

# TMB Series Rolled Ball Screw + 5 Phase Stepping Motor



## ●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.



## ●Specifications

Model	Shaft Nominal Dia. (mm)	Lead (mm)	Travel (mm)	Travel per pules ( $\mu$ m)	Reference Thrust (N)	Mass (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)	max. $\pm$ 0.01mm
Lost Motion(reference)	max. 0.01mm

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

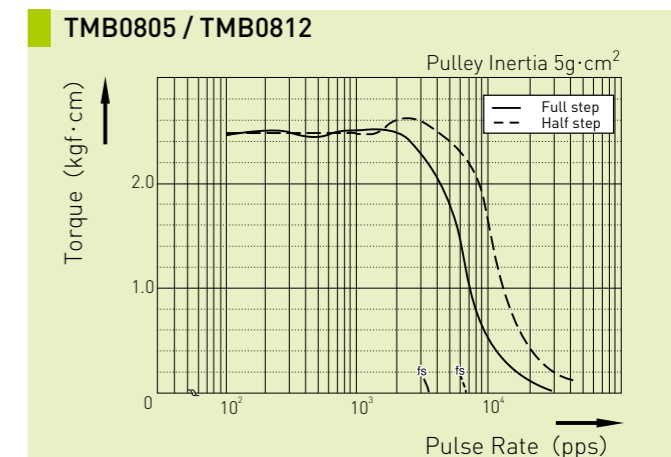
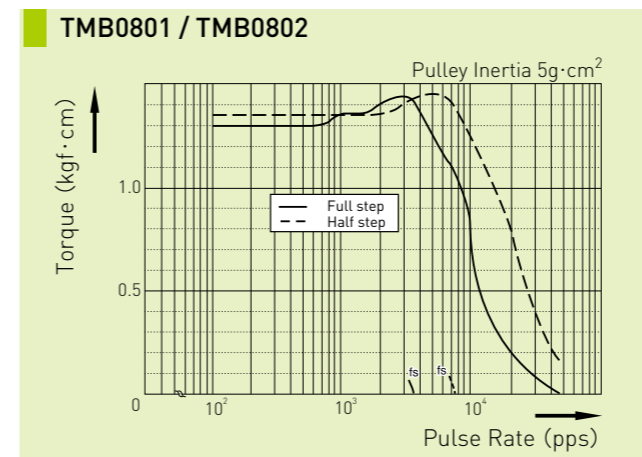
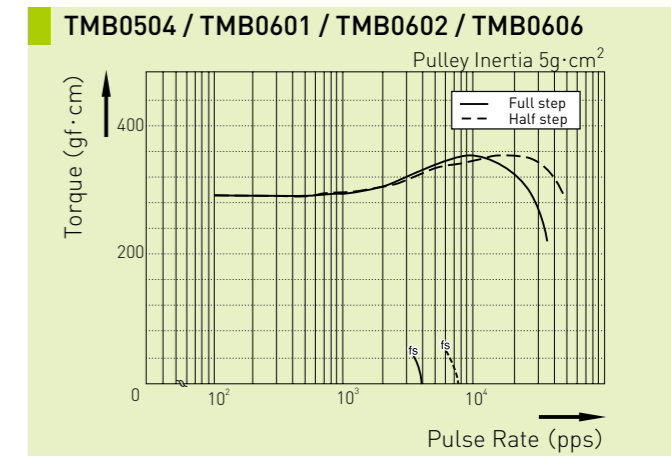
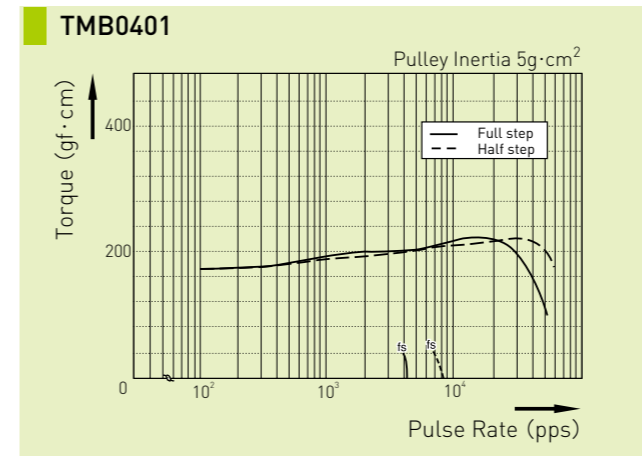
- Note 1) Detail specifications & dimensions are shown in drawings from page P124.  
 Note 2) Travel per pulse represents the value for full step.  
 Note 3) Acceleration & Deceleration Rate should be 20ms/kHz or more.  
 Note 4) Reference Thrust may vary depending on the operating condition, please ask KSS for more detail.

