



f Actuator
LEX



灵活可选执行器

FA系列

FA Series

Vol.105.0

实现了灵活可选的设计

Availability of flexible design



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灵活可选执行器系列
Flex Actuator Series



精度(进给丝杠)、速度(导程)、移动距离(行程)、负载(电机)的组合打造了丰富的产品系列的KSS灵活可选执行器系列!!!

Many variation of KSS Flex Actuator became reality. Various choices among accuracy(Lead Screw type), speed(Screw Lead), Travel length and power(Motor type) are available.

●特点

- 最大限度地发挥微型滚珠丝杠厂商的特点,设计出了终极紧凑型执行器。
- 根据执行器上所使用的进给丝杠的种类,可在广范围内选择定位相关的精度。
- 每件进给丝杠上配备了几种导程和行程,可在广范围内选择进给速度。
- 以无电机型为标准品,准备了几种电机作为可选方案。从而能够安装符合使用规格的电机。
- 能够与最适合所选电机的标准驱动配套采购。
- 具有充实的外装光电传感器及刹车单元等可选功能。

●Features

- We make full use of features of Miniature Ball Screw manufacturer and super compact design Actuator can be achieved.
- Depending on kinds of Lead Screws, wide range of choices related to positioning accuracy are available.
- Several variations of Screw Lead & Travel for each Screw type are standardized. So wide variety of choice for speed is available.
- Motor-less type is our standard, but a couple of Motors are in stock as an option. Suitable Motor and Actuator would be assembled in accordance with your specifications.
- Recommended Motor Drivers for each Motors are also in stock.
- Accessories can be provided as special design, such as outside photo-sensor, Brake unit and so on.



丰富的产品系列
Wide range of choices



无电机型的标准品
Motor-less is standard

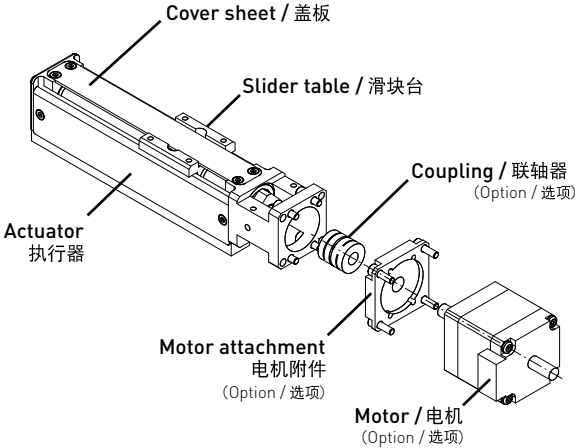


众多丝杠产品
Wide variety of Drive Screw type

●构造 / Structure

KSS灵活可选执行器系列是组合了小径的进给丝杠和导程的台面型执行器。以无电机型作为标准形状,被设计成为根据使用条件能够安装最适合的电机。

KSS Flex Actuator is the slider type Actuator, which is built in small size Lead Screw / Ball Screw and Slide Guide in it. KSS Flex Actuator series are standardized without Motor. It is designed to set the appropriate Motor easily based on the required specifications.



●种类与特点

根据所使用的进给丝杠,KSS灵活可选执行器系列有以下种类。请根据所要求的精度选择进给丝杠的种类。详情请参照规格一览表(P-6)。

- 1)树脂螺母滑动丝杠型
采用了低廉的树脂导程丝杠(含油型),因此能够在通常的使用环境下无须维护而长期使用。
- 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)精密滚珠丝杠型
采用了精密滚珠丝杠,因此反复定位精度和空转都实现了高精度。

●Variation & Features

There are several kinds of KSS Flex Actuators shown below. Each Actuator has a different kinds of Ball Screw / Lead Screw inside. Please choose appropriate type depending on your required accuracy. For further information, please refer to Table ccc in page 6.

- 1)Resin Lead Screw type
High cost performance type Actuator installed Resin Lead Screw. It can be used without oiling in normal environment for long term, because lubricating agent is incorporated in Resin Nut.
- 2)Rolled Ball Screw type
Reasonable price and accuracy have been achieved by using Rolled Ball Screw.
- 3)Precision Ball Screw type
High accuracy in both Repeatability and Lost motion by using Precision Ball Screw.

表1 : 进给丝杠的定位精度
Table 1 : Positioning accuracy for each Drive Screw

Drive Screw type / 驱动丝杠种类	Repeatability 反复定位精度 (mm)	Lost motion 空转 (mm)
Resin Lead Screw / 树脂螺母滑动丝杠	±0.05 max.	0.05 max.
Rolled Ball Screw / 冷轧滚珠丝杠	±0.01 max.	0.01 max.
Precision Ball Screw / 精密滚珠丝杠	±0.005 max.	0.005 max.

注) 使用标准电机时的参考值。
Note) These numbers are obtained with standard Motor.

作为电机选项为KSS灵活可选执行器系列准备了以下选择方案。执行器和电机组合时的详细规格请参照第6页。

There are several choices of Motor as option shown below. Specifications for each combination of Actuator and Motor are shown in page 6.

Motor type 电机种类	Manufacturer 电机厂商	Model number 电机型号	Rated Current 额定电流
2-phase / 2相 □25	Minebea Motor 美蓓亚电机	10PM-K202B Single shaft / 单轴	0.7A / Phase 0.7A / 相
2-phase / 2相 □28	TAMAGAWA SEIKI 多摩川精机	TS3641N11E2 Double shaft / 双轴	0.95A / Phase 0.95A / 相
5-phase / 5相 □28	Oriental Motor 东方马达	PK523HPB Double shaft / 双轴	0.75A / Phase 0.75A / 相

FA S - G 020 - 080 M N R SBU
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

- ①系列编号
FA : KSS灵活可选执行器系列

②构造编号
S : 滑块型

③进给丝杠种类
Re : 树脂螺母滑动丝杠
R : 冷轧滚珠丝杠
G : 精密滚珠丝杠

④导程 / 间距(mm) : 020表示为2mm

⑤行程(mm) : 080表示为80mm

⑥电机类型
无编号 : 无电机(标准品)
M : 美蓓亚电机制造 2相步进电机 (□25&0.7A / 相)
T : 多摩川精机制造 2相步进电机 (□28&0.95A / 相)
E : 东方马达制造 5相步进电机 (□28&0.75A / 相)
S : 其它

⑦连接器类型
N : 裸线
H : 广濑RP17
E : EI连接器(AMP制造)

⑧导线方向
R : 右侧引线(从轴侧看是右侧)
L : 左侧引线

⑨选项编号
无编号 : 无选项
S : 外装光电传感器
B : 电磁刹车单元
U : 电机周边套件
- ①Series No.
FA : KSS Flex Actuator Series

②Actuator type
S : Slider type

③Lead Screw / Ball Screw type
Re : Resin Lead Screw
R : Rolled Ball Screw
G : Precision Ball Screw

④Lead / Pitch (mm) : 020 means 2mm

⑤Travel (mm) : 080 means 80mm

⑥Motor type
None : No Motor (Standard)
M : Minebea Motor 2-phase Stepping Motor (□25&0.7A / phase)
T : TAMAGAWA SEIKI 2-phase Stepping Motor (□28&0.95A / phase)
E : Oriental Motor 5-phase Stepping Motor (□28&0.75A / phase)
S : Other

⑦Connector type
N : No connector (Bare)
H : HIROSE RP17
E : EI connector (AMP)

⑧Direction of Motor leads
R : Right (from Shaft end side)
L : Left

⑨Option
None : no optional design
S : Photo micro Sensor outside
B : Solenoid Brake Unit
U : Side Motor mounting kit



KSS灵活可选执行器能够组合选择进给丝杠的种类(定位精度)、丝杠导程以及行程。
无电机型为标准品,但是作为选项准备了3种电机。
由于这些组合,扩大了客户的选择余地,从而能够选定符合使用条件的执行器。
进给丝杠的种类与电机选择(选项)请参照以下组合一览表(表2)。
决定组合后,详细的尺寸与规格请参照各自刊登的页面。
需要表2以外组合的执行器时,请咨询KSS。

KSS Flex Actuator has a lot of combinations with Lead screws (positioning accuracy), Screw Lead, and travel length. Motor-less type is our standard, but 3 types of Motor can be provided as an optional order. Standard combination and Motor choices make design flexibility enlarge widely based on your specifications. Combination of Lead screw and Motor are shown in Table 2. The detail specifications and dimensions are described in each dimension table. If other combination in Table 2 is required, please ask KSS representative.

标准规格的组合 / Standard Combination



电机选项 / Motor Option

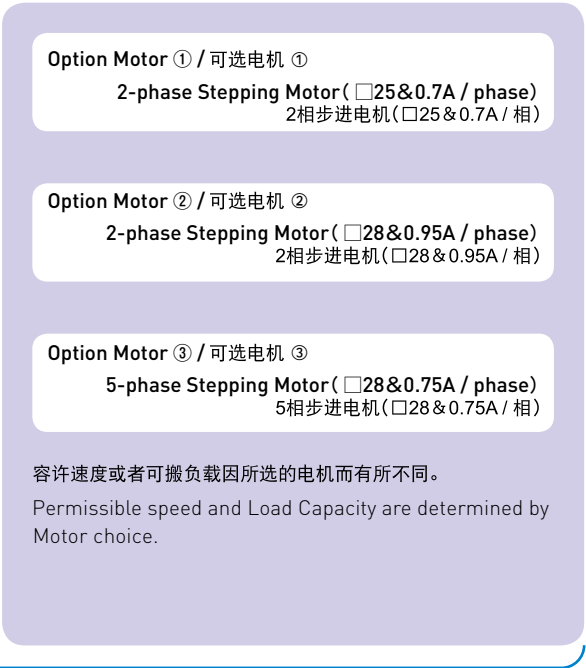


表3 参照
Refer to Table 3

决定组合后,详细尺寸请参照各自的页面。
刊登页面一览请参照表2。
The detail specifications for each combination are shown in dimension Table. Page index is shown in Table below.

表2 : 各组合的刊登页面一览

Table 2 : Page index for each combination

Motor / 电机		Resin Lead Screw 树脂螺母滑动丝杠	Rolled Ball Screw 冷轧滚珠丝杠	Precision Ball Screw 精密滚珠丝杠
Standard 标准	Motor : None 无	See page 7~8 参照7~8页	See page 9~10 参照9~10页	See page 11~12 参照11~12页
Option 选项	M Minebea Motor / 美蓓亚电机制造 2-phase Stepping Motor (□25&0.7A / phase) 2相步进电机(□25&0.7A / 相)	See page 13~14 参照13~14页	See page 15~16 参照15~16页	See page 17~18 参照17~18页
	T TAMAGAWA SEIKI / 多摩川精机制造 2-phase Stepping Motor (□28&0.95A / phase) 2相步进电机(□28&0.95A / 相)	See page 19~20 参照19~20页	See page 21~22 参照21~22页	See page 23~24 参照23~24页
	E Oriental Motor / 东方马达制造 5-phase Stepping Motor (□28&0.75A / phase) 5相步进电机(□28&0.75A / 相)	See page 25~26 参照25~26页	See page 27~28 参照27~28页	See page 29~30 参照29~30页

●选定的标准

KSS灵活可选执行器的进给丝杠的种类、丝杠导程、行程、电机的种类等组合特别丰富。
鉴于此,有时选定合理的组合的流程会变得复杂。为了让客户便于选定执行器,在此刊登了从各种选择方案中选定的标准。

Drive Screw selection guide 选定进给丝杠的标准	Positioning related accuracy 定位相关精度	Price 价格
Resin Lead Screws 树脂螺母滑动丝杠	Low 低	Less expensive 低价
Rolled Ball Screws 冷轧滚珠丝杠	Middle 中	Reasonable 一般
Precision Ball Screws 精密滚珠丝杠	High 高	Costly 高价

Screw Lead selection guide 选定导程的标准	Speed 进给速度	Resolution 分辨力	Load Capacity 可搬负载
1mm	Slow 慢	High 高	High 高
2mm			
6mm			
9mm or 10mm	Fast 快	Low 低	Low 低

Motor selection guide 选定电机的标准	Fine step 微小进给	Acceleration 加速性	Rotational speed 转速	Price 价格
2-phase □25 2相 □25	Middle 中	Middle 中	Middle 中	Less expensive 低价
2-phase □28 2相 □28	Middle 中	Middle 中	Relatively low speed is available 涵盖相对较低的速度	Reasonable 一般
5-phase □28 5相 □28	Fine 微小	High 高	Low & high speed 涵盖低速和高速	Costly 高价

与KSS执行器相连时的性能。并非是电机单体的性能。详情请参照下一页的规格一览表。
The table above shows the functional comments when the Motor is built in KSS Flex Actuators.
Please note that the table above is not the function of Motor itself. For more detail, please see the table of specifications in next page.

●Selection guide

KSS Flex Actuator has a lot of combinations with Drive screws, Screw Lead, Travel length and Motor as an option.
Therefore, when you try to select the suitable combination, its procedure may be complicated.
KSS shows the selection guide below from the various approach of choices.

表3：规格一览表

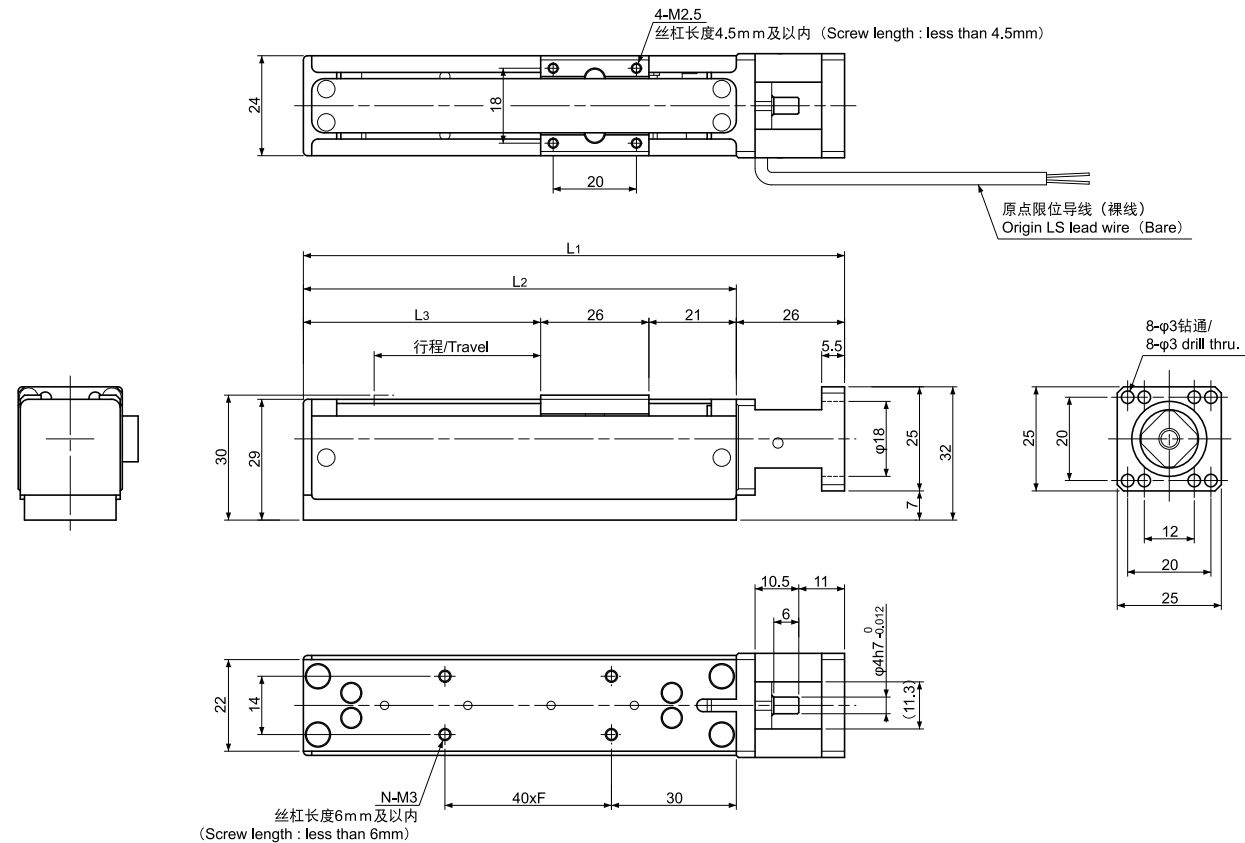
Table 3：Specifications for each combination

Drive Screw type / 驱动丝杠种类			Resin Lead Screw 树脂螺母滑动丝杠			Rolled Ball Screw 冷轧滚珠丝杠				Precision Ball Screw 精密滚珠丝杠			
Repeatability / 反复定位精度(mm)			±0.05 max.			±0.01 max.				±0.005 max.			
Lost motion / 空转(mm)			0.05 max.			0.01 max.				0.005 max.			
Permissible Moment / 容许负荷力矩(Nm) Mp(Pitching / 俯仰)			0.10 ** In case of no load in My & Mr direction **My、Mr方向没有负荷时										
Permissible Moment / 容许负荷力矩(Nm) My(Yawing / 偏转)			0.09 ** In case of no load in Mp & Mr direction **Mp、Mr方向没有负荷时										
Permissible Moment / 容许负荷力矩(Nm) Mr(Rolling / 滚压)			0.23 ** In case of no load in Mp & My direction **Mp、My方向没有负荷时										
Spec. for each Motor / 电机规格一览			Resin Lead Screw 树脂螺母滑动丝杠			Rolled Ball Screw 冷轧滚珠丝杠				Precision Ball Screw 精密滚珠丝杠			
Motor 电机	Lead / 导程(mm)		2	6	9	1	2	6	10	1	2	6	10
	H:Horizontal / 水平 V:Vertical / 垂直												
Standard 标准	Max. Load Capacity(N) 最大可搬负载(N)	H	9.8	9.8	9.8	29.4	29.4	19.6	19.6	29.4	29.4	19.6	19.6
		V	4.9	4.9	4.9	19.6	19.6	9.8	4.9	19.6	19.6	9.8	4.9
Motor-less 无电机	Permissible speed(mm / sec) 容许速度(mm / sec)		0~30	0~90	0~135	0~25	0~50	0~150	0~250	0~25	0~50	0~150	0~250
Motor : M 2-phase / 2相 □25 0.7A / phase	Max. Load Capacity(N) 最大可搬负载(N)	H	9.8	9.8	9.8	29.4	29.4	19.6	19.6	29.4	29.4	19.6	19.6
		V	2.94	2.94	2.94	19.6	19.6	2.94	2.94	19.6	19.6	2.94	2.94
2-phase / 2相 □25 0.7A / phase	Permissible speed(mm / sec) 容许速度(mm / sec)		6~20	18~60	30~90	3~20	6~40	18~120	30~200	3~20	6~40	18~120	30~200
	Max. Load Capacity(N) 最大可搬负载(N)	H	9.8	9.8	9.8	29.4	29.4	19.6	19.6	29.4	29.4	19.6	19.6
V		4.9	4.9	4.9	19.6	19.6	9.8	4.9	19.6	19.6	9.8	4.9	
Motor : T 2-phase / 2相 □28 0.95A / phase	Max. Load Capacity(N) 最大可搬负载(N)	H	9.8	9.8	9.8	29.4	29.4	19.6	19.6	29.4	29.4	19.6	19.6
		V	4.9	4.9	4.9	19.6	19.6	9.8	4.9	19.6	19.6	9.8	4.9
2-phase / 2相 □28 0.95A / phase	Permissible speed(mm / sec) 容许速度(mm / sec)		4~30	12~90	20~135	2~25	4~50	12~150	20~250	2~25	4~50	12~150	20~250
	Max. Load Capacity(N) 最大可搬负载(N)	H	9.8	9.8	9.8	29.4	29.4	19.6	19.6	29.4	29.4	19.6	19.6
V		4.9	4.9	4.9	19.6	19.6	4.9	4.9	19.6	19.6	4.9	4.9	
Motor : E 5-phase / 5相 □28 0.75A / phase	Max. Load Capacity(N) 最大可搬负载(N)	H	9.8	9.8	9.8	29.4	29.4	19.6	19.6	29.4	29.4	19.6	19.6
		V	4.9	4.9	4.9	19.6	19.6	4.9	4.9	19.6	19.6	4.9	4.9
5-phase / 5相 □28 0.75A / phase	Permissible speed(mm / sec) 容许速度(mm / sec)		0~30	0~90	0~135	0~25	0~50	0~150	0~250	0~25	0~50	0~150	0~250
	**Motor mounting is option **带电机为选项。 Travel / 行程 (mm)		20				○				○		
40			○	○	○	○	○	○	○	○	○	○	
80			○	○	○	○	○	○	○	○	○	○	
120				○	○			○	○			○	○
160				○	○			○	○			○	○
200				○	○			○	○			○	○

注1)无电机时反复定位精度、空转为参考值;容许速度、可搬负载为推荐值。
注2)详情请参照尺寸表。
Note 1) In case of Standard (Motor-less), Repeatability & Lost motion are reference value, Permissible speed & Load Capacity are recommended value.
Note 2) For more detail, please refer to dimension table.

