

服务和支持 > > > >

Service and Support > > > >

方案选型:

Model Selection:

依据客户现场实用构想，为客户提供合理、经济、可行的单轴及多轴机械手选型和设计方案。
Can provide reasonable, economical, feasible single and multi-axis robots' model selection
And design plan for customers on basis of customers' practical ideas.

技术参数计算:

Technology parameter calculation:

依据客户实用要求，为客户提供相关的技术参数和计算公式，供客户参考。
Can provide relevant technology parameter and calculation formulas for customers to
Refer on basis of customers' requirement.

图档支持:

Drawing support:

向客户提供标准型的3D数模和2D图档，节省设计和建模时间。
Can provide standard 2D drawing and 3D math data in order to save time of designing and
Drawing.

控制系统支持:

Control system support:

可向客户提供电器控制设计及制作，节约客户开发时间和降低使用门槛。
Can provide electrical control design and making in order to save time of design and
Reduce the use of threshold.

特殊产品设计:

Special product design:

可为客户定制特殊类型的机械手专用产品和设备。
Can provide special kind of robot and equipments.

使用现场故障协助:

Assistance on the spot:

为客户提供机械手故障分析和解决办法。
Can provide robot failure analysis and solution.

机械手选型需知 >>>>

Robot model selection instruction >>>>

- 1.使用组合样式（水平、垂直、侧装）
Combination styles (Horizontal installed, Vertical installed, Side installed)
- 2.机械手安装样式（下嵌式、滑块式、转接式）
Robot installation way (Embedded connection, slide-block connection, indirect connection)
- 3.负载重量
Load weight
- 4.工作行程
Effective travel
- 5.最高运行速度
The largest working speed
- 6.重复定位精度
Repeat positioning accuracy
- 7.使用环境（温度、洁净环境）
Applicable environment (Temperature, clean environment)
- 8.马达类型及型号
Motor type and model
- 9.马达安装样式
Motor installation way
- 10.感应开关选择（光电或电感式传感器以及数量和型号）
Inductive switch selection (Photoelectrical or inductance proximity switch, and its number and model)

各步骤详细说明

Each of steps in detail

机械手的安装方向是指机械手驱动负载的方向，分为水平安装、垂直安装和侧立安装。

注意：当运动块固定，本体移动模式，为倒置安装。倒置安装时须将滑台本体的重量计入负载且必须注意负载的力臂作用影响机械手的稳定性。

1. 使用组合样 P18

Combination styles P18

The robot's installation direction is the direction of robot's driving load, including horizontal installed、vertical installed and side installed.

Notes: Inverted installation is the way when the moving block is fixed, robot's body is under movable condition .the load weight must include weight of slide-block when robot installed inverted, and must pay attention to the robot's stability effected by arm of force of load weight .

2. 机械手安装样式 P21

Robot installation way P21

下嵌式、滑块式、转接式

Embedded connection, slide-block connection, indirect connection

选型时须注意负载应在机械手的允许承载范围内，当负载和驱动轴线之间存在力臂时，需要计算受力方向的力矩是否在机械手允许范围以内。机械手的宽幅和运动块的长度或方导轨滑块数量决定了其允许承载的负重和力矩。（可以在必要时增加）

3. 承载重量

Load weight

Must pay attention to the actual load should be in the range of robot's allowable Load when choosing. When the arm of force exists between load and driving axis, The torque in the direction of force should be calculated and make sure the torque Must be in the range of robot's rated torque. The range of robot's allowable load And torque determined by its width, slide-block's length and the number of sliding Guide rails. (can be increased if necessary)

4. 工作行程

Effective travel

工作行程即机械手滑座可移动的长度，选型时机械手的有效行程应该大于工作行程（以便给电机加速器减速的距离）。

Effective travel is the length of robot's slide-block sliding ,robot's effective travel Must longer than actual working travel when choosing in order to give distance For motor to slow down its speed.

5. 最高运行速度

The largest working speed

机械手的运行速度取决于直线运动单元的导轨和马达转速，但必须考虑负载大小和加减速所需时间。

Robot's working speed depends on the sliding rail of linear motion unit and motor's working speed, but must consider the actual load on the robot, and the time for acceleration And deceleration speed needed.

各步骤详细说明

Each of steps in detail

6. 重复定位精度

Repeat positioning accuracy

滚珠丝杆的定位精度等级分为标准精度（C7轧制级，定位精度 $\pm 0.02\text{mm}$ ）和中级精度（C5研磨级，定位精度 $\pm 0.01\text{mm}$ ）。同步齿形带型定位精度为C级 $\pm 0.1\text{mm}$ 和P级 $\pm 0.05\text{mm}$ 。

Ball screw standard accuracy grade divided into standard accuracy grade (C7rolling Level, repeat positioning accuracy grade $\pm 0.02\text{mm}$) and intermediate accuracy grade(C5 grinding level, repeat positioning accuracy grade $\pm 0.01\text{mm}$). The type of Synchronous toothed belt 's repeat positioning accuracy grade are C lever $\pm 0.1\text{mm}$ and P lever $\pm 0.05\text{mm}$.

7. 使用环境

Applicable environment

环境的洁净、温度湿度适宜、周边设备的干扰少。

The applicable environment must keep clean with suitable temperature and

Humidity and less interference from equipments around.

8. 马达安装样式

Motor installation way

滚珠丝杆系列马达安装有直接安装和间接安装两种。同步皮带系列可以实现不同角度和方向的安装。各代号的含义请参见P19-20 马达安装样式图解。

The ball screw series' motor installation way contains directly installed and indirectly Installed. The synchronous belt series' motor installation way can

Be achieved in deferent angle and direction. See explanation on P19-20

9. 感应开关选择（3线式）

注：1.默认外置,需
内置请说明;

2.棕色：24V，
黄色：0V，黑
色：信号线

Inductive switch selection(3 wire
type)

Notes: 1.the default is outside
installed, need

Inside installed

Please explain:

2. Brown: 24V,
yellow: 0V
black: signal wire

类型分为光电式（环境洁净度高）和电感接近式（恶劣和洁净环境）有：

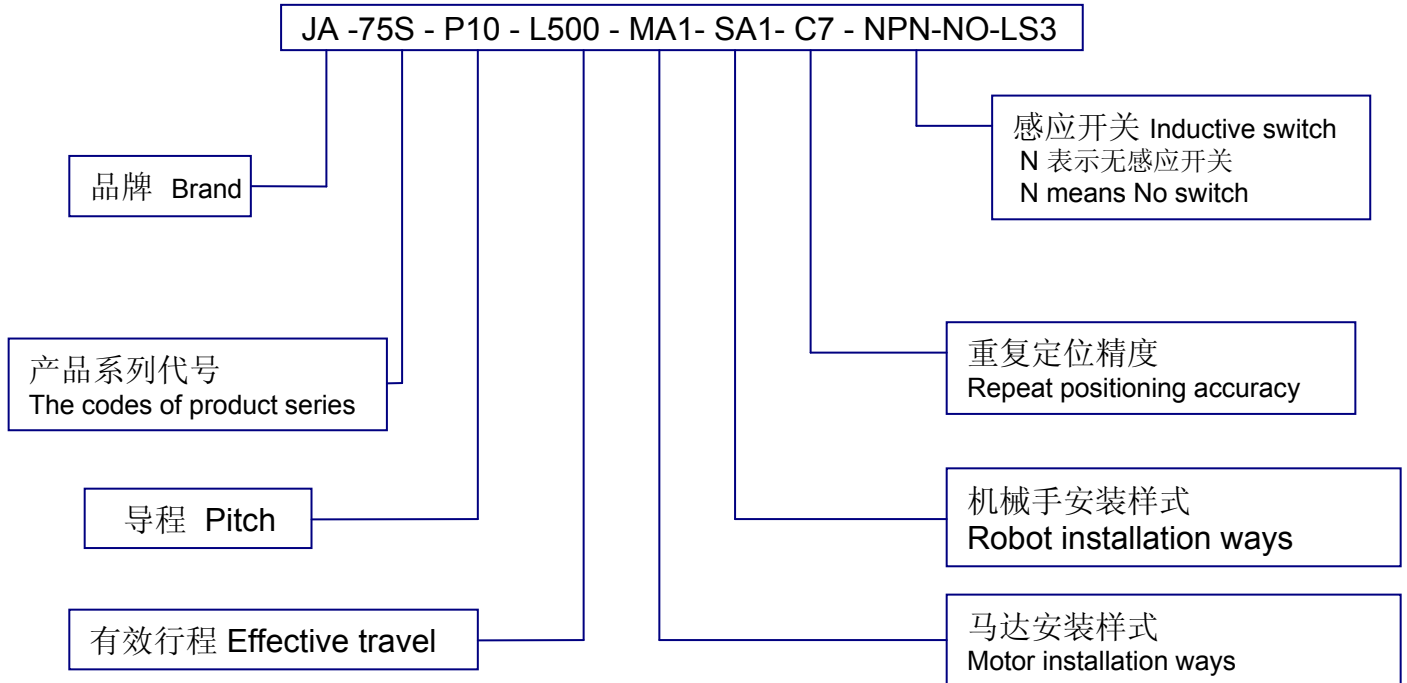
NPN—NO;NPN—NC;PNP—NC;PNP—NC.一般安装3个
限位为常闭,原点为常开；原点靠近电机，从电机侧看安在左
边的代号为NPN-NO-LS2；安在右侧的代号为：NPN-NO-
RS3(以上数字代表I开关数量)

The types include Photoelectrical inductive switch (used in high clean
environment)and inductance proximity switch (used in severe and
clean environment) as follows:

NPN-NO; NPN-NC; PNP-NC; PNP-NC. Generally three limits were
installed closed; and origin was open near motor; when watching from
the side of motor, the code of sensor installed left was NPN-NO-LS3,
and installed right was NPN-NO-RS3(the Number above is the number
of switch)

产品型号 >>>>

Product model >>>>



注意 Note:

1. 滚珠丝杆系列有 The codes of ball screw type series: 75S, 95S, 120S, 150S, 175S
2. 同步带系列有 The codes of the synchronous belt type series: 75B, 95B, 120B, 150B, 175B
3. 马达安装方式请参考第19-20页
Please refer to P19-20 for The installation ways of motor
4. 机械手安装样式请参考第21页
Please refer to P21 for The installation ways of robot
5. 定位精度请参考第5页
Please refer to P5 for the positioning accuracy's information
6. 感应开关请参考第5页
Please refer to P5 for the inductive switch's information

Linear module, Linear stage

JA75S单轴机械手- - - -滚珠丝杆半密封系列

JA75S Single-Axis robot- - - Ball screw type series with half dust protection

JA - - -75S - - P05 - L100- - - MA1- - - - - SA1- - - - - C5 - - - - - NPN-NO/LS3

品牌- -型号-导程 - 行程 - 马达安装样式 - 机械手安装样式 - - 重复定位精度 - - - - - 感应开关

Brand - Type - Pitch - - -Travel - Motor Installation Way -Robot Installation Way- Repeat positioning accuracy - inductive switch

