

MoBo执行器(MA系列)

MoBo Actuator (MA Series)

MoBo Actuator

使用External滚珠丝杠型(MoBo)的执行器。
按客户订单接单生产。

External Ball Screw type(MoBo) is built in this series, what we call MoBo Actuators.
All of MoBo Actuators are produced as customized products, in accordance with customer's order.



●特点

使用电机直连型滚珠丝杠,可实现长边方向尺寸的小型化。

●种类

根据所使用的进给丝杠,MoBo执行器有以下种类。

1) 精密滚珠丝杠型

采用了精密滚珠丝杠,因此重复定位精度和空转都实现了高精度。

2) 冷轧滚珠丝杠型

采用了冷轧滚珠丝杠,因此确保了合理的价格和精度。

3) 树脂螺母滑动丝杠型

采用价廉物美的树脂导程丝杠(含油型),在通常的使用环境下可以免维护使用。

●公称型号的构成 / Model number notation

MA S - G 020 - 015 N R

① ② ③ ④ ⑤ ⑥ ⑦

- ①系列符号
MA : MoBo执行器系列
- ②构造符号
S : 滑块型
- ③进给丝杠种类
G : 精密滚珠丝杠
R : 冷轧滚珠丝杠
Re : 树脂螺母滑动丝杠
- ④导程 / 节距(mm) : 020表示2mm
- ⑤行程(mm) : 015表示15mm
- ⑥连接器种类
N : 散线
H : 广濑RP17
E : EI连接器 (TE Connectivity制造)
- ⑦导线方向
R : 右侧引线(从轴端侧看是右侧)
L : 左侧引线

- ①Series No.
MA : MoBo Actuator Series
- ②Actuator type
S : Slider type
- ③Lead Screw / Ball Screw
G : Precision Ball Screw
R : Rolled Ball Screw
Re : Resin Lead Screw
- ④Lead / Pitch (mm) : 020 means 2mm
- ⑤Travel (mm) : 015 means 15mm
- ⑥Connector type
N : No connector (Bare)
H : HIROSE RP17
E : EI connector (TE Connectivity)
- ⑦Direction of Motor leads
R : Right (from Shaft end side)
L : Left

●Features

More compact design of Unit products in longitudinal dimension became reality by using Direct Motor Drive Ball Screws / Resin Lead Screws.

●Variation

There are several kinds of MoBo Actuator shown below. Each Actuator has a different kinds of Ball Screw / Lead Screw inside.

1) Precision Ball Screw type

High accuracy in both Repeatability and Lost motion by using Precision Ball Screw.

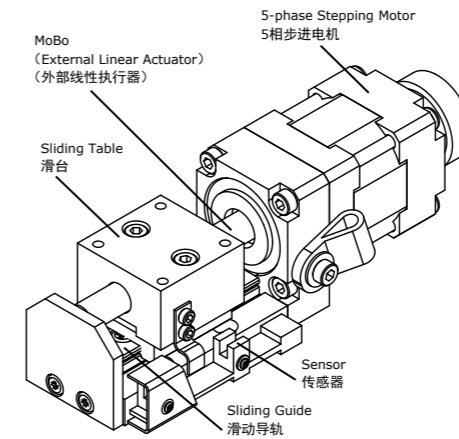
2) Rolled Ball Screw type

Reasonable price and accuracy have been achieved by using Rolled Ball Screw.

3) Resin Lead Screw type

It can be used without oiling in normal environment, because lubricating agent is incorporated in Resin Nut.

●构造 / Structure



●规格 Specifications

MoBo执行器的大致规格一览表如下所示。
详情请参照尺寸表。

Overall specifications for MoBo Actuators are shown in Table below.
For further information, please see dimension Table.