## ●Motor Specifications

Model	Motor size (mm)	Rated voltage (V)	Rated current (A/phase)	Winding resistance ( $\Omega$ )	Holding torque (Nm)	Rotor Inertia ( $g \cdot cm^2$ )	Load limit in Vertical Position (N)
TMB0401	NEMA 10 ( $\square$ 24)	DC 0.83	0.75	1.1	0.018	4.2	230
TMB0504	NEMA 10 ( $\square$ 24)	DC 1.28	0.75	1.7	0.028	8.3	230
TMB0601	NEMA 10 ( $\square$ 24)	DC 1.28	0.75	1.7	0.028	8.8	230
TMB0602	NEMA 10 ( $\square$ 24)	DC 1.28	0.75	1.7	0.028	8.7	230
TMB0606	NEMA 10 ( $\square$ 24)	DC 1.28	0.75	1.7	0.028	8.8	230
TMB0801	NEMA 17 ( $\square$ 42)	DC 1.28	0.75	1.7	0.128	40	300
TMB0802	NEMA 17 ( $\square$ 42)	DC 1.28	0.75	1.7	0.128	40	300
TMB0805	NEMA 17 ( $\square$ 42)	DC 1.65	0.75	2.2	0.236	74	300
TMB0812	NEMA 17 ( $\square$ 42)	DC 1.65	0.75	2.2	0.236	74	300

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

## ●Motor Characteristic



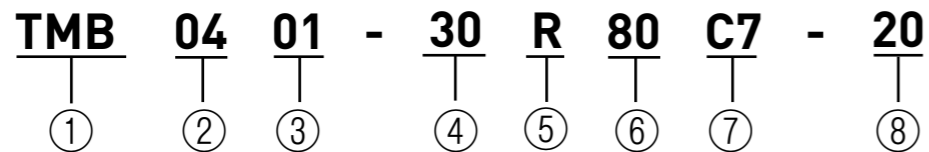
## ■Test condition

Driver: Maker Standard  
 Input Voltage : DC24V  
 Phase Currnt : 0.75A

Note) Motor characteristic will vary depending on Driver type, oeparting conditions.

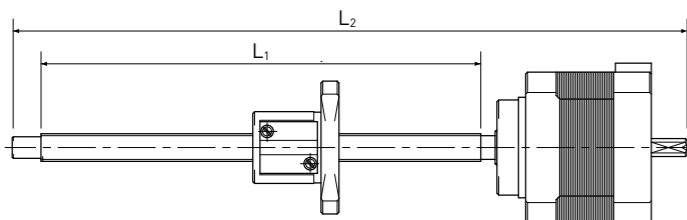
● Model number notation

Model number notation for customized TMB series is as follows.  
In case of standard style, model number is described in catalogue from page P124 to page P128.



