

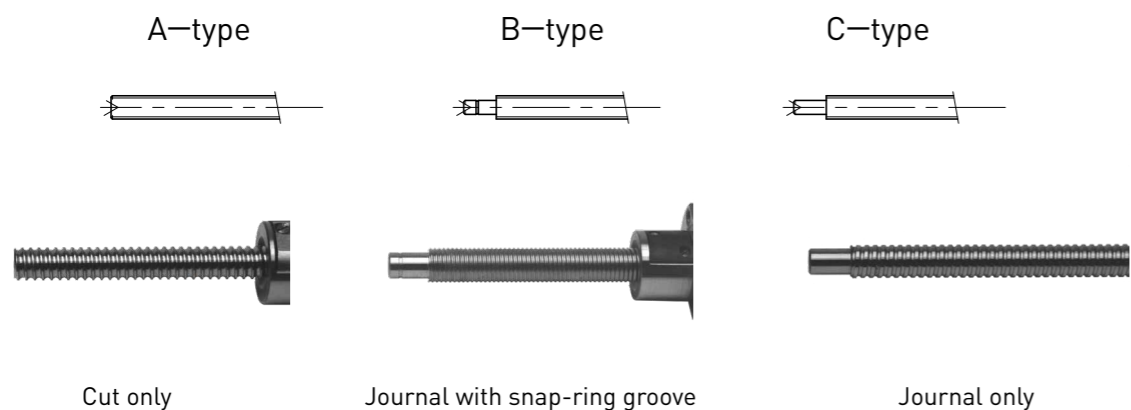
DMB Series Rolled Ball Screw + 2 Phase Stepping Motor

● Features

- Wide variety in Motor size, which are NEMA08(□20), NEMA11(□28), NEMA14(□35) and NEMA17(□42).
- 2-phase Stepping Motor is mounted directly onto the Shaft end of the Ball Screw, which is ideally constructed to form the Motor Rotor Shaft.
- Since combining the Motor Shaft and Ball Screw Shaft, Coupling-less, saving the total length can be achieved.
- High cost performance item is provided by combining Rolled Ball Screw and 2-phase Stepping Motor.
- End journal profiles and travel length can be customized(see photo below).

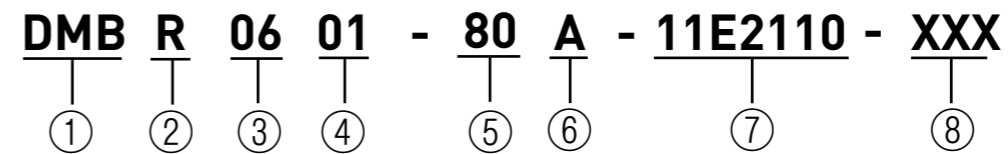


[End journal variation]



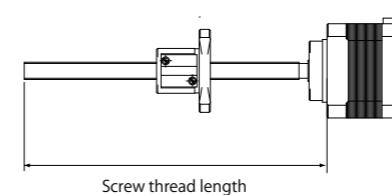
● Model number notation

Model number notation for customized DMBR series is as follows.
In case of standard style, model number is described in catalogue from pageP111 to pageP115.

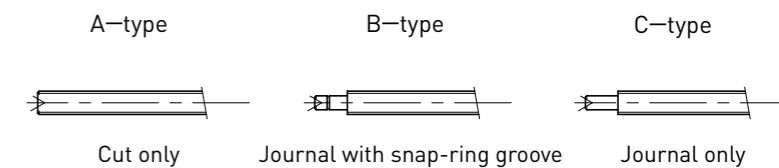


- ① Series No.
DMB : Linear Actuator Ball Screw External type (2-phase Stepping Motor)
- ② Ball Screw type
R : Rolled Ball Screw
- ③ Screw Shaft nominal diameter(mm)
06 means 6mm
- ④ Lead(mm)
01 means 1mm
- ⑤ Screw thread length(mm)
Screw length which is exposed from Motor(see below)
- ⑥ End journal profile
A : Cut only
B : Journal with snap ring groove(standard)
C : Journal only
- ⑦ Motor Model
Refer to table below
- ⑧ Extra notation

[⑤Screw thread length]



[⑥End journal profile]



Motor Model	Motor size (mm)	Motor length (mm)	Rated current (A/phase)	Holding Torque (Nm)	Applicable Shaft dia. (mm)	Lead (mm)
08E2004	NEMA08(□20)	(22)	0.4	0.003	φ4	1,2
08E2105	NEMA08(□20)	(29)	0.5	0.0035	φ4	1,2
11E2110	NEMA11(□28)	(35)	1.0	0.036	φ5, φ6	1,2,4,10
11E2216	NEMA11(□28)	(47)	1.6	0.052	φ5, φ6	1,2,4,10
14E2110	NEMA14(□35)	(36)	1.0	0.060	φ8	1,2,5,10
14E2215	NEMA14(□35)	(48)	1.5	0.10	φ8	1,2,5,10
17E2115	NEMA17(□42)	(36)	1.5	0.18	φ8	1,2,5,10

