

# 冷轧滚珠丝杠型(TMB) Rolled Ball Screw type(TMB)



## 冷轧魔博 / Rolled MoBo



- **特点**
  - 是将5相步进电机直接组装到精密等级为Ct7的冷轧滚珠丝杠轴端上的产品，一般定位性能优异。
  - 具有将滚珠丝杠轴心作为电机旋转轴心的理想结构。
  - 直连结构省去了联轴器的使用，不仅缩短长边方向尺寸，还能减少作业工时。
  - 还备有推荐的5相步进电机用驱动器。
  - 螺母块、电机板等附件也很齐全。

- **Features**
  - A 5-phase Stepping Motor is mounted directly onto the shaft end of a Ct7 grade Rolled Ball Screw, which is all-round performance drive unit.
  - Ball Screw Shaft is ideally constructed to form the Motor Rotor Shaft.
  - Since combining the Motor Shaft and Ball Screw Shaft, Coupling-less, saving total length, and reducing labor cost can be achieved.
  - Recommended Driver for 5-phase Stepping Motor is available.
  - Accessories are also provided as mounting kit, such as Nut block and Motor plate.

### ● 基本规格 / Specifications

Model 型号	Shaft Nominal Dia. 丝杠轴公称外径 (mm)	Lead 导程 (mm)	Travel 行程 (mm)	Travel per pulse 1脉冲移动量 ( $\mu\text{m}$ )	Reference Thrust 参考推力 (N)	Mass 重量 (g)
TMB0401	$\phi 4$	1	30	2	50	100
TMB0504	$\phi 5$	4	75	8	25	180
TMB0601	$\phi 6$	1	75	2	100	180
TMB0602	$\phi 6$	2	75	4	50	180
TMB0606	$\phi 6$	6	75	12	15	180
TMB0801	$\phi 8$	1	150	2	300	320
TMB0802	$\phi 8$	2	150	4	150	320
TMB0805	$\phi 8$	5	150	10	120	450
TMB0812	$\phi 8$	12	150	24	50	450

Repeatability (reference) 重复定位精度 (参考值)	max. $\pm 0.01\text{mm}$
Lost Motion (reference) 空转 (参考值)	max. $0.01\text{mm}$

※重复定位精度及空转值是安装在本公司标准滑台上时测得的值。实际值请洽询本公司。

※The reference value about Repeatability and Lost Motion represents when the MoBo built into KSS original actuator. Please make a contact to KSS for actual value.

- 注1) 关于详细尺寸，请参考F119页以后的规格图。
- 注2) 1脉冲的移动量为整步时的值。
- 注3) 加减速速率的参考值为20ms/kHz以上。
- 注4) 参考推力根据不同条件会有很大变化，请垂询本公司。

- Note 1) Detail specifications & dimensions are shown in drawings from page F119.
- Note 2) Travel per pulse represents the value for full step.
- Note 3) Acceleration & Deceleration Rate should be 20ms/kHz or more.
- Note 4) Reference Thrust may vary depending on the operating condition, please ask KSS for more detail.

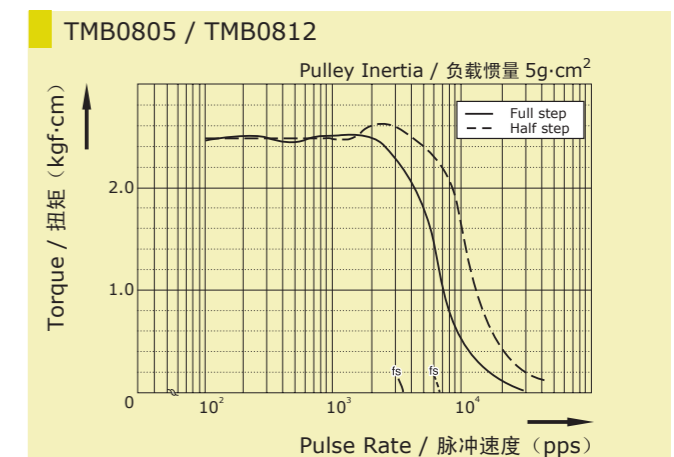
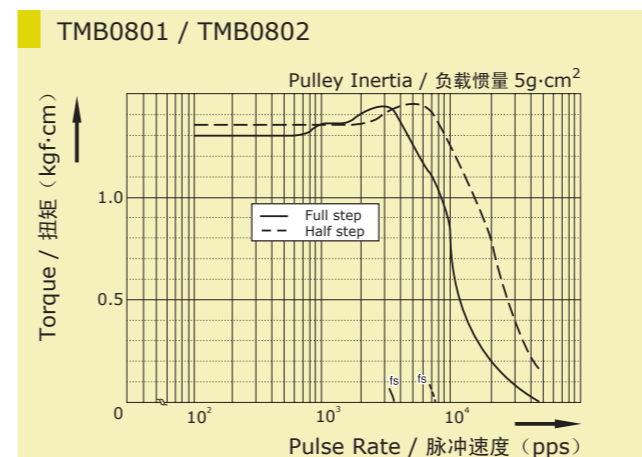
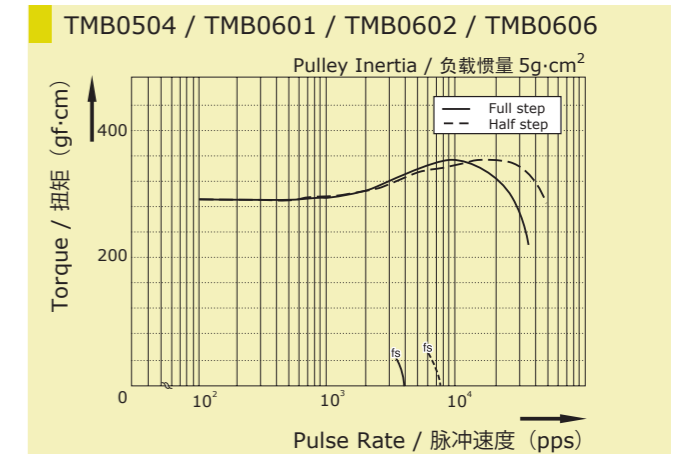
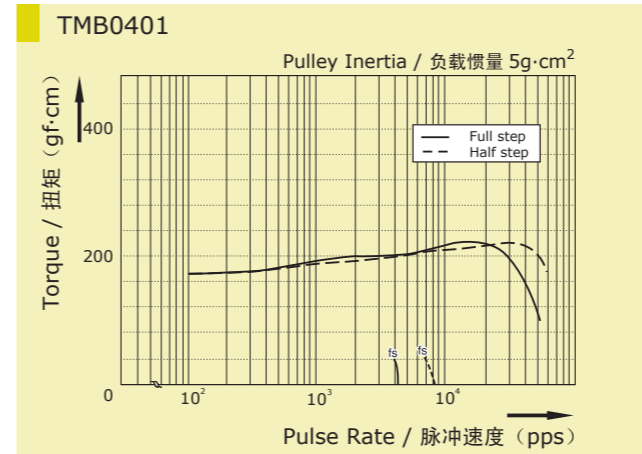
### ● 电机规格 / Motor Specifications