Motor-less type (Standard)
Resin Lead Screw type Actuator

无电机型(标准品)
树脂螺母滑动丝杠型执行器



Model Number 执行器型号	Travel 行程 (mm)	Screw Lead 丝杠导程 (mm)	Motor Required Torque 电机所需扭矩 (Nm)	Length 长度尺寸 (mm)			F	N		Max. Load Capacity 最大可搬负载 (N)		Permissible speed 容许速度 (mm / sec)	Mass 质量 (g)
				L ₁	L ₂	L ₃				Hor. 水平	Vert. 垂直		
FAS-Re020-040	40	2	0.008	130	104	57	1	4		9.8	4.9	0 ~ 30	155
FAS-Re060-040		6	0.010							9.8	4.9	0 ~ 90	
FAS-Re090-040		9	0.015							9.8	4.9	0 ~ 135	
FAS-Re020-080	80	2	0.008	170	144	97	2	6		9.8	4.9	0 ~ 30	200
FAS-Re060-080		6	0.010							9.8	4.9	0 ~ 90	
FAS-Re090-080		9	0.015							9.8	4.9	0 ~ 135	
FAS-Re060-120	120	6	0.010	210	184	137	3	8		9.8	4.9	0 ~ 90	240
FAS-Re090-120		9	0.015							9.8	4.9	0 ~ 135	
FAS-Re060-160	160	6	0.010	250	224	177	4	10		9.8	4.9	0 ~ 90	285
FAS-Re090-160		9	0.015							9.8	4.9	0 ~ 135	
FAS-Re060-200	200	6	0.010	290	264	217	5	12		9.8	4.9	0 ~ 90	325
FAS-Re090-200		9	0.015							9.8	4.9	0 ~ 135	

注)树脂螺母滑动丝杠型的润滑规定是滑动丝杠部为Sumitec Liquid H20,导杆部为油脂MSG No.2。

Note) In case of Resin Lead Screw type, Lubrication is Sumitec Liquid H2O on Resin Lead Screw, Grease MSG No.2 on Guide.

注释

- 1)加减速率为推荐值。
- 2)使用时不得出现结露现象。
- 3)容许力矩是其它方向没有负荷时的值。
- 4)扭矩值为参考值。
- 5)无电机时,反复定位精度及空转为参考值。
- 6)无电机时,容许速度及可搬负载为推荐值。
- 7)必要扭矩为最大垂直可搬负载作用时的所需扭矩。
- 8)推荐联轴器
 - 酒井制作所: LAS-12C-4×(3 or 4 or 5)
 - 锅屋BITECH: MWS-12C-4×(4 or 5)
 - 锅屋BITECH: MOS-12C-4×(3 or 4 or 5)
 - MISUMI: CPSCN12-4 ×(4 or 5)

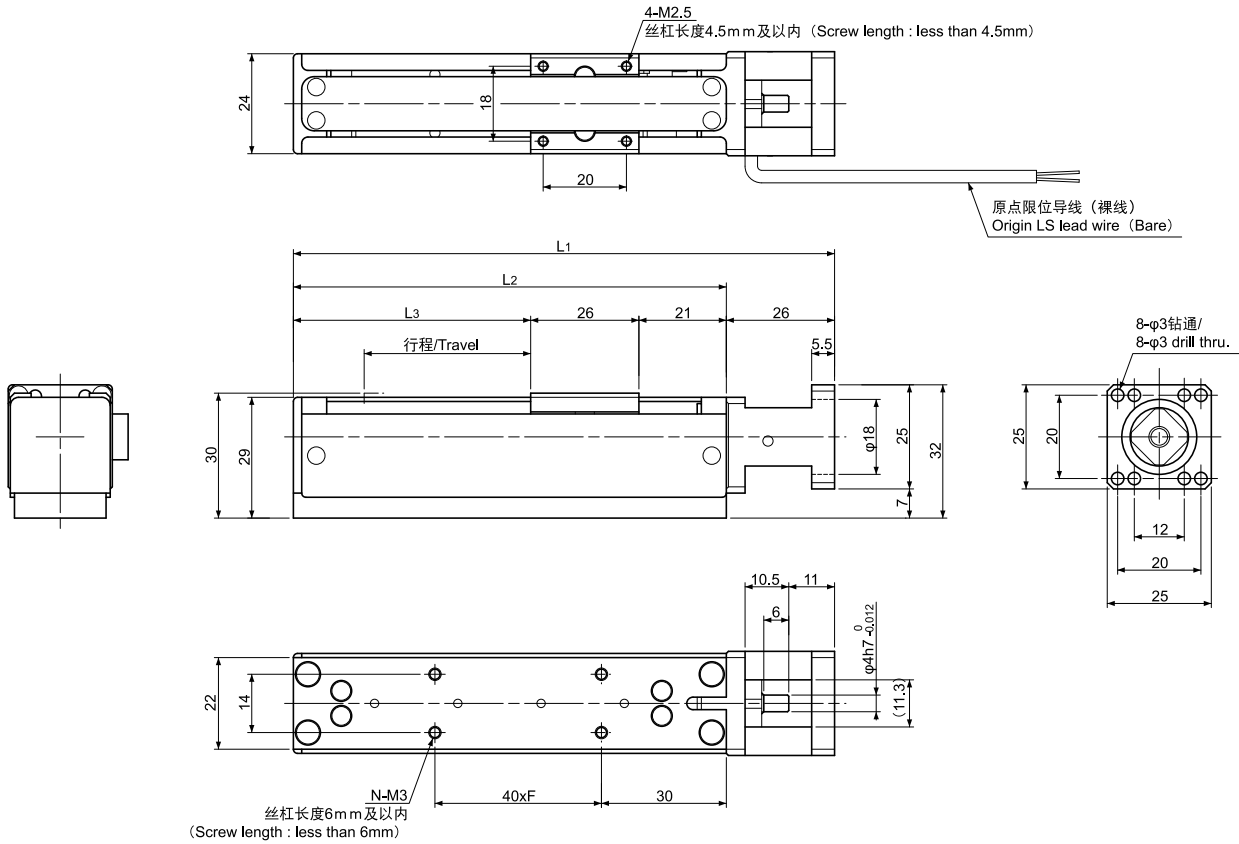
Note

- 1) Acceleration & deceleration rate is our recommendation.
- 2) There should be no condensation when using.
- 3) Permissible Moment is the number when no load in other direction.
- 4) Please consider Torque as reference number.
- 5) In case of Motor-less type, Repeatability & Lost motion are reference number.
- 6) In case of Motor-less type, Permissible speed & Load Capacity are recommended number.
- 7) Required Torque is under maximum vertical Load Capacity.
- 8) Recommended Coupling
 - SAKAI SEISAKUSYO : LAS-12C-4 × (3 or 4 or 5)
 - NBK : MWS-12C-4 × (4 or 5)
 - NBK : MOS-12C-4 × (3 or 4 or 5)
 - MISUMI : CPSCN12-4 × (4 or 5)

Common Specifications 通用规格		
Repeatability 反复定位精度		Max. $\pm 0.05\text{mm}$
Lost Motion 空转		Max. 0.05mm
Body Material 本体材质		Aluminum 铝
Sliding guide 导向结构		Slide Guide rail 滑动导轨(1列)
Sensor 传感器		Limit switch 限位开关
Accuracy of Zero pt. return 原点恢复精度		Max. $\pm 0.05\text{mm}$
Acceleration & Deceleration Rate 加减速率		—
Permissible Moment 容许力矩		
Pitching 俯仰 Mp		0.10Nm
Yawing 偏转 My		0.09Nm
Rolling 滚压 Mr		0.23Nm
Lubrication 润滑		
		See Note 参照注释
Operating Temp. 使用温度范围		$0 \sim 40^{\circ}\text{C}$

Motor-less type(Standard)
Rolled Ball Screw type Actuator

无电机型(标准品)
冷轧滚珠丝杠型执行器



- 注释
- 1)加减速率为推荐值。
 - 2)使用时不得出现结露现象。
 - 3)容许力矩是其它方向没有负荷时的值。
 - 4)扭矩值为参考值。
 - 5)无电机时,反复定位精度及空转为参考值。
 - 6)无电机时,容许速度及可搬负载为推荐值。
 - 7)必要扭矩为最大垂直可搬负载作用时的所需扭矩。
 - 8)推荐联轴器
 - 酒井制作所 : LAS-12C-4×(3 or 4 or 5)
 - 锅屋BITECH : MWS-12C-4×(4 or 5)
 - 锅屋BITECH : MOS-12C-4×(3 or 4 or 5)
 - MISUMI : CPSCN12-4 ×(4 or 5)

- Note
- 1)Acceleration & deceleration rate is our recommendation.
 - 2)There should be no condensation when using.
 - 3)Permissible Moment is the number when no load in other direction.
 - 4)Please consider Torque as reference number.
 - 5)In case of Motor-less type, Repeatability & Lost motion are reference number.
 - 6)In case of Motor-less type, Permissible speed & Load Capacity are recommended number.
 - 7)Required Torque is under maximum vertical Load Capacity.
 - 8)Recommended Coupling
 - SAKAI SEISAKUSYO : LAS-12C-4×(3 or 4 or 5)
 - NBK : MWS-12C-4×(4 or 5)
 - NBK : MOS-12C-4×(3 or 4 or 5)
 - MISUMI : CPSCN12-4 ×(4 or 5)

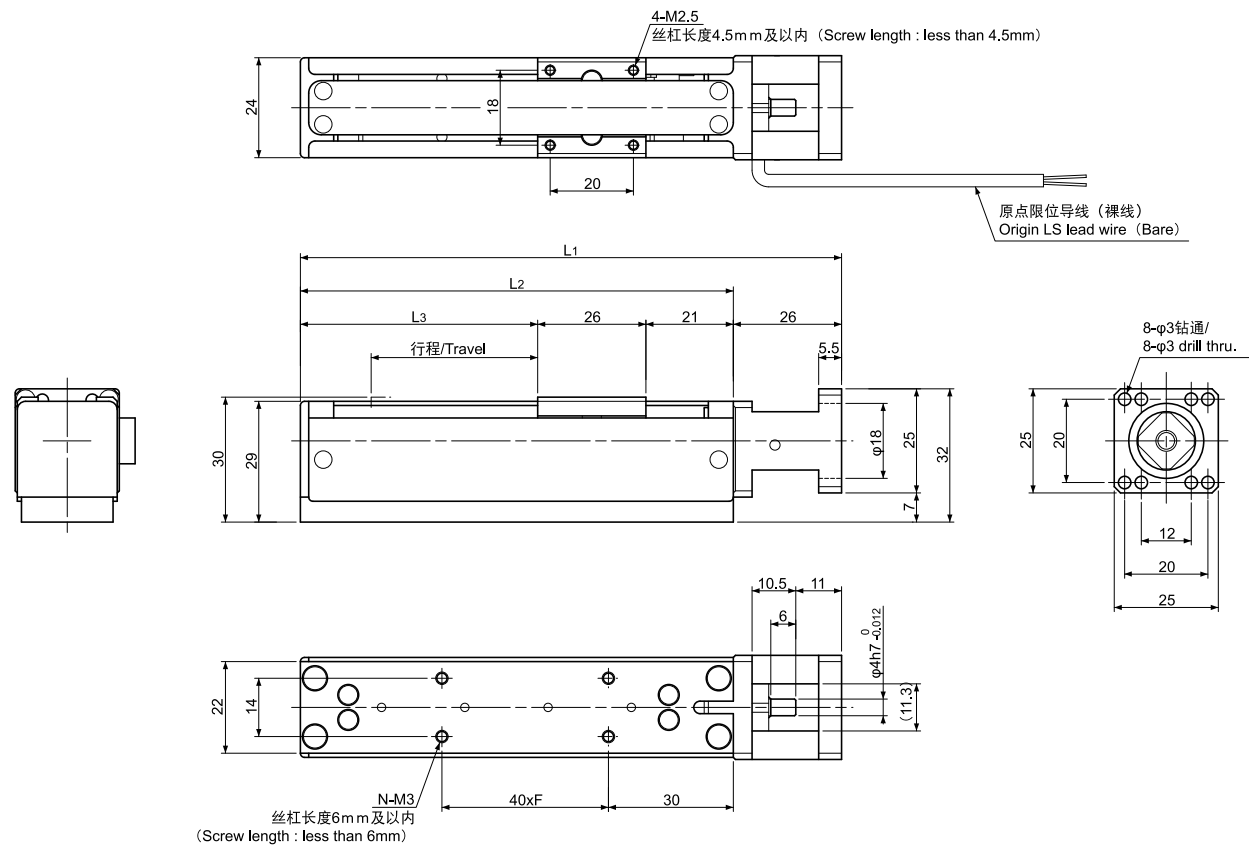
Model Number 执行器型号	Travel 行程 (mm)	Screw Lead 丝杠导程 (mm)	Motor Required Torque 电机所需扭矩 (Nm)	Length 长度尺寸 (mm)					Max. Load Capacity 最大可搬负载 (N)		Permissible speed 容许速度 (mm / sec)	Mass 质量 (g)
				L ₁	L ₂	L ₃	F	N	Hor. 水平	Vert. 垂直		
FAS-R010-020	20	1	0.009	110	84	37	1	4	29.4	19.6	0 ~ 25	160
FAS-R010-040	40	1	0.009	130	104	57	1	4	29.4	19.6	0 ~ 25	180
FAS-R020-040		2	0.011						29.4	19.6	0 ~ 50	
FAS-R060-040		6	0.017						19.6	9.8	0 ~ 150	
FAS-R100-040	80	10	0.015	170	144	97	2	6	19.6	4.9	0 ~ 250	225
FAS-R010-080		1	0.009						29.4	19.6	0 ~ 25	
FAS-R020-080		2	0.011						29.4	19.6	0 ~ 50	
FAS-R060-080		6	0.017						19.6	9.8	0 ~ 150	
FAS-R100-080	120	10	0.015	210	184	137	3	8	19.6	4.9	0 ~ 250	265
FAS-R060-120		6	0.017						19.6	9.8	0 ~ 150	
FAS-R100-120	160	10	0.015	250	224	177	4	10	19.6	4.9	0 ~ 250	310
FAS-R060-160		6	0.017						19.6	9.8	0 ~ 150	
FAS-R100-160	200	10	0.015	290	264	217	5	12	19.6	4.9	0 ~ 250	350
FAS-R060-200		6	0.017						19.6	9.8	0 ~ 150	
FAS-R100-200		10	0.015						19.6	4.9	0 ~ 250	

Common Specifications 通用规格	
Repeatability 反复定位精度	Max. ±0.01mm
Lost Motion 空转	Max. 0.01mm
Body Material 本体材质	Aluminum 铝
Sliding guide 导向结构	Slide Guide rail 滑动导轨(1列)
Sensor 传感器	Limit switch 限位开关
Accuracy of Zero pt. return 原点恢复精度	Max. ±0.01mm
Acceleration & Deceleration Rate 加减速率	—
Permissible Moment 容许力矩	
Pitching 俯仰 Mp	0.10Nm
Yawing 偏转 My	0.09Nm
Rolling 滚压 Mr	0.23Nm
Lubrication 润滑	Grease 油脂 MSG No.2(KSS)
Operating Temp. 使用温度范围	0 ~ 40℃

Flex Actuator 灵活可选执行器

Motor-less type(Standard)
Precision Ball Screw type Actuator

无电机型(标准品)
精密滚珠丝杠型执行器



- 注释
- 1)加减速率为推荐值。
 - 2)使用时不得出现结露现象。
 - 3)容许力矩是其它方向没有负荷时的值。
 - 4)扭矩值为参考值。
 - 5)无电机时,反复定位精度及空转为参考值。
 - 6)无电机时,容许速度及可搬负载为推荐值。
 - 7)必要扭矩为最大垂直可搬负载作用时的所需扭矩。
 - 8)推荐联轴器
 - 酒井制作所 : LAS-12C-4×(3 or 4 or 5)
 - 锅屋BITECH : MWS-12C-4×(4 or 5)
 - 锅屋BITECH : MOS-12C-4×(3 or 4 or 5)
 - MISUMI : CPSCN12-4 ×(4 or 5)

- Note
- 1)Acceleration & deceleration rate is our recommendation.
 - 2)There should be no condensation when using.
 - 3)Permissible Moment is the number when no load in other direction.
 - 4)Please consider Torque as reference number.
 - 5)In case of Motor-less type, Repeatability & Lost motion are reference number.
 - 6)In case of Motor-less type, Permissible speed & Load Capacity are recommended number.
 - 7)Required Torque is under maximum vertical Load Capacity.
 - 8)Recommended Coupling
 - SAKAI SEISAKUSYO : LAS-12C-4× (3 or 4 or 5)
 - NBK : MWS-12C-4× (4 or 5)
 - NBK : MOS-12C-4× (3 or 4 or 5)
 - MISUMI : CPSCN12-4 × (4 or 5)

