MB Series
Precision Ball Screw + 5 Phase Stepping Motor

MoBo

Features

- A 5-pahse Stepping Motor is mounted directly onto the shaft end of a C3 grade precision Ball Screw, which is suitable for high accurate positioning system.
- 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, low lost-motion 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 (μm)	Reference Thrust (N)	Mass (g)
MB04005A	φ4	0.5	20	1	10	84
MB0401A	φ4	1	30	2	20	84
MB0401	φ4	1	30	2	50	100
MB0601	φ6	1	75	2	100	170
MB0602	φ6	2	75	4	50	180
MB0801	φ8	1	150	2	300	310
MB0802	φ8	2	150	4	150	320

Repeatability(reference)	max. ±0.005mm
Lost Motion(reference)	max. 0.005mm

※The reference value about Repeatability and Lost Motion represents when the MB 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 P132.
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.

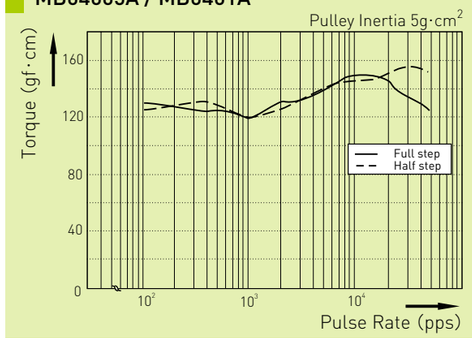
Motor Specifications

Model	Motor size	Rated voltage (V)	Rated current (A/phase)	Winding resistance (Ω)	Holding torque (Nm)	Rotor Inertia ($g \cdot cm^2$)	Load limit in Vertical Position (N)
MB04005A	NEMA 08 (□20)	DC 1.05	0.75	1.4	0.010	3.9	230
MB0401A	NEMA 08 (□20)	DC 1.05	0.75	1.4	0.010	3.9	230
MB0401	NEMA 10 (□24)	DC 0.83	0.75	1.1	0.018	4.2	230
MB0601	NEMA 10 (□24)	DC 1.28	0.75	1.7	0.028	8.9	230
MB0602	NEMA 10 (□24)	DC 1.28	0.75	1.7	0.028	8.9	230
MB0801	NEMA 17 (□42)	DC 1.28	0.75	1.7	0.128	41	300
MB0802	NEMA 17 (□42)	DC 1.28	0.75	1.7	0.128	41	300

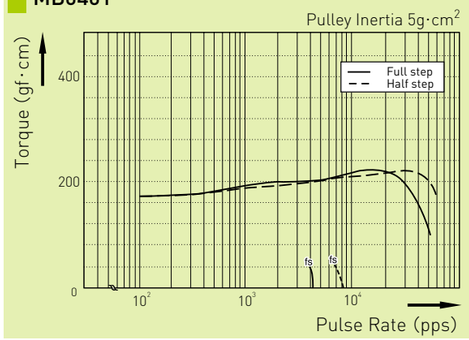
Note 1) Basic step angle is 0.72°
Note 2) Rotor Inertia includes Ball Screw Shaft.