Model 型号	Motor size 电机规格 (mm)	Rated voltage 额定电压 (V)	Rated current 额定电流 (A/phase) (A/相)	Winding resistance 绕组电阻 ( $\Omega$ )	Holding torque 保持扭矩 (Nm)	Rotor Inertia 转子惯量 ( $\text{g}\cdot\text{cm}^2$ )
TMB0401	$\square 24$	DC 0.83	0.75	1.1	0.018	4.2
TMB0504	$\square 24$	DC 1.28	0.75	1.7	0.028	8.3
TMB0601	$\square 24$	DC 1.28	0.75	1.7	0.028	8.8
TMB0602	$\square 24$	DC 1.28	0.75	1.7	0.028	8.7
TMB0606	$\square 24$	DC 1.28	0.75	1.7	0.028	8.8
TMB0801	$\square 42$	DC 1.28	0.75	1.7	0.128	40
TMB0802	$\square 42$	DC 1.28	0.75	1.7	0.128	40
TMB0805	$\square 42$	DC 1.65	0.75	2.2	0.236	74
TMB0812	$\square 42$	DC 1.65	0.75	2.2	0.236	74

- 注1) 基本步进角为 $0.72^\circ$ 。
- 注2) 转子惯量为包含滚珠丝杠轴的值。

- Note 1) Basic step angle is  $0.72^\circ$
- Note 2) Rotor Inertia includes Ball Screw Shaft.

### ● 电机特性 / Motor Characteristic



### ■ Test condition / 测试条件

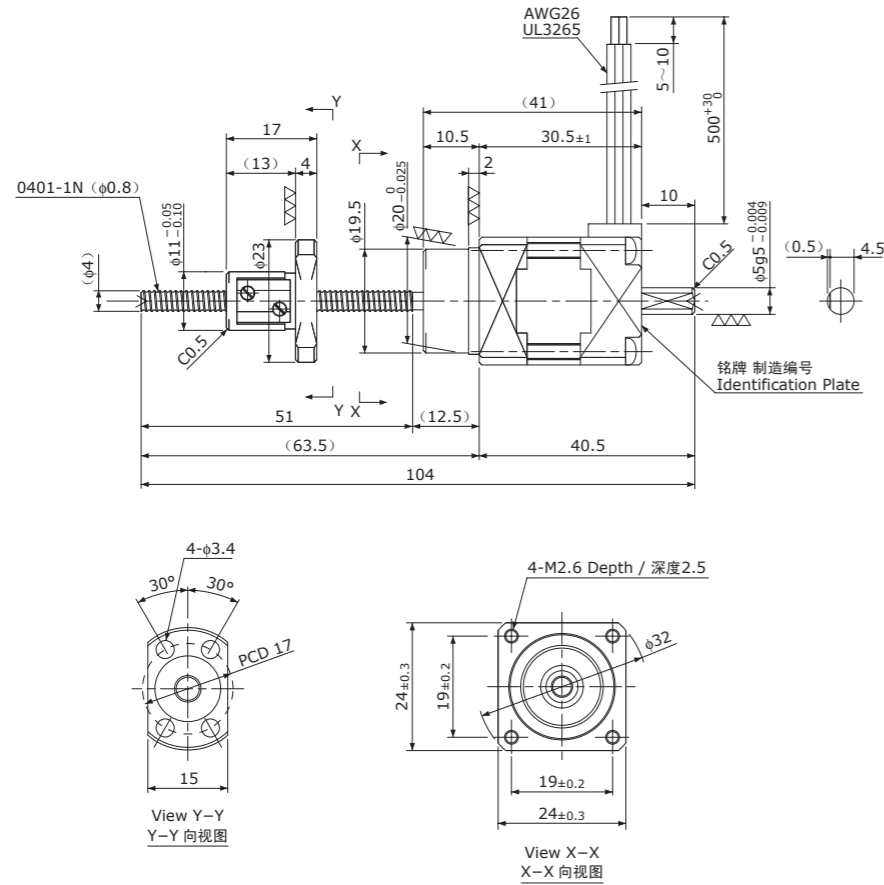
Driver / 驱动器: Maker Standard / 厂家标准机  
Input Voltage / 电源电压: DC24V  
Phase Current / 设定电流: 0.75A

注) 电机特性因驱动器、运行条件而异。  
Note) Motor characteristic will vary depending on Driver type, operating conditions.

冷轧滚珠丝杠+5相步进电机 / Rolled Ball Screw + 5-phase Stepping Motor

# TMB0401

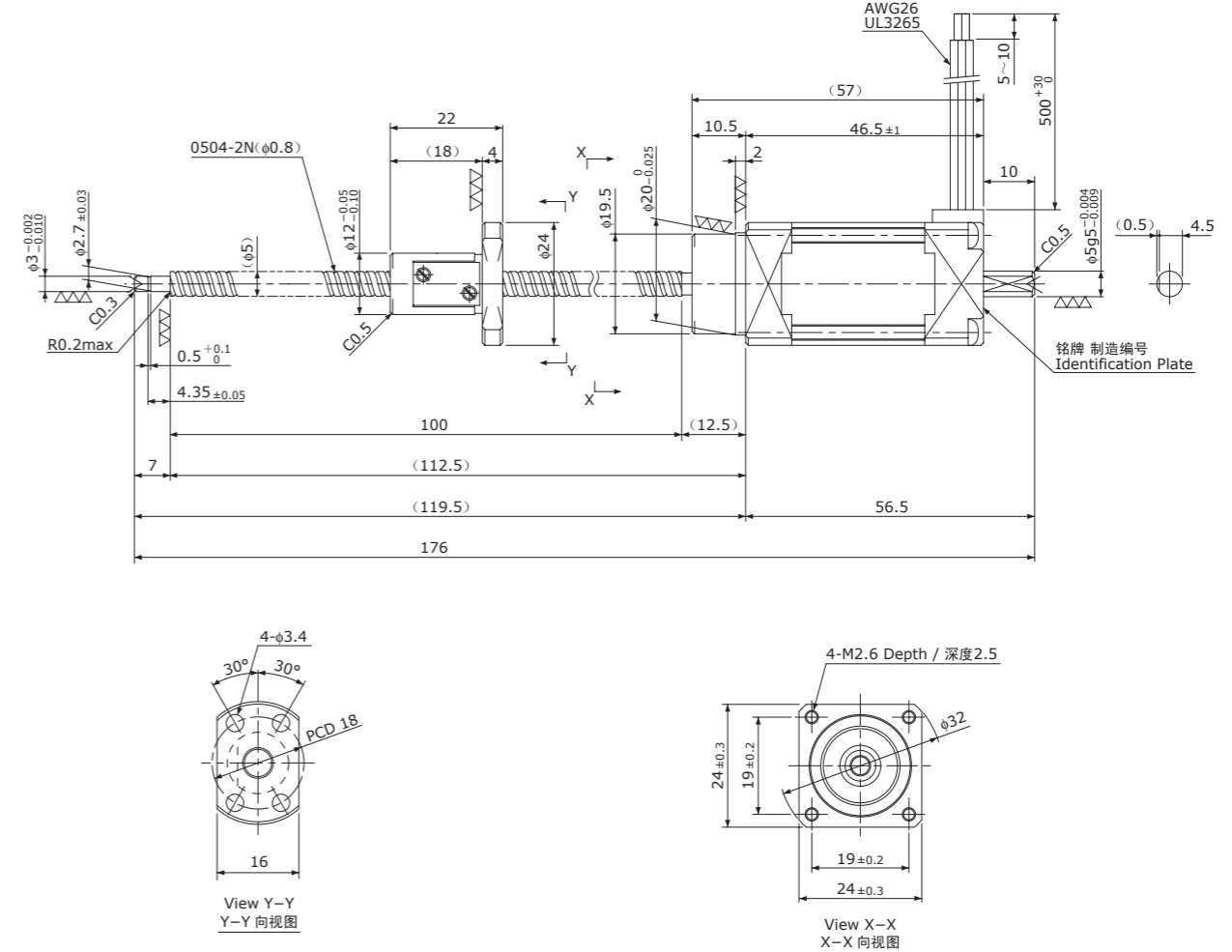
Shaft dia.(轴径) $\phi 4$  Lead(导程)1mm  
Travel(行程)30mm