Model Number 执行器型号	Travel 行程 (mm)	Screw Lead 丝杠导程 (mm)	Motor Required Torque 电机所需扭矩 (Nm)	Length 长度尺寸 (mm)					Max. Load Capacity 最大可搬负载 (N)		Permissible speed 容许速度 (mm / sec)	Mass 质量 (g)
				L ₁	L ₂	L ₃	F	N	Hor. 水平	Vert. 垂直		
FAS-G010-020	20	1	0.009	110	84	37	1	4	29.4	19.6	0 ~ 25	160
FAS-G010-040	40	1	0.009	130	104	57	1	4	29.4	19.6	0 ~ 25	180
FAS-G020-040		2	0.011						29.4	19.6	0 ~ 50	
FAS-G060-040		6	0.017						19.6	9.8	0 ~ 150	
FAS-G100-040	80	10	0.015	170	144	97	2	6	19.6	4.9	0 ~ 250	225
FAS-G010-080		1	0.009						29.4	19.6	0 ~ 25	
FAS-G020-080		2	0.011						29.4	19.6	0 ~ 50	
FAS-G060-080		6	0.017						19.6	9.8	0 ~ 150	
FAS-G100-080	120	10	0.015	210	184	137	3	8	19.6	4.9	0 ~ 250	265
FAS-G060-120		6	0.017						19.6	9.8	0 ~ 150	
FAS-G100-120		10	0.015						19.6	4.9	0 ~ 250	
FAS-G060-160	160	6	0.017	250	224	177	4	10	19.6	9.8	0 ~ 150	310
FAS-G100-160		10	0.015						19.6	4.9	0 ~ 250	
FAS-G060-200	200	6	0.017	290	264	217	5	12	19.6	9.8	0 ~ 150	350
FAS-G100-200		10	0.015						19.6	4.9	0 ~ 250	

Common Specifications 通用规格	
Repeatability 反复定位精度	Max. ±0.005mm
Lost Motion 空转	Max. 0.005mm
Body Material 本体材质	Aluminum 铝
Sliding guide 导向结构	Slide Guide rail 滑动导轨(1列)
Sensor 传感器	Limit switch 限位开关
Accuracy of Zero pt. return 原点恢复精度	Max. ±0.01mm
Acceleration & Deceleration Rate 加减速率	—
Permissible Moment 容许力矩	
Pitching 俯仰 Mp	0.10Nm
Yawing 偏转 My	0.09Nm
Rolling 滚压 Mr	0.23Nm
Lubrication 润滑	Grease 油脂 MSG No.2(KSS)
Operating Temp. 使用温度范围	0 ~ 40℃

Flex Actuator 灵活可选执行器

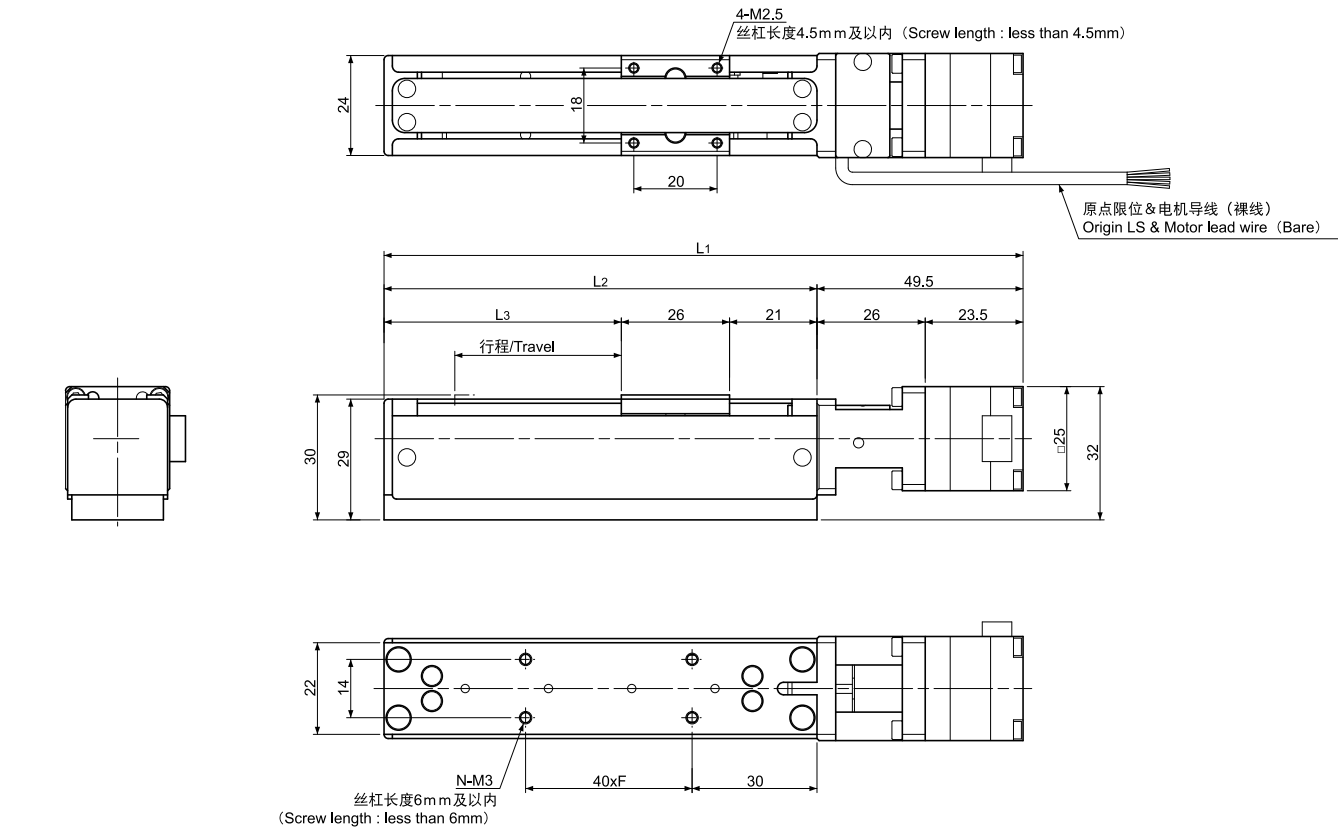
2-phase Stepping Motor(0.7A / phase & □25) with Resin Lead Screw type Actuator

附带2相 步进电机(0.7A / 相 □25)的树脂螺母滑动丝杠型执行器

Motor Model / 电机型号：10PM-K202B(Single shaft / 单轴)

Minebea Motor / 美蓓亚电机

推荐驱动/Driver recommendation：SD4030B



- 连接器选择方案
请从下面指定连接器类型。
没有指示的采用裸线。
- 1)裸线
2)广濑RP17-13J-12SC
3)EI连接器(AMP制造)
6芯(172211-6、电机)+4芯(172211-4、传感器)
- Connector choice
Please designate connector type below.
No connector if there is no designation.
- 1)None(Bare)
2)RP17-13J-12SC(HIROSE)
3)EI-Connector(AMP：172211-6 pins for Motor + 172211-4 pins for Sensor)

HIROSE RP17 Connector 广濑RP17连接器规格		EI Connector EI连接器规格	
1	None 无	1	None 无
2	None 无	2	None 无
3	Stepping Motor A(Red/红色)	3	Stepping Motor A(Red/红色)
4	Stepping Motor A(Yellow/黄色)	4	Stepping Motor A(Yellow/黄色)
5	Stepping Motor B(Blue/蓝色)	5	Stepping Motor B(Blue/蓝色)
6	Stepping Motor B(Orange/橙色)	6	Stepping Motor B(Orange/橙色)
7	None 无		
8	GND(Black/黑色)	1	None 无
9	Short circuit with No.8 与8号短路	2	GND(Black/黑色)
10	ORGLS Sensor/传感器NC(White/白色)	3	Short circuit with No.2 与2号短路
11	None 无	4	ORGLS Sensor/传感器 NC(White/白色)
12	None 无		

- 注释
- 1)加减速率为推荐值。
2)使用时不得出现结露现象。
3)容许力矩是其它方向没有负荷时的值。
4)分辨力为整步时的值。
5)导线为裸线及右出时的型号。
6)低速时,原点恢复的过程中可能振动有些偏大。

- Note
- 1)Acceleration & deceleration rate is our recommendation.
2)There should be no condensation when using.
3)Permissible Moment is the number when no load in other direction.
4)Resolution represents the values for full step.
5)Model number is for no-connector and lead wire is set on right side on Motor.
6)Vibration may increase at low speed or zero return.

Model Number 执行器型号	Travel 行程 (mm)	Screw Lead 丝杠导程 (mm)	Resolution 分辨率 (μm)	Length 长度尺寸 (mm)					Max. Load Capacity 最大可搬负载 (N)		Permissible speed 容许速度 (mm / sec)	Mass 质量 (g)
				L ₁	L ₂	L ₃	F	N	Hor. 水平	Vert. 垂直		
FAS-Re020-040MNR	40	2	10	153.5	104	57	1	4	9.8	2.94	6 ~ 20	205
FAS-Re060-040MNR		6	30								18 ~ 60	
FAS-Re090-040MNR		9	45								30 ~ 90	
FAS-Re020-080MNR	80	2	10	193.5	144	97	2	6	9.8	2.94	6 ~ 20	250
FAS-Re060-080MNR		6	30								18 ~ 60	
FAS-Re090-080MNR		9	45								30 ~ 90	
FAS-Re060-120MNR	120	6	30	233.5	184	137	3	8	9.8	2.94	18 ~ 60	290
FAS-Re090-120MNR		9	45								30 ~ 90	
FAS-Re060-160MNR	160	6	30	273.5	224	177	4	10	9.8	2.94	18 ~ 60	335
FAS-Re090-160MNR		9	45								30 ~ 90	
FAS-Re060-200MNR	200	6	30	313.5	264	217	5	12	9.8	2.94	18 ~ 60	375
FAS-Re090-200MNR		9	45								30 ~ 90	

注)树脂螺母滑动丝杠型的润滑规定是滑动丝杠部为Sumitec Liquid H20, 导杆部为油脂MSG No.2。
Note)In case of Resin Lead Screw type, Lubrication is Sumitec Liquid H20 on Resin Lead Screw, Grease MSG No.2 on Guide.

Common Specifications 通用规格	
Repeatability 反复定位精度	Max. ±0.05mm
Lost Motion 空转	Max. 0.05mm
Body Material 本体材质	Aluminum 铝
Sliding guide 导向结构	Slide Guide rail 滑动导轨(1列)
Sensor 传感器	Limit switch 限位开关
Accuracy of Zero pt. return 原点恢复精度	Max. ±0.05mm
Acceleration & Deceleration Rate 加减速率	100ms / kHz 及以上 Min. 100ms / kHz
Permissible Moment 容许力矩	
Pitching 俯仰 Mp	0.10Nm
Yawing 偏转 My	0.09Nm
Rolling 滚压 Mr	0.23Nm
Lubrication 润滑	See Note 参照注释
Operating Temp. 使用温度范围	0 ~ 40℃

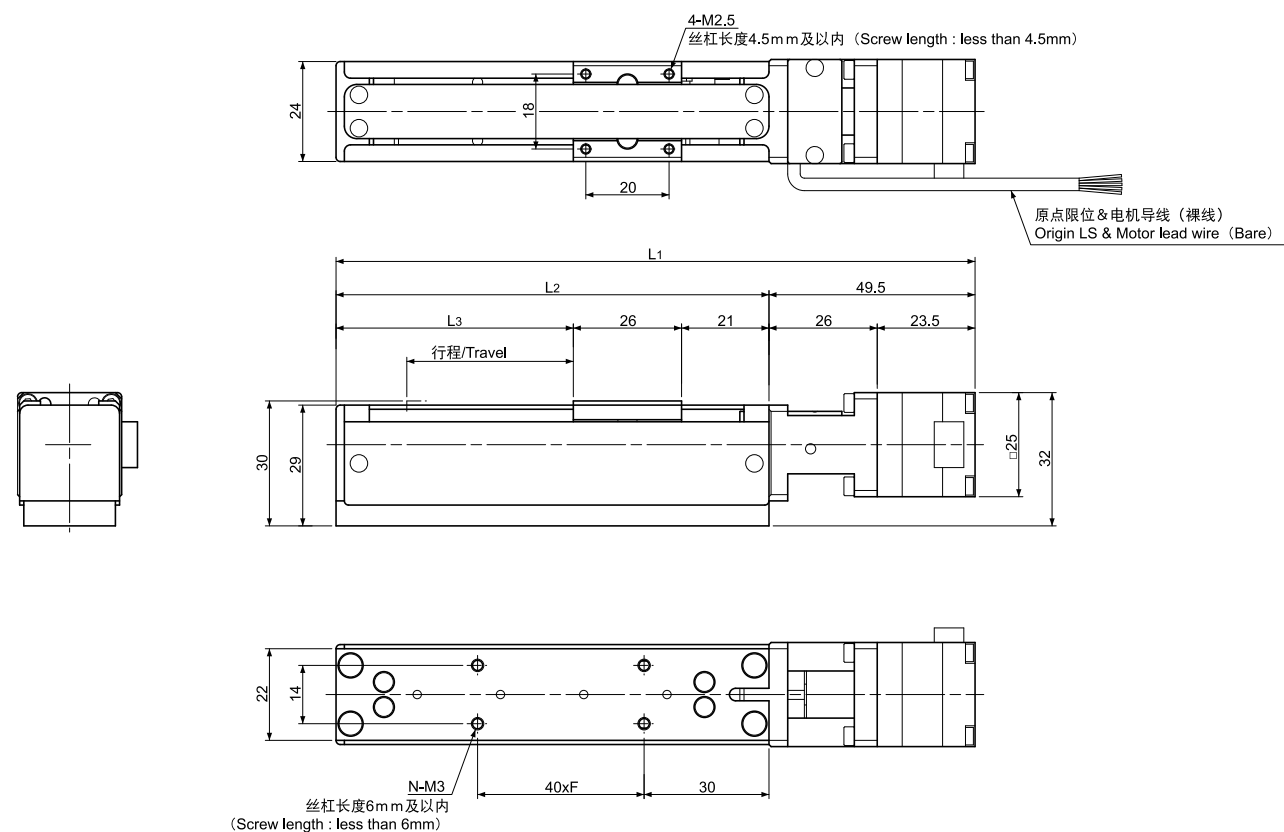
2-phase Stepping Motor (0.7A / phase & □25) with Rolled Ball Screw type Actuator

附帶2相 步进电机(0.7A/相 □25)的
冷轧滚珠丝杠型执行器

Motor Model / 电机型号: 10PM-K202B(Single shaft / 单轴)

Minebea Motor / 美蓓亚电机

推荐驱动/Driver recommendation : SD4030B



连接器选择方案

请从下面指定连接器类型。

没有指示的采用裸线。

- 1)裸线
- 2)广瀚RP17-13J-12SC
- 3)EI连接器(AMP制造)
6芯(172211-6、电机)+4芯(172211-4、传感器)

Connector choice

Please designate connector type below.

No connector if there is no designation.

- 1)None(Bare)
- 2)RP17-13J-12SC(HIROSE)
- 3)EI-Connector(AMP : 172211-6 pins for Motor +
172211-4 pins for Sensor)

HIROSE RP17 Connector
广濑RP17连接器规格

1	None 无
2	None 无
3	Stepping Motor A(Red/红色)
4	Stepping Motor A(Yellow/黄色)
5	Stepping Motor B(Blue/蓝色)
6	Stepping Motor B(Orange/橙色)
7	None 无
8	GND(Black/黑色)
9	Short circuit with No.8 与8号短路
10	ORGLS Sensor/传感器NC(White/白色)
11	None 无
12	None 无

El Connector EI连接器规格

1	None 无
2	None 无
3	Stepping Motor A(Red/红色)
4	Stepping Motor A(Yellow/黄色)
5	Stepping Motor B(Blue/蓝色)
6	Stepping Motor B(Orange/橙色)

1	None 无
2	GND(Black/黑色)
3	Short circuit with No.2 与2号短路
4	ORGLS Sensor/传感器 NC(White/白色)

Note

- 1) Acceleration & deceleration rate is our recommendation.
- 2) There should be no condensation when using.
- 3) Permissible Moment is the number when no load in other direction.
- 4) Resolution represents the values for full step.
- 5) Model number is for no-connector and lead wire is set on right side on Motor.
- 6) Vibration may increase at low speed or zero return.

注释

- 1) 加减速率为推荐值。
- 2) 使用时不得出现结露现象。
- 3) 容许力矩是其它方向没有负荷时的值。
- 4) 分辨力为整步时的值。
- 5) 导线为裸线及右出时的型号。
- 6) 低速时, 原点恢复的过程中可能振动有些偏大。

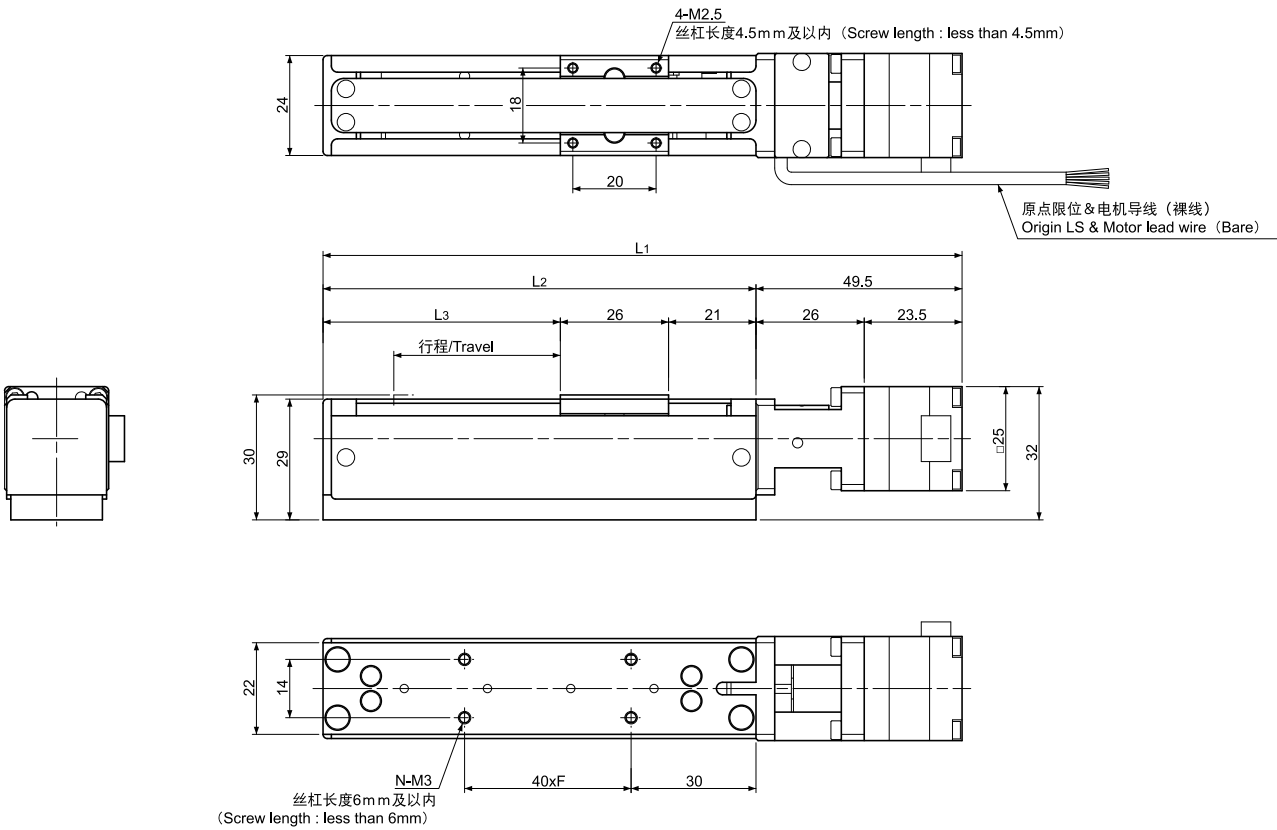
Model Number 执行器型号	Travel 行程 (mm)	Screw Lead 丝杠导程 (mm)	Resolution 分辨率 (μm)	Length 长度尺寸 (mm)						Max. Load Capacity 最大可搬负载 (N)		Permissible speed 容许速度 (mm / sec)	Mass 质量 (g)
				L ₁	L ₂	L ₃	F	N		Hor. 水平	Vert. 垂直		
FAS-R010-020MNR	20	1	5	133.5	84	37	1	4		29.4	19.6	3 ~ 20	210
FAS-R010-040MNR	40	1	5	153.5	104	57	1	4		29.4	19.6	3 ~ 20	230
FAS-R020-040MNR		2	10							29.4	19.6	6 ~ 40	
FAS-R060-040MNR		6	30							19.6	2.94	18 ~ 120	
FAS-R100-040MNR		10	50							19.6	2.94	30 ~ 200	
FAS-R010-080MNR	80	1	5	193.5	144	97	2	6		29.4	19.6	3 ~ 20	275
FAS-R020-080MNR		2	10							29.4	19.6	6 ~ 40	
FAS-R060-080MNR		6	30							19.6	2.94	18 ~ 120	
FAS-R100-080MNR		10	50							19.6	2.94	30 ~ 200	
FAS-R060-120MNR	120	6	30	233.5	184	137	3	8		19.6	2.94	18 ~ 120	315
FAS-R100-120MNR		10	50							19.6	2.94	30 ~ 200	
FAS-R060-160MNR	160	6	30	273.5	224	177	4	10		19.6	2.94	18 ~ 120	360
FAS-R100-160MNR		10	50							19.6	2.94	30 ~ 200	
FAS-R060-200MNR	200	6	30	313.5	264	217	5	12		19.6	2.94	18 ~ 120	400
FAS-R100-200MNR		10	50							19.6	2.94	30 ~ 200	