Motor Characteristic

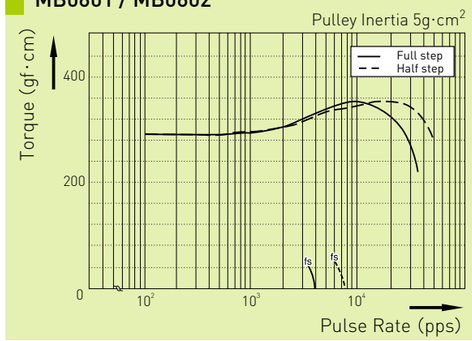
MB04005A / MB0401A



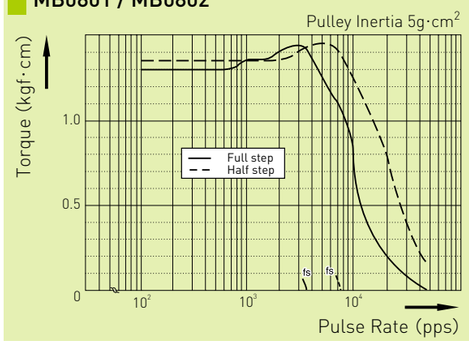
MB0401



MB0601 / MB0602



MB0801 / MB0802



Test Condition

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

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

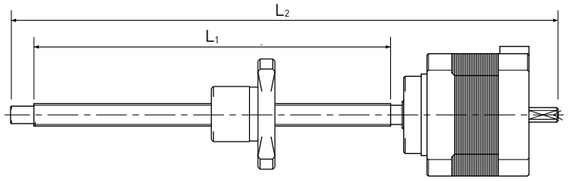
●Model number notation

Model number notation for customized MB series is as follows.
In case of standard style, model number is described in catalogue from page P132 to page P135.

MB 04 01 - 30 R 80 C3 - 0
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①Series No.
MB：Precision Ball Screw+5-phase Stepping Motor
②Screw Shaft nominal diameter(mm)
③Lead(mm)
01 means 1mm
④Screw thread length(mm)
L_1：See below
⑤Thread direction（R=Right-hand）
⑥Screw Shaft total length(mm)
L_2：See below
⑦Accuracy grade
⑧Axial play(μm)

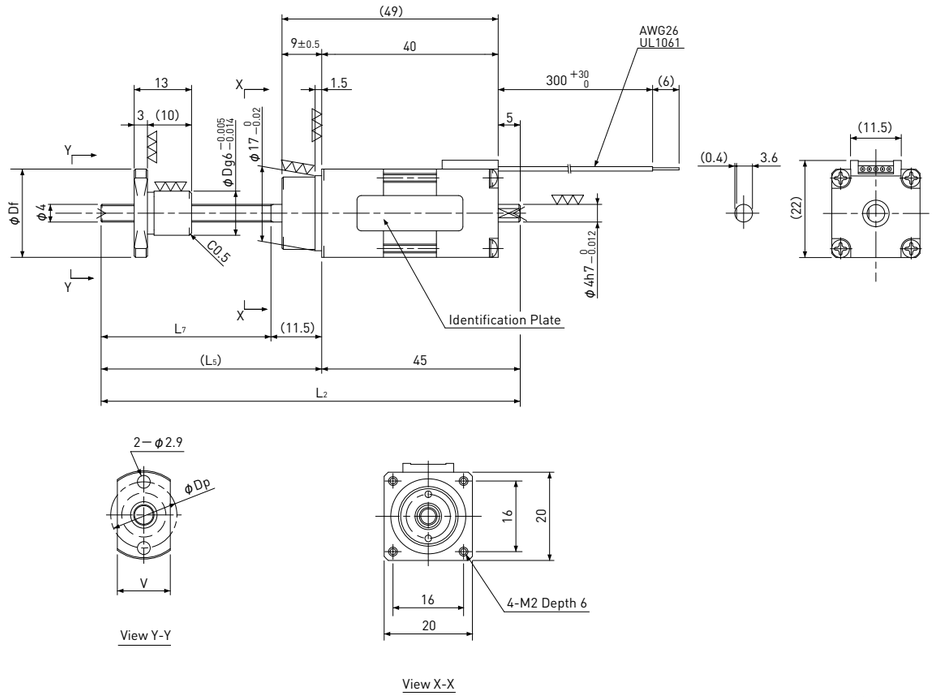
【④⑥Definition of Screw length】



Precision Ball Screw + 5-Phase Stepping Motor

MB □20 / NEMA 08

Shaft dia.φ4



Unit:mm

Model	Lead	Travel	Reference Thrust (N)	L_2	L_5	L_7	D	Df	V	Dp	Mass (g)
MB04005A	0.5	20	10	95	50	38.5	10	20	12	15	84
MB0401A	1	30	20	105	60	48.5	9	19	11	14	84

Recommended Drivers	KR-A5CC KR-A55MC(Micro step) KR-A535M(Micro step / AC-100~220V)

Note) Refer to page P162 or P163 for connection diagram of recommended Drivers.