冷轧滚珠丝杠+5相步进电机 / Rolled Ball Screw + 5-phase Stepping Motor

# TMB0504

Shaft dia.(轴径) $\phi 5$  Lead(导程)4mm  
Travel(行程)75mm



Recommended Drivers 推荐的驱动器	KR-A5CC
	KR-A55MC(Micro step)
	KR-A535M(Micro step / AC-100~220V)

注) 只能裁切轴端。  
其他轴端形状为定制产品。  
Note) Only shaft end cutting is available.  
Other than that, it would be customized order.

Recommended accessories 推荐的配件	Motor side Supporting plate / 电机侧支架板	MP-24A or MP-24B
	Supported side Bracket / 支撑侧托架	-
	Nut Block / 螺母块	NB-0401R

Ball Screw Specifications 主要技术参数	
Accuracy grade 精度等级	JIS Ct7
Thread direction 旋向	Right 右
Axial play 轴向间隙	0.020mm or less 0.020mm以下
Reference Thrust 参考推力	50N
Shaft & Nut material 丝杠轴、螺母材质	Chrome-molybdenum steel 铬钼钢
Surface Coating 表面处理	Black Chrome coating on Shaft 丝杠轴采用黑铬处理
Surface hardness 螺纹部表面硬度	HRC58~62 (Thread area)
Lubricant 润滑剂	KSS original grease MSG No.1 KSS原装油脂 MSG No.1

Motor Specifications 电机参数	
Basic step angle 基本步进角	0.72°
Rated Voltage 额定电压	DC 0.83 V
Rated current 额定电流	0.75A/phase 0.75A/相
Winding resistance 绕组电阻	1.1 Ω
Holding Torque 保持扭矩	0.018Nm
Rotor inertia 转子惯量	4.2g·cm <sup>2</sup>
Operating temperature 使用温度范围	-20°C~50°C

Recommended Drivers 推荐的驱动器	KR-A5CC
	KR-A55MC(Micro step)
	KR-A535M(Micro step / AC-100~220V)

注) 只能裁切轴端。  
其他轴端形状为定制产品。  
Note) Only shaft end cutting is available.  
Other than that, it would be customized order.

Recommended accessories 推荐的配件	Motor side Supporting plate / 电机侧支架板	MP-24A or MP-24B
	Supported side Bracket / 支撑侧托架	SP-24A
	Nut Block / 螺母块	NB-0504R

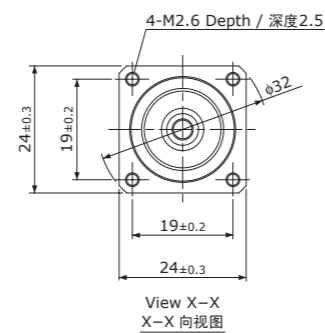
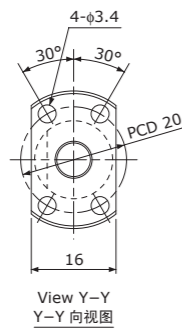
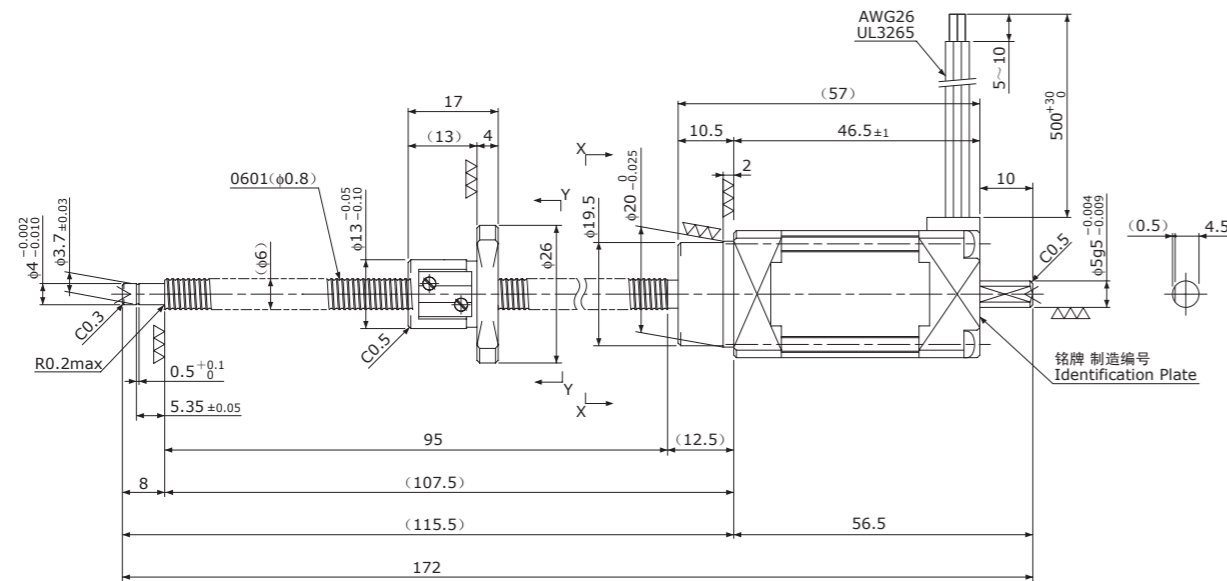
Ball Screw Specifications 主要技术参数	
Accuracy grade 精度等级	JIS Ct7
Thread direction 旋向	Right 右
Axial play 轴向间隙	0.020mm or less 0.020mm以下
Reference Thrust 参考推力	25N
Shaft & Nut material 丝杠轴、螺母材质	Chrome-molybdenum steel 铬钼钢
Surface Coating 表面处理	Black Chrome coating on Shaft 丝杠轴采用黑铬处理
Surface hardness 螺纹部表面硬度	HRC58~62 (Thread area)
Lubricant 润滑剂	KSS original grease MSG No.1 KSS原装油脂 MSG No.1

Motor Specifications 电机参数	
Basic step angle 基本步进角	0.72°
Rated Voltage 额定电压	DC 1.28 V
Rated current 额定电流	0.75A/phase 0.75A/相
Winding resistance 绕组电阻	1.7 Ω
Holding Torque 保持扭矩	0.028Nm
Rotor inertia 转子惯量	8.3g·cm <sup>2</sup>
Operating temperature 使用温度范围	-20°C~50°C

冷轧滚珠丝杠+5相步进电机 / Rolled Ball Screw + 5-phase Stepping Motor

# TMB0601

Shaft dia.(轴径)φ6 Lead(导程)1mm  
Travel(行程)75mm



Recommended Drivers 推荐的驱动器	KR-A5CC
	KR-A55MC(Micro step)
	KR-A535M(Micro step / AC-100~220V)

注) 只能裁切轴端。  
其他轴端形状为定制产品。  
Note) Only shaft end cutting is available.  
Other than that, it would be customized order.