技术参数 Technology Parameter

驱动功率(W) Driving Power (W)	≤400W		
滚珠丝杆 (16) 导程mm Ball Screw (16) Pitch mm	P05: 5mm	P10: 10mm	P16:16mm
最大速度 (mm/s) Max Speed (mm/s)	250mm/s	500mm/s	800mm
最大可搬运重量 (kg) Max Carrying Weight (kg)	水平 Horizontal	15kg	15kg
	垂直 Vertical	8kg	8kg
定位精度(mm) Repeat Positioning Accuracy Grade (mm)	C7级±0.02mm; C5级±0.01mm C7Lever ±0.02mm; C5 Lever ±0.01mm		
有效行程 (mm) The Range Of Travel	50mm≤L≤600mm		
负载力矩 (N. m) The Torque Of Load (N. m)	Mx: 40N.m; My: 40N.m; Mz: 35N.m		
基座材质 Material Of Base	硬质挤压铝型材, 本色光泽 Hard Extrusion Aluminum, Color Gloss		
安装面精度要求 The Requirement Of Accuracy Level of Installation Surface	≤ 0.05mm		
防尘设计 Dust Protection Design	半密封防尘 Half Dust Protection		
机械手质量 (kg) Robot's Weight (kg)	100mm行程机械手质量为 kg The Weight Of Robot With 100mm Travel kg		
	每增加100mm行程所增加质量为 kg Travel Increased 100mm The Weight Increased By kg		



注意:

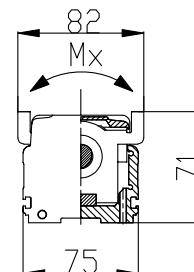
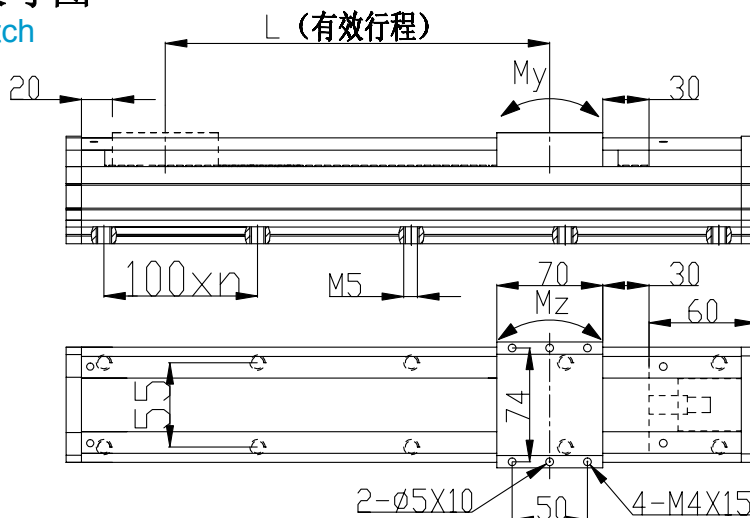
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- 2.定位精度可能与马达的定位精度有关。当使用非伺服马达驱动时, 定位精度值请参照对应的马达技术参数;
- 3.默认原点位置为靠近马达侧, 如需变更, 请另行说明。

Notes:

- 1.Max Speed Is Affected By Pitch And Motor's Speed Changed;
- 2.The Positioning Accuracy Is Affected By Motor's Positioning Accuracy. When Using Non Servo Motor For Driving, The Positioning Accuracy Please Refer To The technology parameter of motor;
- 3.The default origin position is near to motor side, if change needed, please explain.

外形尺寸图

Sketch



Linear module, Linear stage

JA75B单轴机械手- - - -同步带半密封系列

JA75B Single-Axis robot- - - The synchronous Belt Series with half dust protection

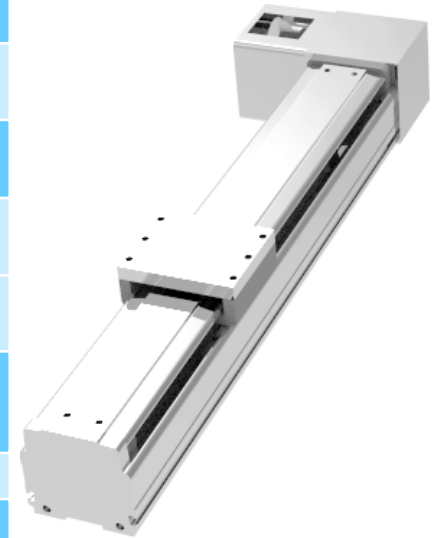
JA - - -75B - - P05 - L100- - - -MA1- - - - - SA1- - - - - - C - - - - - - -NPN-NO/LS3

品牌 - 型号-导程-行程 -马达安装样式 - - 机械手安装样式 - - 重复定位精度 - - - - - 感应开关

Brand - Type - Pitch -Travel - Motor Installation Way -Robot Installation Way- Repeat positioning accuracy - inductive switch

技术参数 Technology Parameter

驱动功率(W) Driving Power (W)	≤400W	
带轮导程mm Pulley Pitch mm	100mm	
最大速度 (mm/s) Max Speed (mm/s)	2000mm/s	
最大可搬运重量 (kg) Max Carrying Weight (kg)	水平 Horizontal	90kg
	垂直 Vertical	50kg
重复定位精度(mm) Repeat Positioning Accuracy Grade (mm)	C级±0.1mm; P级±0.05mm C Lever ±0.1mm; P Lever ±0.05mm	
有效行程 (mm) The Range Of Travel	50mm≤L≤600mm	
负载力矩 (N. m) The Torque Of Load (N. m)	Mx: 110N.m; My: 130N.m; Mz: 135N.m	
基座材质 Material Of Base	硬质挤压铝型材, 本色光泽 Hard Extrusion Aluminum, Color Gloss	
安装面精度要求 The Requirement Of Accuracy Level of Installation Surface	≤ 0.1mm	
防尘设计 Dust Protection Design	半密封防尘 Half Dust Protection	
机械手质量 (kg) Robot's Weight (kg)	100mm行程机械手质量为 kg The Weight Of Robot With 100mm Travel kg	
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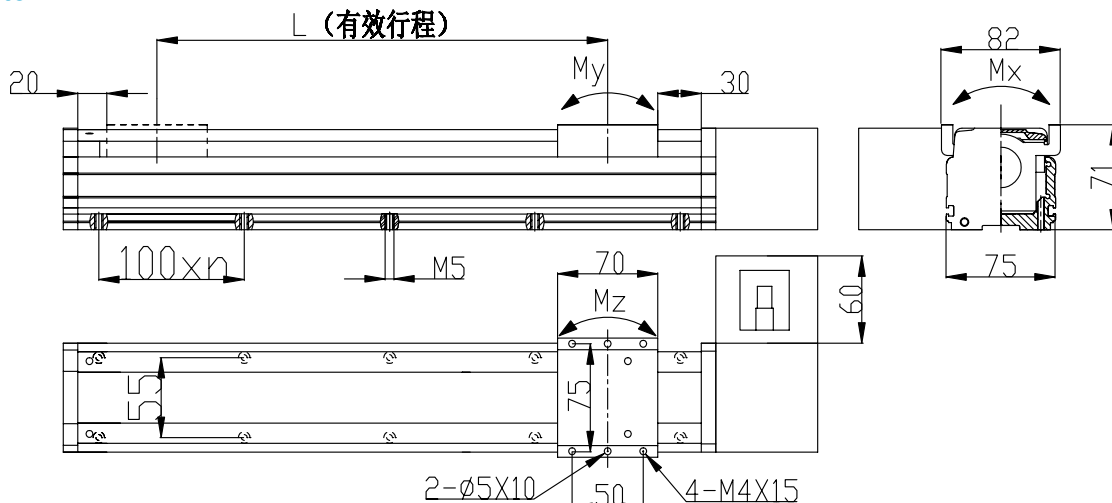
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- 3.默认原点位置为靠近马达侧, 如需变更, 请另行说明。

Notes:

- 1.Max Speed Is Affected By Pitch And Motor's Speed Changed;
- 2.The Positioning Accuracy Is Affected By Motor's Positioning Accuracy. When Using Non Servo Motor For Driving, The Positioning Accuracy Please Refer To The technology parameter of motor;
- 3.The default origin position is near to motor side, if change needed, please explain.

外形尺寸图

Sketch



Linear module, Linear stage

JA95S单轴机械手- - - -滚珠丝杆半密封系列

JA95S Single-Axis robot- - - Ball screw type Series with half dust protection

JA - - -95S - P05 - L100- - - -MA1- - - - -SA1- - - - -C5 - - - - -NPN-NO/LS3

品牌- -型号-导程 - 行程 - 马达安装样式 - - 机械手安装样式 - 重复定位精度 - - - - - 感应开关

Brand - Type - Pitch - -Travel - - Motor Installation Way -Robot Installation Way- Repeat positioning accuracy - inductive switch

技术参数 Technology Parameter

驱动功率(W) Driving Power (W)	≤400W		
滚珠丝杆 (16) 导程mm Ball Screw (16) Pitch mm	P05: 5mm	P10: 10mm	P16: 16mm
最大速度 (mm/s) Max Speed (mm/s)	250mm/s	500mm/s	800mm/s
最大可搬运重量 (kg) Max Carrying Weight (kg)	水平 Horizontal	20kg	20kg
	垂直 Vertical	10kg	10kg
重复定位精度(mm) Repeat Positioning Accuracy Grade (mm)	C7级±0.02mm; C5级±0.01mm C7 Lever ±0.02mm; C5 Lever ±0.01mm		
有效行程 (mm) The Range Of Travel	50mm≤L≤600mm		
负载力矩 (N. m) The Torque Of Load (N. m)	Mx: 50N.m; My: 50N.m; Mz: 80N.m		
基座材质 Material Of Base	硬质挤压铝型材, 本色光泽 Hard Extrusion Aluminum, Color Gloss		
安装面精度要求 The Requirement Of Accuracy Lever of Installation Surface	≤ 0.05mm		
防尘设计 Dust Protection Design	半密封防尘 Half Dust Protection		
机械手质量 (kg) Robot's Weight (kg)	100mm行程机械手质量为 kg The Weight Of Robot With 100mm Travel kg		
	每增加100mm行程所增加质量为 kg Travel Increased 100mm The Weight Increased By kg		



注意:

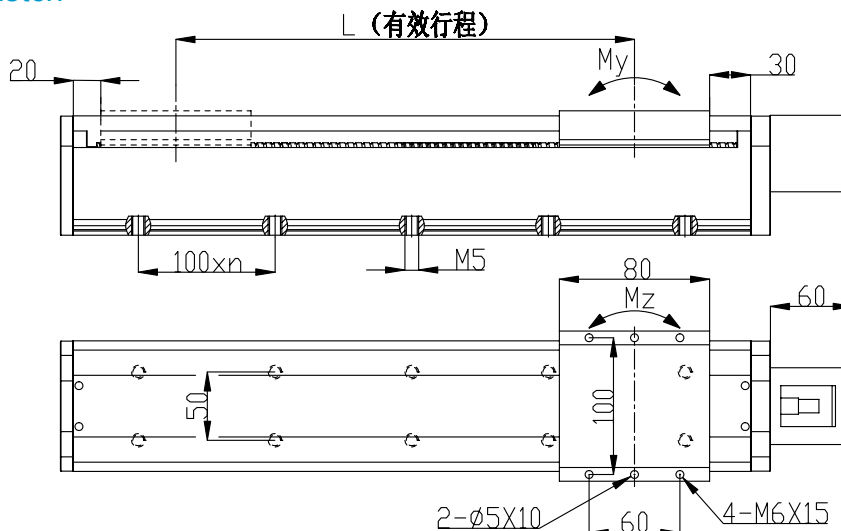
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- 3.默认原点位置为靠近马达侧, 如需变更, 请另行说明。

