

## 2TMB Series Rolled Ball Screw + 2 Phase Stepping Motor

# MoBo

### ● Features

- A 2-phase Stepping Motor is mounted directly onto the shaft end of a Ct7 grade Rolled Ball Screw, which means compact and multipurpose type product.
- 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 2-phase Stepping Motor is available.
- Flexible length can be provided by the end journal turning.
- Stable mounting is secured by the exclusive Support Unit.



### ● Specifications

Model	Shaft Nominal Dia. (mm)	Lead (mm)	Travel (mm)	Travel per pulse ( $\mu\text{m}$ )	Reference Thrust (N)	Mass (g)
2TMB0801	$\phi 8$	1	150	5	75	350
2TMB0802	$\phi 8$	2	150	10	100	400
2TMB0805	$\phi 8$	5	150	25	50	400
2TMB0812	$\phi 8$	12	150	60	25	400

Repeatability(reference)	max. $\pm 0.01\text{mm}$
Lost Motion(reference)	max. $0.01\text{mm}$

※The reference value about Repeatability and Lost Motion represents when the 2TMB built into KSS original Stage. Please make a contact to KSS for actual value.

Note1) Detail specifications & dimensions are shown in drawings from page P120.

Note2) Travel per pulse represents the value for full step.

Note3) Acceleration & Deceleration Rate should be 50ms/kHz or more.

Note4) Reference Thrust may vary depending on the operating condition, please ask KSS for more detail.

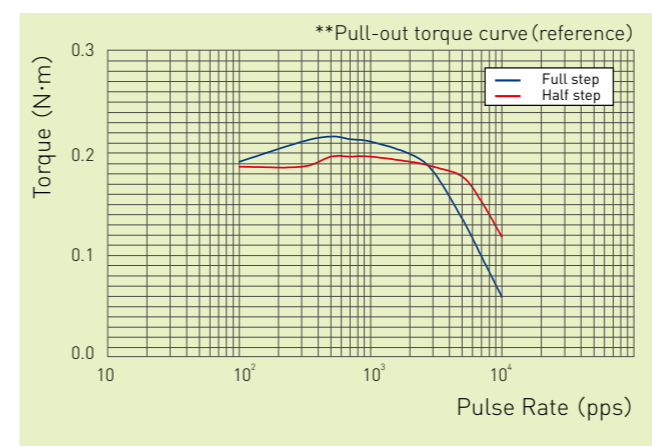
### ● Motor Specifications

Model	Motor size	Rated voltage (V)	Rated current (A/phase)	Winding resistance ( $\Omega$ )	Holding torque (Nm)	Rotor Inertia ( $\text{g}\cdot\text{cm}^2$ )	Load limit in Vertical Position (N)
2TMB0801	NEMA 17 (□42)	DC 2.2	2.0	1.1	0.24	42	300
2TMB0802	NEMA 17 (□42)	DC 2.2	2.0	1.1	0.24	42	300
2TMB0805	NEMA 17 (□42)	DC 2.2	2.0	1.1	0.24	42	300
2TMB0812	NEMA 17 (□42)	DC 2.2	2.0	1.1	0.24	42	300

Driving method	2-phase Bi-polar
Basic step angle	$1.8^\circ$

Note ) Rotor Inertia includes Ball Screw Shaft.

### ● Motor Characteristic

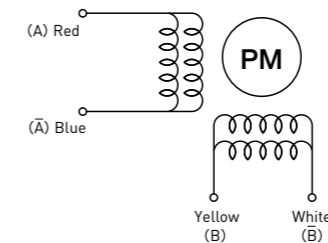


### ■ Test condition

Driver : Maker Standard  
Input Voltage : DC24V  
Phase Currnt : 2.0A

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

### ● 結線図 / Schematic



Swiching sequence for CW rotation viewed from shaft end.

STEP	Red (A)	Yellow (B)	Blue (Ā)	White (B̄)
0	+	+	-	-
1	-	+	+	-
2	-	-	+	+
3	+	-	-	+
0	+	+	-	-

### ● Model number notation

Model number notation for customized 2TMB series is as follows.

In case of standard style, model number is described in catalogue in page P120.

**2TMB 08 01 - 30 R 80 C7 - 30**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Series No.

2TMB : Rolled Ball Screw+2-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)

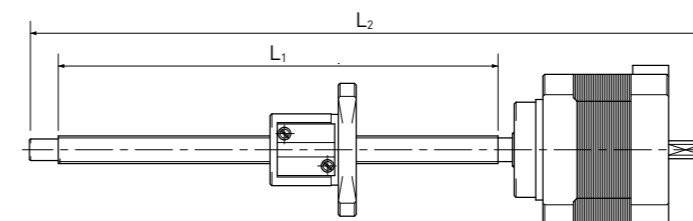
⑥ Screw Shaft total length(mm)