Recommended accessories 推荐的配件	Motor side Supporting plate / 电机侧支架板	MP-24A or MP-24B
	Supported side Bracket / 支撑侧托架	SP-24
	Nut Block / 螺母块	NB-0601R

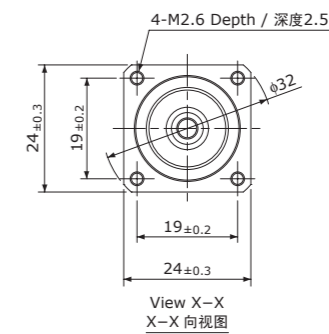
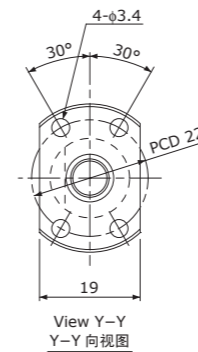
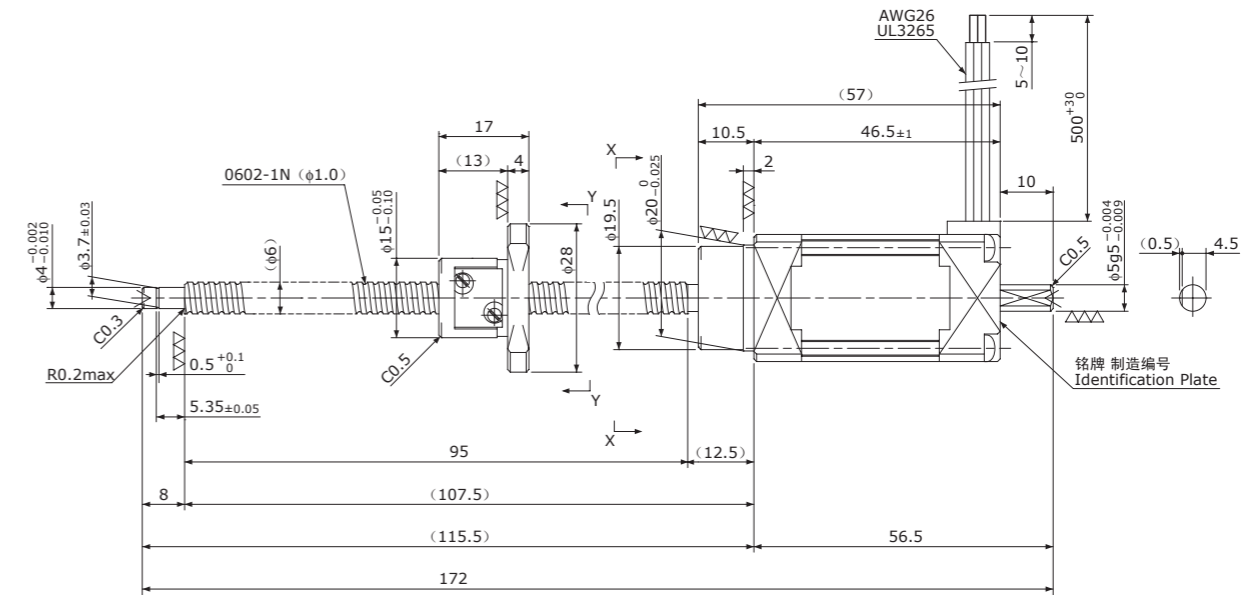
Ball Screw Specifications 主要技术参数	
Accuracy grade 精度等级	JIS Ct7
Thread direction 旋向	Right 右
Axial play 轴向间隙	0.020mm or less 0.020mm以下
Reference Thrust 参考推力	100N
Shaft & Nut material 丝杠轴、螺母材质	Chrome-molybdenum steel 铬钼钢
Surface Coating 表面处理	Black Chrome coating on Shaft 丝杠轴采用黑铬处理
Surface hardness 螺纹部表面硬度	HRC58~62 (Thread area)
Lubricant 润滑剂	KSS original grease MSG No.1 KSS原装油脂 MSG No.1

Motor Specifications 电机参数	
Basic step angle 基本步进角	0.72°
Rated Voltage 额定电压	DC 1.28 V
Rated current 额定电流	0.75A/phase 0.75A/相
Winding resistance 绕组电阻	1.7 Ω
Holding Torque 保持扭矩	0.028Nm
Rotor inertia 转子惯量	8.8g·cm <sup>2</sup>
Operating temperature 使用温度范围	-20°C~50°C

冷轧滚珠丝杠+5相步进电机 / Rolled Ball Screw + 5-phase Stepping Motor

# TMB0602

Shaft dia.(轴径)φ6 Lead(导程)2mm  
Travel(行程)75mm



Recommended Drivers 推荐的驱动器	KR-A5CC
	KR-A55MC(Micro step)
	KR-A535M(Micro step / AC-100~220V)

注) 只能裁切轴端。  
其他轴端形状为定制产品。  
Note) Only shaft end cutting is available.  
Other than that, it would be customized order.

Recommended accessories 推荐的配件	Motor side Supporting plate / 电机侧支架板	MP-24A or MP-24B
	Supported side Bracket / 支撑侧托架	SP-24
	Nut Block / 螺母块	NB-0602R