- ① Series No.  
TMB : Rolled Ball Screw+5-phase Stepping Motor
- ② Screw Shaft nominal diameter(mm)
- ③ Lead(mm)  
01 means 1mm
- ④ Screw thread length(mm)  
L<sub>1</sub> : See below
- ⑤ Thread direction (R=Right-hand)
- ⑥ Screw Shaft total length(mm)  
L<sub>2</sub> : See below
- ⑦ Accuracy grade
- ⑧ Axial play(μm)

【④⑥Definition of Screw length】

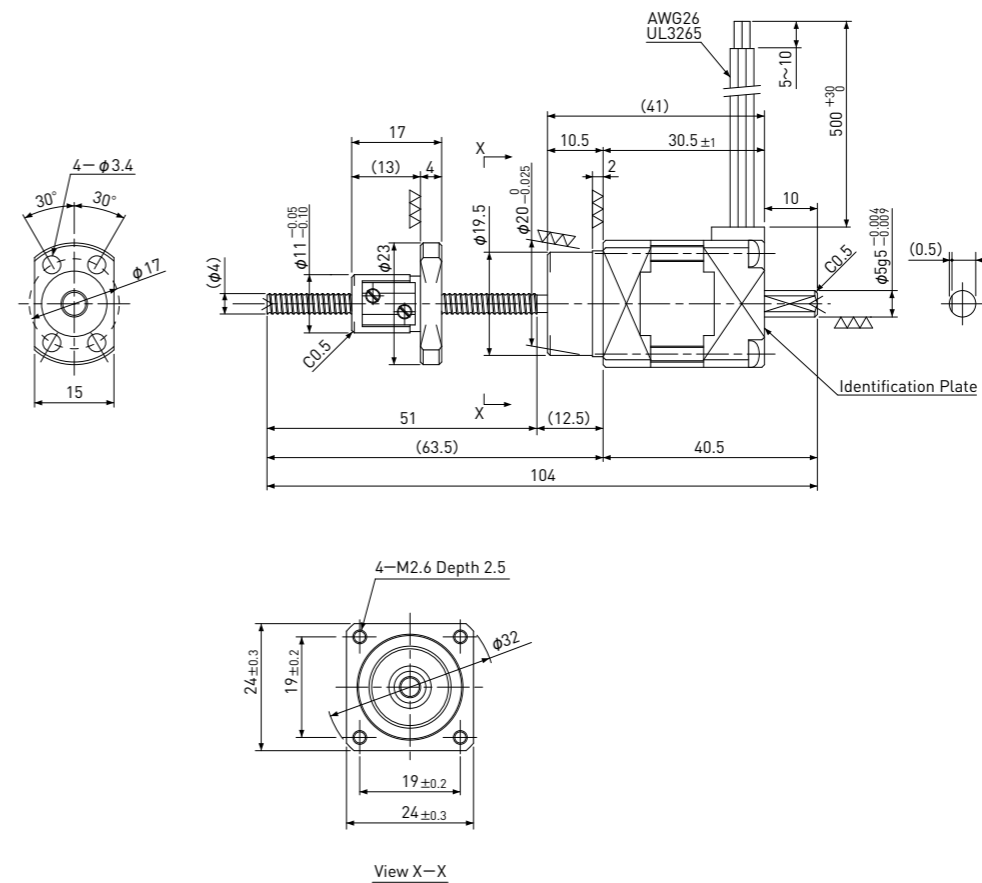


Standard products in stock TMB series

Rolled Ball Screw + 5-Phase Stepping Motor

**TMB □24 / NEMA 10**

Shaft dia. φ4



Unit:mm

Model	Lead	Travel	Reference Thrust (N)	Mass (g)
TMB0401	1	30	50	100

Recommended Drivers	KR-A5CC KR-A55MC (Micro step) KR-A535M (Micro step / AC-100~220V)
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Note) Refer to page P162 or P163 for connection diagram of recommended Drivers.