Model / 型号	MAS-G010-015	MAS-G010-030	MAS-R010-015	MAS-R010-030	MAS-Re020-015	MAS-Re020-030
Travel / 行程	15mm	30mm	15mm	30mm	15mm	30mm
Drive Screw 驱动丝杠	Precision Ball Screw 精密滚珠丝杠 Lead / 导程 = 1mm		Rolled Ball Screw 冷轧滚珠丝杠 Lead / 导程 = 1mm		Resin Lead Screw 树脂螺母滑动丝杠 Lead / 导程 = 2mm	
Sliding Guide / 导轨	Slide Guide rail / 滑动导轨					
Body Material 主体材质	Aluminum / 铝					
Mass / 质量	200g	210g	200g	210g	200g	210g
Resolution / 分辨率	0.002mm		0.002mm		0.004mm	
Repeatability 重复定位精度	Max. ±0.005mm		Max. ±0.01mm		Max. ±0.05mm	
Lost motion 空转	Max. 0.005mm		Max. 0.01mm		Max. 0.05mm	
Horizontal Load Capacity 水平可搬负载	Max. 29.4N		Max. 29.4N		Max. 9.8N	
Vertical Load Capacity 垂直可搬负载	Max. 19.6N		Max. 19.6N		Max. 4.9N	
Permissible speed 许用转速	0.4~20mm/sec		0.4~20mm/sec		0.8~15mm/sec	
Maximum acceleration 最大加速度	0.1m/sec ²					
Permissible Moment 允许偏心力矩 Mp(Pitching / 俯仰)	0.16Nm	** In case of no load in My & Mr direction **My,Mr方向没有负载时				
Permissible Moment 允许偏心力矩 My(Yawing / 偏转)	0.10Nm	** In case of no load in Mp & Mr direction **Mp,Mr方向没有负载时				
Permissible Moment 允许偏心力矩 Mr(Rolling / 侧滚)	0.20Nm	** In case of no load in Mp & My direction **Mp,My方向没有负载时				
Operating Temp. 使用环境温度	0~40°C(without any due condensation / 无结露)					
Lubrication / 润滑	Ball Screw : KSS MSG No.2 Sliding Guide : KSS MSG No.2 滚珠丝杠 : KSS MSG No.2 滑动导轨 : KSS MSG No.2				Lead Screw : Sumitec Liquid H20 Sliding Guide: KSS MSG No.2 滑动丝杠: Sumitec Liquid H20 滑动导轨: KSS MSG No.2	