Notes:

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外形尺寸图

Sketch



Linear module, Linear stage

JA95B单轴机械手- - - -同步带半密封系列

JA95B Single-Axis robot- - - The synchronous Belt Series with half dust protection

JA - - -95B - - P05 - L100- - - -MA1- - - - - SA1- - - - - -C - - - - - -NPN-NO/LS3

品牌 - 型号- 导程 - 行程 - 马达安装样式 - 机械手安装样式 - 重复定位精度 - - - - -感应开关
Brand - Type - - Pitch - - Travel - Motor Installation Way - Robot Installation Way- Repeat positioning accuracy - inductive switch

技术参数 Technology Parameter

驱动功率(W) Driving Power (W)	≤400W	
带轮导程mm Pulley Pitch mm	100mm	
最大速度 (mm/s) Max Speed (mm/s)	2000mm/s	
最大可搬运重量 (kg) Max Carrying Weight (kg)	水平 Horizontal	60kg
	垂直 Vertical	30kg
重复定位精度(mm) Repeat Positioning Accuracy Grade (mm)	C级±0.1mm; P级±0.05mm C Lever ±0.1mm; P Lever ±0.05mm	
有效行程 (mm) The Range Of Travel	50mm≤L≤600mm	
负载力矩 (N. m) The Torque Of Load (N. m)	Mx: 51N.m; My: 68N.m; Mz: 53N.m	
基座材质 Material Of Base	硬质挤压铝型材, 本色光泽 Hard Extrusion Aluminum, Color Gloss	
安装面精度要求 The Requirement Of Accuracy Lever of Installation Surface	≤ 0.1mm	
防尘设计 Dust Protection Design	半密封防尘 Half Dust Protection	
机械手质量 (kg) Robot's Weight (kg)	100mm行程机械手质量为 kg The Weight Of Robot With 100mm Travel kg	
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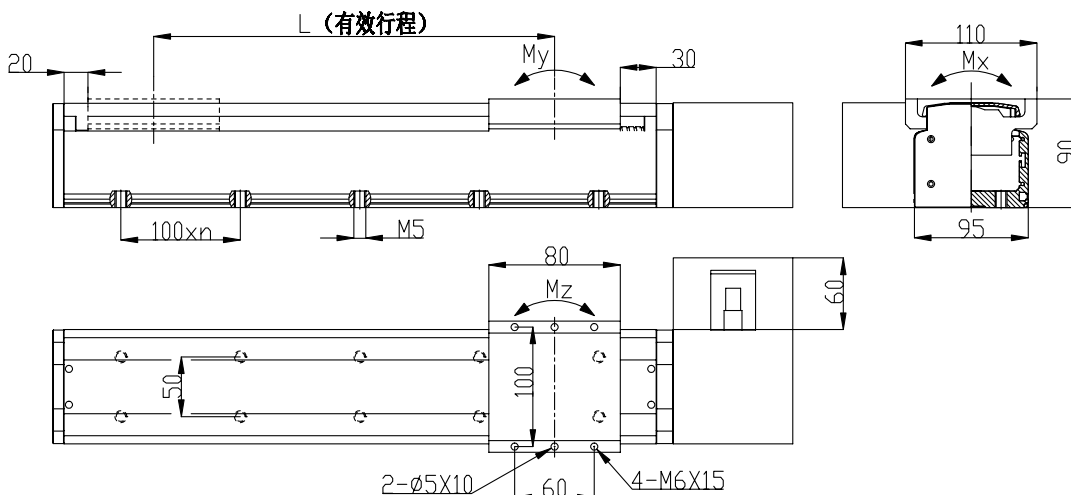
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外形尺寸图

Sketch



Linear module, Linear stage

JA120S单轴机械手- - - - -滚珠丝杆半密封系列

JA120S Single-Axis robot- - - Ball screw type Series with half dust protection

JA - - 120S - P05 - L100- - - - -MA1- - - - - SA1- - - - - C5 - - - - -NPN-NO/LS3

品牌- 型号- 导程 - 行程 - 马达安装样式 - 机械手安装样式 - 重复定位精度 - - - - -感应开关

Brand - Type - Pitch - Travel - - Motor Installation Way -Robot Installation Way- Repeat positioning accuracy - inductive switch

技术参数 Technology Parameter

驱动功率(W) Driving Power (W)	≤400W			
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最大可搬运重量 (kg) Max Carrying Weight (kg)	水平 Horizontal	60kg	50kg	40kg
	垂直 Vertical	40kg	35kg	20kg
重复定位精度(mm) Repeat Positioning Accuracy Grade (mm)	C7级±0.02mm; C5级±0.01mm C7Lever ±0.02mm; C5 Lever ±0.01mm			
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基座材质 Material Of Base	硬质挤压铝型材, 本色光泽 Hard Extrusion Aluminum, Color Gloss			
安装面精度要求 The Requirement Of Accuracy Lever of Installation Surface	≤ 0.05mm			
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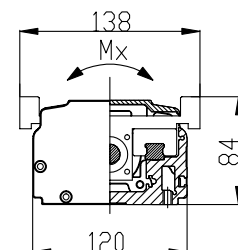
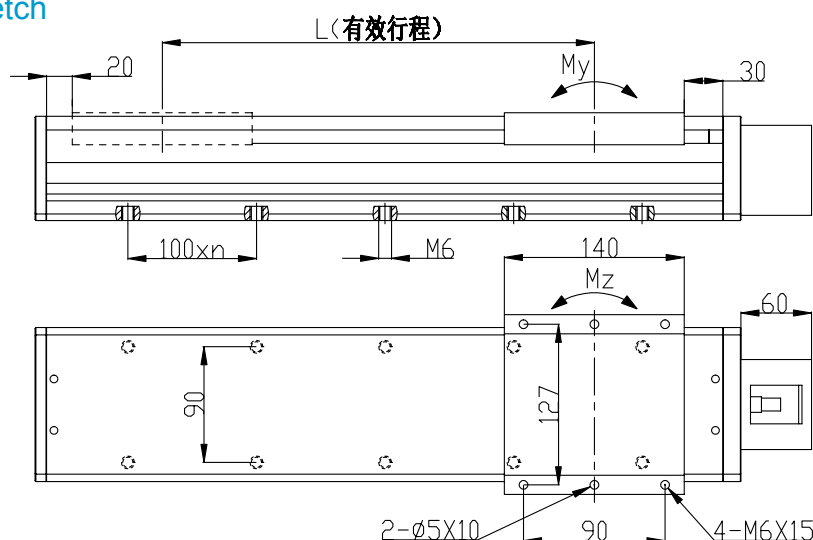
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外形尺寸图

Sketch



Linear module, Linear stage

JA120B单轴机械手- - - -同步带半密封系列

JA120B Single-Axis robot - - - The synchronous Belt Series with half dust protection

JA - - -120B - P05 - L100- - - - -MA1- - - - - SA1- - - - - C - - - - - NPN-NO/LS3

品牌- -型号-导程 - 行程 - 马达安装样式 - 机械手安装样式 - 重复定位精度- - - - -感应开关

Brand - Type - Pitch - - Travel - Motor Installation Way - Robot Installation Way- Repeat positioning accuracy - inductive switch

技术参数 Technology Parameter

驱动功率(W) Driving Power (W)	≤400W	
带轮导程mm Pulley Pitch mm	100mm	
最大速度 (mm/s) Max Speed (mm/s)	2000mm/s	
最大可搬运重量 (kg) Max Carrying Weight (kg)	水平 Horizontal	60kg
	垂直 Vertical	30kg
重复定位精度(mm) Repeat Positioning Accuracy Grade (mm)	C级±0.1mm; P级±0.05mm C Lever ±0.1mm; P Lever ±0.05mm	
有效行程 (mm) The Range Of Travel	50mm≤L≤1500mm	
负载力矩 (N. m) The Torque Of Load (N. m)	Mx: 80N.m; My: 80N.m; Mz: 90N.m	
基座材质 Material Of Base	硬质挤压铝型材, 本色光泽 Hard Extrusion Aluminum, Color Gloss	
安装面精度要求 The Requirement Of Accuracy Lever of Installation Surface	≤ 0.1mm	
防尘设计 Dust Protection Design	半密封防尘 Half Dust Protection	
机械手质量 (kg) Robot's Weight (kg)	100mm行程机械手质量为 kg The Weight Of Robot With 100mm Travel kg	
	每增加100mm行程所增加质量为 kg Travel Increased 100mm The Weight Increased By kg	



注意:

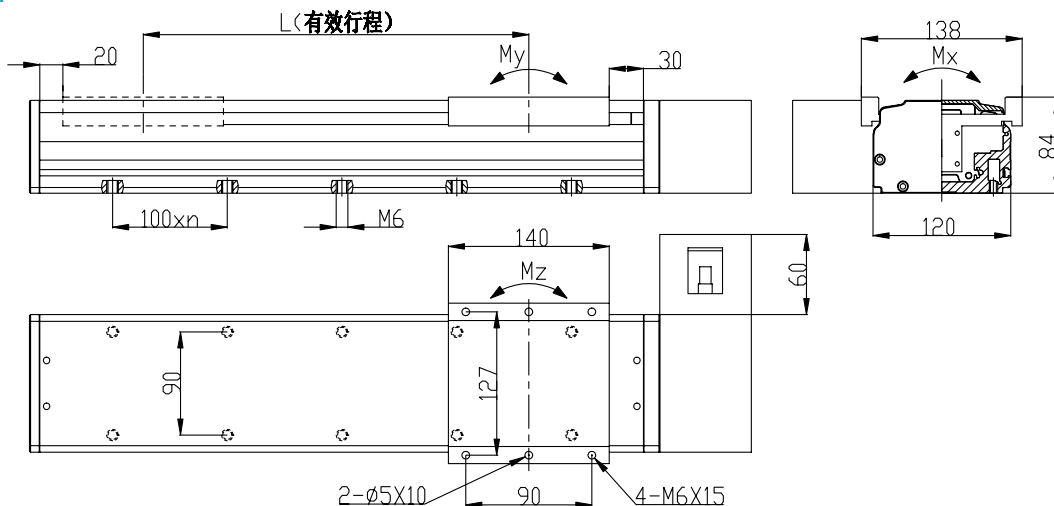
- 1.最高速度因导程和电机转速而异;
- 2.定位精度可能与马达的定位精度有关。当使用非伺服马达驱动时, 定位精度值请参照对应的马达技术参数;
- 3.默认原点位置为靠近马达侧, 如需变更, 请另行说明。

Notes:

- 1.Max Speed Is Affected By Pitch And Motor's Speed Changed;
- 2.The Positioning Accuracy Is Affected By Motor's Positioning Accuracy. When Using Non Servo Motor For Driving, The Positioning Accuracy Please Refer To The technology parameter of motor;
- 3.The default origin position is near to motor side, if change needed, please explain.