Ball Screw Specifications	
Accuracy grade	JIS Ct7
Thread direction	Right
Axial play	0.020mm or less
Shaft & Nut material	Chrome-molybdenum steel
Surface Coating	Black Chrome coating on Shaft
Surface hardness	HRC58~62 (Thread area)
Lubricant	KSS original grease MSG No.1

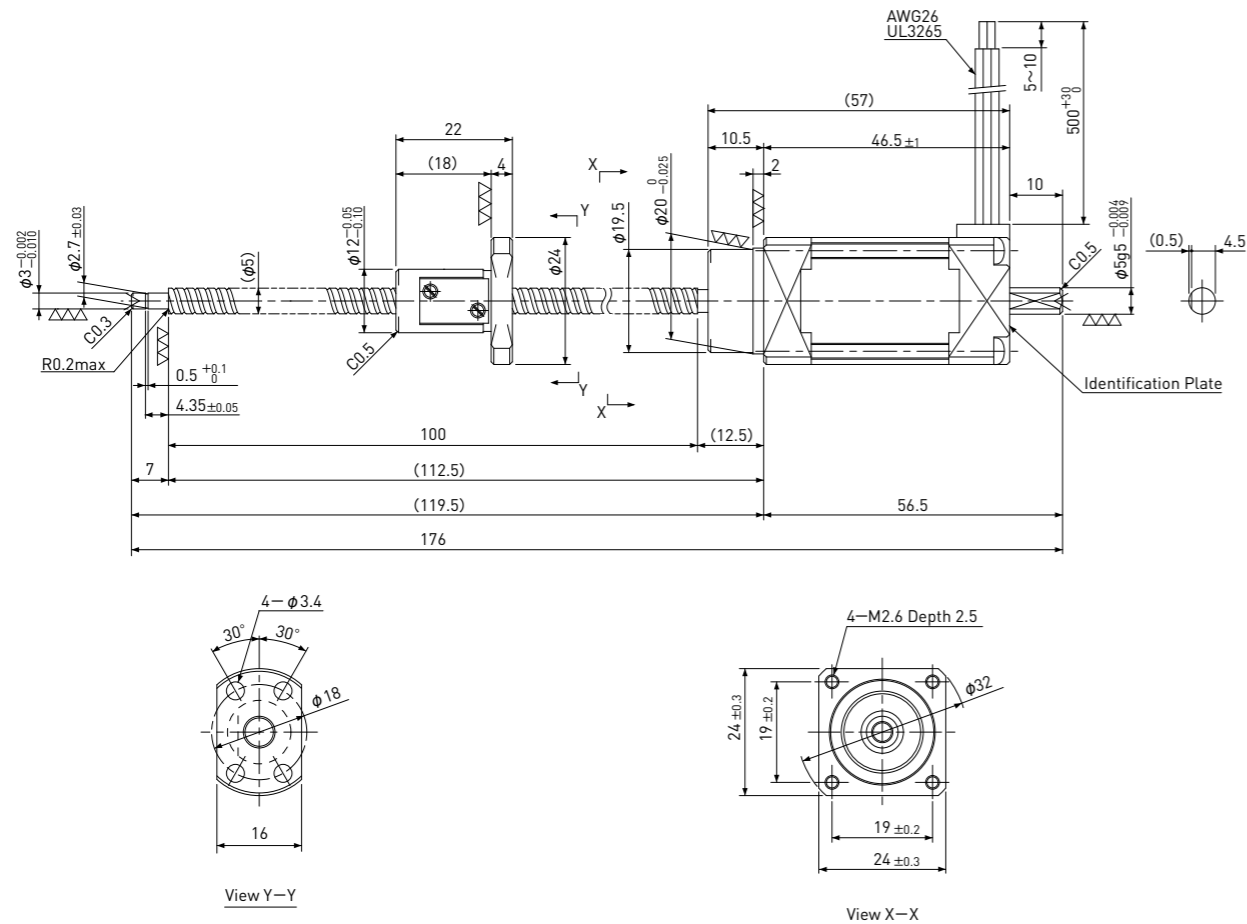
Motor Specifications	
Basic step angle	0.72°
Rated Voltage	DC 0.83 V
Rated current	DC 0.75 A/phase
Winding resistance	1.1Ω
Holding Torque	0.018Nm
Rotor inertia	4.2g·cm <sup>2</sup>
Operating temperature	-20°C~50°C

Note) Only shaft end cutting is available. Other than that, it would be customized order.