Common Specifications 通用规格	
Repeatability 反复定位精度	Max. $\pm 0.01\text{mm}$
Lost Motion 空转	Max. 0.01mm
Body Material 本体材质	Aluminum 铝
Sliding guide 导向结构	Slide Guide rail 滑动导轨(1列)
Sensor 传感器	Limit switch 限位开关
Accuracy of Zero pt. return 原点恢复精度	Max. $\pm 0.01\text{mm}$
Acceleration & Deceleration Rate 加减速率	50ms / kHz 及以上 Min. 50ms / kHz
Permissible Moment 容许力矩	
Pitching 俯仰 Mp	0.10Nm
Yawing 偏转 My	0.09Nm
Rolling 滚压 Mr	0.23Nm
Lubrication 润滑	Grease 油脂 MSG No.2(KSS)
Operating Temp. 使用温度范围	0 ~ 40℃

2-phase Stepping Motor(0.7A / phase & □25) with Precision Ball Screw type Actuator

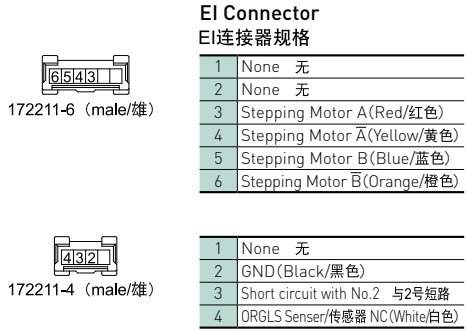
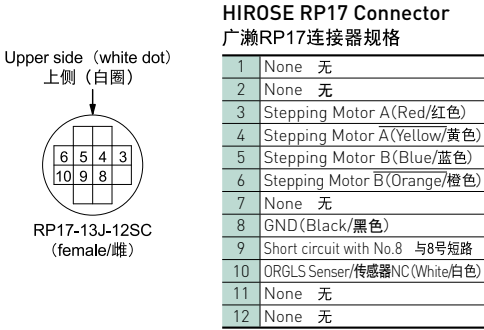
附带2相 步进电机(0.7A / 相 □25)的精密滚珠丝杠型执行器

Motor Model / 电机型号：10PM-K202B(Single shaft / 单轴)
Minebea Motor / 美蓓亚电机
推荐驱动/Driver recommendation：SD4030B



连接器选择方案
请从下面指定连接器类型。
没有指示的采用裸线。
1)裸线
2)广濑RP17-13J-12SC
3)EI连接器(AMP制造)
6芯(172211-6、电机)+4芯(172211-4、传感器)

Connector choice
Please designate connector type below.
No connector if there is no designation.
1)None(Bare)
2)RP17-13J-12SC(HIROSE)
3)EI-Connector(AMP : 172211-6 pins for Motor + 172211-4 pins for Sensor)



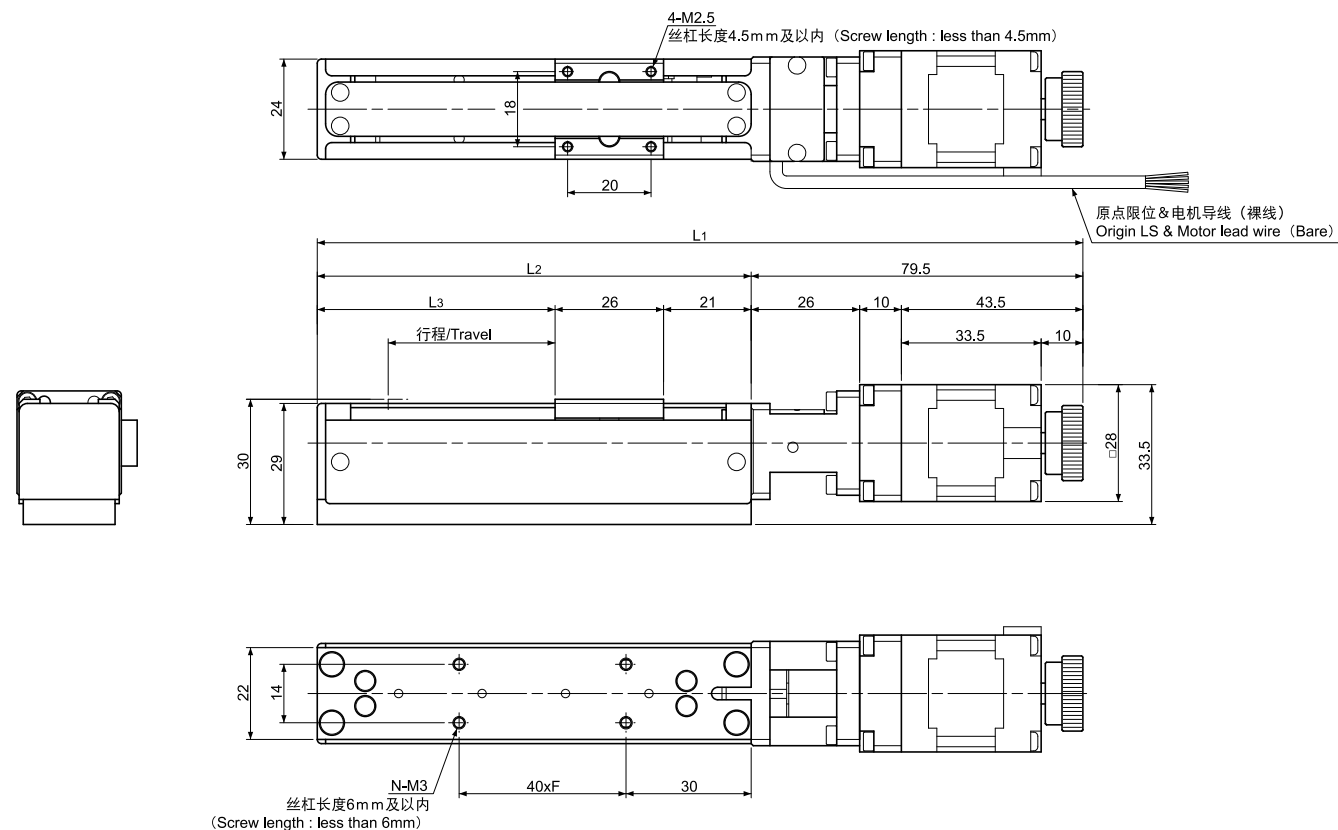
注释
1)加减速率为推荐值。
2)使用时不得出现结露现象。
3)容许力矩是其它方向没有负荷时的值。
4)分辨力为整步时的值。
5)导线为裸线及右出时的型号。
6)低速时,原点恢复的过程中可能振动有些偏大。

Note
1)Acceleration & deceleration rate is our recommendation.
2)There should be no condensation when using.
3)Permissible Moment is the number when no load in other direction.
4)Resolution represents the values for full step.
5)Model number is for no-connector and lead wire is set on right side on Motor.
6)Vibration may increase at low speed or zero return.

Model Number 执行器型号	Travel 行程	Screw Lead 丝杠导程	Resolution 分辨率	Length 长度尺寸 (mm)						Max. Load Capacity 最大可搬负载 (N)		Permissible speed 容许速度	Mass 质量
				L ₁	L ₂	L ₃	F	N			Hor. 水平		
	(mm)	(mm)	(μm)								(mm / sec)	(g)	
FAS-G010-020MNR	20	1	5	133.5	84	37	1	4		29.4	19.6	3 ~ 20	210
FAS-G010-040MNR	40	1	5	153.5	104	57	1	4		29.4	19.6	3 ~ 20	230
FAS-G020-040MNR		2	10							29.4	19.6	6 ~ 40	
FAS-G060-040MNR		6	30							19.6	2.94	18 ~ 120	
FAS-G100-040MNR		10	50							19.6	2.94	30 ~ 200	
FAS-G010-080MNR	80	1	5	193.5	144	97	2	6		29.4	19.6	3 ~ 20	275
FAS-G020-080MNR		2	10							29.4	19.6	6 ~ 40	
FAS-G060-080MNR		6	30							19.6	2.94	18 ~ 120	
FAS-G100-080MNR		10	50							19.6	2.94	30 ~ 200	
FAS-G060-120MNR	120	6	30	233.5	184	137	3	8		19.6	2.94	18 ~ 120	315
FAS-G100-120MNR		10	50							19.6	2.94	30 ~ 200	
FAS-G060-160MNR	160	6	30	273.5	224	177	4	10		19.6	2.94	18 ~ 120	360
FAS-G100-160MNR		10	50							19.6	2.94	30 ~ 200	
FAS-G060-200MNR	200	6	30	313.5	264	217	5	12		19.6	2.94	18 ~ 120	400
FAS-G100-200MNR		10	50							19.6	2.94	30 ~ 200	

Common Specifications 通用规格	
Repeatability 反复定位精度	Max. ±0.005mm
Lost Motion 空转	Max. 0.005 mm
Body Material 本体材质	Aluminum 铝
Sliding guide 导向结构	Slide Guide rail 滑动导轨(1列)
Sensor 传感器	Limit switch 限位开关
Accuracy of Zero pt. return 原点恢复精度	Max. ±0.01mm
Acceleration & Deceleration Rate 加减速率	50ms / kHz 及以上 Min. 50ms / kHz
Permissible Moment 容许力矩	
Pitching 俯仰 Mp	0.10Nm
Yawing 偏转 My	0.09Nm
Rolling 滚压 Mr	0.23Nm
Lubrication 润滑	Grease 油脂 MSG No.2(KSS)
Operating Temp. 使用温度范围	0 ~ 40℃

推荐驱动/Driver recommendation : KS9110



- 1) 加减速率为推荐值。
- 2) 使用时不得出现结露现象
- 3) 容许力矩是其它方向没有负荷时的值。
- 4) 分辨力为整步时的值。
- 5) 导线为裸线及右出时的型号。

- 1) Acceleration & deceleration rate is our recommendation.
- 2) There should be no condensation when using.
- 3) Permissible Moment is the number when no load in other direction.
- 4) Resolution represents the values for full step.
- 5) Model number is for no-connector and lead wire is set on the connector.

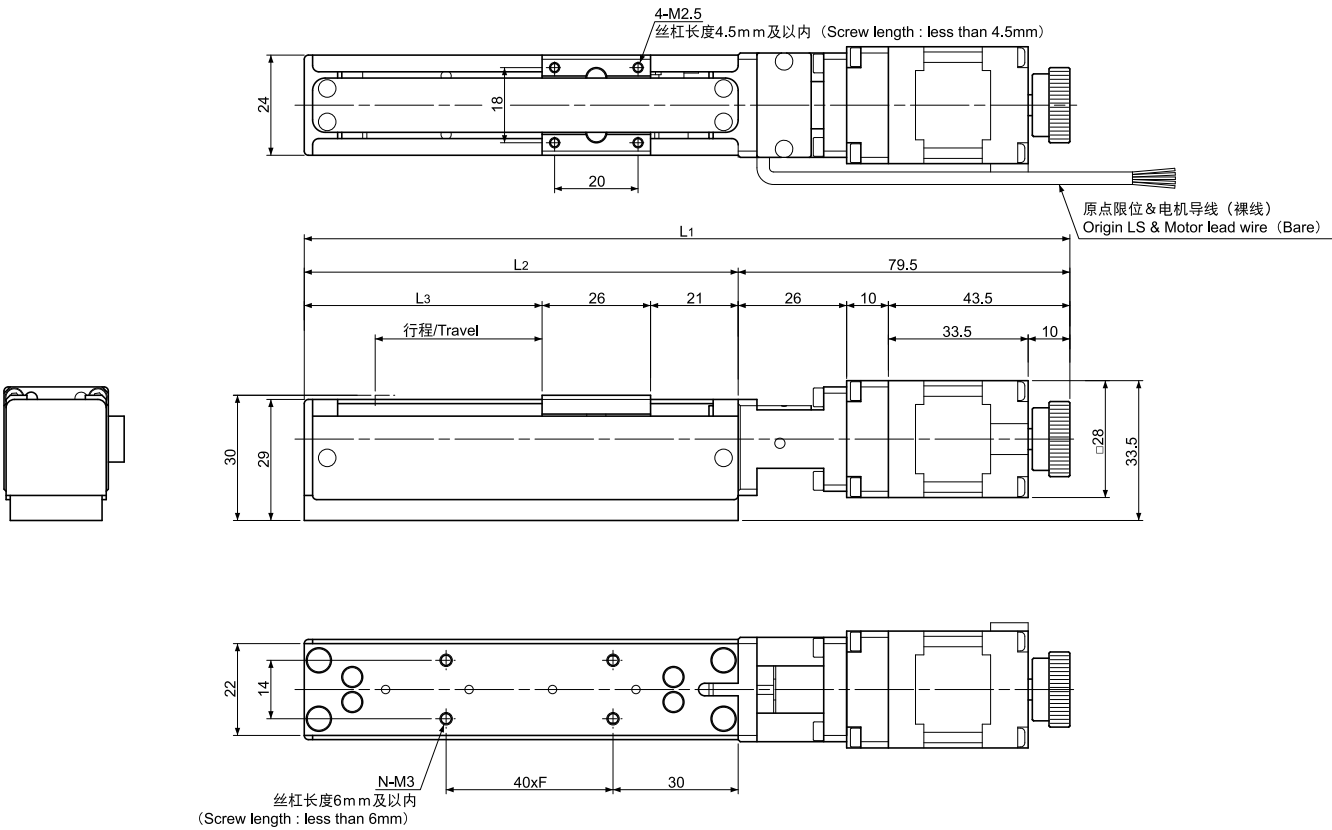
Common Specifications 通用规格		
Repeatability 反复定位精度	Max. ±0.05mm	
Lost Motion 空转	Max. 0.05mm	
Body Material 本体材质 铝	Aluminum 铝	
Sliding guide 导向结构	Slide Guide rail 滑动导轨(1列)	
Sensor 传感器	Limit switch 限位开关	
Accuracy of Zero pt. return 原点恢复精度	Max. ±0.05mm	
Acceleration & Deceleration Rate 加减速率	100ms / kHz 及以上 Min. 100ms / kHz	
Permissible Moment 容许力矩		
Pitching 俯仰 Mp	0.10Nm	
Yawing 偏转 My	0.09Nm	
Rolling 滚压 Mr	0.23Nm	
Lubrication 润滑	See Note 参照注释	
Operating Temp. 使用温度范围	0 ~ 40℃	

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2-phase Stepping Motor(0.95A / phase & □28) with Rolled Ball Screw type Actuator

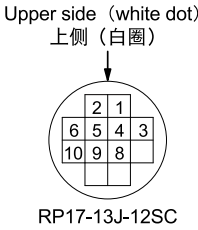
附带2相 步进电机(0.95A / 相 □28)的冷轧滚珠丝杠型执行器

Motor Model / 电机型号：TS3641N11E2(Double shaft / 双轴)
TAMAGAWA SEIKI / 多摩川精机
推荐驱动/Driver recommendation：KS9110



连接器选择方案
请从下面指定连接器类型。
没有指示的采用裸线。

- 1)裸线
 - 2)广濑RP17-13J-12SC
 - 3)EI连接器(AMP制造)
- 6芯(172211-6、电机)+4芯(172211-4、传感器)



HIROSE RP17 Connector 广濑RP 17连接器规格	
1	Stepping Motor COM1 (Yellow/黄色)
2	Stepping Motor COM2 (White/白色)
3	Stepping Motor A(Black/黑色)
4	Stepping Motor A(Green/绿色)
5	Stepping Motor B(Red/红色)
6	Stepping Motor B(Blue/蓝色)
7	None 无
8	GND(Black/黑色)
9	Short circuit with No.8 与8号短路
10	ORGLS Sensor/传感器NC(White/白色)
11	None 无
12	None 无

Connector choice
Please designate connector type below.
No connector if there is no designation.