外形尺寸图

Sketch



Linear module, Linear stage

JA150S单轴机械手- - - -滚珠丝杆半密封系列

JA150S Single-Axis robot- - - Ball screw type Series with half dust protection

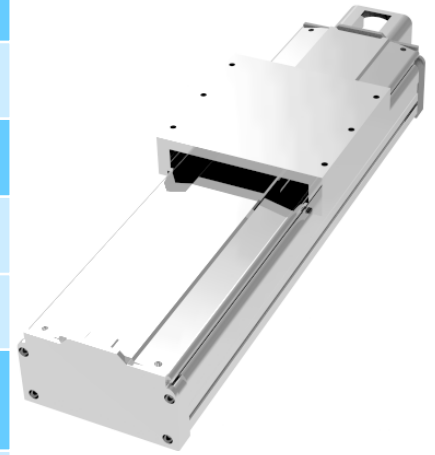
JA - - -150S - - P05 - L100- - - -MA1- - - - -SA1- - - - -C5 - - - - -NPN-NO/LS3

品牌 - 型号 - 导程 - 行程 - 马达安装样式 - 机械手安装样式 - 重复定位精度- - - - -感应开关

Brand - Type - - Pitch - - Travel - Motor Installation Way - Robot Installation Way- Repeat positioning accuracy - inductive switch

技术参数 Technology Parameter

驱动功率(W) Driving Power (W)	≤750W			
滚珠丝杆(20)导程mm Ball Screw (20) Pitch mm	P05: 5mm	P10: 10mm	P20: 20mm	
最大速度 (mm/s) Max Speed (mm/s)	250mm/s	500mm/s	1000mm/s	
最大可搬运重量 (kg) Max Carrying Weigh (kg)	水平 Horizontal	100kg	100kg	60kg
	垂直 Vertical	50kg	50kg	30kg
重复定位精度(mm) Repeat Positioning Accuracy Grade (mm)	C7级±0.02mm; C5级±0.01mm C7Lever ±0.02mm; C5 Lever ±0.01mm			
有效行程 (mm) The Range Of Travel	100mm≤L≤2000mm			
负载力矩 (N. m) The Torque Of Load (N. m)	Mx: 120N.m; My: 120N.m; Mz: 140N.m			
基座材质 Material Of Base	硬质挤压铝型材, 本色光泽 Hard Extrusion Aluminum, Color Gloss			
安装面精度要求 The Requirement Of Accuracy Lever of Installation Surface	≤ 0.05mm			
防尘设计 Dust Protection Design	半密封防尘 Half Dust Protection			
机械手质量 (kg) Robot's Weight (kg)	100mm行程机械手质量为 kg The Weight Of Robot With 100mm Travel kg			
	每增加100mm行程所增加质量为 kg Travel Increased 100mm The Weight Increased By kg			



注意:

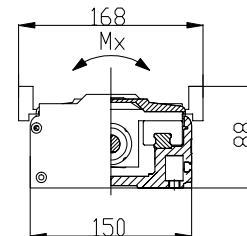
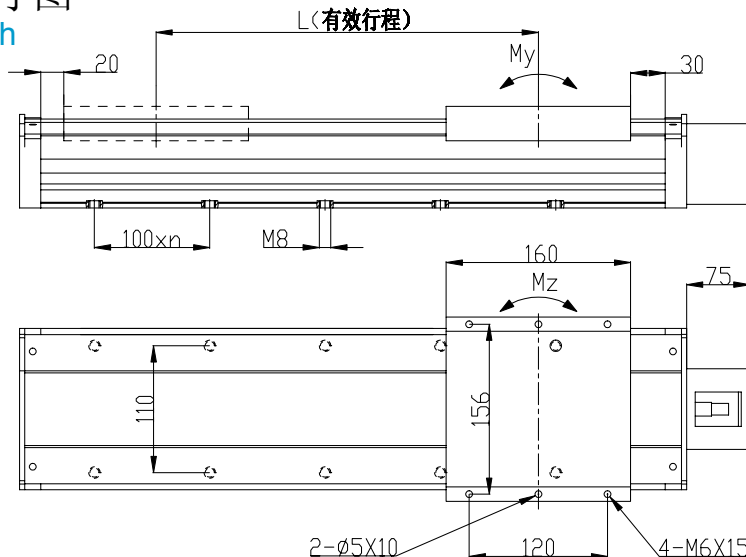
- 1.最高速度因导程和电机转速而异;
- 2.定位精度可能与马达的定位精度有关。当使用非伺服马达驱动时,定位精度值请参照对应的马达技术参数;
- 3.默认原点位置为靠近马达侧,如需变更,请另行说明。

Notes:

- 1.Max Speed Is Affected By Pitch And Motor's Speed Changed;
- 2.The Positioning Accuracy Is Affected By Motor's Positioning Accuracy. When Using Non Servo Motor For Driving, The Positioning Accuracy Please Refer To The technology parameter of motor;
- 3.The default origin position is near to motor side, if change needed, please explain.

外形尺寸图

Sketch



Linear module, Linear stage

JA150B单轴机械手- - - -同步带半密封系列

JA150B Single-Axis robot- - - The synchronous Belt Series with half dust protection

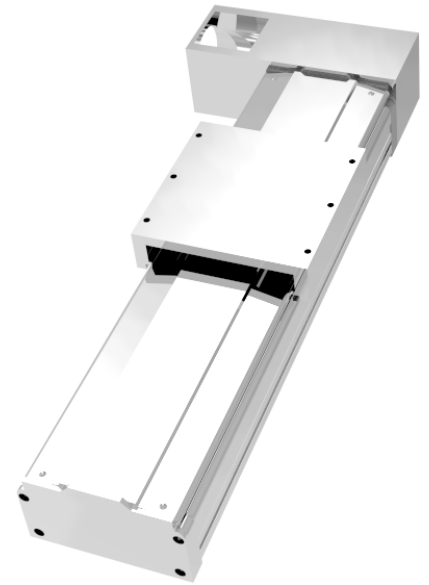
JA - - -150B - - P05 - L100- - - - -MA1- - - - -SA1- - - - -C - - - - -NPN-NO/LS3

品牌 - 型号 - 导程 - 行程 - 马达安装样式 - 机械手安装样式 - 重复定位精度 - - - - - 感应开关

Brand - Type - - Pitch - Travel - - Motor Installation Way - Robot Installation Way- Repeat positioning accuracy - inductive switch

技术参数 Technology Parameter

驱动功率(W) Driving Power (W)	≤750W	
带轮导程mm Pulley Pitch mm	100mm	
最大速度 (mm/s) Max Speed (mm/s)	2000mm/s	
最大可搬运重量 (kg) Max Carrying Weigh (kg)	水平 Horizontal	150kg
	垂直 Vertical	80kg
重复定位精度(mm) Repeat Positioning Accuracy Grade (mm)	C级±0.1mm; P级±0.05mm C Lever ±0.1mm; P Lever ±0.05mm	
有效行程 (mm) The Range Of Travel	100mm≤L≤2000mm	
负载力矩 (N. m) The Torque Of Load (N. m)	Mx: 182N.m; My: 220N.m; Mz: 230N.m	
基座材质 Material Of Base	硬质挤压铝型材, 本色光泽 Hard Extrusion Aluminum, Color Gloss	
安装面精度要求 The Requirement Of Accuracy Lever of Installation Surface	≤ 0.1mm	
防尘设计 Dust Protection Design	半密封防尘 Half Dust Protection	
机械手质量 (kg) Robot's Weight (kg)	100mm行程机械手质量为 kg The Weight Of Robot With 100mm Travel kg	
	每增加100mm行程所增加质量为 kg Travel Increased 100mm The Weight Increased By kg	



注意:

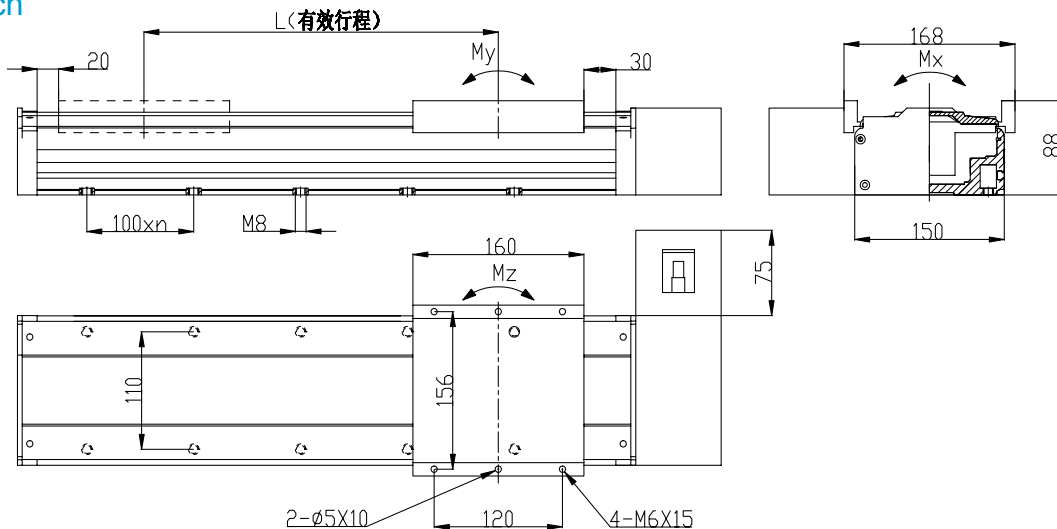
- 1.最高速度因导程和电机转速而异;
- 2.定位精度可能与马达的定位精度有关。当使用非伺服马达驱动时, 定位精度值请参照对应的马达技术参数;
- 3.默认原点位置为靠近马达侧, 如需变更, 请另行说明。

Notes:

- 1.Max Speed Is Affected By Pitch And Motor's Speed Changed;
- 2.The Positioning Accuracy Is Affected By Motor's Positioning Accuracy. When Using Non Servo Motor For Driving, The Positioning Accuracy Please Refer To The technology parameter of motor;
- 3.The default origin position is near to motor side, if change needed, please explain.