Rolled Ball Screw + 5-Phase Stepping Motor

# TMB □24 / NEMA 10

Shaft dia.  $\phi 5$



Unit:mm

Model	Lead	Travel	Reference Thrust (N)	Mass (g)
TMB0504	4	75	25	180

Recommended Drivers	KR-A5CC KR-A55MC(Micro step) KR-A535M(Micro step / AC-100~220V)
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Note) Refer to page P162 or P163 for connection diagram of recommended Drivers.

Ball Screw Specifications	
Accuracy grade	JIS Ct7
Thread direction	Right
Axial play	0.020mm or less
Shaft & Nut material	Chrome-molybdenum steel
Surface Coating	Black Chrome coating on Shaft
Surface hardness	HRC58~62 (Thread area)
Lubricant	KSS original grease MSG No.1

Motor Specifications	
Basic step angle	0.72°
Rated Voltage	DC 1.28 V
Rated current	DC 0.75 A/phase
Winding resistance	1.7 $\Omega$
Holding Torque	0.028Nm
Rotor inertia	8.3g·cm <sup>2</sup>
Operating temperature	-20°C~50°C

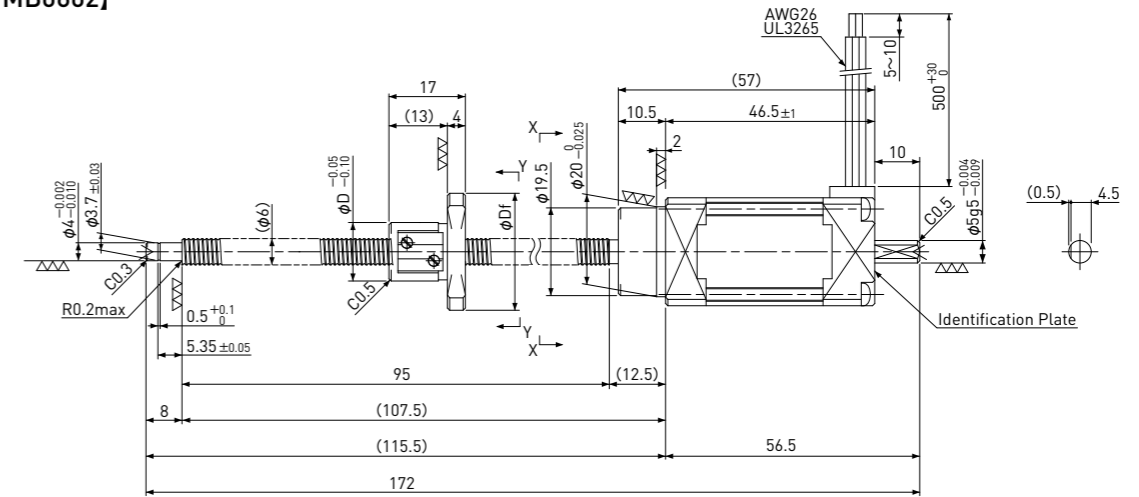
Note) Only shaft end cutting is available. Other than that, it would be customized order.

