Automatic Shelling OCTOPUS* Instructions

九轴数控自动制壳“八爪鱼”技术及配置说明



** This **OCTOPUS** is a 9-axis CNC automatic shelling and automatic gripping & hanging robot for investment casting process.*

Appearance parameters and installation requirements:

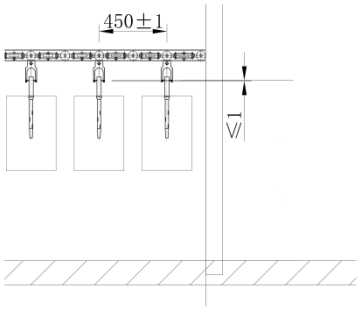
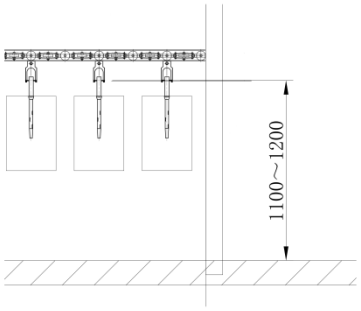
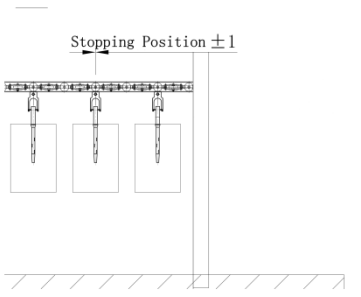
设备外形参数及安装要求如下:

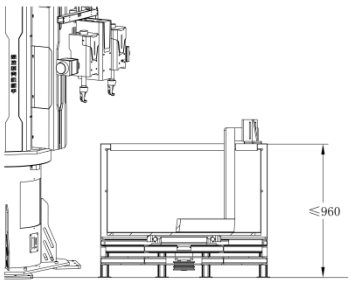
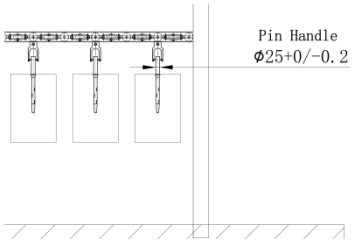
# 序号	Item 项目	Parameter 参数
1	Host dimension (length*width*height) 主机外形 (长*宽*高)	2100*2100*2750 mm
2	Host weight 主机重量	2200 kg/ 4850 lb
3	Power source 电源	Three-phase four-wire, AC380V* + earth wire Note: It can be adjusted to European Standard, American standard, and others according with International Standard IEC 60038 Regulations 3 相 4 线，AC380V*+地线 *可以满足欧标、美标的电源适配要求，包括满足国际标准 IEC 60038 规定。
4	Compressed air source	≥0.55 MPa

	pressure 压缩空气气源压力	
5	Total power 总功率	12 kW (Energy consumption in use: 6kW) 12 kW （使用时能耗: 6kW）

Requirements for slurry tank and carousel matched with the OCTOPUS:

与机械手配套的浆桶、悬链的要求如下:

Drying line carousel hangers center distance 干燥线悬链挂具中心距	450±1mm, horizontal deviation ≤1mm 450±1mm，水平方向偏差≤1mm	
Carousel hanger cross pin center distance from the ground 悬链挂具十字棒横销中心距地面	1100-1200 mm	
Carousel stopping position accuracy 悬链停止位置精度	±1 mm	

Slurry tank working table height 配套浆桶工作台面高度	≤960 mm	
Cluster cross pin handle diameter 模组十字棒柄直径	Φ25 +0/-0.2 mm	

□: Main technical parameters of the equipment:

一：设备主要技术指标如下:

# 序号	Item 项目	Specifications 规格
1	Gripper center distance (maximum rotation radius) 抓手中心距（产品最大回转半径）	450 mm
2	Maximum cluster weight 模组最大重量	≤30 kg(66 lbs)
3	Maximum cluster size 模组最大外形尺寸	Φ400*450(H) mm
4	Swing angle 摆动角度	0-170 °
5	Movement height 移动高度	1000-1700 mm
6	Movement speed 移动速度	0-2 m/min
7	Gripper rotation speed 抓手旋转速度	20 rpm
8	Host rotation speed	≤10 rpm

	主机旋转速度	
9	Clamping method 夹紧方式	Pneumatic 气动

□: CNC control configuration instructions:

二：数控控制配置说明:

# 序号	Item 名称	Specifications 规格
1	CNC system 数控系统	9-Axis synchronization 9 轴联动
2	Number of Servo motors 伺服电机	9 pcs
3	Number of cluster rotary motors 模组旋转电机数量	8 pcs
4	Number of Frequency converters 变频器数量	8 pcs
5	PLC controller PLC 控制器	1 pc
6	Data input/output port 数据输入输出端口	USB/RS232
7	Number of Programs 程序数	800 pcs