外形尺寸图

Sketch



Linear module, Linear stage

JA175S单轴机械手- - - -同步带半密封系列

JA175S Single-Axis robot- - - Ball screw type Series with half dust protection

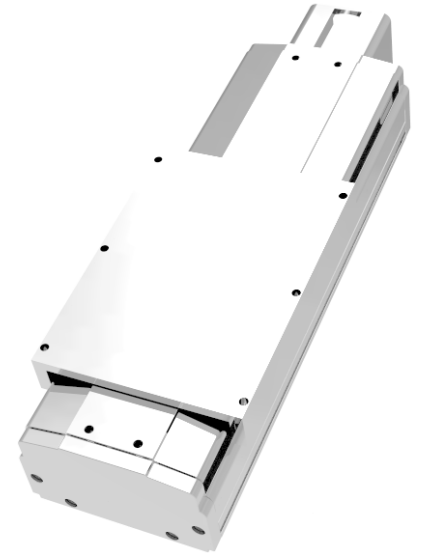
JA - - -175S - P05 - L100- - - - - MA1- - - - - SA1- - - - - C5 - - - - - NPN-NO/LS3

品牌 - 型号 - 导程 - 行程 - 马达安装样式 - 机械手安装样式 - 重复定位精度- - - - - 感应开关

Brand - Type - - Pitch - - Travel - Motor Installation Way -Robot Installation Way- Repeat positioning accuracy - inductive switch

技术参数 Technology Parameter

驱动功率(W) Driving Power (W)	≤750W			
滚珠丝杆(25)导程mm Ball Screw (25) Pitch mm		P05: 5mm	P10: 10mm	P25: 25mm
最大速度 (mm/s) Max Speed (mm/s)		250mm/s	500mm/s	1250mm/s
最大可搬运重量 (kg) Max Carrying Weigh (kg)	水平 Horizontal	200kg	160kg	120kg
	垂直 Vertical	100kg	80kg	60kg
重复定位精度(mm) Repeat Positioning Accuracy Grade (mm)	C7级±0.02mm; C5级±0.01mm C7 Lever ±0.02mm; P Lever ±0.01mm			
有效行程 (mm) The Range Of Travel	100mm≤L≤2500mm			
负载力矩 (N. m) The Torque Of Load (N. m)	Mx: 150N.m; My: 150N.m; Mz: 180N.m			
基座材质 Material Of Base	硬质挤压铝型材, 本色光泽 Hard Extrusion Aluminum, Color Gloss			
安装面精度要求 The Requirement Of Accuracy Lever of Installation Surface	≤ 0.05mm			
防尘设计 Dust Protection Design	半密封防尘 Half Dust Protection			
机械手质量 (kg) Robot's Weight (kg)	100mm行程机械手质量为 kg The Weight Of Robot With 100mm Travel kg			
	每增加100mm行程所增加质量为 kg Travel Increased 100mm The Weight Increased By kg			



注意:

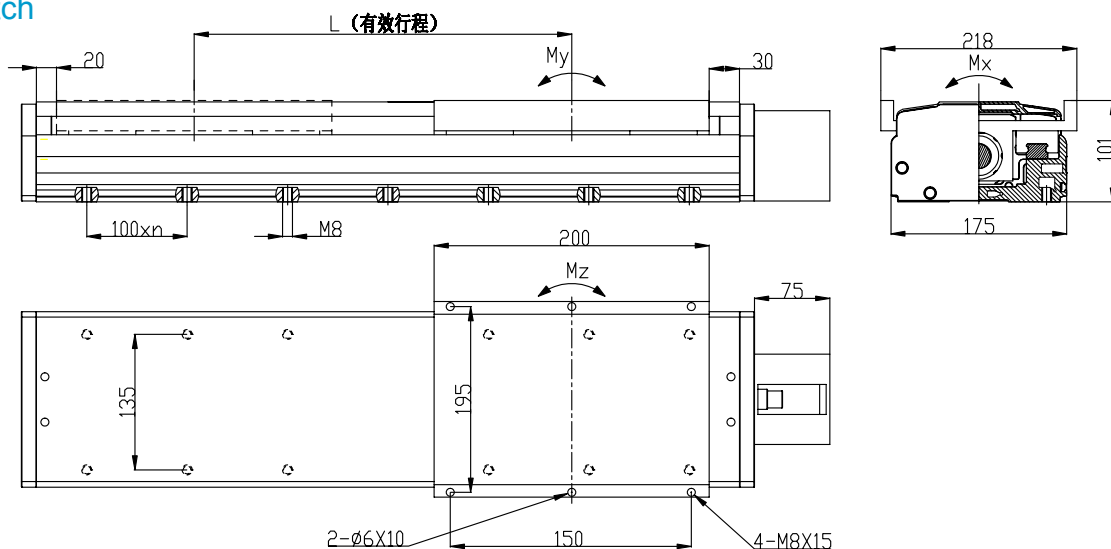
- 1.最高速度因导程和电机转速而异;
- 2.定位精度可能与马达的定位精度有关。当使用非伺服马达驱动时, 定位精度值请参照对应的马达技术参数;
- 3.默认原点位置为靠近马达侧, 如需变更, 请另行说明。

Notes:

- 1.Max Speed Is Affected By Pitch And Motor's Speed Changed;
- 2.The Positioning Accuracy Is Affected By Motor's Positioning Accuracy. When Using Non Servo Motor For Driving, The Positioning Accuracy Please Refer To The technology parameter of motor;
- 3.The default origin position is near to motor side, if change needed, please explain.

外形尺寸图

Sketch



Linear module, Linear stage

JA175B单轴机械手- - - -同步带半密封系列

JA175B Single-Axis robot- - - The synchronous Belt Series with half dust protection

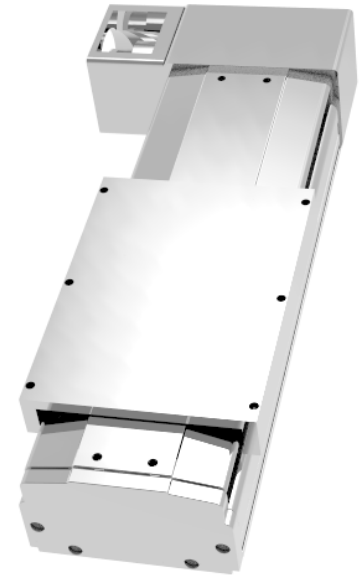
JA - - -175B - - P05 - L100 - - MA1- - - - - SA1- - - - - - C - - - - - NPN-NO/LS3

品牌 - 型号 - 导程 - 行程 - 马达安装样式 - 机械手安装样式 - 重复定位精度- - - - - 感应开关

Brand - Type - - Pitch -Travel - Motor Installation Way -Robot Installation Way - Repeat positioning accuracy - inductive switch

技术参数 Technology Parameter

驱动功率(W) Driving Power (W)	≤750W	
带轮导程mm Pulley Pitch mm	100mm	
最大速度 (mm/s) Max Speed (mm/s)	2000mm/s	
最大可搬运重量 (kg) Max Carrying Weigh (kg)	水平 Horizontal	150kg
	垂直 Vertical	80kg
重复定位精度(mm) Repeat Positioning Accuracy Grade (mm)	C级±0.1mm; P级±0.05mm C Lever ±0.1mm; P Lever ±0.05mm	
有效行程 (mm) The Range Of Travel	100mm≤L≤2500mm	
负载力矩 (N. m) The Torque Of Load (N. m)	Mx: 150N.m; My: 160N.m; Mz: 160N.m	
基座材质 Material Of Base	硬质挤压铝型材, 本色光泽 Hard Extrusion Aluminum, Color Gloss	
安装面精度要求 The Requirement Of Accuracy Lever of Installation Surface	≤ 0.1mm	
防尘设计 Dust Protection Design	半密封防尘 Half Dust Protection	
机械手质量 (kg) Robot's Weight (kg)	100mm行程机械手质量为 kg The Weight Of Robot With 100mm Travel kg	
	每增加100mm行程所增加质量为 kg Travel Increased 100mm The Weight Increased By kg	



注意:

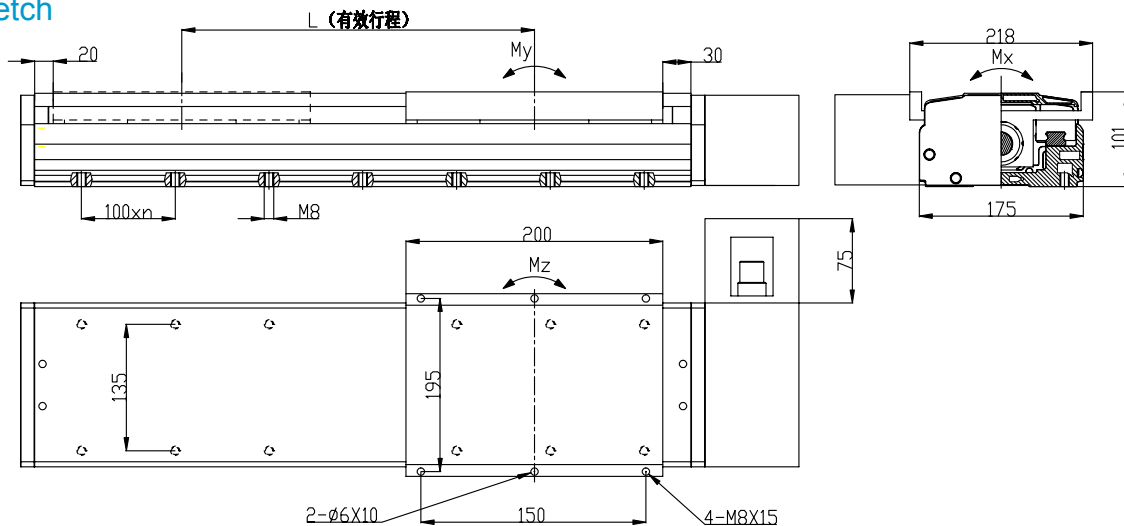
- 1.最高速度因导程和电机转速而异;
- 2.定位精度可能与马达的定位精度有关。当使用非伺服马达驱动时, 定位精度值请参照对应的马达技术参数;
- 3.默认原点位置为靠近马达侧, 如需变更, 请另行说明。

Notes:

- 1.Max Speed Is Affected By Pitch And Motor's Speed Changed;
- 2.The Positioning Accuracy Is Affected By Motor's Positioning Accuracy. When Using Non Servo Motor For Driving, The Positioning Accuracy Please Refer To The technology parameter of motor;
- 3.The default origin position is near to motor side, if change needed, please explain.

外形尺寸图

Sketch

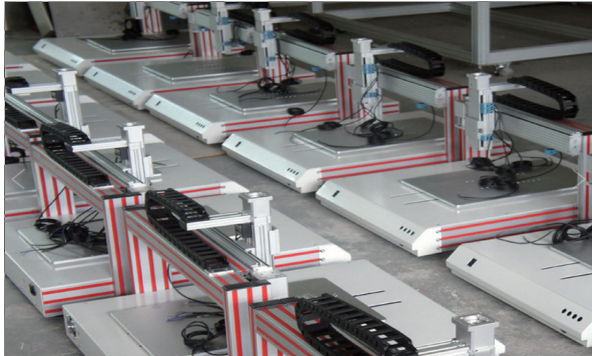


三轴机械手典型应用 >>>>

Typical Application of Three Axis Robot >>>>

三轴机械手其行程范围可以依据客户要求定制，机械手XY轴可采用滚珠丝杆或者同步带型结构，建议Z轴为滚珠丝杆结构并配置带刹车电机。

The effective travel of three axis robots can be made according to customer's requirement. X and Y axis of robot can adopt ball screw type series or synchronous type series, It's better to adopt ball screw type series for Z axis with a motor has brake function.



三轴典型应用 1

Typical application of three axis robots 1



三轴典型应用 2

Typical application of three axis robots 2



三轴典型应用 3

Typical application of three axis robots 3



三轴典型应用 4

Typical application of three axis robots 4

技术特长

Special technology

三轴机械手的工作行程、马达牌号等可依据客户要求定制，客户也可基于本机进行二次开发。三轴

The effective travel and motor model can be ordered according to requirement of customer, and customer can do mechanical hand suitable for dispensing, welding, carving, inspection etc.

Secondary development on the basis of the robot. Three axis of robot can be applied in dispensing, welding, carving, inspection area and so on.