- 1)None(Bare)
- 2)RP17-13J-12SC(HIROSE)
- 3)EI-Connector(AMP：172211-6 pins for Motor + 172211-4 pins for Sensor)

EI Connector EI连接器规格	
1	Stepping Motor COM1 (Yellow/黄色)
2	Stepping Motor COM2 (White/白色)
3	Stepping Motor A(Black/黑色)
4	Stepping Motor A(Green/绿色)
5	Stepping Motor B(Red/红色)
6	Stepping Motor B(Blue/蓝色)
7	None 无
8	GND(Black/黑色)
9	Short circuit with No.2 与2号短路
10	ORGLS Sensor/传感器NC(White/白色)
11	None 无
12	None 无

- 注释
- 1)加减速率为推荐值。
 - 2)使用时不得出现结露现象。
 - 3)容许力矩是其它方向没有负荷时的值。
 - 4)分辨力为整步时的值。
 - 5)导线为裸线及右出时的型号。

- Note
- 1)Acceleration & deceleration rate is our recommendation.
 - 2)There should be no condensation when using.
 - 3)Permissible Moment is the number when no load in other direction.
 - 4)Resolution represents the values for full step.
 - 5)Model number is for no-connector and lead wire is set on right side on Motor

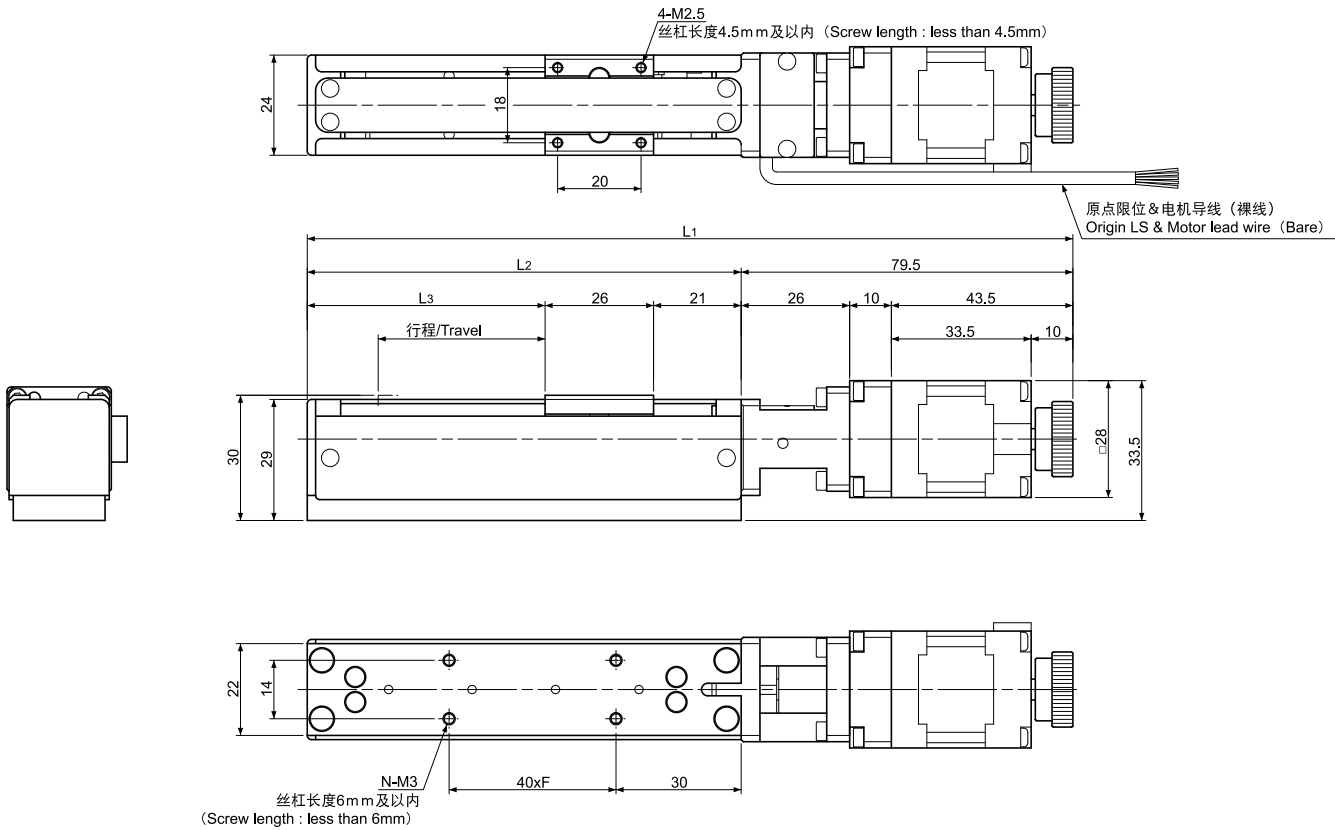
Model Number 执行器型号	Travel 行程	Screw Lead 丝杠导程	Resolution 分辨率	Length 长度尺寸 (mm)					Max. Load Capacity 最大可搬负载 (N)		Permissible speed 容许速度	Mass 质量	
				L ₁	L ₂	L ₃	F	N		Hor. 水平			Vert. 垂直
	(mm)	(mm)	(μm)								(mm / sec)	(g)	
FAS-R010-020TNR	20	1	5	163.5	84	37	1	4		29.4	19.6	2 ~ 25	275
FAS-R010-040TNR	40	1	5	183.5	104	57	1	4		29.4	19.6	2 ~ 25	295
FAS-R020-040TNR		2	10							29.4	19.6	4 ~ 50	
FAS-R060-040TNR		6	30							19.6	9.8	12 ~ 150	
FAS-R100-040TNR		10	50							19.6	4.9	20 ~ 250	
FAS-R010-080TNR	80	1	5	223.5	144	97	2	6		29.4	19.6	2 ~ 25	340
FAS-R020-080TNR		2	10							29.4	19.6	4 ~ 50	
FAS-R060-080TNR		6	30							19.6	9.8	12 ~ 150	
FAS-R100-080TNR		10	50							19.6	4.9	20 ~ 250	
FAS-R060-120TNR	120	6	30	263.5	184	137	3	8		19.6	9.8	12 ~ 150	380
FAS-R100-120TNR		10	50							19.6	4.9	20 ~ 250	
FAS-R060-160TNR	160	6	30	303.5	224	177	4	10		19.6	9.8	12 ~ 150	425
FAS-R100-160TNR		10	50							19.6	4.9	20 ~ 250	
FAS-R060-200TNR	200	6	30	343.5	264	217	5	12		19.6	9.8	12 ~ 150	465
FAS-R100-200TNR		10	50							19.6	4.9	20 ~ 250	

Common Specifications 通用规格	
Repeatability 反复定位精度	Max. ±0.01mm
Lost Motion 空转	Max. 0.01mm
Body Material 本体材质 铝	Aluminum 铝
Sliding guide 导向结构	Slide Guide rail 滑动导轨(1列)
Sensor 传感器	Limit switch 限位开关
Accuracy of Zero pt. return 原点恢复精度	Max. ±0.01mm
Acceleration & Deceleration Rate 加减速率	50ms / kHz 及以上 Min. 50ms / kHz
Permissible Moment 容许力矩	
Pitching 俯仰 Mp	0.10Nm
Yawing 偏转 My	0.09Nm
Rolling 滚压 Mr	0.23Nm
Lubrication 润滑	Grease 油脂 MSG No.2(KSS)
Operating Temp. 使用温度范围	0 ~ 40℃

2-phase Stepping Motor(0.95A / phase & □28) with Precision Ball Screw type Actuator

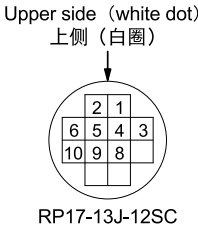
附带2相 步进电机(0.95A / 相 □28)的精密滚珠丝杠型执行器

Motor Model / 电机型号：TS3641N11E2(Double shaft / 双轴)
TAMAGAWA SEIKI / 多摩川精机
推荐驱动/Driver recommendation：KS9110



连接器选择方案
请从下面指定连接器类型。
没有指示的采用裸线。

- 1)裸线
 - 2)广濑RP17-13J-12SC
 - 3)EI连接器(AMP制造)
- 6芯(172211-6、电机)+4芯(172211-4、传感器)



HIROSE RP17 Connector 广濑RP 17连接器规格	
1	Stepping Motor COM1 (Yellow/黄色)
2	Stepping Motor COM2 (White/白色)
3	Stepping Motor A(Black/黑色)
4	Stepping Motor A(Green/绿色)
5	Stepping Motor B(Red/红色)
6	Stepping Motor B(Blue/蓝色)
7	None 无
8	GND(Black/黑色)
9	Short circuit with No.8 与8号短路
10	ORGLS Sensor/传感器NC(White/白色)
11	None 无
12	None 无

Connector choice
Please designate connector type below.
No connector if there is no designation.
1)None(Bare)
2)RP17-13J-12SC(HIROSE)
3)EI-Connector(AMP：172211-6 pins for Motor + 172211-4 pins for Sensor)

EI Connector EI连接器规格	
1	Stepping Motor COM1 (Yellow/黄色)
2	Stepping Motor COM2 (White/白色)
3	Stepping Motor A(Black/黑色)
4	Stepping Motor A(Green/绿色)
5	Stepping Motor B(Red/红色)
6	Stepping Motor B(Blue/蓝色)
1	None 无
2	GND(Black/黑色)
3	Short circuit with No.2 与2号短路
4	ORGLS Sensor/传感器NC(White/白色)

- 注释
- 1)加减速率为推荐值。
 - 2)使用时不得出现结露现象。
 - 3)容许力矩是其它方向没有负荷时的值。
 - 4)分辨力为整步时的值。
 - 5)导线为裸线及右出时的型号。

- Note
- 1)Acceleration & deceleration rate is our recommendation.
 - 2)There should be no condensation when using.
 - 3)Permissible Moment is the number when no load in other direction.
 - 4)Resolution represents the values for full step.
 - 5)Model number is for no-connector and lead wire is set on right side on Motor

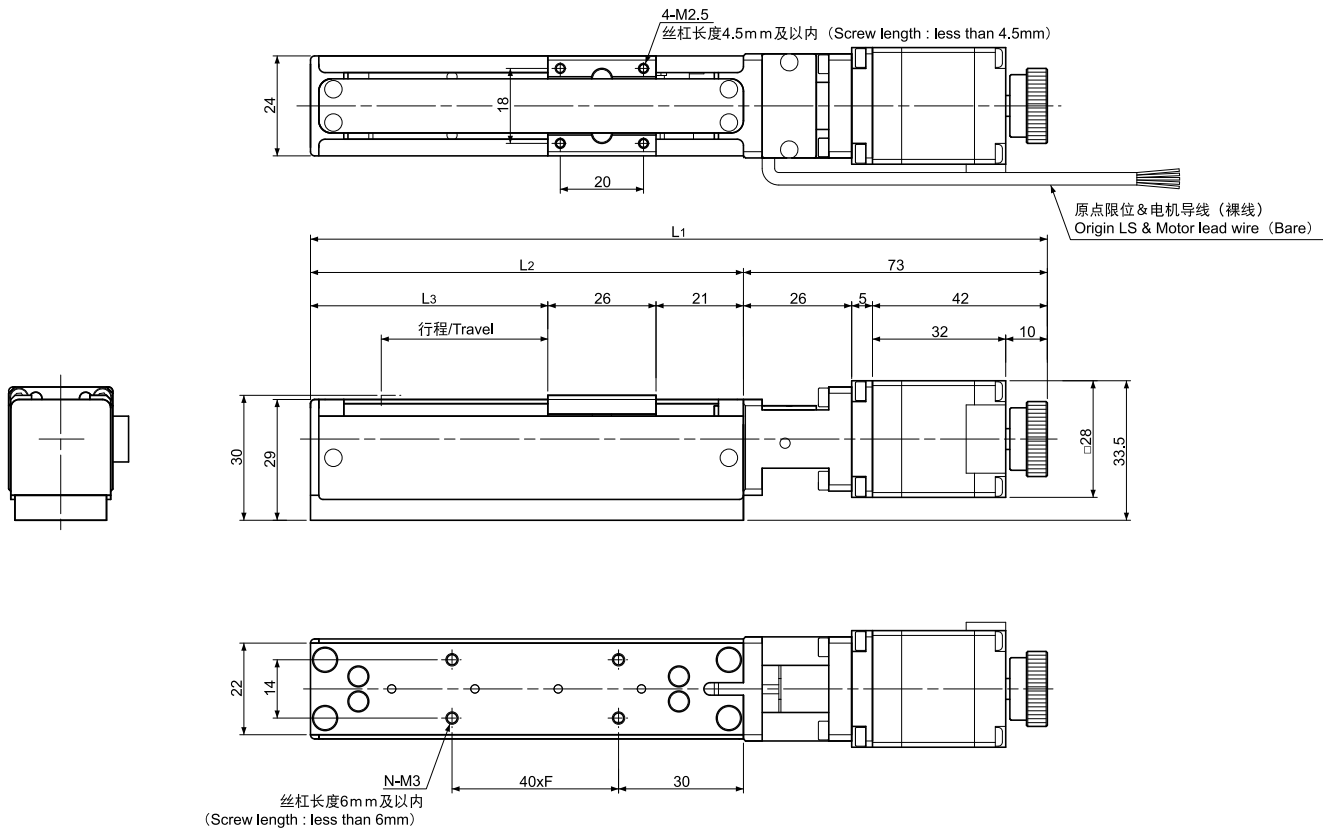
Model Number 执行器型号	Travel 行程	Screw Lead 丝杠导程	Resolution 分辨率	Length 长度尺寸 (mm)						Max. Load Capacity 最大可搬负载 (N)		Permissible speed 容许速度	Mass 质量
				L ₁	L ₂	L ₃	F	N		Hor. 水平	Vert. 垂直		
	(mm)	(mm)	(μm)							(mm / sec)	(g)		
FAS-G010-020TNR	20	1	5	163.5	84	37	1	4		29.4	19.6	2 ~ 25	275
FAS-G010-040TNR	40	1	5	183.5	104	57	1	4		29.4	19.6	2 ~ 25	295
FAS-G020-040TNR		2	10							29.4	19.6	4 ~ 50	
FAS-G060-040TNR		6	30							19.6	9.8	12 ~ 150	
FAS-G100-040TNR		10	50							19.6	4.9	20 ~ 250	
FAS-G010-080TNR	80	1	5	223.5	144	97	2	6		29.4	19.6	2 ~ 25	340
FAS-G020-080TNR		2	10							29.4	19.6	4 ~ 50	
FAS-G060-080TNR		6	30							19.6	9.8	12 ~ 150	
FAS-G100-080TNR		10	50							19.6	4.9	20 ~ 250	
FAS-G060-120TNR	120	6	30	263.5	184	137	3	8		19.6	9.8	12 ~ 150	380
FAS-G100-120TNR		10	50							19.6	4.9	20 ~ 250	
FAS-G060-160TNR	160	6	30	303.5	224	177	4	10		19.6	9.8	12 ~ 150	425
FAS-G100-160TNR		10	50							19.6	4.9	20 ~ 250	
FAS-G060-200TNR	200	6	30	343.5	264	217	5	12		19.6	9.8	12 ~ 150	465
FAS-G100-200TNR		10	50							19.6	4.9	20 ~ 250	

Common Specifications 通用规格	
Repeatability 反复定位精度	Max. ±0.005mm
Lost Motion 空转	Max. 0.005mm
Body Material 本体材质 铝	Aluminum 铝
Sliding guide 导向结构	Slide Guide rail 滑动导轨(1列)
Sensor 传感器	Limit switch 限位开关
Accuracy of Zero pt. return 原点恢复精度	Max. ±0.01mm
Acceleration & Deceleration Rate 加减速率	50ms / kHz 及以上 Min. 50ms / kHz
Permissible Moment 容许力矩	
Pitching 俯仰 Mp	0.10Nm
Yawing 偏转 My	0.09Nm
Rolling 滚压 Mr	0.23Nm
Lubrication 润滑	Grease 油脂 MSG No.2(KSS)
Operating Temp. 使用温度范围	0 ~ 40℃

5-phase Stepping Motor(0.75A / phase & □28) with Resin Lead Screw type Actuator

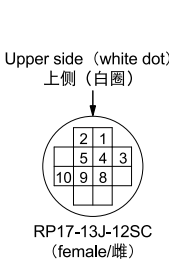
附带5相 步进电机(0.75A / 相 □28)的树脂螺母滑动丝杠型执行器

Motor Model / 电机型号: PK523HPB(Double shaft / 双轴)
Oriental Motor / 东方马达
推荐驱动/Driver recommendation : KR-A55MC KR-A5CC



连接器选择方案
请从下面指定连接器类型。
没有指示的采用裸线。
1)裸线
2)广濑RP17-13J-12SC
3)EI连接器(AMP制造)
6芯(172211-6、电机)+4芯(172211-4、传感器)

Connector choice
Please designate connector type below.
No connector if there is no designation.
1)None(Bare)
2)RP17-13J-12SC(HIROSE)
3)EI-Connector(AMP : 172211-6 pins for Motor + 172211-4 pins for Sensor)



HIROSE RP17 Connector
广濑RP17连接器规格

1	Stepping Motor(Blue/蓝色)
2	Stepping Motor(Red/红色)
3	Stepping Motor(Orange/橙色)
4	Stepping Motor(Green/绿色)
5	Stepping Motor(Black/黑色)
6	None 无
7	None 无
8	GND(Black/黑色)
9	Short circuit with No.8 与8号短路
10	ORGLS Sensor/传感器 NC(White/白色)
11	None 无
12	None 无

EI Connector
EI连接器规格

1	Stepping Motor(Blue/蓝色)
2	Stepping Motor(Red/红色)
3	Stepping Motor(Orange/橙色)
4	Stepping Motor(Green/绿色)
5	Stepping Motor(Black/黑色)
6	None 无

1	None 无
2	GND(Black/黑色)
3	Short circuit with No.2 与2号短路
4	ORGLS Sensor/传感器 NC(White/白色)

注释
1)加减速率为推荐值。
2)使用时不得出现结露现象。
3)容许力矩是其它方向没有负荷时的值。
4)分辨力为整步时的值。
5)导线为裸线及右出时的型号。

Note
1)Acceleration & deceleration rate is our recommendation.
2)There should be no condensation when using.
3)Permissible Moment is the number when no load in other direction.
4)Resolution represents the values for full step.
5)Model number is for no-connector and lead wire is set on right side on Motor

Model Number 执行器型号	Travel 行程 (mm)	Screw Lead 丝杠导程 (mm)	Resolution 分辨率 (μm)	Length 长度尺寸 (mm)						Max. Load Capacity 最大可搬负载 (N)		Permissible speed 容许速度 (mm / sec)	Mass 质量 (g)
				L ₁	L ₂	L ₃	F	N			Hor. 水平		
FAS-Re020-040ENR	40	2	4	177	104	57	1	4		9.8	4.9	0 ~ 30	260
FAS-Re060-040ENR		6	12							9.8	4.9	0 ~ 90	
FAS-Re090-040ENR		9	18							9.8	4.9	0 ~ 135	
FAS-Re020-080ENR	80	2	4	217	144	97	2	6		9.8	4.9	0 ~ 30	305
FAS-Re060-080ENR		6	12							9.8	4.9	0 ~ 90	
FAS-Re090-080ENR		9	18							9.8	4.9	0 ~ 135	
FAS-Re060-120ENR	120	6	12	257	184	137	3	8		9.8	4.9	0 ~ 90	345
FAS-Re090-120ENR		9	18							9.8	4.9	0 ~ 135	
FAS-Re060-160ENR	160	6	12	297	224	177	4	10		9.8	4.9	0 ~ 90	390
FAS-Re090-160ENR		9	18							9.8	4.9	0 ~ 135	
FAS-Re060-200ENR	200	6	12	337	264	217	5	12		9.8	4.9	0 ~ 90	430
FAS-Re090-200ENR		9	18							9.8	4.9	0 ~ 135	

注)树脂螺母滑动丝杠型的润滑规定是滑动丝杠部为Sumitec Liquid H20, 导杆部为油脂MSG No.2。
Note)In case of Resin Lead Screw type, Lubrication is Sumitec Liquid H20 on Resin Lead Screw, Grease MSG No.2 on Guide.