Ball Screw Specifications	
Accuracy grade	JIS C3
Thread direction	Right
Axial play	MB04005A:0.005mm or less MB0401A:0mm
Shaft material	Stainless steel
Nut material	Chrome-molybdenum steel
Surface hardness	Min. HRC55 (Thread area)
Lubricant	KSS original grease MSG No.1

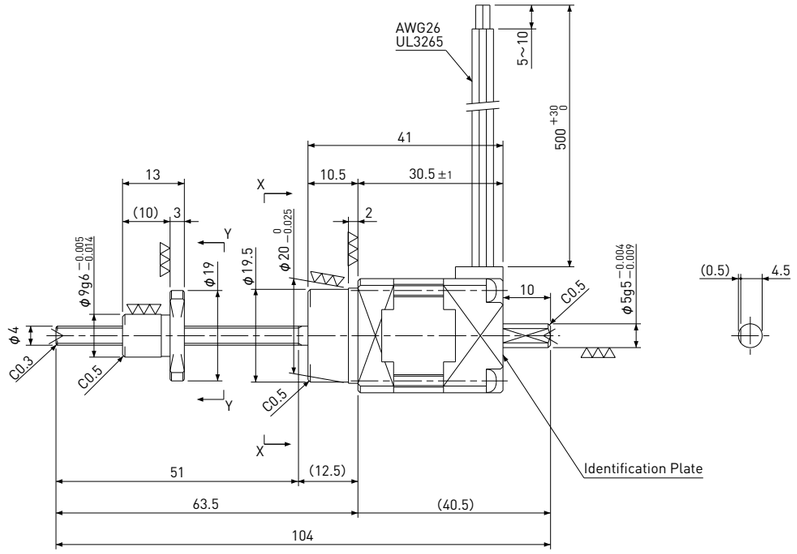
Motor Specifications	
Basic step angle	0.72°
Rated Voltage	DC 1.05 V
Rated current	DC 0.75 A/phase
Winding resistance	1.4Ω
Holding Torque	0.010Nm
Rotor inertia	3.9g·cm²
Operating temperature	−20℃~50℃

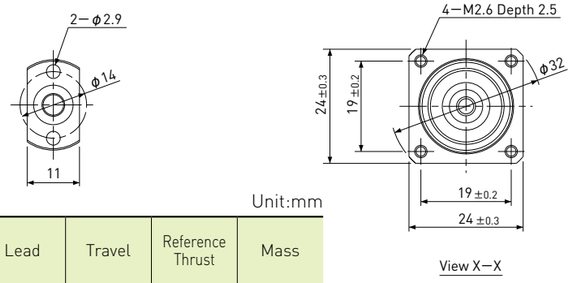
Note) Only shaft end cutting is available.
Other than that, it would be customized order.

Precision Ball Screw + 5-Phase Stepping Motor

MB □24 / NEMA 10

Shaft dia.ϕ4





Unit:mm

Model	Lead	Travel	Reference Thrust (N)	Mass (g)
MB0401	1	30	50	100

Recommended Drivers	KR-A5CC KR-A55MC(Micro step) KR-A535M(Micro step / AC-100~220V)

Note) Refer to page P162 or P163 for connection diagram of recommended Drivers.