系列类别 Type Series	滚珠丝杆类型 The Ball Screw Type Series	同步带系列 The Synchronous Type Series		
驱动方式 Driving Way	XYZ三轴滚珠丝杆 XYZ three axis ball screw	XY同步带Z轴滚珠丝杆 XY synchronous belt Z ball screw		
行程范围 Travel Range	XY行程范围依据客户要求而定制 XY travel can be made according to customer's requirement			
最大负荷 The Max Load	10kg	20kg	30kg	
重复精度 Repeat Accuracy	±0.02mm/单轴 ±0.02mm/Single Axis		±0.1mm/单轴 ±0.1mm/Single Axis	
马达系统 Motor System	伺服马达或步进电机 Servo motor or Stepping motor			
适用环境 Application Environment	-20℃—50℃			

Linear module, Linear stage

机械手组合样式 >>>>

Combination Styles Of Robots >>>>

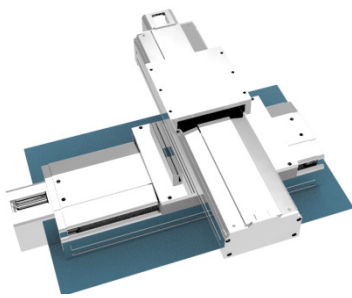


图1 Sketch 1
两轴 (X-Y) Two Axis (X-Y)
水平放置 Horizontal Combination

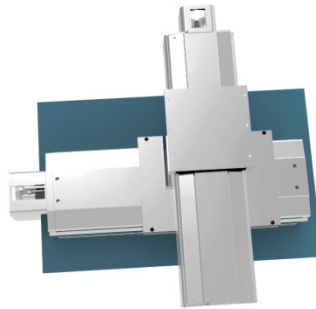


图2 Sketch 2
两轴 (X-Y) Two Axis (X-Y)
垂直放置 Vertical Combination

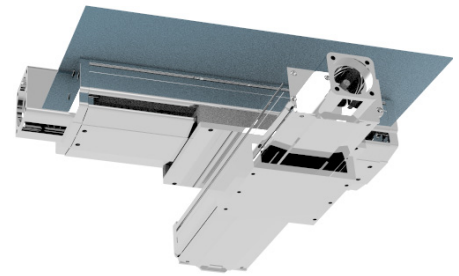


图3 Sketch 3
两轴 (X-Y) Two Axis (X-Y)
倒装放置 Reversed Combination

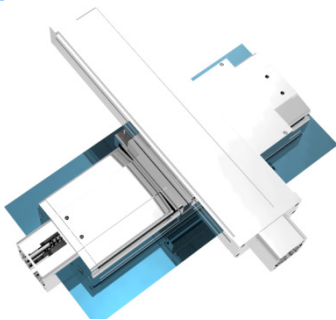


图4 Sketch 4
两轴 (X-Y) Two Axis (X-Y)
Y轴放置 Y Axis Reversed Combination

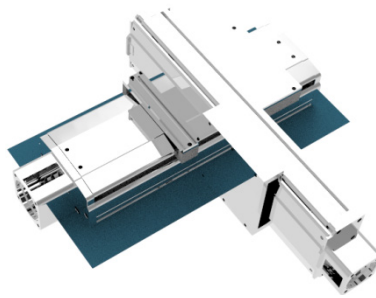


图5 Sketch 5
两轴 (X-Y) Two Axis (X-Y)
水平放置 Vertical Combination

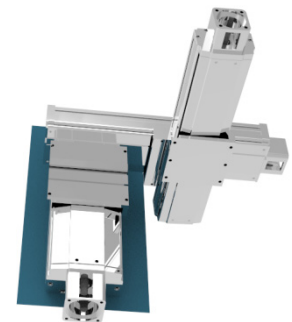


图6 Sketch 6
三轴 (X-Y-Z) Three Axis (X-Y-Z)
悬挂水平放置 Horizontal Combination

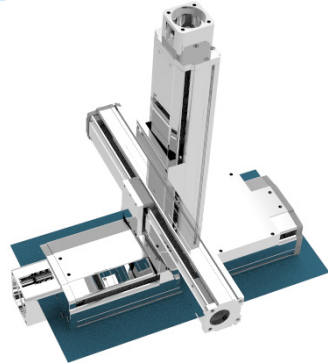


图7 Sketch 7
三轴 (X-Y-Z) Three Axis (X-Y-Z)
水平放置 Horizontal Combination

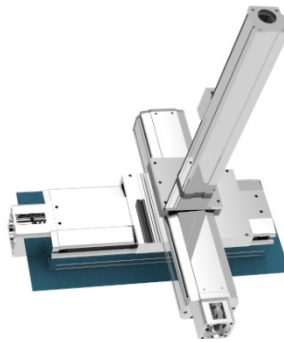


图8 Sketch 8
三轴 (X-Y-Z) Three Axis (X-Y-Z)
水平放置 Horizontal Combination



图9 Sketch 9
三轴 (X-Y-Z) Three Axis (X-Y-Z)
倒装放置 Reversed Combination

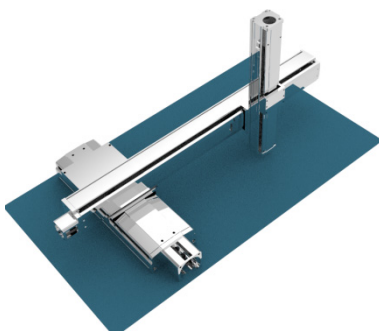


图10 Sketch 10
三轴 (X-Y-Z) Three Axis (X-Y-Z)
水平放置 Horizontal Combination

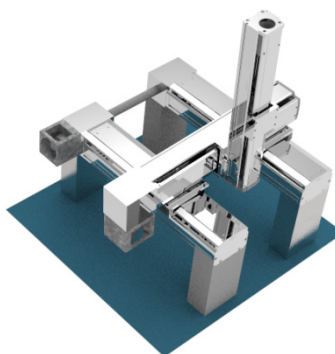


图11 Sketch 11
三轴 (X-Y-Z) Three Axis (X-Y-Z)
水平放置 Horizontal Combination

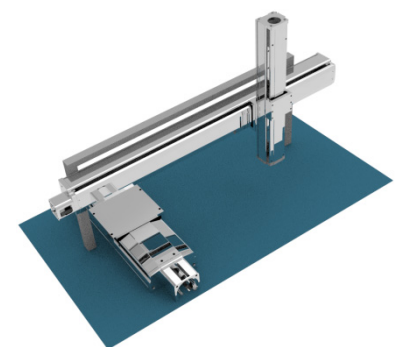


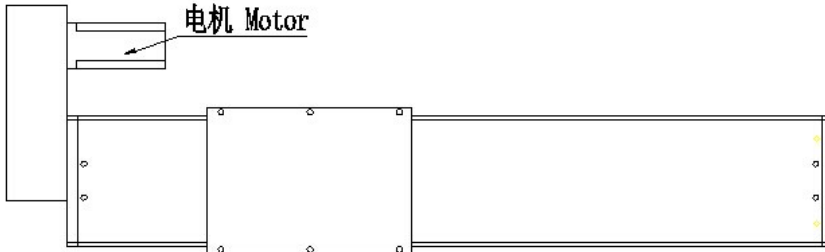
图12 Sketch 12
三轴 (X-Y-Z) Three Axis (X-Y-Z)
水平放置 Horizontal Combination

滚珠丝杆机械手马达安装样式 >>>

Motor Installation Way Of The Ball Screw Robots >>>>

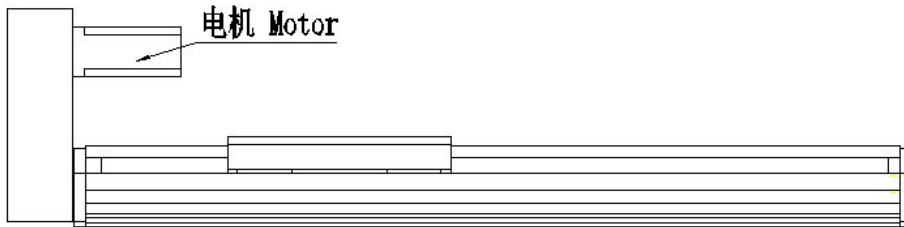
MA1: 马达左侧安装

MA1: Motor Left Installed



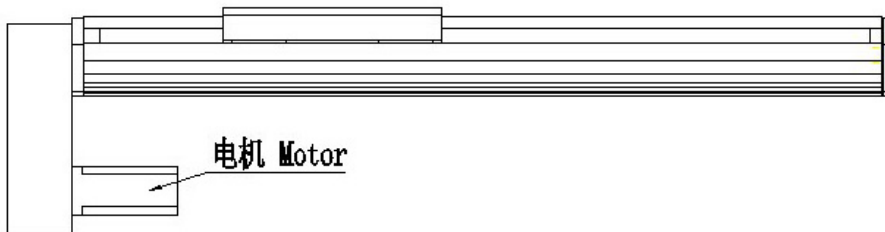
MA2: 马达顶部安装

MA2: Motor Top Installed



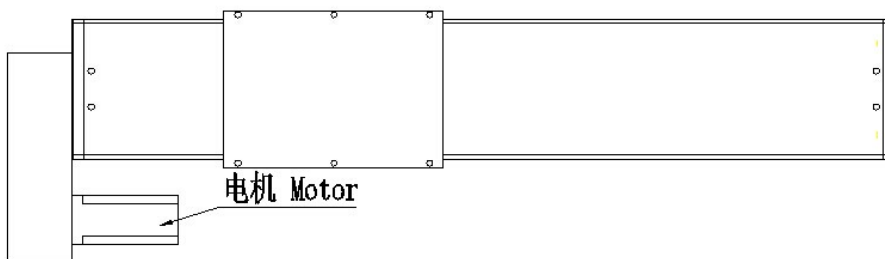
MA3: 马达底部安装

MA3: Motor Bottom Installed



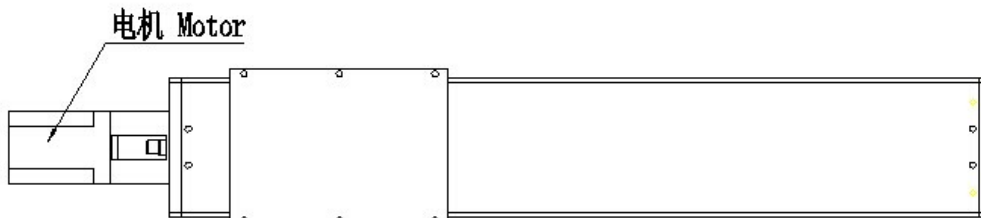
MA4: 马达右侧安装

MA4: Motor Right Installed



MA5: 马达联轴器安装

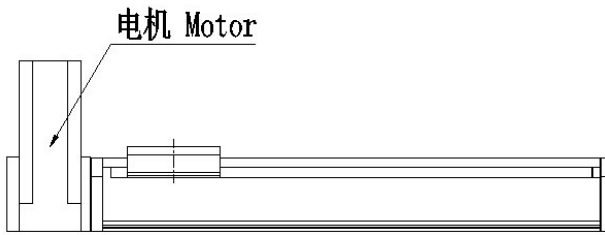
MA5: Motor Coupling Installed



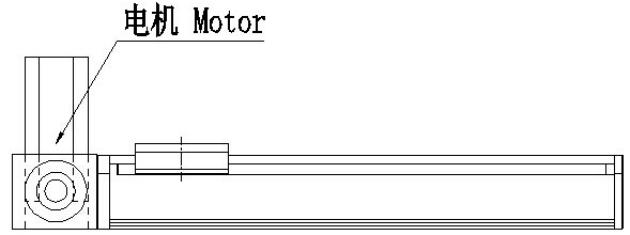
同步带机械手马达安装样式 >>>

Motor Installation Way Of The Synchronous Belt Robots >>>>

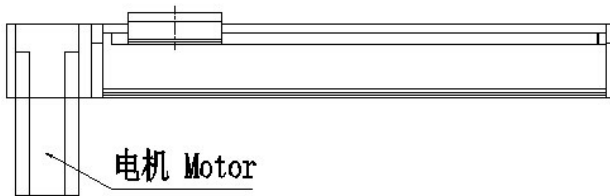
MA1: 马达顶部左侧安装
MA1: Motor Left Installed On The Top



