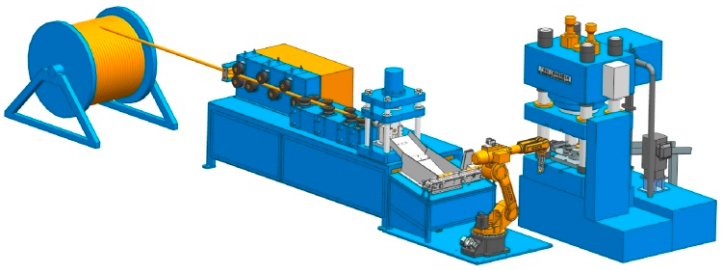
工业4.0集成应用解放方案
The Industry 4.0 Application Liberation Program



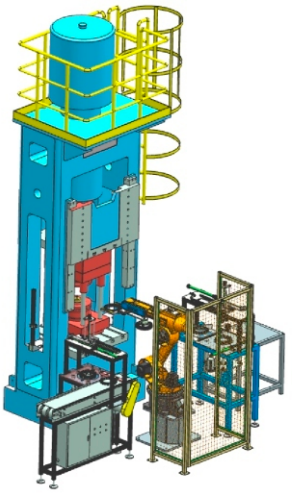
上下料机器人布局图
Layout of feeding and unloading robot



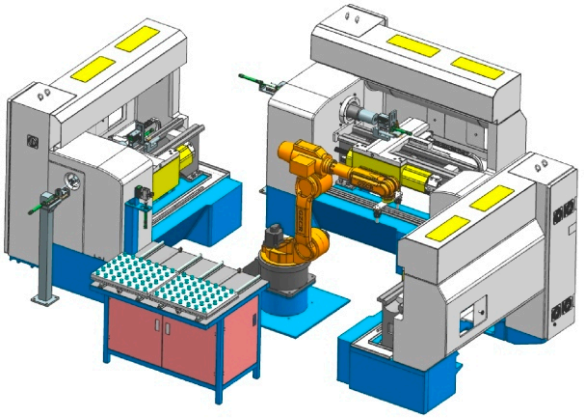
焊接机器人布局图
Layout of welding robot



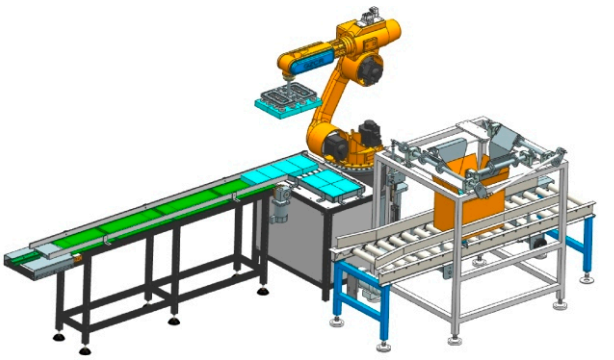
油压机上下料机器人布局图
Layout of feeding and discharging robot for hydraulic press



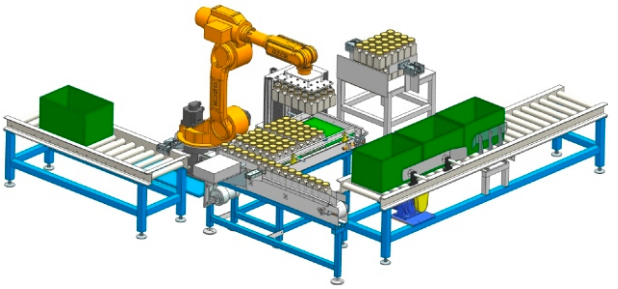
上下料机器人布局图
Layout of feeding and unloading robot



车床上下料机器人布局图
Layout of the feeding and discharging robot of the lathe



装箱机器人布局图
Packing robot layout



酱料装箱机器人布局图
Sauce packing robot layout