Ball Screw Specifications	
Accuracy grade	JIS C3
Thread direction	Right
Axial play	0mm
Shaft material	Stainless steel
Nut material	Chrome-molybdenum steel
Surface hardness	Min. HRC55 (Thread area)
Lubricant	KSS original grease MSG No.1

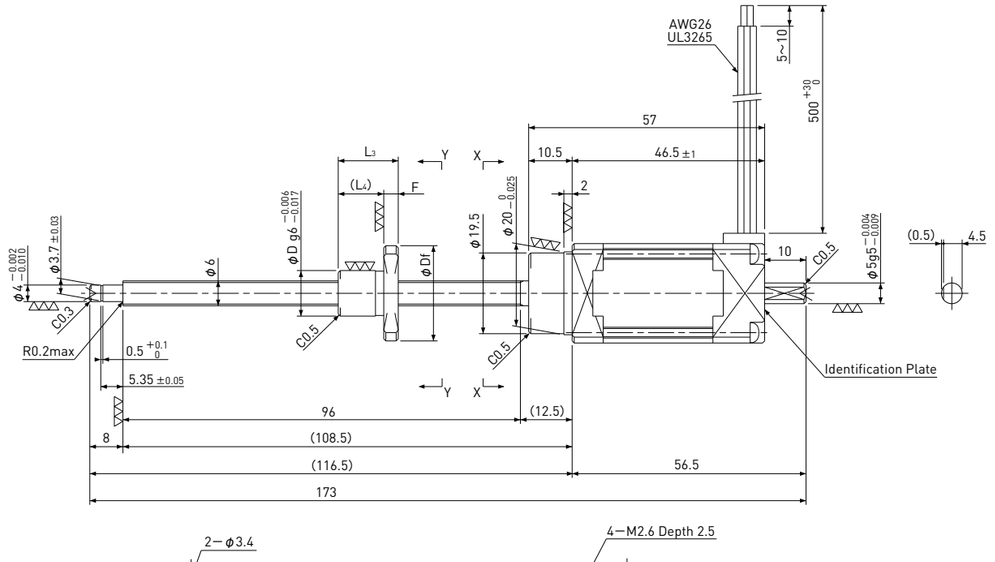
Motor Specifications	
Basic step angl	0.72°
Rated Voltage	DC 0.83 V
Rated current	DC 0.75 A/phase
Winding resistance	1.1Ω
Holding Torque	0.018Nm
Rotor inertia	4.2g·cm²
Operating temperature	−20℃~50℃

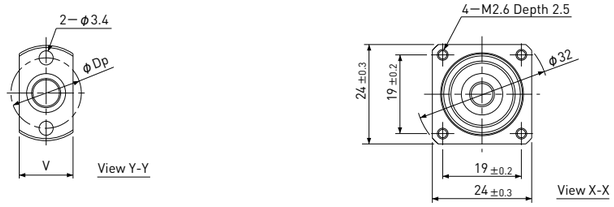
Note) Only shaft end cutting is available.
Other than that, it would be customized order.

Precision Ball Screw + 5-Phase Stepping Motor

MB □24 / NEMA 10

Shaft dia.ϕ6





Unit:mm

Model	Lead	Travel	Reference Thrust (N)	D	Df	F	L_3	L_4	V	Dp	Mass (g)
MB0601	1	75	100	11	23	3.5	14.5	11	13	17	170
MB0602	2	75	50	15	28	4	17	13	17	22	180

Recommended Drivers	KR-A5CC KR-A55MC(Micro step) KR-A535M(Micro step / AC-100~220V)

Note) Refer to page P162 or P163 for connection diagram of recommended Drivers.