Rolled Ball Screw + 5-Phase Stepping Motor

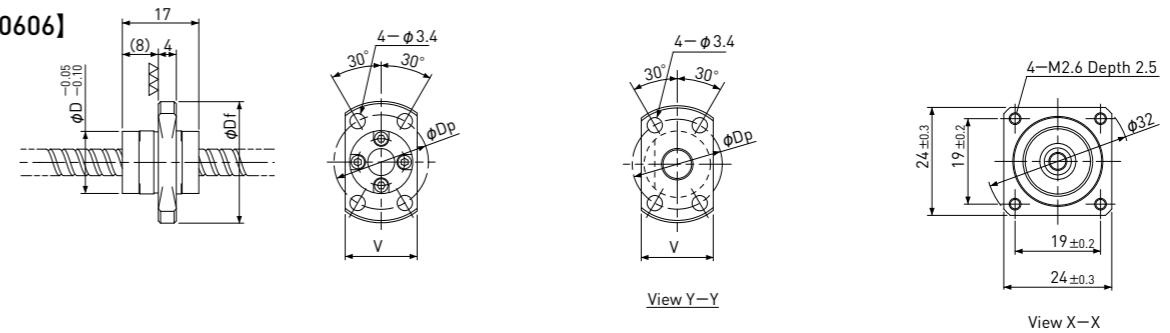
# TMB □24 / NEMA 10

Shaft dia.  $\phi 6$

[TMB0601 / TMB0602]



[TMB0606]



Unit:mm

Model	Lead	Travel	Reference Thrust (N)	D	Df	V	Dp	Mass (g)
TMB0601	1	75	100	13	26	16	20	180
TMB0602	2	75	50	15	28	19	22	180
TMB0606	6	75	15	14	27	16	21	180

Recommended Drivers	KR-A5CC KR-A55MC(Micro step) KR-A535M(Micro step / AC-100~220V)
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Note) Refer to page P162 or P163 for connection diagram of recommended Drivers.

Ball Screw Specifications	
Accuracy grade	JIS Ct7
Thread direction	Right
Axial play	0.020mm or less
Shaft & Nut material	Chrome-molybdenum steel
Surface Coating	Black Chrome coating on Shaft
Surface hardness	HRC58~62 (Thread area)
Lubricant	KSS original grease MSG No.1

Motor Specifications	
Basic step angle	0.72°
Rated Voltage	DC 1.28 V
Rated current	DC 0.75 A/phase
Winding resistance	1.7 $\Omega$
Holding Torque	0.028Nm
Rotor inertia	TMB0601、TMB0606 : 8.8g·cm <sup>2</sup> TMB0602 : 8.7g·cm <sup>2</sup>
Operating temperature	-20°C~50°C

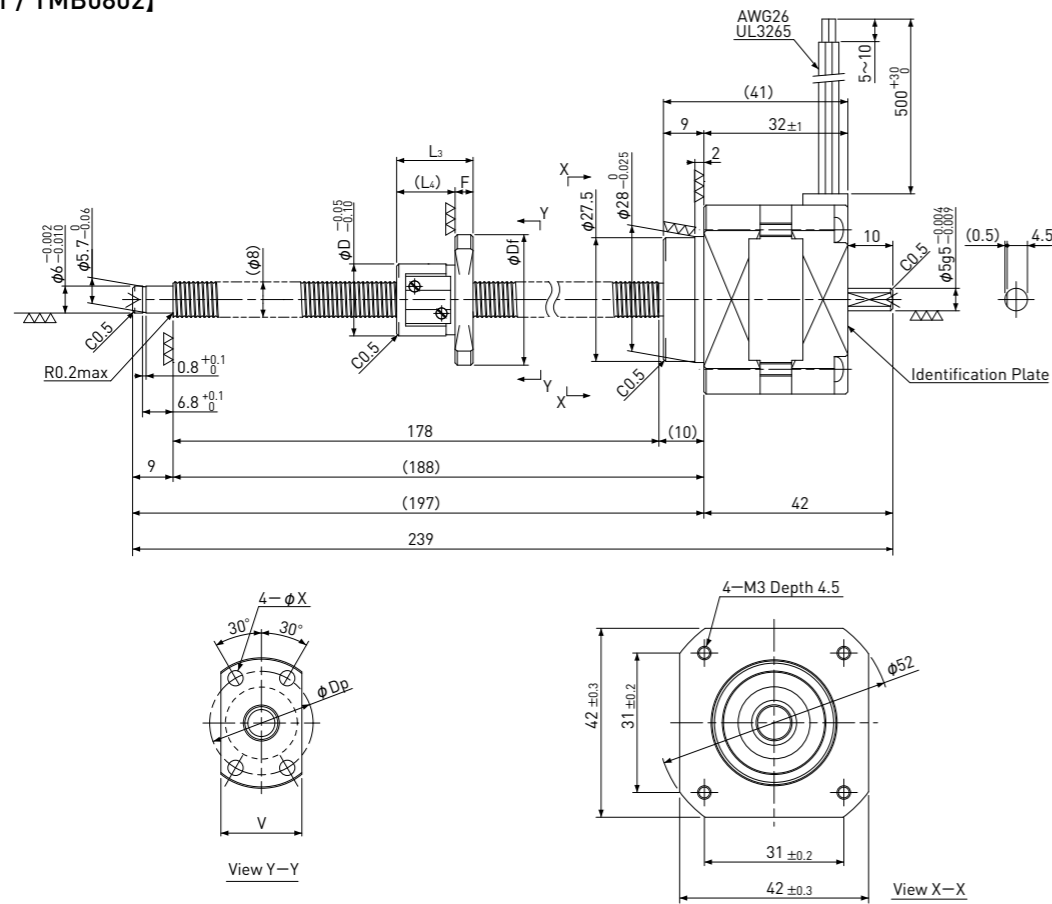
Note) Only shaft end cutting is available. Other than that, it would be customized order.