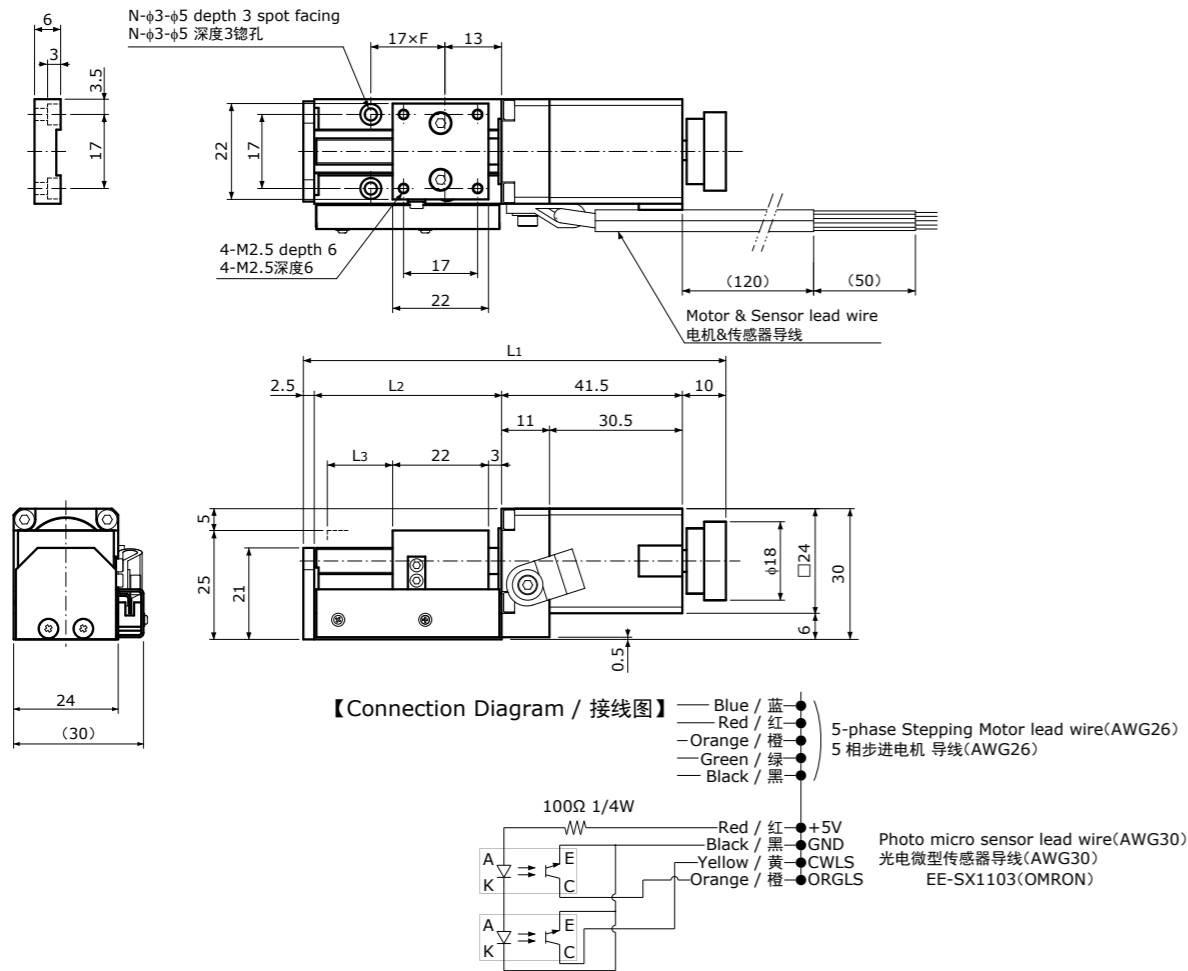
- Motor : 5-phase Stepping Motor □24(NEMA 10) , 0.75A/phase
- Photo Micro sensor : EE-SX1103(Omron) , DC5V 50mA (Motor side and Travel end)

- 使用电机 : 5相步进电机24见方,0.75A/相
- 光电微型传感器 : 欧姆龙EE-SX1103,DC5V 50mA(电机侧、电机对侧2处)

驱动滚珠丝杠+5相步进电机 / Drive Ball Screw + 5-phase Stepping Motor

MAS□24 / MAS NEMA 11

Shaft dia.(轴径)f6



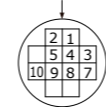
【连接器选择方案 / Connector choice】

请从下面指定连接器种类。
没有指示的采用散线。
Please designate connector type below.
No connector if there is no designation.

- 1) 散线
 - 2) 广濑RP17-13J-12SC
 - 3) EI-连接器 (TE connectivity 制造)
6芯 (172211-6、电机)+4芯 (172211-4、传感器)
- 1) None (Bare)
 - 2) RP17-13J-12SC (HIROSE)
 - 3) EI-Connector (TE connectivity):
172211-6 pins for Motor + 172211-4 pins for Sensor

【HIROSE RP-Connector / 广濑RP17连接器规格】

Upper side (white dot)
上侧 (白点)



RP17-13J-12SC (female / 插口)

1	Stepping Motor (Blue / 蓝)
2	Stepping Motor (Red / 红)
3	Stepping Motor (Orange / 橙)
4	Stepping Motor (Green / 绿)
5	Stepping Motor (Black / 黑)
6	None / 无
7	5V (Red / 红)
8	GND (Black / 黑)
9	CWLS Sensor (Yellow / 黄)
10	ORGLS Sensor (Orange / 橙)
11	None / 无
12	None / 无

【EI-Connector / EI连接器规格】



172211-6 (male / 插头)

1	Stepping Motor (Blue / 蓝)
2	Stepping Motor (Red / 红)
3	Stepping Motor (Orange / 橙)
4	Stepping Motor (Green / 绿)
5	Stepping Motor (Black / 黑)
6	None / 无



172211-4 (male / 插头)