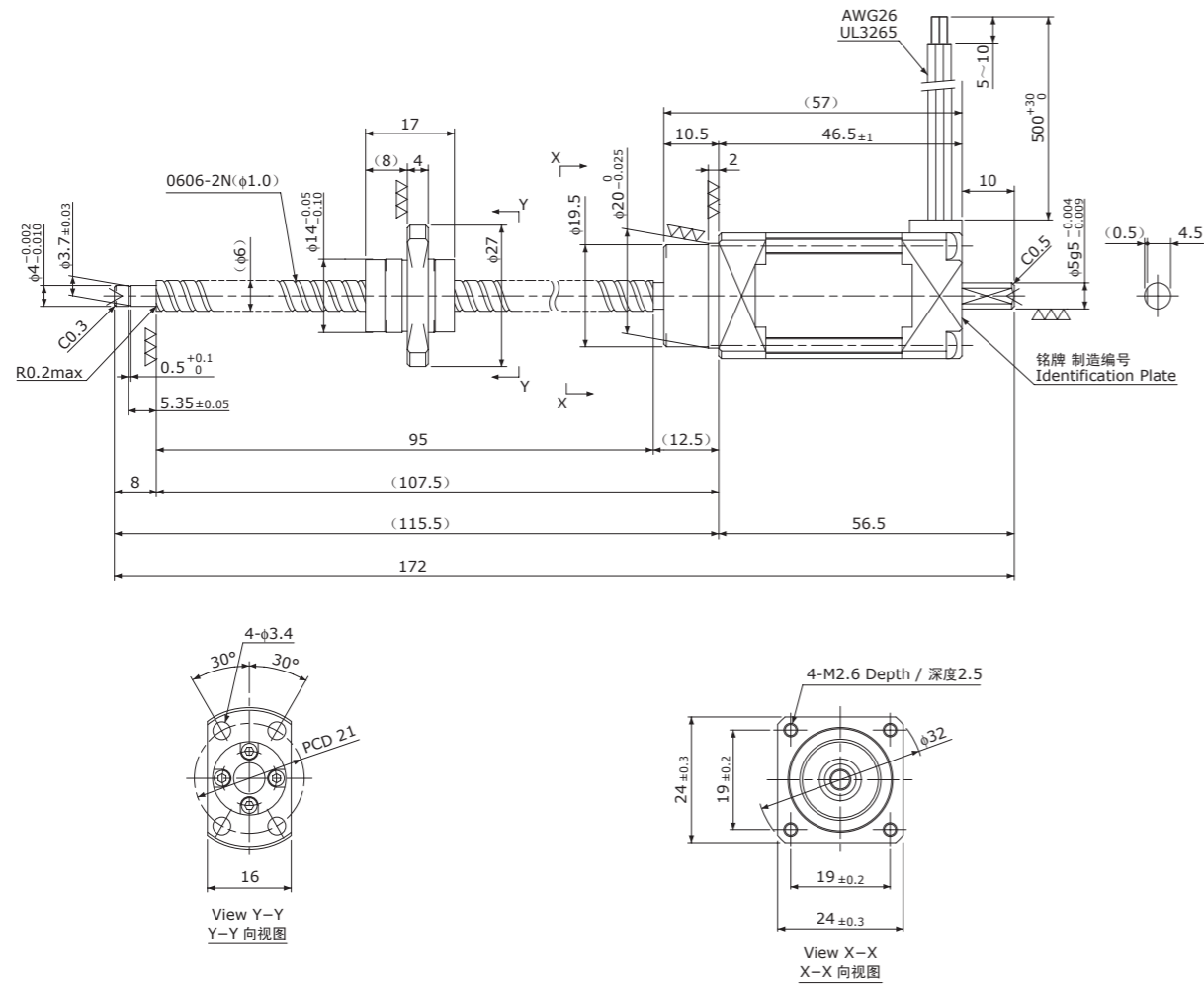
Ball Screw Specifications 主要技术参数	
Accuracy grade 精度等级	JIS Ct7
Thread direction 旋向	Right 右
Axial play 轴向间隙	0.020mm or less 0.020mm以下
Reference Thrust 参考推力	50N
Shaft & Nut material 丝杠轴、螺母材质	Chrome-molybdenum steel 铬钼钢
Surface Coating 表面处理	Black Chrome coating on Shaft 丝杠轴采用黑铬处理
Surface hardness 螺纹部表面硬度	HRC58~62 (Thread area)
Lubricant 润滑剂	KSS original grease MSG No.1 KSS原装油脂 MSG No.1

Motor Specifications 电机参数	
Basic step angle 基本步进角	0.72°
Rated Voltage 额定电压	DC 1.28 V
Rated current 额定电流	0.75A/phase 0.75A/相
Winding resistance 绕组电阻	1.7 Ω
Holding Torque 保持扭矩	0.028Nm
Rotor inertia 转子惯量	8.7g·cm <sup>2</sup>
Operating temperature 使用温度范围	-20°C~50°C

冷轧滚珠丝杠+5相步进电机 / Rolled Ball Screw + 5-phase Stepping Motor

# TMB0606

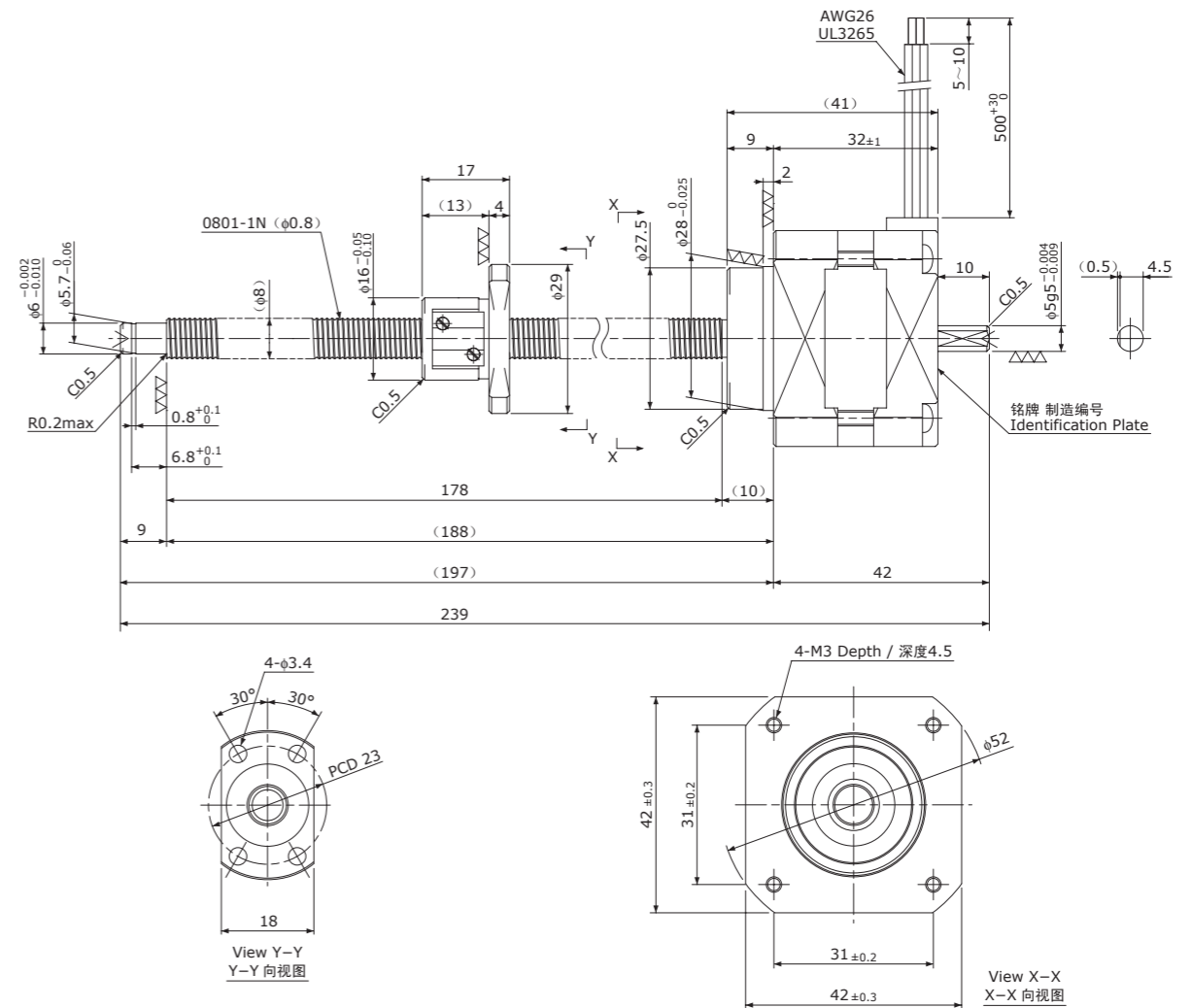
Shaft dia.(轴径)φ6 Lead(导程)6mm  
Travel(行程)75mm