Rolled Ball Screw + 5-Phase Stepping Motor

# TMB □42 / NEMA 17

Shaft dia.  $\phi 8$

[TMB0801 / TMB0802]



Unit:mm

Model	Lead	Travel	Reference Thrust (N)	D	Df	F	L <sub>3</sub>	L <sub>4</sub>	V	Dp	X	Mass (g)
TMB0801	1	150	300	16	29	4	17	13	18	23	3.4	320
TMB0802	2	150	150	20	37	5	24	19	22	29	4.5	320

Recommended Drivers	KR-A5CC KR-A55MC(Micro step) KR-A535M(Micro step / AC-100~220V)
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Note) Refer to page P162 or P163 for connection diagram of recommended Drivers.

Ball Screw Specifications	
Accuracy grade	JIS Ct7
Thread direction	Right
Axial play	0.020mm or less
Shaft & Nut material	Chrome-molybdenum steel
Surface Coating	Black Chrome coating on Shaft
Surface hardness	HRC58~62 (Thread area)
Lubricant	KSS original grease MSG No.1

Motor Specifications	
Basic step angle	0.72°
Rated Voltage	DC 1.28 V
Rated current	DC 0.75 A/phase
Winding resistance	1.7Ω
Holding Torque	0.128Nm
Rotor inertia	40g·cm <sup>2</sup>
Operating temperature	-20°C~50°C