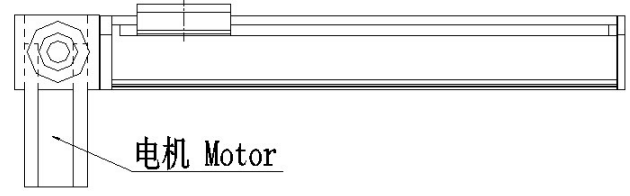
MA2: 马达顶部右侧安装
MA2: Motor Right Installed On The Top



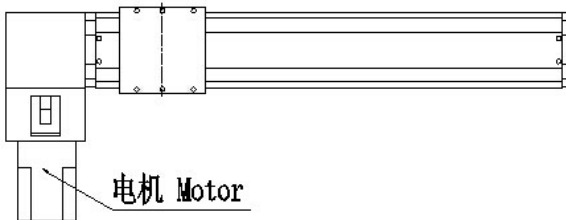
MA3: 马达底部左侧安装
MA3: Motor Left Installed At The Bottom



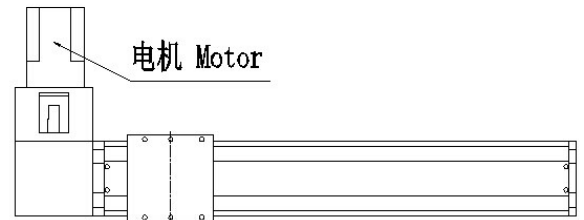
MA4: 马达底部右侧安装
MA4: Motor Right Installed At The Bottom



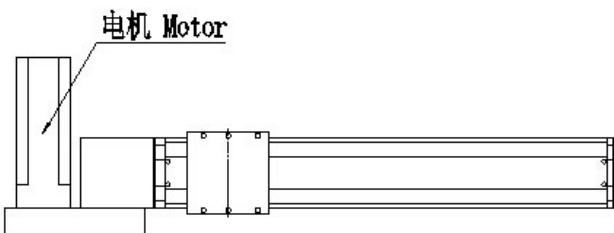
MA5: 马达左侧安装
MA5: Motor Left Installed



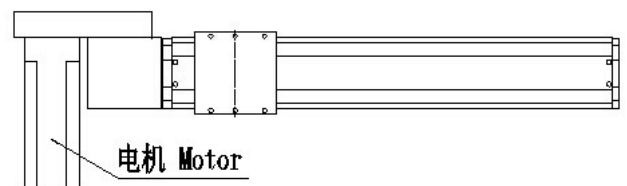
MA6: 马达右侧安装
MA6: Motor Right Installed



MA7: 马达水平左侧安装
MA7: Motor Left Installed In The Horizontal



MA8: 马达水平右侧安装
MA8: Motor Right Installed In The Horizontal

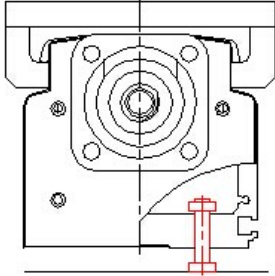


Linear module, Linear stage

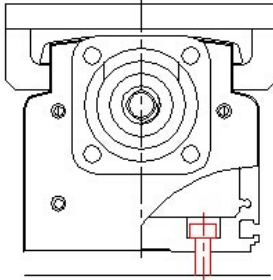
滚珠丝杆机械手安装样式 >>>

The Installation Way Of The Ball Screw Robots >>>>

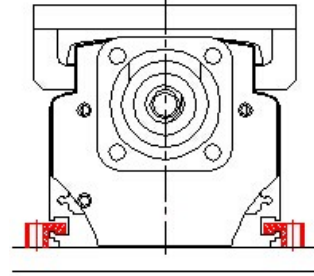
SA1: 螺母安装型
SA1: Fastened By Screw



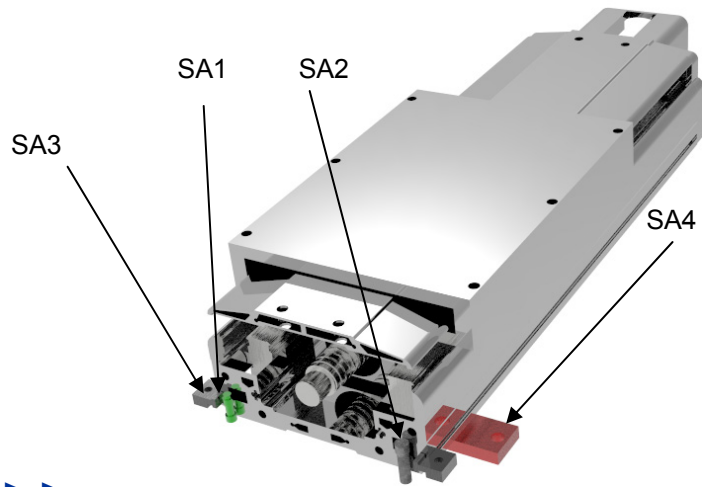
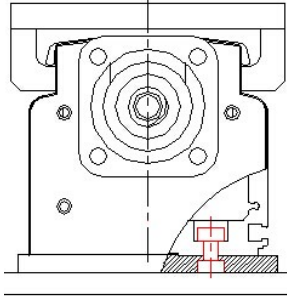
SA2: 内部安装型
SA1: Fastened By Screw Inside



SA3: 两侧压紧型
SA3: Fastened By Screw Both Inside



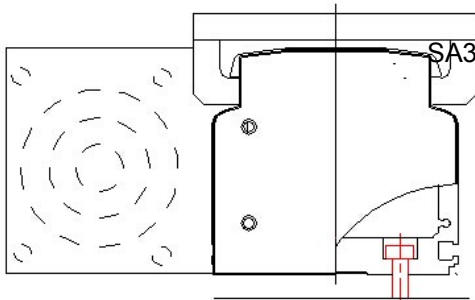
SA4: 转接板安装型
SA4: Fastened By Screw In Basement



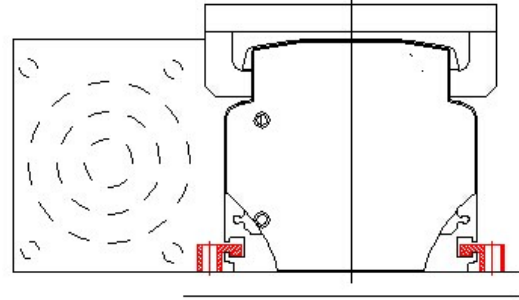
同步带机械手安装样式 >>>

The Installation Way Of The Synchronous Belt Robots >>>>

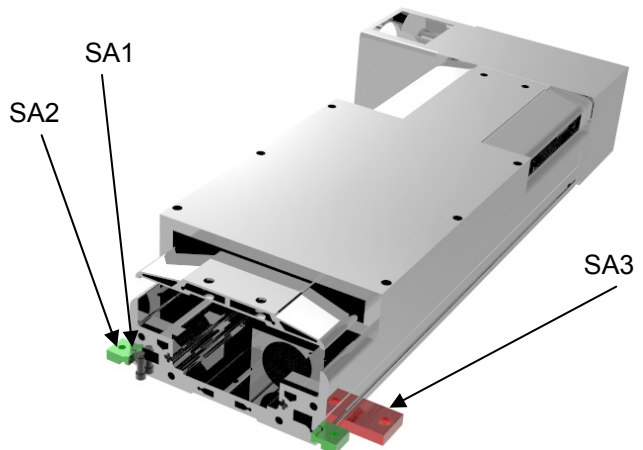
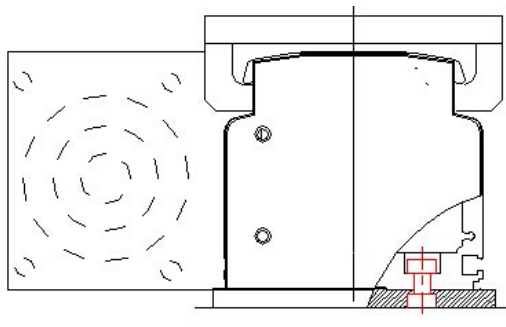
SA1: 螺母安装型
SA1: Fastened By Screw



SA2: 两侧压紧型
SA2: Fastened By Screw Both Inside



SA3: 转接板安装型
SA3: Fastened By Screw In Basement



注意事项 >>>

Attention >>>

1. 使用注意点

Attention when working

①. 原点及行程感应开关

Origin and travel inductive switch

a. 标准产品的感应开关包含原点，正向限位开关和负向限位开关，原点默认为靠近马达侧。
Standard robot's inductive contains origin, plus limit switch and minus limit switch, the origin of default is close to motor side.

b. 在接通马达前，请务必先对原点和行程开关的工作状态进行手动测试。
It must manually check the origin and travel switch's working state before electricity connected firstly.

c. 在通电前，请先确认马达的速度设定为低速范围。
It should firstly check motor's speed set up in the range of low speed before electricity connected.

d. 传感器规格(3线)：棕色：24+ 蓝色：0V 黑色：信号线。
Sensor specification (three wires): brown: 24+ blue: 0V black: signal wire

②. 静态及动态允许的力矩

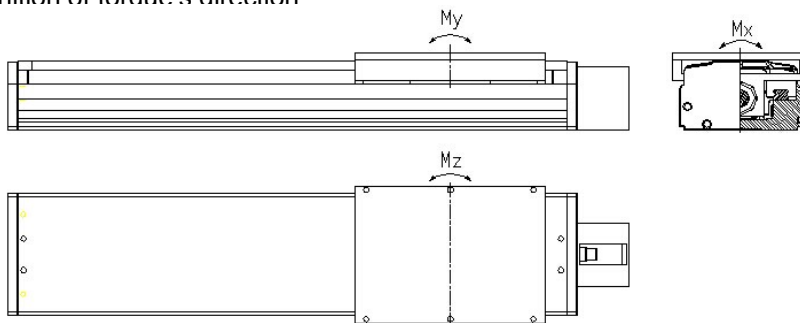
The allowable torque of static and dynamic

a. 静态允许力矩是指机械手在静态状态下，X-Y-Z三个方向上可以承受的力矩。
The allowable torque of static is the allowable torque of X-Y-Z three axis when robot is in sleeping condition.

b. 动态允许力矩是指机械手在工作状态下，X-Y-Z三个方向上可以承受的力矩。
The allowable of torque of dynamic is the allowable torque of X-Y-Z three axis when robot is in working condition.

③. 力矩定义方向

The definition of torque's direction



④. 寿命

Working life

a. 寿命是指直线运动单元允许负载状态下，达到失效时所工作的时间。
The robot's life is the total working time before its failure when it had worked in permitted load condition.

b. 注意：应保证工作负载在允许的范围內，运动单元足够润滑，工作环境良好。
Notes: it must guarantee the load should be in the range of robot's permitted load, and moving Parts should be lubricated enough, and the working condition is good.