冷轧滚珠丝杠+5相步进电机 / Rolled Ball Screw + 5-phase Stepping Motor

# TMB0801

Shaft dia.(轴径)φ8 Lead(导程)1mm  
Travel(行程)150mm



Recommended Drivers 推荐的驱动器	KR-A5CC KR-A55MC(Micro step) KR-A535M(Micro step / AC-100~220V)
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注) 只能裁切轴端。  
其他轴端形状为定制产品。  
Note) Only shaft end cutting is available.  
Other than that, it would be customized order.

Recommended accessories 推荐的配件	Motor side Supporting plate / 电机侧支架板	MP-24A or MP-24B
	Supported side Bracket / 支撑侧托架	SP-24
	Nut Block / 螺母块	NB-0606R

Ball Screw Specifications 主要技术参数	
Accuracy grade 精度等级	JIS Ct7
Thread direction 旋向	Right 右
Axial play 轴向间隙	0.020mm or less 0.020mm以下
Reference Thrust 参考推力	15N
Shaft & Nut material 丝杠轴、螺母材质	Chrome-molybdenum steel 铬钼钢
Surface Coating 表面处理	Black Chrome coating on Shaft 丝杠轴采用黑铬处理
Surface hardness 螺纹部表面硬度	HRC58~62 (Thread area)
Lubricant 润滑剂	KSS original grease MSG No.1 KSS原装油脂 MSG No.1

Motor Specifications 电机参数	
Basic step angle 基本步进角	0.72°
Rated Voltage 额定电压	DC 1.28 V
Rated current 额定电流	0.75A/phase 0.75A/相
Winding resistance 绕组电阻	1.7 Ω
Holding Torque 保持扭矩	0.028Nm
Rotor inertia 转子惯量	8.8g·cm <sup>2</sup>
Operating temperature 使用温度范围	-20°C~50°C

Recommended Drivers 推荐的驱动器	KR-A5CC KR-A55MC(Micro step) KR-A535M(Micro step / AC-100~220V)
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注) 只能裁切轴端。  
其他轴端形状为定制产品。  
Note) Only shaft end cutting is available.  
Other than that, it would be customized order.

Recommended accessories 推荐的配件	Motor side Supporting plate / 电机侧支架板	MP-24A or MP-24B
	Supported side Bracket / 支撑侧托架	SP-42
	Nut Block / 螺母块	NB-0801R

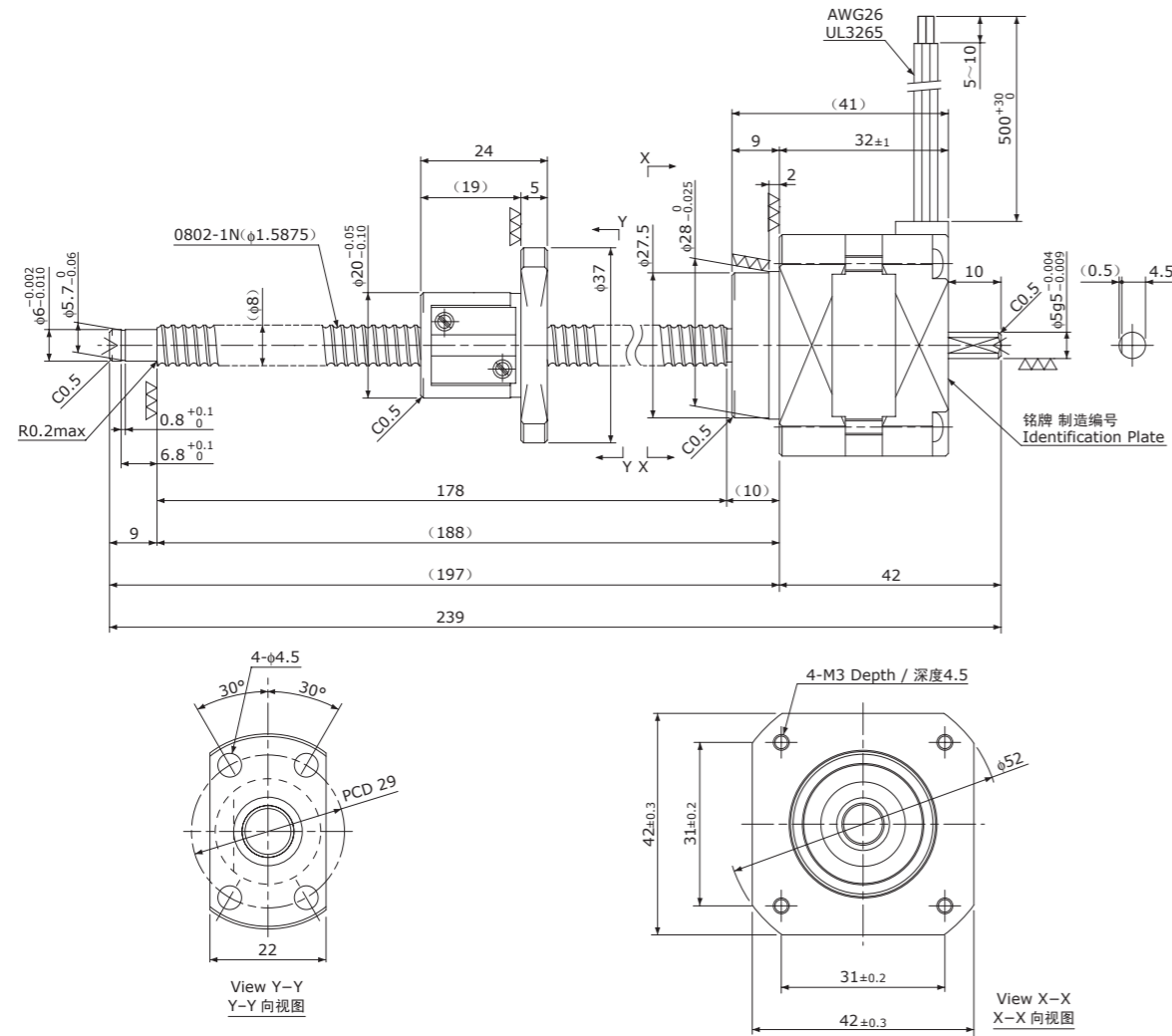
Ball Screw Specifications 主要技术参数	
Accuracy grade 精度等级	JIS Ct7
Thread direction 旋向	Right 右
Axial play 轴向间隙	0.020mm or less 0.020mm以下
Reference Thrust 参考推力	300N
Shaft & Nut material 丝杠轴、螺母材质	Chrome-molybdenum steel 铬钼钢
Surface Coating 表面处理	Black Chrome coating on Shaft 丝杠轴采用黑铬处理
Surface hardness 螺纹部表面硬度	HRC58~62 (Thread area)
Lubricant 润滑剂	KSS original grease MSG No.1 KSS原装油脂 MSG No.1