L<sub>2</sub> : See below

⑦ Accuracy grade

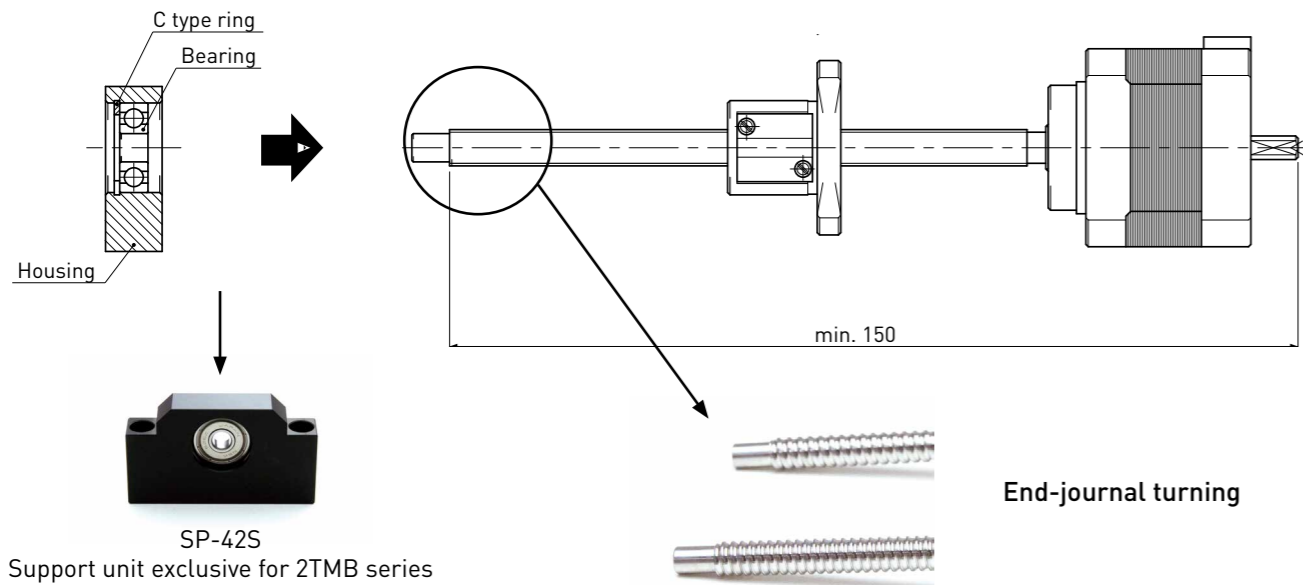
⑧ Axial play( $\mu\text{m}$ )

### 【④⑥】Definition of Screw length



●End-journal turning & Exclusive Support Unit

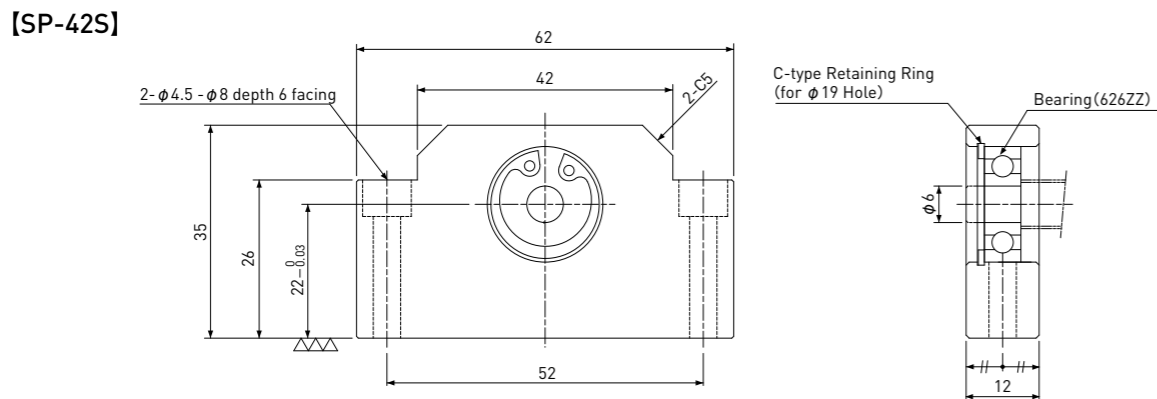
All of 2TMB series are in stock. In order to meet the request of flexible length, Shaft end journal turning is available. Please note that re-work is only for cutting and turning down(see photo below). KSS does not process Ring groove machining on the end of Shaft. Exclusive Support Unit with Brg. & Retaining ring for hole is provided by KSS.



SP-42S  
Support unit exclusive for 2TMB series

Please note that minimum re-work length is 150mm (except re-work portion) as shown in figure above. Total length shorter than 150mm (except re-work portion) should be used as cantilever. If supported journal with ring groove or total length of less than 150mm is required, it will be available as a customized order.