⑤. 垂直负载保护

Protection in vertical load condition

a. 垂直使用时，必须考虑电源中断的情况下，负载突然掉落造成的潜在危险，所以在选用马达时应设计断电刹车保护装置。

When working in vertical condition, it must consider the potential danger caused by sudden load drop in power failure condition, so It has to design the protection device of power failure to robot.

b. 在垂直使用时，需要考虑克服自重对驱动力矩的影响。
When working in vertical condition, It must consider the influence of its own weight to driving load.

⑥. 本体精度

Body accuracy

a. 机械手本体底部水平基准面和垂直基准面的平面度为 $\pm 0.02\text{mm}/300\text{mm}$ 以下。
The flatness of robot's bottom surfaces in horizontal and vertical are $\pm 0.02\text{mm}/300\text{mm}$ Max.

b. 安装面的平面度应该保证在 $\pm 0.05\text{mm}/\text{M}$ 以下。
It should guarantee the flatness of the surface for installation is $\pm 0.05\text{mm}/\text{M}$ Max.

危险事项 >>>>

Warning >>>>



选择和使用本产品前，务必确认本产品的使用场合和适用范围。请勿在超出本产品允许的范围之外使用该产品。以下提醒事项旨在让客户安全、正确的选型和使用本产品，防范因选型不当或者使用失误造成可能发生的损伤或事故。 Following reminders aim to make sure customers to choose and use product correctly and Safely and to stop potential harm and accident caused by wrong choice and use.

1. 危险（不回避即有可能导致人死亡或重伤）

Danger (It may cause serious injury or death if not avoid)

① 请勿使用于下列用途:

Please do not use in any following conditions:

a. 用于直接对人的生命及身体为目的的器具或设备上;

Use it in apparatus or equipment which can affect directly person's body and life;

b. 用于操作使用对人的生命及身体有明显危险及安全风险的器具上。

Use it in apparatus which has obvious danger and security risk to person's body and life;

② 安全的确认，须避免下列情形造成对人体安全影响及设备的损坏。

It must do safety confirmation in order to avoid product causing security risk to person's body and damage to equipment. When product running, It should guarantee product is working in rotation radius and operation range,

and avoid injury to body caused by drop of loaded object and moving fast, and should make sure no injury to body and damage to equipment cause by abnormal supply of electricity and air power or sudden power failure.

and avoid injury to body caused by drop of loaded object and moving fast, and should make sure no injury to body and damage to equipment cause by abnormal supply of electricity and air power or sudden power failure.

③ 设备启动时，应防止放置物品飞出，造成人体受伤及设备损坏。

When equipment starts, It should avoid injury and damage to equipment caused by coming out of placed item.

2. 警告（不回避即有可能致人负轻伤或中等伤害）

Warning (It may cause slight or general injury if not avoid)

① 请勿于下列环境及场合使用

Please do not use product in following condition and environment

a. 在有化学物品、易燃品、腐蚀性液体及气体的环境;

In chemicals, inflammable, corrosive liquid and gas environment;

b. 对产品质量安定性有影响的场合;

In the environment having effect on product's quality stability;

c. 在超出产品性能的条件场合;

In the condition of exceeding product's performance

d. 在容易受剧烈震动或冲击，对产品质量有安定性的影响和破坏的场合;

In the condition of being shaken or impacted intensely causing effect and damage to product's quality stability.

② 请勿对产品的结构、功能作分解或改造;

Please do not disassemble product and change its functions.

③ 产品的保养、拆卸需关闭电源及气源，避免造成危险和产品损坏;

It must shut down electricity and air power when doing maintenance and disassembling in order to avoid danger and damage to product.

④ 避免组装及操作时，造成危险及产品损坏。

Avoid danger and damage to product when installing and operating;

3. 注意（使用时处于危险状态）

Attention (In dangerous condition when using)

① 产品安装时，避免灰尘、杂物等落入产品内部，影响产品的性能;

Avoid dust and sundries falling into product causing effect to performance of product when installing;

② 避免用手直接触摸运动部件或润滑部分;

Avoid touching moving components and lubricated parts with hands directly;

③ 在开机调试前应确保机械手的限位开关起到正确的保护作用（在运作行程内及感应正常）。

It must make sure the limit switch of robot is available in protection before adjusting.

滚珠丝杆滑台的维护和保养 >>>>

The maintenance of ball screw's slide block >>>>

1. 直线滑台速度:

The speed of linear slide-block:

滑台速度取决于传动丝杆导程及电机输入的转速，选购前请对应所选滑台丝杆规格参数来定型；

The speed of slide-block was decided by the speed of ball screw 's pitch and the speed of motor, please refer to specification of ball screw and slide-block for model selection before purchasing.

2. 丝杆滑台安全建议:

The safe suggestions for ball screw and slide-block

如果应用于垂直轴时, 请注意附加足够比减速机或配重或适当扭力带刹车电机来解决自锁性问题。

please add decelerating motor with enough ratio or counterweight or motor with brake function and with proper torque to solve self-locking problem.

3. 安装注意事项:

Attentions for installation

滑台底座是由铝型材成型，底部与导轨面需要经过加工来保证足够的平行度；为保证滑台精度及其组件工作正

The base of slide-block was made of extruded aluminum, the bottom surface and the surface for sliding rail must be machined in order to guarantee parallelism well; all surfaces of slide-block for installation must be machined in order to get enough flatness and good support stiffness.

Machined in order to guarantee parallelism well; all surfaces of slide-block for installation must be machined in order to get enough flatness and good support stiffness.

4. 滑台行程长度:

The travel length of slide-block

滑台的选购手册上已经注明推荐长度，但在需高速运转时请尽量选择较大丝杆直径或较大导程丝杆以降低电机转速

The recommendation length of slide-block had been indicated in the catalog, but please choose bigger diameter of ball screw or lager pitch of ball screw in order to decrease speed of motor and to stop ball screw running out.

(Notes: the high speed is not proposed to apply when the travel length of slide-block is too long.)

5. 工作环境

Working environment

滑台可在-20℃到50℃范围内正常工作，避免在酸碱性能环境里工作，滑台本身具备一定防尘功能，但在大量或极细

The slide-block can work normally in the range of -20℃ to 50℃, and avoid it working in acid environment. The slide-block has function of dust protection itself, but when working in large or very small dust environment, please add additional protection or dust clean device, and clean dust on the slide-block timely.

Slide-block has function of dust protection itself, but when working in large or very small dust environment, please add additional protection or dust clean device, and clean dust on the slide-block timely.

6. 保养润滑

Maintenance and lubrication

滚珠丝杆及线性导轨必须在使用6个月或600小时后加注优质锂基润滑脂（丝杆及滑动块在出厂前已加注润滑脂，滑

The ball screw and linear guide rail must injected with high quality of lithium base grease(ball screw and slide-block had been lubricated before leaving factory, ball screw and bearings at both end were lubricated permanently, so no

No lubrication needed.). Lubrication method: 1. clean ball screw first, then use clean brush to apply lithium base grease on the surface of ball screw at three times when ball screw is in working state. 2. clean ball screw first, then

必须清除丝杆表面；3. 线性导轨润滑时，用注油枪顶住油嘴，然后往里加油。

use grease gun against the oil hole of ball screw's nut to inject grease; 3. the lubrication method of linear guide rail is clean ball screw first, then use grease gun against oil holes to inject grease.

7. 滑台寿命:

Life of slide-block

滑台寿命是指滑台在实际使用中，由于受循环应力的作用，表面出现剥落时所运行的总距离。

The life of slide-block is the total distance run until its surface flaking in actual use caused by cyclic stress.

在额定负载和不超速的情况下，滑台保修期为1年（12小时/天）。

In the conditions of rated load and not speeding, the warranty of period is one year (twelve hours per day)

8. 联轴器作用:

The purpose of coupling

联轴器起到联接并传递丝杆和电机动力，同时还具有纠正丝杆轴和电机轴由各种因素引起的不同心作用。新的联轴

The purpose of coupling is join ball screw and motor together and transfer motor power to ball screw, and also correct disalignment of ball screw and motor's shaft caused by different factors. New coupling may cause friction

sound when running, so it need to apply grease to coupling's elastic body to eliminate cyclic noise .

correct disalignment of ball screw and motor's shaft caused by different factors. New coupling may cause friction sound when running, so it need to apply grease to coupling's elastic body to eliminate cyclic noise .

机械手参数计算 >>>>

The calculation of robot's parameter >>>>

1. 丝杆机械手参数计算公式

The calculation formulas of ball screw robot

- ①. 驱动扭矩 Driving torque: $T = F * S * l * W / (2000 * \pi * \mu) + T_0$ (N/M)
- ②. 电机功率 Motor's rated power: $P = T * N / 9550$ (KW)

说明 Notes

- T₀ - - - - - 空载扭矩 No load torque (N/m)
- T - - - - - 驱动扭矩 Driving torque (N/m)
- F - - - - - 推力 Push force (N)
- S - - - - - 丝杆导程 screw's pitch
- N - - - - - 丝杆转速 Rotation speed of screw
- μ - - - - - 丝杆效率 Efficiency of screw (0.98)
- l - - - - - 安全系数 Safety coefficient (≥ 1)
- W - - - - - 摩擦系数 Friction coefficient (≤ 1.22)
- M - - - - - 负载质量 Load weight (KG)
- P - - - - - 电机功率 Motor's rated power (KW)

2. 同步带机械手参数计算公式

The calculation formulas of synchronous belt robot

- ①. 驱动力矩 Driving torque: $T = F * R * S * l + T_0 = F * C * l / (2000 * \pi) + T_0$ (N/M)
- ②. 电机功率 Motor's rated power: $P = T * N / 9550$ (KW)

说明 Notes

- T₀ - - - - - 空载扭矩 No load torque (N/m)
- F - - - - - 推力 Push force (N)
- R - - - - - 驱动轴半径 Driving shaft's radius (mm)
- N - - - - - 带轮转速 Rotation speed of synchronous belt
- l - - - - - 保险系数 Insurance coefficient (> 1.8)
- M - - - - - 负载质量 Load weight (KG)
- C - - - - - 驱动轴周长 Length of driving shaft (mm)
- μ - - - - - 摩擦系数 Friction coefficient (0.05)

3. 丝杆及同步带机械手共用计算公式

The sharing calculation formulas for ball screw and synchronous belt robots

- ①. 水平运动所需推力 Push force for horizontal movement: $F = M * A + M * 9.8 * \mu$
- ②. 垂直向上运动所需推力 Push force for vertical upward movement: $F = M * A + M * 9.8 * \mu + M * 9.8$
- ③. 垂直向下运动所需推力 Push force for vertical downward movement: $F = M * A + M * 9.8 * \mu - M * 9.8$
- ④. 速度 Velocity: $V = N * C / 60000$ (M/S)

N - - - - - 电机转速 (RPM每分钟转速) Motor's rotation speed (RPM per minute)

- ⑤. 加速度 Acceleration: $A = F / M$ (M/s²)
- ⑥. 加速行程 Accelerating travel: $S = V * t / 2$ (M/s²)
- ⑦. 加速时间 Accelerating time: $t = V / A$ (s)