Motor Specifications 电机参数	
Basic step angle 基本步进角	0.72°
Rated Voltage 额定电压	DC 1.28 V
Rated current 额定电流	0.75A/phase 0.75A/相
Winding resistance 绕组电阻	1.7 Ω
Holding Torque 保持扭矩	0.128Nm
Rotor inertia 转子惯量	40g·cm <sup>2</sup>
Operating temperature 使用温度范围	-20°C~50°C

冷轧滚珠丝杠+5相步进电机 / Rolled Ball Screw + 5-phase Stepping Motor

# TMB0802

Shaft dia.(轴径)φ8 Lead(导程)2mm  
Travel(行程)150mm



Recommended Drivers 推荐的驱动器	KR-A5CC KR-A55MC(Micro step) KR-A535M(Micro step / AC-100~220V)
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注) 只能裁切轴端。  
其他轴端形状为定制产品。  
Note) Only shaft end cutting is available.  
Other than that, it would be customized order.

Recommended accessories 推荐的配件	Motor side Supporting plate / 电机侧支架板	MP-42A or MP-42B
	Supported side Bracket / 支撑侧托架	SP-42
	Nut Block / 螺母块	NB-0802R

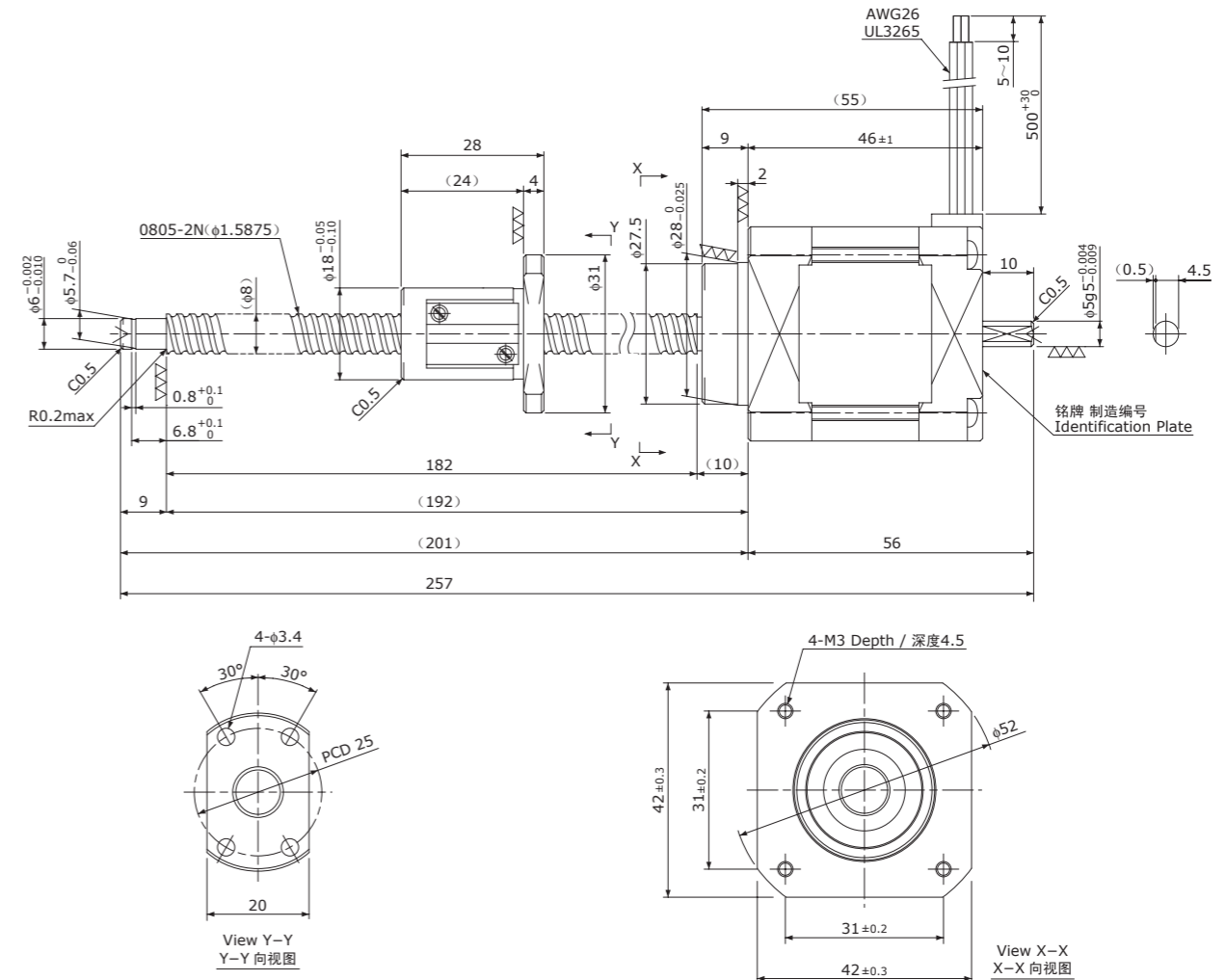
Ball Screw Specifications 主要技术参数	
Accuracy grade 精度等级	JIS Ct7
Thread direction 旋向	Right 右
Axial play 轴向间隙	0.020mm or less 0.020mm以下
Reference Thrust 参考推力	150N
Shaft & Nut material 丝杠轴、螺母材质	Chrome-molybdenum steel 铬钼钢
Surface Coating 表面处理	Black Chrome coating on Shaft 丝杠轴采用黑铬处理
Surface hardness 螺纹部表面硬度	HRC58~62 (Thread area)
Lubricant 润滑剂	KSS original grease MSG No.1 KSS原装油脂 MSG No.1

Motor Specifications 电机参数	
Basic step angle 基本步进角	0.72°
Rated Voltage 额定电压	DC 1.28 V
Rated current 额定电流	0.75A/phase 0.75A/相
Winding resistance 绕组电阻	1.7 Ω
Holding Torque 保持扭矩	0.128Nm
Rotor inertia 转子惯量	40g·cm <sup>2</sup>
Operating temperature 使用温度范围	-20°C~50°C

冷轧滚珠丝杠+5相步进电机 / Rolled Ball Screw + 5-phase Stepping Motor

# TMB0805

Shaft dia.(轴径)φ8 Lead(导程)5mm  
Travel(行程)150mm



Recommended Drivers 推荐的驱动器	KR-A5CC KR-A55MC(Micro step) KR-A535M(Micro step / AC-100~220V)
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注) 只能裁切轴端。  
其他轴端形状为定制产品。  
Note) Only shaft end cutting is available.  
Other than that, it would be customized order.