Ball Screw Specifications	
Accuracy grade	JIS C3
Thread direction	Right
Axial play	0mm
Shaft material	Stainless steel
Nut material	Chrome-molybdenum steel
Surface hardness	Min. HRC55 (Thread area)
Lubricant	KSS original grease MSG No.1

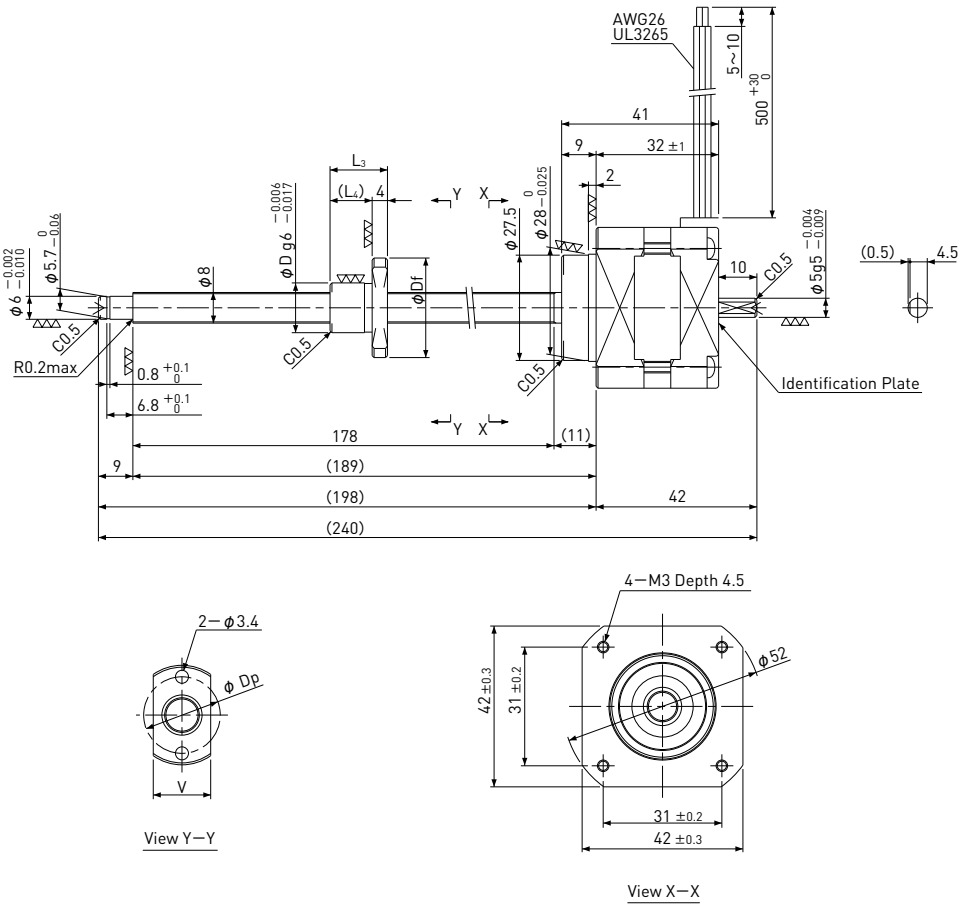
Motor Specifications	
Basic step angle	0.72°
Rated Voltage	DC 1.28 V
Rated current	DC 0.75 A/phase
Winding resistance	1.7Ω
Holding Torque	0.028Nm
Rotor inertia	8.9g·cm²
Operating temperature	−20℃~50℃

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

Precision Ball Screw + 5-Phase Stepping Motor

MB □42 / NEMA 17

Shaft dia.φ8



View Y−Y

View X−X

Unit:mm

Model	Lead	Travel	Reference Thrust (N)	D	Df	L3	L4	V	Dp	Mass (g)
MB0801	1	150	300	13	26	15	11	15	20	310
MB0802	2	150	150	15	28	18	14	17	22	320

Recommended Drivers	KR-A5CC KR-A55MC(Micro step) KR-A535M(Micro step / AC-100~220V)

Note) Refer to page P162 or P163 for connection diagram of recommended Drivers.

Ball Screw Specifications	
Accuracy grade	JIS C3
Thread direction	Right
Axial play	0mm
Shaft material	Stainless steel
Nut material	Chrome-molybdenum steel
Surface hardness	Min. HRC55 (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	41g·cm²
Operating temperature	−20℃~50℃

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