1	5V (Red / 红)
2	GND (Black / 黑)
3	CWLS Sensor (Yellow / 黄)
4	ORGLS Sensor (Orange / 橙)

Common Specifications / 通用规格	
Motor 使用电机	5-phase Stepping Motor 5相步进电机 □24, 0.75A / phase
Body Material 主体材质	Aluminum / 铝
Sliding guide 导向结构	Slide Guide rail (Single) 滑动导轨 (1列)
Photo Sensor (Motor side & travel end) 光电传感器 (电机侧、电机对侧 2处)	Omron : EE-SX1103 欧姆龙 : EE-SX1103 ※Light-on / 受光时ON
Permissible Moment / 允许偏心力矩	
Pitching / 俯仰 Mp	0.16Nm
Yawing / 偏转 My	0.10Nm
Rolling / 侧滚 Mr	0.20Nm
Lubrication / 润滑	
MSG No.2 (KSS original Grease / KSS 原装油脂) **Sumitec Liquid H20 for Resin Lead Screw **仅树脂螺母滑动丝杠为Sumitec Liquid H20	
Operating Temp. / 使用温度范围	
0~40°C **无结露 **No due condensation	

Model Number 执行器型号	Drive Screw type 进给丝杠型	Travel 行程 (mm)	Screw Lead 丝杠导程 (mm)	Resolution 分辨率 (mm)	Length / 长度 (mm)					Repeatability 重复定位精度 max./最大 (mm)	Lost Motion 空转 max./最大 (mm)	Load Capacity 可搬负载 max. (N/kgf)		Maximum Acceleration 最大加速度 (m/sec ²)	Permissible speed 许用转速 (mm/sec)	Mass 质量 (g)	Model Number 执行器型号
					L1	L2	L3	F	N			Hor. 水平	Vert. 垂直				
MAS-G010-015NR	Precision Ball Screw 精密滚珠丝杠	15	1	0.002	97	43	15	1	4	±0.005	0.005	29.4/3.0	19.6/2.0	0.1	0.4~20	200	MAS-G010-015NR
MAS-R010-015NR	Rolled Ball Screw 冷轧滚珠丝杠		1	0.002	97	43	15	1	4	±0.01	0.01	29.4/3.0	19.6/2.0	0.1	0.4~20	200	MAS-R010-015NR
MAS-Re020-015NR	Resin Lead Screw 树脂螺母滑动丝杠		2	0.004	97	43	15	1	4	±0.05	0.05	9.8/1.0	4.9/0.5	0.1	0.8~15	200	MAS-Re020-015NR
MAS-G010-030NR	Precision Ball Screw 精密滚珠丝杠	30	1	0.002	112	58	30	2	6	±0.005	0.005	29.4/3.0	19.6/2.0	0.1	0.4~20	210	MAS-G010-030NR
MAS-R010-030NR	Rolled Ball Screw 冷轧滚珠丝杠		1	0.002	112	58	30	2	6	±0.01	0.01	29.4/3.0	19.6/2.0	0.1	0.4~20	210	MAS-R010-030NR
MAS-Re020-030NR	Resin Lead Screw 树脂螺母滑动丝杠		2	0.004	112	58	30	2	6	±0.05	0.05	9.8/1.0	4.9/0.5	0.1	0.8~15	210	MAS-Re020-030NR

注1) 导线为散线及右侧引线时的型号。
注2) 允许偏心力矩是其他方向没有负载时的值。
注3) 上述为KSS标准规格品, 特殊规格品请垂询本公司。需要特殊规格品时, 请垂询本公司。
注4) 有关与推荐驱动器 (KR-A5CC、KR-A55MC) 的接线, 请参照第Q131页。
注5) 执行器安装基准面请参照技术解说第S106页。

Note 1) Model Number above is for no-connector and lead wire is set on right side on Motor.
Note 2) Permissible moment is based on no load in other direction.
Note 3) Dimension above is our model case, if you need special specifications, please ask KSS representative.
Note 4) Refer to page Q131 for connection diagrams of recommended Driver (KR-A5CC, KR-A55MC).
Note 5) Please refer to Technical Description page S106 for the Datum clamp face of the Actuator.