Common Specifications 通用规格	
Repeatability 反复定位精度	Max. ±0.05mm
Lost Motion 空转	Max. 0.05mm
Body Material 本体材质	Aluminum 铝
Sliding guide 导向结构	Slide Guide rail 滑动 导轨(1列)
Sensor 传感器	Limit switch 限位开关
Accuracy of Zero pt. return 原点恢复精度	Max. ±0.05mm
Acceleration & Deceleration Rate 加减速率	40ms / kHz 及以上 Min. 40ms / kHz
Permissible Moment 容许力矩	
Pitching 俯仰 Mp	0.10Nm
Yawing 偏转 My	0.09Nm
Rolling 滚压 Mr	0.23Nm
Lubrication 润滑	See Note 参照注释
Operating Temp. 使用温度范围	0 ~ 40℃

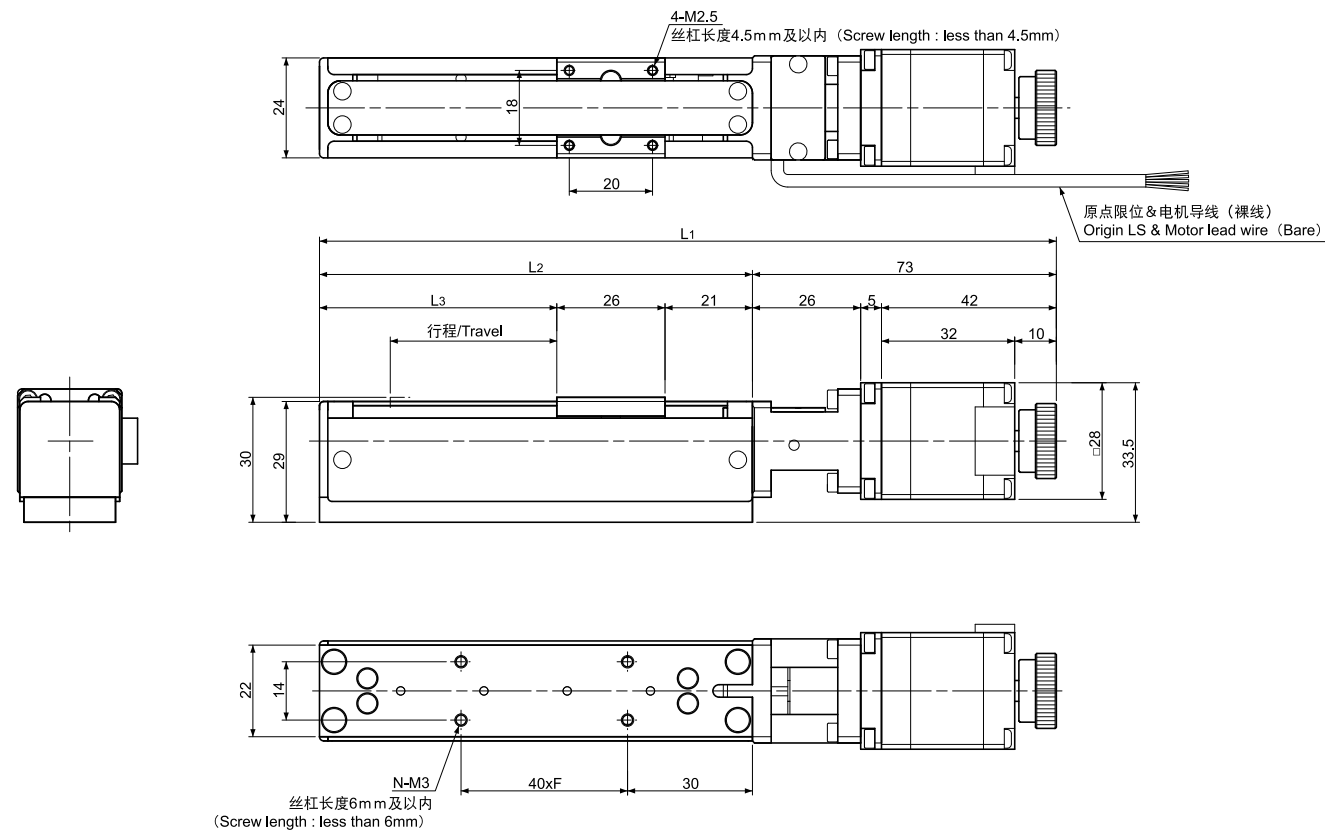
5-phase Stepping Motor(0.75A / phase & □28) with Rolled Ball Screw type Actuator

附帶5相 步进电机(0.75A / 相 □28)的
冷轧滚珠丝杠型执行器

Motor Model / 电机型号: PK523HPB(Double shaft / 双轴)

Oriental Motor / 东方马达

推荐驱动/Driver recommendation : KR-A55MC KR-A5CC



连接器选择方案

请从下面指定连接器类型。

没有指示的采用裸线。

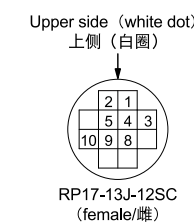
- 1)裸线
- 2)广濑RP17-13J-12SC
- 3)EI连接器(AMP制造)
6芯(172211-6、电机)+4芯(172211-4、传感器)

Connector choice

Please designate connector type below.

No connector if there is no designation.

- 1)None(Bare)
- 2)RP17-13J-12SC(HIROSE)
- 3)EI-Connector(AMP : 172211-6 pins for Motor +
172211-4 pins for Sensor)



HIROSE RP17 Connector
广濑RP17连接器规格

1	Stepping Motor (Blue/蓝色)
2	Stepping Motor (Red/红色)
3	Stepping Motor (Orange/橙色)
4	Stepping Motor (Green/绿色)
5	Stepping Motor (Black/黑色)
6	None 无
7	None 无
8	GND (Black/黑色)
9	Short circuit with No.8 与 8号短路
10	ORGLS Sensor/传感器 NC (White/白色)
11	None 无
12	None 无



172211-6 (male/雄)



172211-4 (male/雄)

El Connector

El连接器规格

1	Stepping Motor (Blue/蓝色)
2	Stepping Motor (Red/红色)
3	Stepping Motor (Orange/橙色)
4	Stepping Motor (Green/绿色)
5	Stepping Motor (Black/黑色)
6	None 无

1	None 无
2	GND (Black/黑色)
3	Short circuit with No.2 与2号短路
4	ORGLS Sensor/传感器 NC (White/白色)

注释

- 1)加减速率为推荐值。
- 2)使用时不得出现结露现象。
- 3)容许力矩是其它方向没有负荷时的值。
- 4)分辨力为整步时的值。
- 5)导线为裸线及右出时的型号。

Note

- 1) Acceleration & deceleration rate is our recommendation.
- 2) There should be no condensation when using.
- 3) Permissible Moment is the number when no load in other direction.
- 4) Resolution represents the values for full step.
- 5) Model number is for no-connector and lead wire is set on right side on Motor

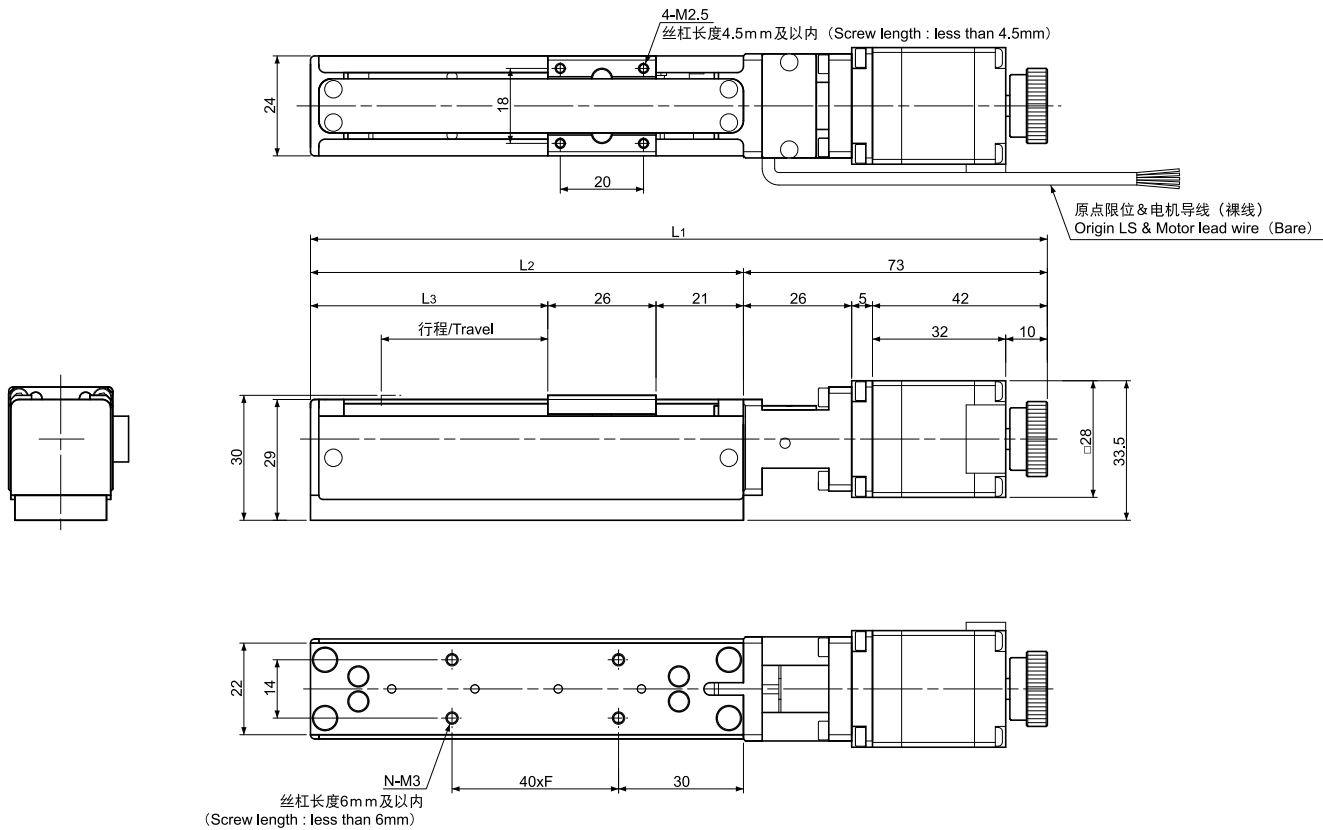
Model Number 执行器型号	Travel 行程 (mm)	Screw Lead 丝杠导程 (mm)	Resolution 分辨率 (μm)	Length 长度尺寸 (mm)						Max. Load Capacity 最大可搬负载 (N)		Permissible speed 容许速度 (mm / sec)	Mass 质量 (g)
				L ₁	L ₂	L ₃	F	N		Hor. 水平	Vert. 垂直		
FAS-R010-020ENR	20	1	2	157	84	37	1	4		29.4	19.6	0 ~ 25	265
FAS-R010-040ENR	40	1	2	177	104	57	1	4		29.4	19.6	0 ~ 25	285
FAS-R020-040ENR		2	4							29.4	19.6	0 ~ 50	
FAS-R060-040ENR		6	12							19.6	4.9	0 ~ 150	
FAS-R100-040ENR		10	20							19.6	4.9	0 ~ 250	
FAS-R010-080ENR	80	1	2	217	144	97	2	6		29.4	19.6	0 ~ 25	330
FAS-R020-080ENR		2	4							29.4	19.6	0 ~ 50	
FAS-R060-080ENR		6	12							19.6	4.9	0 ~ 150	
FAS-R100-080ENR		10	20							19.6	4.9	0 ~ 250	
FAS-R060-120ENR	120	6	12	257	184	137	3	8		19.6	4.9	0 ~ 150	370
FAS-R100-120ENR		10	20							19.6	4.9	0 ~ 250	
FAS-R060-160ENR	160	6	12	297	224	177	4	10		19.6	4.9	0 ~ 150	415
FAS-R100-160ENR		10	20							19.6	4.9	0 ~ 250	
FAS-R060-200ENR	200	6	12	337	264	217	5	12		19.6	4.9	0 ~ 150	455
FAS-R100-200ENR		10	20							19.6	4.9	0 ~ 250	

Common Specifications 通用规格	
Repeatability 反复定位精度	Max. $\pm 0.01\text{mm}$
Lost Motion 空转	Max. 0.01mm
Body Material 本体材质	Aluminum 铝
Sliding guide 导向结构	Slide Guide rail 滑动导轨(1列)
Sensor 传感器	Limit switch 限位开关
Accuracy of Zero pt. return 原点恢复精度	Max. $\pm 0.01\text{mm}$
Acceleration & Deceleration Rate 加减速率	20ms / kHz以上 Min.20ms / kHz
Permissible Moment 容许力矩	
Pitching 俯仰 Mp	0.10Nm
Yawing 偏转 My	0.09Nm
Rolling 滚压 Mr	0.23Nm
Lubrication 润滑	Grease 油脂 MSG No.2(KSS)
Operating Temp. 使用温度范围	0 ~ 40℃

5-phase Stepping Motor(0.75A / phase & □28) with Precision Ball Screw type Actuator

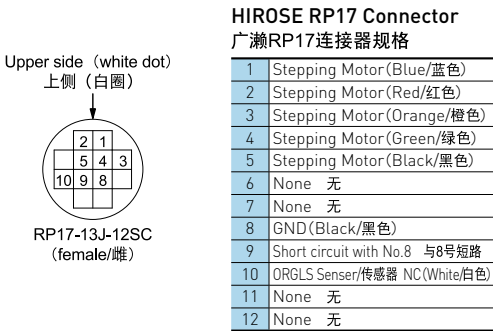
附带5相 步进电机(0.75A / 相 □28)的精密滚珠丝杠型执行器

Motor Model /电机型号: PK523HPB(Double shaft / 双轴)
Oriental Motor / 东方马达
推荐驱动/Driver recommendation : KR-A55MC KR-A5CC



连接器选择方案
请从下面指定连接器类型。
没有指示的采用裸线。
1)裸线
2)广濑RP17-13J-12SC
3)EI连接器(AMP制造)
6芯(172211-6、电机)+4芯(172211-4、传感器)

Connector choice
Please designate connector type below.
No connector if there is no designation.
1)None(Bare)
2)RP17-13J-12SC(HIROSE)
3)EI-Connector(AMP : 172211-6 pins for Motor + 172211-4 pins for Sensor)



HIROSE RP17 Connector 广濑RP17连接器规格		EI Connector EI连接器规格	
1	Stepping Motor(Blue/蓝色)	1	Stepping Motor(Blue/蓝色)
2	Stepping Motor(Red/红色)	2	Stepping Motor(Red/红色)
3	Stepping Motor(Orange/橙色)	3	Stepping Motor(Orange/橙色)
4	Stepping Motor(Green/绿色)	4	Stepping Motor(Green/绿色)
5	Stepping Motor(Black/黑色)	5	Stepping Motor(Black/黑色)
6	None 无	6	None 无
7	None 无		
8	GND(Black/黑色)	1	None 无
9	Short circuit with No.8 与8号短路	2	GND(Black/黑色)
10	ORGLS Sensor/传感器 NC(White/白色)	3	Short circuit with No.2 与2号短路
11	None 无	4	ORGLS Sensor/传感器 NC(White/白色)
12	None 无		

注释
1)加减速率为推荐值。
2)使用时不得出现结露现象。
3)容许力矩是其它方向没有负荷时的值。
4)分辨力为整步时的值。
5)导线为裸线及右出时的型号。

Note
1)Acceleration & deceleration rate is our recommendation.
2)There should be no condensation when using.
3)Permissible Moment is the number when no load in other direction.
4)Resolution represents the values for full step.
5)Model number is for no-connector and lead wire is set on right side on Motor

Model Number 执行器型号	Travel 行程 (mm)	Screw Lead 丝杠导程 (mm)	Resolution 分辨率 (μm)	Length 长度尺寸 (mm)					Max. Load Capacity 最大可搬负载 (N)		Permissible speed 容许速度 (mm / sec)	Mass 质量 (g)
				L ₁	L ₂	L ₃	F	N	Hor. 水平	Vert. 垂直		
FAS-G010-020ENR	20	1	2	157	84	37	1	4	29.4	19.6	0 ~ 25	265
FAS-G010-040ENR	40	1	2	177	104	57	1	4	29.4	19.6	0 ~ 25	285
FAS-G020-040ENR		2	4						29.4	19.6	0 ~ 50	
FAS-G060-040ENR		6	12						19.6	4.9	0 ~ 150	
FAS-G100-040ENR		10	20						19.6	4.9	0 ~ 250	
FAS-G010-080ENR	80	1	2	217	144	97	2	6	29.4	19.6	0 ~ 25	330
FAS-G020-080ENR		2	4						29.4	19.6	0 ~ 50	
FAS-G060-080ENR		6	12						19.6	4.9	0 ~ 150	
FAS-G100-080ENR		10	20						19.6	4.9	0 ~ 250	
FAS-G060-120ENR	120	6	12	257	184	137	3	8	19.6	4.9	0 ~ 150	370
FAS-G100-120ENR		10	20						19.6	4.9	0 ~ 250	
FAS-G060-160ENR	160	6	12	297	224	177	4	10	19.6	4.9	0 ~ 150	415
FAS-G100-160ENR		10	20						19.6	4.9	0 ~ 250	
FAS-G060-200ENR	200	6	12	337	264	217	5	12	19.6	4.9	0 ~ 150	455
FAS-G100-200ENR		10	20						19.6	4.9	0 ~ 250	

Common Specifications 通用规格	
Repeatability 反复定位精度	Max. ±0.005mm
Lost Motion 空转	Max. 0.005mm
Body Material 本体材质	Aluminum 铝
Sliding guide 导向结构	Slide Guide rail 滑动导轨(1列)
Sensor 传感器	Limit switch 限位开关
Accuracy of Zero pt. return 原点恢复精度	Max. ±0.01mm
Acceleration & Deceleration Rate 加减速率	20ms / kHz 及以上 Min. 20ms / kHz
Permissible Moment 容许力矩	
Pitching 俯仰 Mp	0.10Nm
Yawing 偏转 My	0.09Nm
Rolling 滚压 Mr	0.23Nm
Lubrication 润滑	Grease 油脂 MSG No.2(KSS)
Operating Temp. 使用温度范围	0 ~ 40℃

●选项 / Option

[电磁刹车单元 / Solenoid Brake Unit]

在纵轴上使用时,当切断电源后滚珠丝杠或者滑动丝杠有可能因为自重而掉落。
与电磁刹车单元并用可保持中间位置。
If Flex Actuators are operated in vertical position, Ball Screw / Lead Screw may fall down when its power is off. Solenoid Brake Unit is effective to maintain intermediate position.



[电机周边套件 / Motor side mounting kit]

想要缩短纵向尺寸时,可使用周边套件。这是由电机座、正时带轮、正时齿带、固定螺丝等组成的套件。由KSS提供安装服务。
This kit can shorten the Actuator length with side mounting Motor shown in Photo right. Motor mount, timing pulley, timing belt and set screws are included in this kit. KSS can assemble in accordance with your request.