Regarding the profile and dimension of KSS Exclusive Support Unit (SP-42S) for 2TMB series, please see below.  
Special profile of Support Unit is required, please ask KSS representative.



[SP-42S]

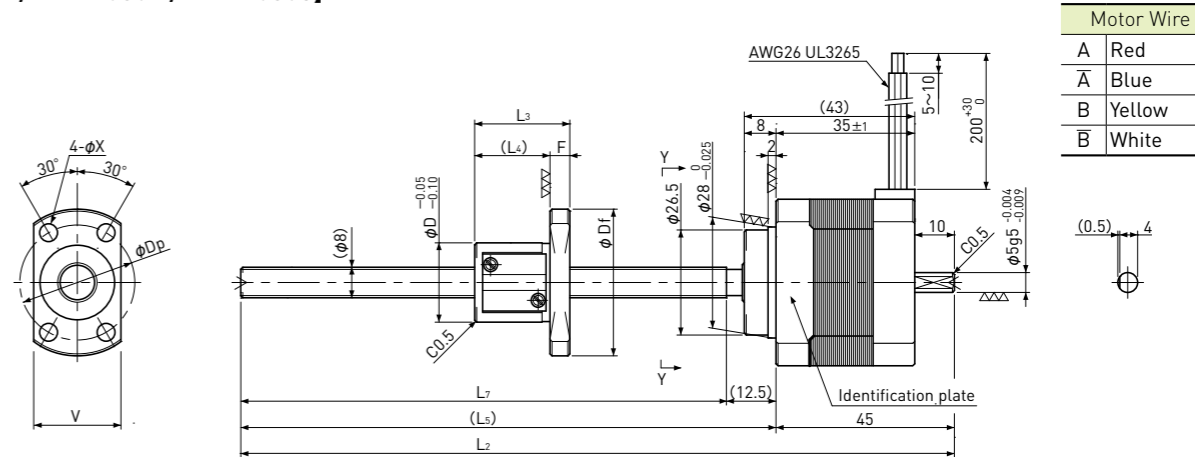
Standard products in stock 2TMB series

Rolled Ball Screw + 2-Phase Stepping Motor

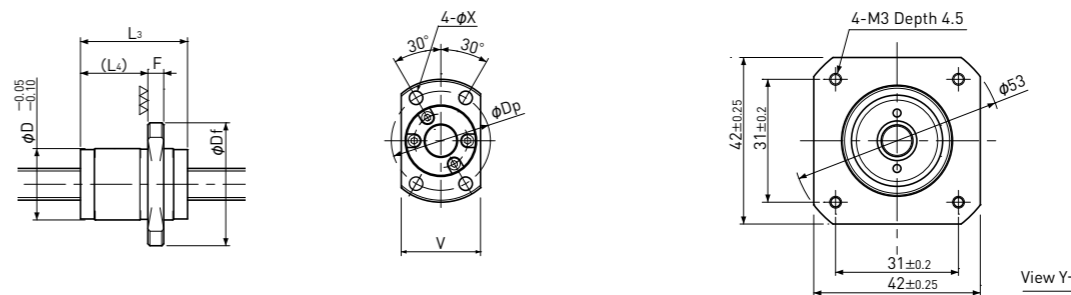
2TMB □42 / NEMA 17

Shaft dia. φ8

[2TMB0801 / 2TMB0802 / 2TMB0805]



[2TMB0812]



Unit:mm

Model	Lead	Travel	Reference Thrust (N)	L <sub>2</sub>	L <sub>5</sub>	L <sub>7</sub>	D	D <sub>f</sub>	F	L <sub>3</sub>	L <sub>4</sub>	V	D <sub>p</sub>	X	Mass (g)
2TMB0801	1	150	75	240	195	182.5	16	29	4	17	13	18	23	3.4	350
2TMB0802	2	150	100	250	205	192.5	20	37	5	24	19	22	29	4.5	400
2TMB0805	5	150	50	250	205	192.5	18	31	4	28	24	20	25	3.4	400
2TMB0812	12	150	25	250	205	192.5	18	31	4	27	17	20	25	3.4	400

Recommended Drivers	SD4030B3
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Note) Refer to page P162 for connection diagram of recommended Drivers.

Ball Screw Specifications	
Accuracy grade	Equivalent to JIS Ct7
Thread direction	Right
Axial play	0.03mm or less
Shaft material	Stainless steel
Nut material	Chrome - molybdenum steel
Surface hardness	Min. HRC55 (Thread area)
Lubricant	KSS original grease MSG No.2

Note) Please refer to page P119 for about end-journal turning.

Motor Specifications	
Basic step angle	1.8°
Driving method	2-phase Bi-polar
Rated Voltage	DC 2.2 V
Rated current	DC 2.0 A/phase
Winding resistance	1.1 Ω
Holding Torque	0.24 Nm
Rotor inertia	42 g · cm <sup>2</sup>
Operating temperature	-20°C~50°C