Recommended accessories 推荐的配件	Motor side Supporting plate / 电机侧支架板	MP-42A or MP-42B
	Supported side Bracket / 支撑侧托架	SP-42
	Nut Block / 螺母块	NB-0805R

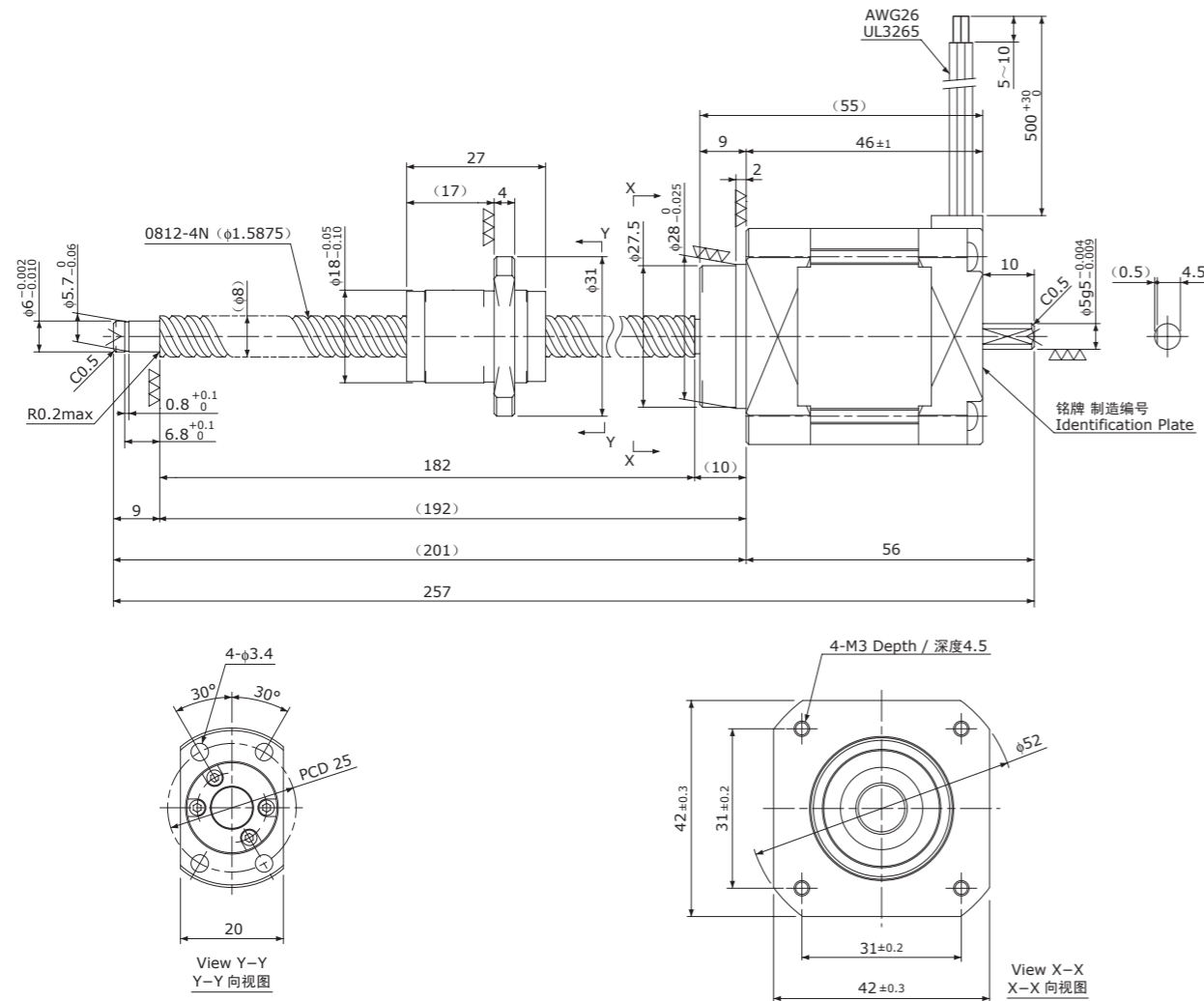
Ball Screw Specifications 主要技术参数	
Accuracy grade 精度等级	JIS Ct7
Thread direction 旋向	Right 右
Axial play 轴向间隙	0.020mm or less 0.020mm以下
Reference Thrust 参考推力	120N
Shaft & Nut material 丝杠轴、螺母材质	Chrome-molybdenum steel 铬钼钢
Surface Coating 表面处理	Black Chrome coating on Shaft 丝杠轴采用黑铬处理
Surface hardness 螺纹部表面硬度	HRC58~62 (Thread area)
Lubricant 润滑剂	KSS original grease MSG No.1 KSS原装油脂 MSG No.1

Motor Specifications 电机参数	
Basic step angle 基本步进角	0.72°
Rated Voltage 额定电压	DC 1.65 V
Rated current 额定电流	0.75A/phase 0.75A/相
Winding resistance 绕组电阻	2.2 Ω
Holding Torque 保持扭矩	0.236Nm
Rotor inertia 转子惯量	74g·cm <sup>2</sup>
Operating temperature 使用温度范围	-20°C~50°C

冷轧滚珠丝杠+5相步进电机 / Rolled Ball Screw + 5-phase Stepping Motor

# TMB0812

Shaft dia.(轴径)φ8 Lead(导程)12mm  
Travel(行程)150mm



Recommended Drivers 推荐的驱动器	KR-A5CC
	KR-A55MC(Micro step)
	KR-A535M(Micro step / AC-100~220V)

注) 只能裁切轴端。  
其他轴端形状为定制产品。  
Note) Only shaft end cutting is available.  
Other than that, it would be customized order.

Recommended accessories 推荐的配件	Motor side Supporting plate / 电机侧支架板	MP-42A or MP-42B
	Supported side Bracket / 支撑侧托架	SP-42
	Nut Block / 螺母块	NB-0812R

Ball Screw Specifications 主要技术参数	
Accuracy grade 精度等级	JIS Ct7
Thread direction 旋向	Right 右
Axial play 轴向间隙	0.020mm or less 0.020mm以下
Reference Thrust 参考推力	50N
Shaft & Nut material 丝杠轴、螺母材质	Chrome-molybdenum steel 铬钼钢
Surface Coating 表面处理	Black Chrome coating on Shaft 丝杠轴采用黑铬处理
Surface hardness 螺纹部表面硬度	HRC58~62 (Thread area)
Lubricant 润滑剂	KSS original grease MSG No.1 KSS原装油脂 MSG No.1

Motor Specifications 电机参数	
Basic step angle 基本步进角	0.72°
Rated Voltage 额定电压	DC 1.65 V
Rated current 额定电流	0.75A/phase 0.75A/相
Winding resistance 绕组电阻	2.2 Ω
Holding Torque 保持扭矩	0.236Nm
Rotor inertia 转子惯量	74g·cm <sup>2</sup>
Operating temperature 使用温度范围	-20°C~50°C