[外装光电传感器 / Photo-micro sensor]

执行器上能够安装外装光电传感器。这是由传感设备、传感器导轨、光电传感器、安装盘、固定螺丝等组成的套件。由KSS提供安装服务。
Sensor accessories for the purpose of putting sensor outside Actuator. Sensor dog, sensor rail, photo sensor, sensor plate and set screws are included in this kit. KSS can assemble in accordance with your request.



[油脂 / Grease]

执行器(不含滑动丝杠型)上使用的KSS的原创油脂(MSGNo.2)。不会损伤微型滚珠丝杠的开动性的润滑性能出色的油脂。请在油脂维护时使用。
KSS original Grease (MSG No.2) is used for KSS Flex Actuator series, except Lead Screw type. This Grease has high lubrication performance without deteriorating Ball Screw smooth movement. It would be useful for Grease maintenance to keep long term operation.



●配件 / Attachment

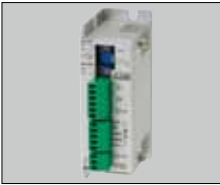
为了更加容易使用灵活可选执行器,kss准备了标准驱动、中继电缆等配件。
KSS provides Standard Stepping Motor Driver and Extension Cable for Flex Actuators in order to make it easy to use.

[标准驱动 / Stepping Motor Driver]

KR-A55MC
DC24V用5相步进电机用驱动。能够设定16种步进角,最大分割数为250分割的微步驱动。
Micro-Step Driver for 5-phase Stepping Motor with DC24V power supply. 16 step angle types can be set with up to 250 divisions.



KR-A5CC
DC24V用5相步进电机用驱动。能够实现整步、半步切换。兼备了自动电流关闭功能。
This Driver is for 5-phase Stepping Motor operated by DC24V power supply. It has automatic current reduction circuits. You can choose full-step or half step function.



SD4030B
美蓓亚电机制造的(2相 □25)步进电机用推荐驱动。能够设定8种步进角。
This is recommended 2-phase stepping Motor Driver for Minebea Motor with □25 size. It has Micro-Step function with 8-step angle.



KS9110
多摩川精机制造的(2相 □28)步进电机用推荐驱动。通过变光开关能够实现整步、半步切换。
This is recommended 2-phase stepping Motor Driver for TAMAGAWA SEIKI with □28 size. It can be selected for Full-step or Half-step by Dip switch.



[中继电缆]

KSS灵活可选执行器和KSS推荐驱动的专用电缆。
请按照下面的例子指定电缆种类,电缆长度和连接器形态。单侧为裸线,敬请注意。

EC R - 2 - E(6)
① ② ③ ④

- ①中继电缆符号
②电缆种类
 无符号:普通电缆
 R :耐弯曲电缆
③电缆长度(m)
④连接器形态
 N :裸线
 H :广濂RP17
 E(6) :EI连接器 6芯(电机用)
 E(4) :EI连接器 4芯(传感器用)
 E(6+4) :EI连接器 6+4芯(电机+传感器用)
 E(4)+SP4461 :EI连接器4芯(传感器用)
 +传感器放大器电路板(受光时ON)

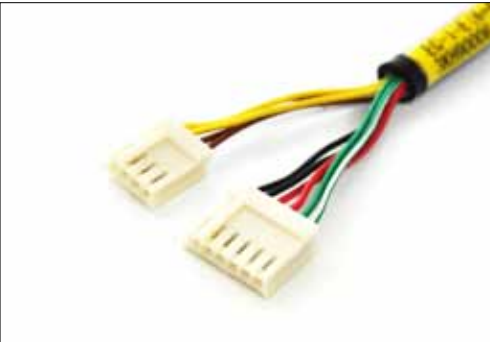
[Extension Cable]

Extension Cable between KSS Flex Actuators and KSS recommended Stepping Motor Driver.
Please designate Cable type, Cable length and Connector type in accordance with the example below. Please note that one side of Extension Cable is bare (no connector).

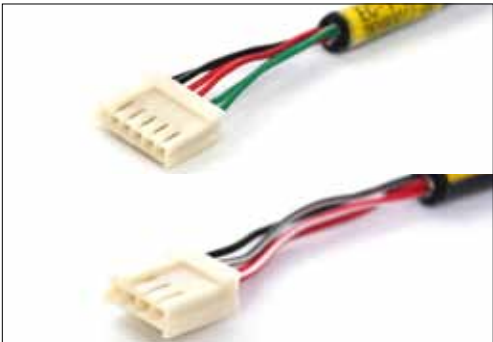
- ①Extension Cable
②Cable type
 None:Normal type
 R :Robot cable type
③Cable length (m)
④Connector type at both end
 N : No connector (Bare)
 H :HIROSE RP17
 E(6) :EI connector 6-pins (for Motor only)
 E(4) :EI connector 4-pins (for Sensor only)
 E(6+4) :EI connector 6+4-pins (for Motor & Sensor)
 E(4)+SP4461 :EI connector 4-pins (for Sensor)
 +Sensor Amplifier Board (Light-on)



H : HIROSE RP17 / 广濂RP17



E(6+4) : EI connector 6+4-pins / EI连接器 (6+4芯)



E(6) : EI connector 6-pins / EI连接器6芯
E(4) : EI connector 4-pins / EI连接器4芯



E(4)+SP4461 :
EI connector -4pins & Sensor Amplifier Board
EI连接器4芯+传感器放大器电路板

步进电机驱动 Stepping Motor Driver

KSS灵活可选执行器用的推荐驱动。
推荐驱动因客户所选电机而有所不同,敬请注意。

KSS provides you with suitable Stepping Motor Driver for Flex Actuators.
Recommended Steeping Motor Driver should be different depending on the Motor choice.

KR-A55MC

DC24V输入 微步驱动

DC24V Input Microstep Driver

DC24V

支持0.4~1.4A / 相
0.4~1.4A / phase

微步
Micro-step

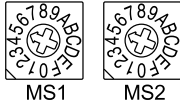
箱型
Case type



规格 Specifications



项目 Items		规格值 Specification																																									
电源 Power supply		DC20-35V (-10%,+20%) max.3A																																									
驱动电流 Output current (出厂时0.75A/相) (0.75A/phase at shipping)		额定电流0.4~1.4A/相 Rated current : 0.4~1.4A/phase 根据数字开关[RUN]可设定范围为0.4~1.4A/相 Capable of setting the current to 0.4~1.4A/phase by the digital switch "RUN"																																									
驱动方式 Driving Type		两极五边形额定电流驱动方式 Bipolar pentagon constant current drive																																									
输入信号 电路 Input signal circuit	信号名 Signal name	功能说明 Functional description	输入电阻 Input resistance																																								
	CW+	1个节拍模式时的脉冲信号输入	270Ω																																								
	CW-	2个节拍模式时的正转信号输入																																									
	CCW+	1个节拍模式时的旋转方向指示输入	270Ω																																								
	CCW-	2个节拍模式时的反转信号输入																																									
	H.O.+	电机励磁OFF控制信号	390Ω																																								
	H.O.-	"H"时电机励磁OFF																																									
	D.S.+	微步分割选择信号	390Ω																																								
	D.S.-	"L"选择MS1、"H"选择MS2																																									
			脉冲幅度为0.25μsec及以上、上升下降时间为1μsec及以下 Pulse width : 0.25μs min., Rising-up time : 1μs max. 脉冲间隔为 0.25μsec及以上、脉冲频率为500kpps及以下 Pulse interval : 0.25μs min., Pulse frequency : 500kpps max. 脉冲电压"H" : 4~8V "L" : 0~0.5V Pulse voltage : "H" for 4~8V & "L" for 0~0.5V 光电耦合器的电流从OFF (逻辑L) 转为ON (逻辑H) 后工作 Triggerred at the edge of OFF (Logic"L") to ON (Logic"H") of photo-coupler current 1个节拍模式时, CCW输入"L"时CCW旋转 CCW rotation with CCW input of "L" in 1-clock system																																								
输出信号 电路 Output signal Circuit	信号名 Signal name	功能说明 Functional description	输出容量 Output capacity																																								
	Z.P.+	原点励磁信号输出	DC30V max. 50mA max.																																								
	Z.P.-	原点励磁时ON																																									
		励磁序列为[0]时处于ON, 0.72°的电机每7.2度会被输出。接通电源时, 当切换步进角后有时不会被输出。 This signal is ON at the exciting sequence of [0] and is transmitted at each 7.2 degrees for the Step Motor with 0.72°steps. When micro-step angle is changed after the power supply is turned on, it may not be transmitted.																																									
微步分割设定 (出厂时MS1 : 5、MS2 : 0)		只有1种微步驱动时, 利用数字开关MS1设定分割数。 有2种微步驱动时 (通过往返运动的推进和返回来改变速度时), 利用数字开关MS1、MS2各自设定分割数。 For micro-step driving of one type only, set the number interpolation using the digital SW MS1. For micro-step driving of two types. (i.e. when changing speed for going and returning in reciprocating motion) set respective numbers of interpolation using the digital SW MS1 and MS2.																																									
Setting of micro-step Interpolation (MS1 : 5, MS2 : 0 at shipping)		设定编号 Set No.																																									
		分割数 Interpolation	<table><tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr><tr><td>1</td><td>2</td><td>4</td><td>5</td><td>8</td><td>10</td><td>16</td><td>20</td><td>25</td><td>40</td></tr><tr><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td><td colspan="4"></td></tr><tr><td>50</td><td>80</td><td>100</td><td>125</td><td>200</td><td>250</td><td colspan="4"></td></tr></table>	0	1	2	3	4	5	6	7	8	9	1	2	4	5	8	10	16	20	25	40	A	B	C	D	E	F					50	80	100	125	200	250				
0	1	2	3	4	5	6	7	8	9																																		
1	2	4	5	8	10	16	20	25	40																																		
A	B	C	D	E	F																																						
50	80	100	125	200	250																																						
		选择微步分割的设定编号为0.1时, 在内部形成4分割的低振动驱动。 When the setting of micro-step interpolating No. is "0.1", 1/4-interpolate low-frequency driving takes place inside.																																									
驱动电流设定 (出厂时设定 : 5)		电机转动时的电流是利用数字开关 RUN 从下表选择设定。 The output current to the motor in rotation is set by the digital switch "RUN" to select from the table below.																																									
Setting of driving current (Setting "5" at shipping)		设定番号 Set No.	<table><tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr><tr><td>0.4</td><td>0.5</td><td>0.57</td><td>0.63</td><td>0.71</td><td>0.77</td><td>0.84</td><td>0.9</td><td>0.96</td><td>1.02</td></tr><tr><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td><td colspan="4"></td></tr><tr><td>1.09</td><td>1.15</td><td>1.22</td><td>1.27</td><td>1.33</td><td>1.4</td><td colspan="4"></td></tr></table>	0	1	2	3	4	5	6	7	8	9	0.4	0.5	0.57	0.63	0.71	0.77	0.84	0.9	0.96	1.02	A	B	C	D	E	F					1.09	1.15	1.22	1.27	1.33	1.4				
0	1	2	3	4	5	6	7	8	9																																		
0.4	0.5	0.57	0.63	0.71	0.77	0.84	0.9	0.96	1.02																																		
A	B	C	D	E	F																																						
1.09	1.15	1.22	1.27	1.33	1.4																																						
		自动电流关闭设定 (出厂时设定 : 5) Automatic current-down (Setting "5" at shipping)																																									
		设定编号 Set No.	<table><tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr><tr><td>27</td><td>31</td><td>36</td><td>40</td><td>45</td><td>50</td><td>54</td><td>58</td><td>62</td><td>66</td></tr><tr><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td><td colspan="4"></td></tr><tr><td>70</td><td>74</td><td>78</td><td>82</td><td>86</td><td>90</td><td colspan="4"></td></tr></table>	0	1	2	3	4	5	6	7	8	9	27	31	36	40	45	50	54	58	62	66	A	B	C	D	E	F					70	74	78	82	86	90				
0	1	2	3	4	5	6	7	8	9																																		
27	31	36	40	45	50	54	58	62	66																																		
A	B	C	D	E	F																																						
70	74	78	82	86	90																																						



MS1MS2



RUN

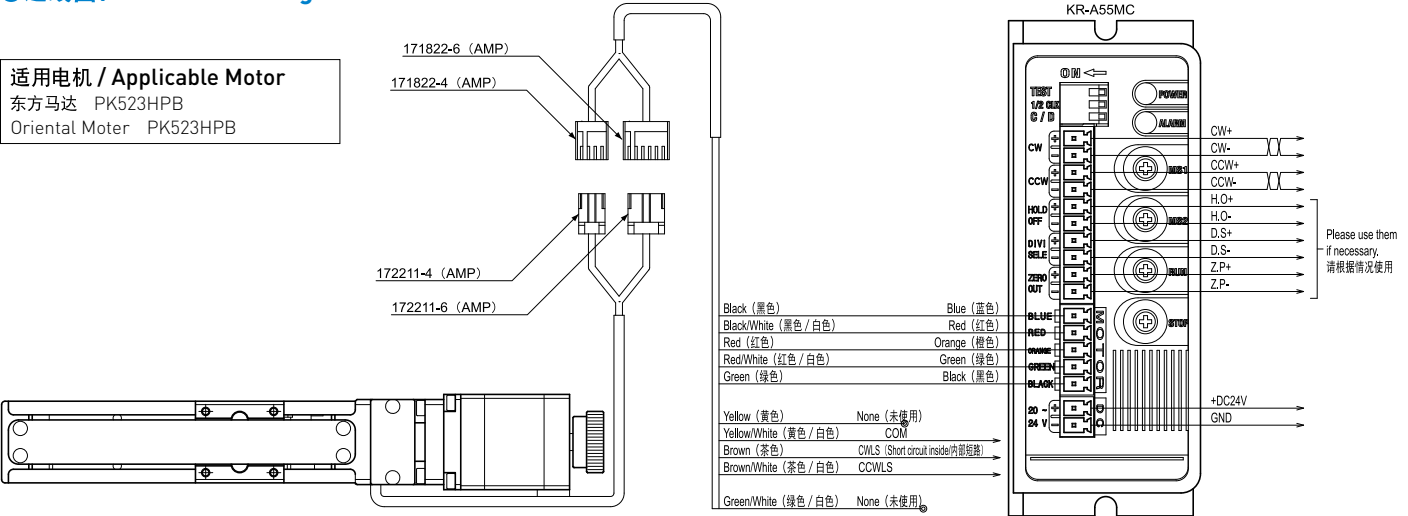


STOP

项目 Items	规格值 Specification				
变光开关设定(出厂时均设定为OFF) Setting of dip-switches (All off at shipping)	No.	符号 symbol	功能 Function	ON	OFF
	1	TEST	自我测试功能 Self test function	约250pps时旋转 Rotating at 250pps	正常工作 Normal operation
	2	1 / 2 CLK	节拍模式切换 Switching of clock	1个节拍模式 1 clock mode	2个节拍模式 2 clock mode
	3	C / D	自动电流关闭 Automatic current-down	无效	有效 Vaild
工作周围温度及湿度 Operating temperature & humidity	0 ~ 40℃ 85%RH及以下(不得结露) 0 ~ 40℃ 85%RH Max. without any condensation.				
保存周围温度及湿度 Storage temperature & humidity	-10 ~ 70℃ 85%RH及以下(不得结露) -10 ~ 70℃ 85%RH Max. without any dew condensation.				
质量 Mass	约220g Approximately 220g				

注1)1个脉冲的微步角度=基本步进角 / 分割数
注2)不管分割数如何设定,在内部发生约250pps,变光开关No.2为ON时CCW旋转;OFF时CW旋转。
Note 1) Micro-step angle for 1 pulse=Basic step angle / Number of interpolation
Note 2) Approx. 250pps is generated inside, regardless of splits setting ; CCW rotation when the dip switch NO.2 is ON , and CW rotation when the dip switch NO.2 is OFF.