□: Equipment standard functions:

三：设备标准功能:

# 序号	Function 功能	Remark 备注
1	Gripping & Hanging 摘挂	Automatic 自动
2	Working stations 工位	4 synchronized working stations 四工位联动

3	Soft limits and hard limits 软限位及硬限位	This machine uses soft limits 本机使用软限位
4	One click back to the previous position 一键回原点	At any position 可以任意顺序
5	Subprogram 子程序	
6	Alarm and alarm log 报警及报警日志	
7	Multi-level password protection 多级密码保护	Level 2,3,4,5
8	MDI operation mode, JOG mode, Handwheel mode MDI 操作模式、JOG 模式、手轮模式	Free switch 任意切换
9	ON-OFF control of Sand-rainfall machine 淋砂机任意启停控制	Program instruction 程序指令控制
10	ON-OFF control of Drying line 干燥线启动停止控制	Program instruction 程序指令控制

□: Equipment optional function instructions:

四：设备选配功能说明:

# 序号	Optional function 选配功能	Description 说明
1	Automatic slurry-adding control unit 自动补浆控制单元	This unit is composed of slurry tank liquid level detection sensor, controller and slurry adding valve, and controlling parameters can be set according to user requirements. Users need to bring their own adding tank and install themselves. 本单元由浆桶液面检测传感器、控制器、补浆阀组成，可以按用户要求设置控制参数。用户需要自备补浆桶和自行安装。

2	Slurry smoother 吹气控制器	This unit is composed of solenoid valve (or electric cylinder) and air blade. Add control port and program control to the host. 本单元由电磁阀（或电缸）、风刀组成。主机增加控制端口，程序控制。
3	Sand-floating tank control mode 浮砂桶控制模式	This function enables the cluster in the sand-floating tank to get 180° rotation for sand adhesion twice or more times if required, and prevent the parts breaking from the cluster when rotating in the sand floating tank. It effectively improves the shelling quality. 本功能可实现模组在浮砂桶内时正反（间隔180°）两次（或多次）粘砂，防止模组在浮砂桶内旋转时掉件，有效提高制壳质量。

□: Main accessories specifications and brands:

五：主要配件规格品牌:

# 序号	Item 名称	Specifications or Brands 规格或品牌
1	9-Axis CNC controller 9 轴数控控制器	Jiangsu Liancheng 江苏联诚
2	Motor 电机	Customized 江苏联诚定制
3	Screw rod 丝杆	Customized 江苏联诚定制
4	Screw rod rail 导轨	Customized 江苏联诚定制
5	Host rotation speed reducer 主机旋转减速机	Customized 江苏联诚定制
6	PLC	Mitsubishi 三菱

□: Attached technical documents:

六：随机技术文件:

# 序号	Document Name 资料名称	Quantity 数量	Remark 备注

1	Automatic shelling OCTOPUS operation manual 九轴数控自动制壳八爪鱼使用说明书	1	
2	CNC system instructions 数控系统说明书	1	
3	Requirements for OCTOPUS installation and commissioning 八爪鱼安装调试要求书	1	

□: Technical service and after-sales service:

七：技术服务及售后:

7.1 We design and manufacture this OCTOPUS according to customers' non-standard requirements, and conduct no-less-than-48-hours continuous test before delivery to ensure the stability and reliability of equipment quality.

7.1 本公司按客户提出的非标要求设计制作，出厂前按不少于 48 小时进行连续试车试验，保证出厂设备的质量稳定与可靠。

7.2 We shall provide 1-2 days of technical training for customer's equipment operators (2-3 persons required with CNC machine operation experience), and users shall arrange corresponding personnel for training before equipment delivery.

7.2 本公司对客户的设备操作人员（要求有一定数控机床操作经验 2-3 人）进行 1-2 天的技术培训，用户需安排相应人员在设备出厂前进行。

7.3 The warranty period of equipment is valid for one year. And the supplier shall provide free maintenance (including labor cost and material cost) except for human error. After one year, the purchaser/user shall pay for maintenance service. If door-to-door service is required, door-to-door fee, material fee and other related fees shall be charged.

7.3 设备质量保证期为壹年，非人为故障，供方免费维修（含人工费及材料费），壹年后，为需方提供成本配件服务，如需上门服务，需收取上门费及材料费用等相关费用。

7.4 Users shall enjoy long-term technical services and guidance. The supplier shall respond within 8 hours after receiving the notice of the user's fault, communicate and determine the maintenance plan, and guide the users in remote processing. If door-to-door service is required, both parties shall negotiate.

7.4 用户享有长期技术服务和指导，接到用户故障通知后 8 小时内作出响应，沟通确定维修方案，指导用户远程处理，如需要上门服务，双方协商处理。