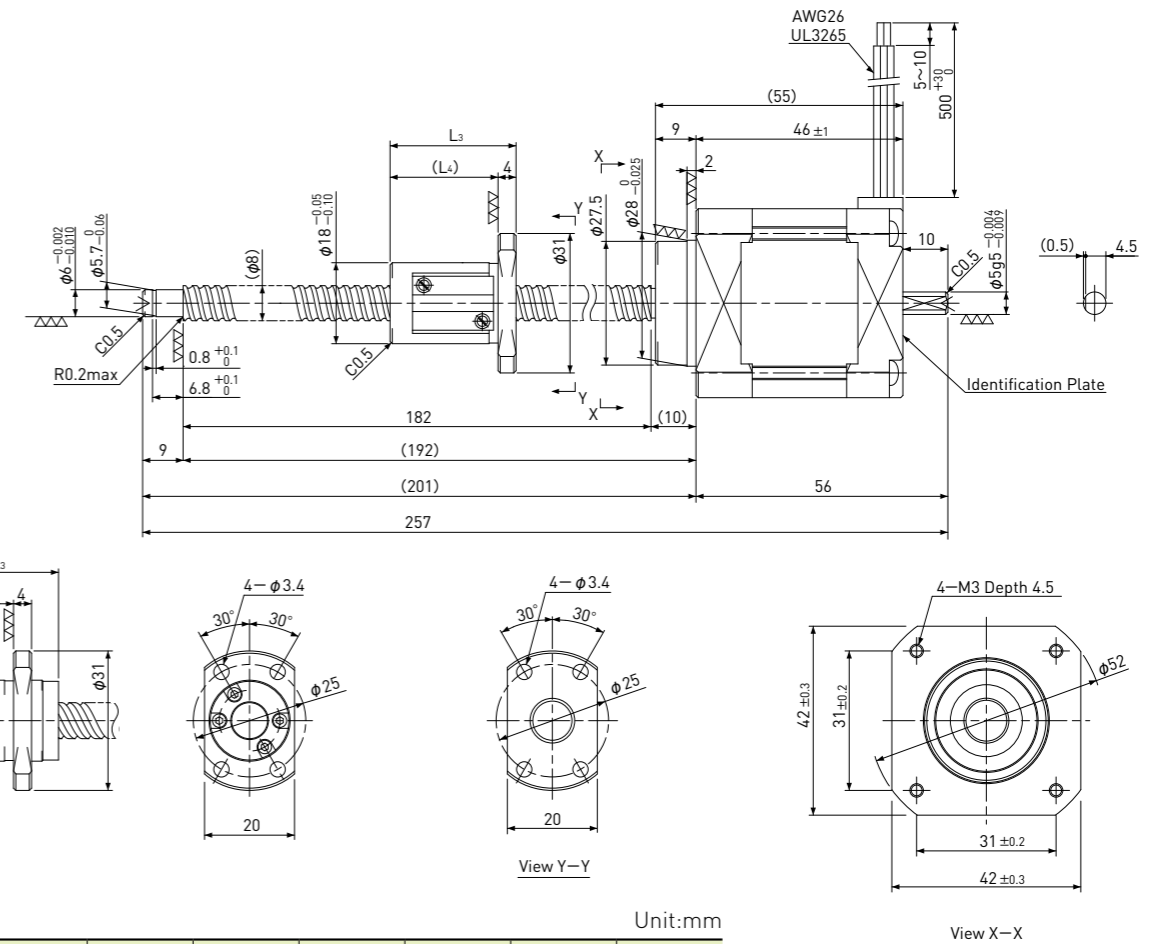
Note) Only shaft end cutting is available. Other than that, it would be customized order.

Rolled Ball Screw + 5-Phase Stepping Motor

# TMB □42 / NEMA 17

Shaft dia.  $\phi 8$

[TMB0805]



Unit:mm

Model	Lead	Travel	Reference Thrust (N)	L <sub>3</sub>	L <sub>4</sub>	Mass (g)
TMB0805	5	150	120	28	24	450
TMB0812	12	150	50	27	17	450

Recommended Drivers	KR-A5CC KR-A55MC(Micro step) KR-A535M(Micro step / AC-100~220V)
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Note) Refer to page P162 or P163 for connection diagram of recommended Drivers.

Ball Screw Specifications	
Accuracy grade	JIS Ct7
Thread direction	Right
Axial play	0.020mm or less
Shaft & Nut material	Chrome-molybdenum steel
Surface Coating	Black Chrome coating on Shaft
Surface hardness	HRC58~62 (Thread area)
Lubricant	KSS original grease MSG No.1

Motor Specifications	
Basic step angle	0.72°
Rated Voltage	DC 1.65 V
Rated current	DC 0.75 A/phase
Winding resistance	2.0Ω
Holding Torque	0.236Nm
Rotor inertia	74g·cm <sup>2</sup>
Operating temperature	-20°C~50°C

Note) Only shaft end cutting is available. Other than that, it would be customized order.