连线图 / Connection diagrams



KR-A5CC

DC24V输入 5相步进电机驱动

DC24V Input 5-phase Stepping Motor Driver

DC24V

支持0.1~0.9A / 相
0.1~0.9A / phase

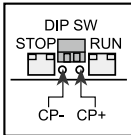
整步/半步
Full / Half-Step

箱型
Case type

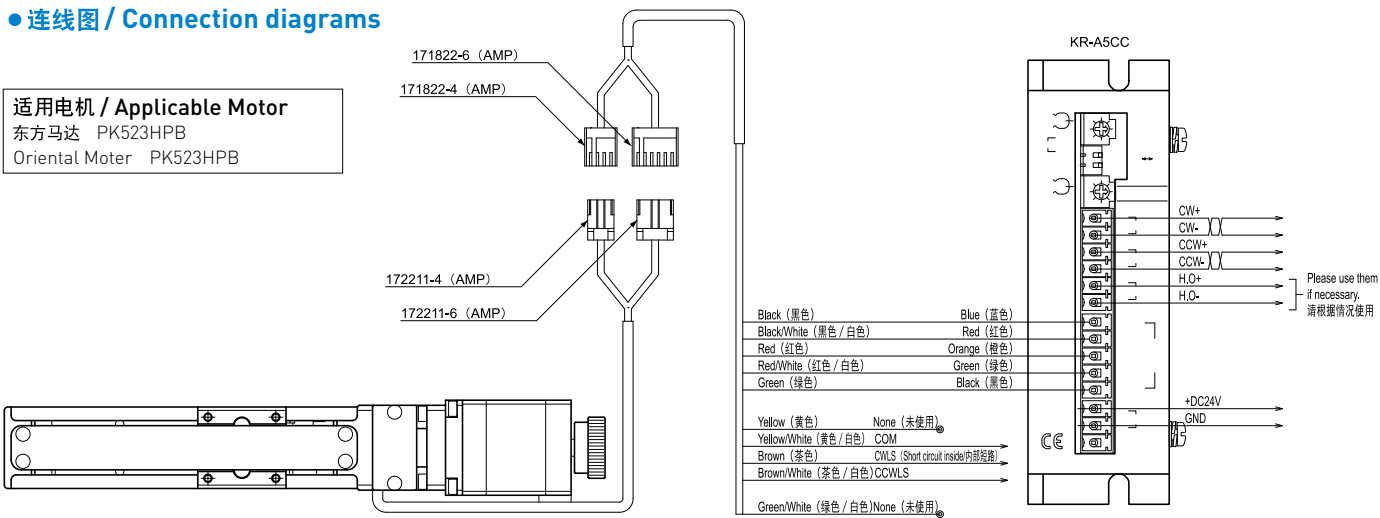


规格 Specifications



项目 Items		规格值 Specification																
电源 Power supply		DC20-35V (-10%,+20%) max.2A																
驱动电流 Output current (出厂时0.35A/相) (0.35A/phase at shipping)		额定电流0.1~0.9A/相 Rated current : 0.1~0.9A/phase																
驱动方式 Driving Type		两极五边形额定电流驱动方式 Bipolar pentagon constant current drive																
输入信号 电路 Input signal circuit	信号名 Signal name	功能说明 Functional description	输入电阻 Input resistance															
	CW+	1个节拍模式时的脉冲信号输入 Pulse signal input for 1 clock mode	390Ω															
	CW-	2个节拍模式时的正转信号输入 CW rotation input for 2 clock mode																
	CCW+	1个节拍模式时的旋转方向指示输入 Rotational direction input for 1 crock	390Ω															
	CCW-	2个节拍模式时的反转信号输入 CCW rotation input for 2 clock																
	H.O.+ H.O.-	电机励磁OFF控制信号 "H"时电机励磁OFF Motor exciting OFF control signal "H" for motor exciting OFF	390Ω															
		脉冲幅度为0.5μsec及以上、上升下降时间为1μsec及以下 脉冲间隔为0.5μsec及以上、脉冲频率为50kpps及以下 脉冲电压"H" : 4~8V "L" : 0~0.5V 光电耦合器的电流从OFF (逻辑L) 转为ON (逻辑H) 后工作 1个节拍模式时, CCW输入"L"时CCW旋转 Pulse width : 0.5μs min., Rising-up time : 1μs max. Pulse interval : 0.5μs min., Pulse frequency : 50kpps max. Pulse voltage : "H" for 4~8V & "L" for 0~0.5V Triggerd at the edge of OFF (Logic"L") to ON (Logic"H") of photo-coupler current CCW rotation with CCW input of "L" in 1-clock system																
驱动电流值设定 Setting of driving current		驱动电流 (A) = $\frac{\text{CP电压 (V)}}{4}$ Setting current (A) = $\frac{\text{CP voltage (V)}}{4}$ 设定例) 驱动电流设定为0.35A/相时, CP电压调整为1.4V Setting example) When drive current is set to 0.35A/phase, the CP voltage is adjusted to 1.4V. 注) 在电机驱动的状态下设定驱动电流 Note) Run current should be changed during the operating of motor. 																
电流关闭值设定 Setting of Stop current		利用STOP旋钮设定电机停止时的电流值。 针对驱动电流的百分比 (%) 来设定电流关闭值 In order to reduce the heat adjusting the current, change it using STOP CURRENT volume. The setting value of STOP CURRENT volume is a percentage of the setting volume of RUN CURRENT. 设定例) 驱动电流设定为1.4A, 并且把STOP旋钮设定为50%时, 停止时的电流值为0.7A/相。 Ex) After setting 1.4A for Run current then put STOP CURRENT volume at 50%, the stop current will be 0.7A.  25% 75%																
变光开关设定 (出厂时均设定为OFF) Setting of Dip-switches (All off at shipping)		<table><tr><td>No.</td><td>符号 Symbol</td><td>功能 Function</td><td>ON</td><td>OFF</td></tr><tr><td>1</td><td>1/2 CLK</td><td>节拍模式切换 Switching of clock</td><td>1个节拍模式 1 clock mode</td><td>2个节拍模式 2 clock mode</td></tr><tr><td>2</td><td>Full / Half</td><td>分割数设定 Setting of Interpolation</td><td>整步 (0.72°) Full-step (0.72°)</td><td>半步 (0.36°) Half-step (0.36°)</td></tr></table>	No.	符号 Symbol	功能 Function	ON	OFF	1	1/2 CLK	节拍模式切换 Switching of clock	1个节拍模式 1 clock mode	2个节拍模式 2 clock mode	2	Full / Half	分割数设定 Setting of Interpolation	整步 (0.72°) Full-step (0.72°)	半步 (0.36°) Half-step (0.36°)	OFF ↓ ON 
No.	符号 Symbol	功能 Function	ON	OFF														
1	1/2 CLK	节拍模式切换 Switching of clock	1个节拍模式 1 clock mode	2个节拍模式 2 clock mode														
2	Full / Half	分割数设定 Setting of Interpolation	整步 (0.72°) Full-step (0.72°)	半步 (0.36°) Half-step (0.36°)														
工作周围温度及湿度 Operating temperature & humidity		0 ~ 40□ 85%RH及以下 (不得结露) 0~40□ 85%RH max. without any dew condensation.																
保存周围温度及湿度 Storage temperature & humidity		-10 ~ 70□ 85%RH及以下 (不得结露) -10~70□ 85%RH max. without any dew condensation.																
质量 Mass		约130g Approximately 130g																

●连线图 / Connection diagrams



SD4030B

DC24V输入 2相微步驱动

DC24V Input 2-phase Microstep Driver

DC24V

0.5~3 / 相
0.5~3A / phase

微步
Micro-step

电路板型
Board type

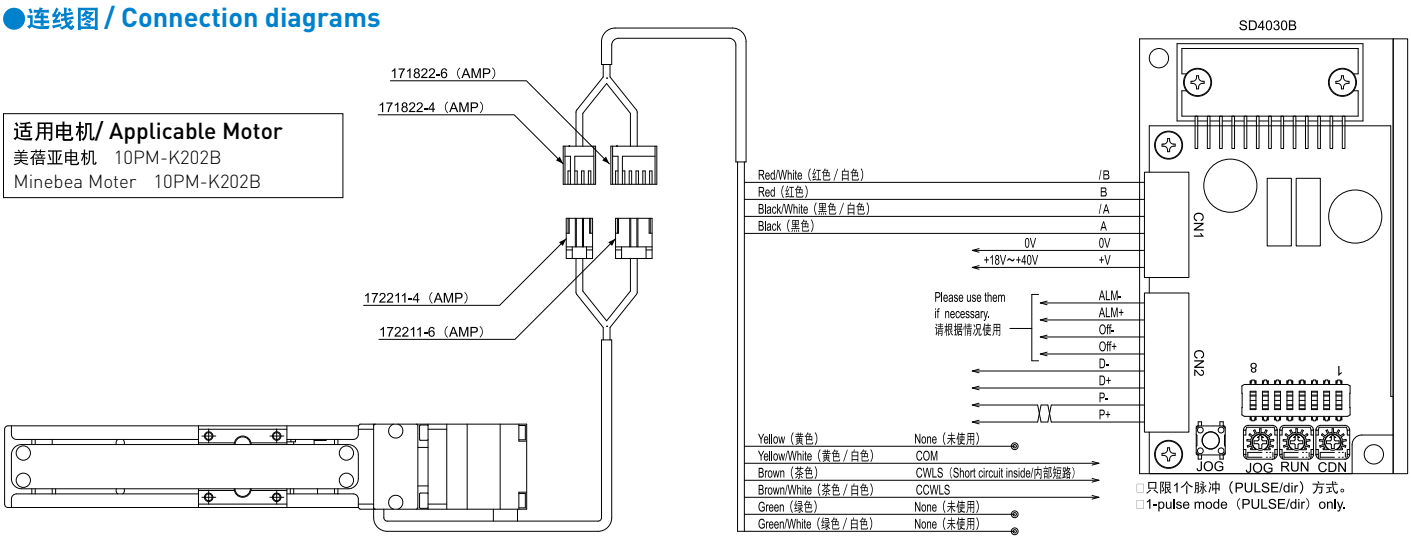


规格 Specifications



项目 Items		内容 Description	备注 Note
输入电源电压 Input voltage		+18V~40V	
输出电流 Output current		0.5~3 A peak(±5%)/相 0.5~3 A peak(±5%)/phase	电源超过24V时会降额(derating)。 Being lower rated output current beyond Power Supply 24V
驱动方式 Drive method		两极五边形额定电流驱动方式 Chopper mode by Bipolar constant current	
电流关闭功能 Current down function		自动电流关闭 脉冲停止约0.7秒后利用CDN旋钮把电流下调至设定电流 Auto Current down Adjusting to set lower current of CND volume after 0.7 second after pulse stop	可根据开关选择功能 Selectable by switch.
最大输入脉冲频率 Maximum input pulse cycle		100Kpps	
调整功能 Adjusting	RUN	励磁电流设定用(0.5~3A) For excitation current	出厂时设定为2A The default factory setting is 2A.
	STOP	电流关闭时的电流设定用 For current value on current down mode.	RUN电流的10%~60% Selectable between 10% to 60% of RUN current.
	JOG	JOG的速度设定用 For JOG speed setting.	300pps~14Kpps
选择功能 Select function	SW-1,2,3	分割数选择 Select of Resolutions	1/2, 1/8, 1/10, 1/16, 1/20, 1/32, 1/40, 1/64
	SW-4	自动电流关闭有效/无效选择 ON/OFF for function of auto current down mode.	开关ON为有效, OFF为无效, 出厂时被设定为"有效" Switch ON is active and OFF is no active. The default factory setting is
	SW-5,6	混合衰减率选择 Mixed Decay ratio	75%, 50%, 25%, 5%
	SW-7,8	JOG 功能选择 Select of JOG function.	SW-7 ON 为JOG有效, SW-8 ON为CW. OFF为CCW SW-7 ON is active for JOG, SW-8 ON is CW, OFF is CCW
输入信号 Input signals	P+,P-	指令脉冲 Pulse Command	通过光电耦合器绝缘 Isolated by photo coupler
	D+,D-	指令方向 Direction Command	
	OFF+,OFF-	励磁OFF No excitation	
输出信号 Output signals	ALM+,ALM-	警报(检测出功率器件过热) 功率器件内的温度达到170℃(Typ.)时输出 Alarm (Prospecting of over-heat for Power device) Output at over 170℃(Typ.) of power device	通过光电耦合器绝缘, 正常时为ON, 警报响时为OFF Photo Isolation, ON is active, OFF is no active (ALARM).
外形尺寸 Dimension		W90×D55.5×H28	
工作周围温度及湿度 Operating Temperature and Humidity		0~40℃、35~80% RH	不得结露 No condensation
保存周围温度及湿度 Storage Temperature and Humidity		-20~+85℃、35~80% RH	不得结露 No condensation
质量 Mass		约106g Approximately106g	

●连线图 / Connection diagrams



KS9110

DC24V输入 2相步进电机驱动

DC24V Input 2-phase Stepping Motor Driver

DC24V

0.35~2A / 相
0.35~2A / phase

整步/半步
Full / half step

电路板型
Board type

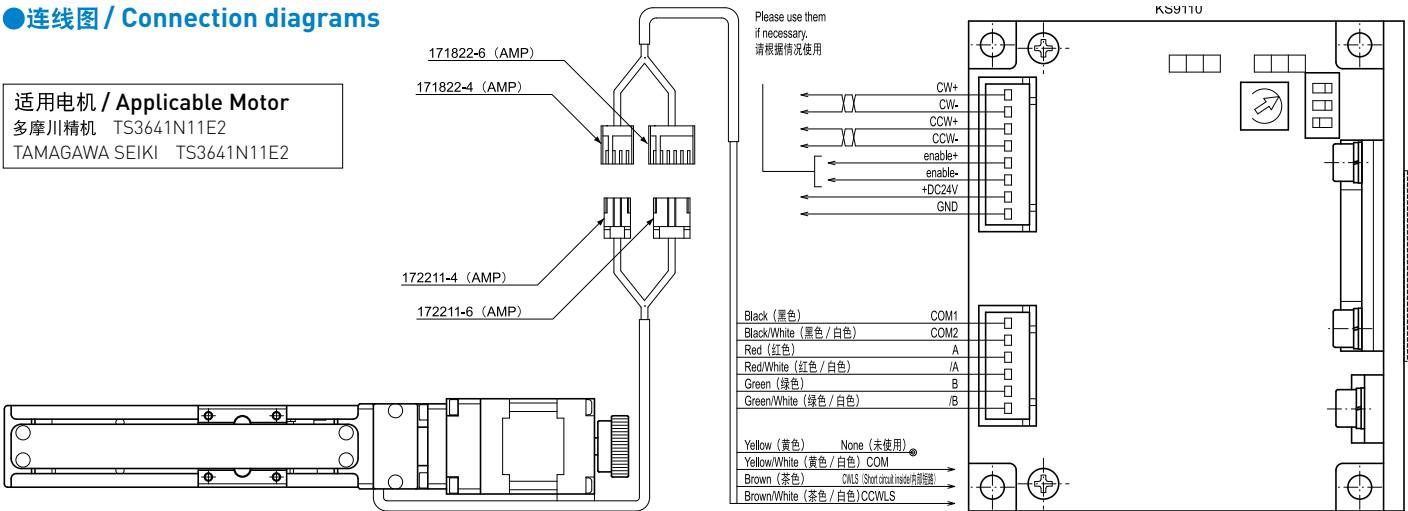


规格Specifications



项目 Items		规格值 Specification	
电源 Power supply		DC+24V ±10% 3A Max.(全消耗电流)(total current consumed)	
输出电源 Output current		0.35~2A Max / 相 通过可变电阻VR进行设定(出厂时为1A / 相) 0.35~2A Max. / phase Variable resistor (VR) setting (Set to 1 A / phase when shipped)	
励磁方式(出厂时为2相励磁) Excitation method (2 phase excitation at shipment) 整步/半步 Full / half		1相励磁 1-phase excitation 变光开关 Dip switch	1-2相励磁 (半步/half step) 1-2 phase excitation 变光开关 Dip switch
输入信号电路 Input signal circuit		光电耦合器TLP521(东芝) 输入电阻220Ω Photo coupler TLP521 (Toshiba), Input resistance 200Ω 光电耦合器的输入电流为10mA~20mA Photo coupler input current, over 10mA, below 20mA	
输入信号 Input signal	1个脉冲输入 1-pulse input PULSE DIR	跳接开关 Jumper switch	DIR信号的光电耦合器的电流与旋转方向 DIR signal's photo coupler current and rotation direction
	2个脉冲输入 2-pulse input CW CCW	跳接开关 Jumper switch	注CW输入时CCW输入的光电耦合器电流为OFF;CCW输入时CW输入的光电耦合器电流为OFF。与此同时CW.CCW输入上不得输入脉冲。 Note : Make sure that CCW input photo coupler current is OFF during CW input and CW input photo coupler current is OFF during CCW input. Never input pulse to both CW and CCW at the same time.
	启用 ENABLE	光电耦合器的电流为ON时电机为无励磁;光电耦合器的电流为OFF时电机为励磁 When photo coupler current is ON, motor is not excitable. When photo coupler current is OFF, motor is excitable.	
	(出厂时输入1个脉冲) (Set to 1 pulse input at shipment)	脉冲幅度为5μsec及以上, 上升下降时间为2μsec及以下, 光电耦合器的电流从ON转为OFF后工作 Pulse duration is 5 μ sec or more, rise / fall time is 2 μ sec or less. Operation starts when photo coupler current is switched from ON to OFF.	
输出信号 Output signal	CKOUT (CKO)	输入脉冲确认用焊盘(Land) : TTL输出 Land for checking input pulse : TTL output	
	电源设定端子 (IS) Current terminal (IS)	输出电流确认用端子 : 0.23(V)=1(A / 相) Terminal for checking output current : 0.23(V)=1(A/phase)	
自动电流关闭 (出厂时工作设定) Automatic current down (Set ON at shipment)		工作时 When in operation 变光开关 Dip switch	非工作时 When not in operation 变光开关 Dip switch
周围温度及湿度 Surrounding environment	工作时 / During operation	0~40℃ 90%RH及以下(不得结露) 0~40℃ under 90% RH (no condensation)	
	保存时 /Stand-by	90%RH及以下(不得结露) -10~70℃ under 90% RH (no condensation)	
配件 Accessories		连接器机架XHP-6(JST)1个、XHP-8(JST)1个、接触器BXH-001T-P0.6(JST)14个 Connector housing 1pc XHP-6(JST), 1pc XHP-8(JST), 14pcs contacts BXH-001T-P0.6 (JST)	
质量 Mass		106g	

连线图 / Connection diagrams



处理及使用注意事项 / Precaution of handling and operating

[使用注意事项 / Precaution for operating]

- 1) 使用前请仔细阅读使用说明书, 必须在充分理解内容且严守安全注意事项的基础上使用。
- 2) 敲打、掉落及施加超过规定的推力负载和径向负载有可能导致破损, 因此处理本产品时应格外注意。
- 3) 确认开包的产品有无异常或者是否为订购产品。
- 4) 禁止分解各部配件, 否则会引起污渍侵入或者各部装配精度下降。
- 5) 防止污渍及碎粉侵入, 否则异物侵入后会引起滚珠循环配件破损或缩短寿命、功能损失。
- 6) 在使用滚珠丝杠/滑动丝杠的过程中, 照准油脂维护周期每2~3个月注入1次润滑剂。
使用过程中如果发现油脂被弄脏, 请先擦干旧油脂后注入指定的油脂。
- 7) 使用时禁止负载或容许转数等超过本公司的规定。
- 8) 禁止手持电机线和传感器线。切实固定后运转。
- 9) 远离磁性存储设备。

- 1) Before using these products, please read instruction manuals and follow the precautions below.
- 2) Do not hit or drop the Shaft, do not apply Axial or Radial load exceeding specifications, it may cause malfunction.
- 3) Before using, please check that the product has no defect, and product is the same as your order.
- 4) Do not disassemble each component, dust may get inside the product. It may deteriorate accuracy.
- 5) Please prevent contamination from dust or swarf. Dust or swarf may cause damage to Ball Screw / Lead Screw, which lead to deteriorating the function.
- 6) Flex Actuators should be checked the lubricant condition every 2 to 3 months. If Grease is contaminated, remove old Grease and replace with new one.
Grease should be the same as the original Grease, which is described in specification table.
- 7) Do not use Flex Actuators exceeding our specifications in Load or Speed.
- 8) Do not hold the Motor leads and Motor shaft, this may result in damage to the device or injury. The Motor lead wire should be fixed securely.
- 9) Keep away from Magnetic memory device.

[安全注意事项 / Precaution for safety]

- 1) 如果出现异味、噪音、烟雾、过热或振动, 请立即停止操作并关闭电源。
- 2) 禁止使用超过额定电流的电源。
- 3) 根据负载条件或所使用的驱动电机可能会过热。应确保电机表面温度不超过80℃。
- 4) 禁止弯曲、拉拽、夹住导线。
- 5) 开动过程中禁止触摸传动件。
- 6) 保养检查之前切断驱动的输入电源。

- 1) If abnormal odor, noise, smoke overheating, or vibration occurs, stop operation immediately and turn the power off.
- 2) Do not use exceeding rated current.
- 3) The motor may overheat depending on the load conditions or driver used. Make sure that the motor surface temperature does not exceed 80℃ when in use.
- 4) Do not bend, pull or pinch the Motor lead wire.
- 5) Do not touch moving parts during operation.
- 6) Please switch off the Driver, when inspection or maintenance.

[使用环境 / Operating environment]

- 1) 在周围温度超过0~40℃的范围、周围湿度超过20~80%RH的范围以及出现结露、腐蚀性气体或者可燃性气体的场所禁止使用。
- 2) 禁止在出现强电场或强磁场的场所使用。
- 3) 禁止在金属屑、粉尘、油雾、切削液、水分、盐、有机溶剂出现或飞散的场所使用。
- 4) 禁止在有振动的场所或者冲击、真空等特殊环境下使用。

- 1) Operating environment should be 0~40℃ in temperature and 20~80%RH in humidity.
Do not use these products under dew condensation, corrosive gas or inflammable gas environment.
- 2) Do not use these products under strong electric field, strong magnetic field.
- 3) Please prevent from swarf, oil mist, cutting fluid, Water / moisture, salt spray, organic solvent and other contamination.
- 4) Flex Actuators cannot be used under the vibration, impact, vacuum, and other special environment.