Specifications

Motor Size	Model No.	Motor length (mm)	Screw Shaft nominal dia. (mm)	Lead (mm)	Travel (mm)	Travel per pulse (μ m)	Mass (g)
NEMA 08 (□20)	DMBR0401-08E2004	(22)	4	1	23	5	52
	DMBR0402-08E2004	(22)	4	2	21	10	52
	DMBR0401-08E2105	(29)	4	1	23	5	62
	DMBR0402-08E2105	(29)	4	2	21	10	62
NEMA 11 (□28)	DMBR0504-11E2110	(35)	5	4	39	20	140
	DMBR0504-11E2216	(47)	5	4	39	20	194
	DMBR0601-11E2110	(35)	6	1	43	5	140
	DMBR0602-11E2110	(35)	6	2	43	10	148
	DMBR0610-11E2110	(35)	6	10	40	50	146
	DMBR0601-11E2216	(47)	6	1	43	5	194
	DMBR0602-11E2216	(47)	6	2	43	10	202
	DMBR0610-11E2216	(47)	6	10	40	50	198
NEMA 14 (□35)	DMBR0801-14E2110	(36)	8	1	58	5	212
	DMBR0802-14E2110	(36)	8	2	50	10	240
	DMBR0805-14E2110	(36)	8	5	47	25	234
	DMBR0810-14E2110	(36)	8	10	54	50	226
	DMBR0801-14E2215	(48)	8	1	58	5	292
	DMBR0802-14E2215	(48)	8	2	50	10	320
	DMBR0805-14E2215	(48)	8	5	47	25	314
	DMBR0810-14E2215	(48)	8	10	54	50	304
NEMA 17 (□42)	DMBR0801-17E2115	(36)	8	1	118	5	298
	DMBR0802-17E2115	(36)	8	2	110	10	322
	DMBR0805-17E2115	(36)	8	5	107	25	318
	DMBR0810-17E2115	(36)	8	10	114	50	308

Repeatability (reference)	max. ± 0.01 mm (NEMA08/□20: max. ± 0.02 mm)
Lost Motion (reference)	max. 0.01mm (NEMA08/□20: max. 0.02mm)

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

Note1) Detail specifications & dimensions are shown in diagram from page P111.

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

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

Note4) For reference thrust, please refer to Force-speed diagram in page109 and page110.

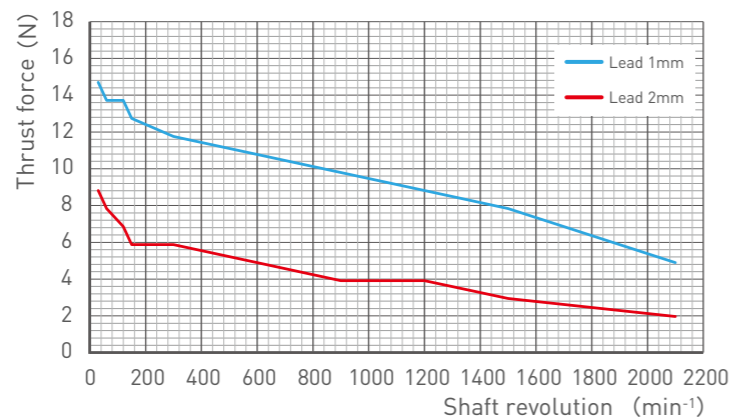
Motor Specification

Motor size	Motor model	Rated Voltage (V)	Rated current (A/phase)	Winding resistance (Ω)	Holding Torque (Nm)	Rotor Inertia (g · cm ²)	Motor length (mm)	Load limit in Vertical Position (N)
NEMA 08 (□20)	08E2004	DC3.5	0.4	8.8	0.003	2.4	(22)	43
	08E2105	DC2.6	0.5	5.1	0.0035	2.6	(29)	43
NEMA 11 (□28)	11E2110	DC2.1	1.0	2.1	0.036	$\phi 5$ mm : 6.7 $\phi 6$ mm : 7.2	(35)	150
	11E2216	DC2.4	1.6	1.5	0.052	$\phi 5$ mm : 11.5 $\phi 6$ mm : 12.0	(47)	150
NEMA 14 (□35)	14E2110	DC3.5	1.0	3.5	0.060	21	(36)	230
	14E2215	DC4.0	1.5	2.7	0.10	32	(48)	230
NEMA 17 (□42)	17E2115	DC2.8	1.5	1.85	0.18	36	(36)	230

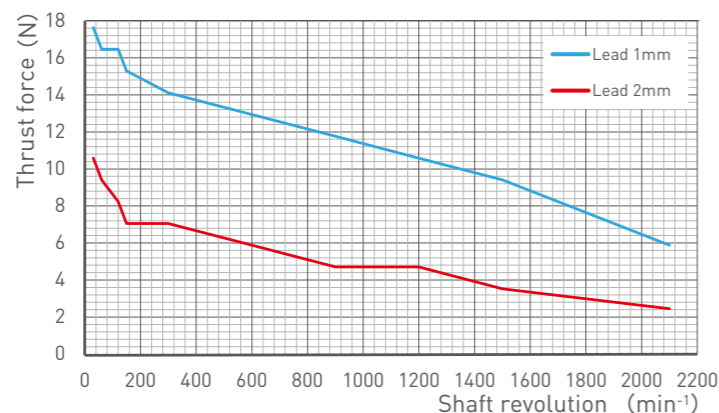
Note) Driving Method is 2-phase Bi-polar, Basic step angle is 1.8 degree.

● Force-speed diagram

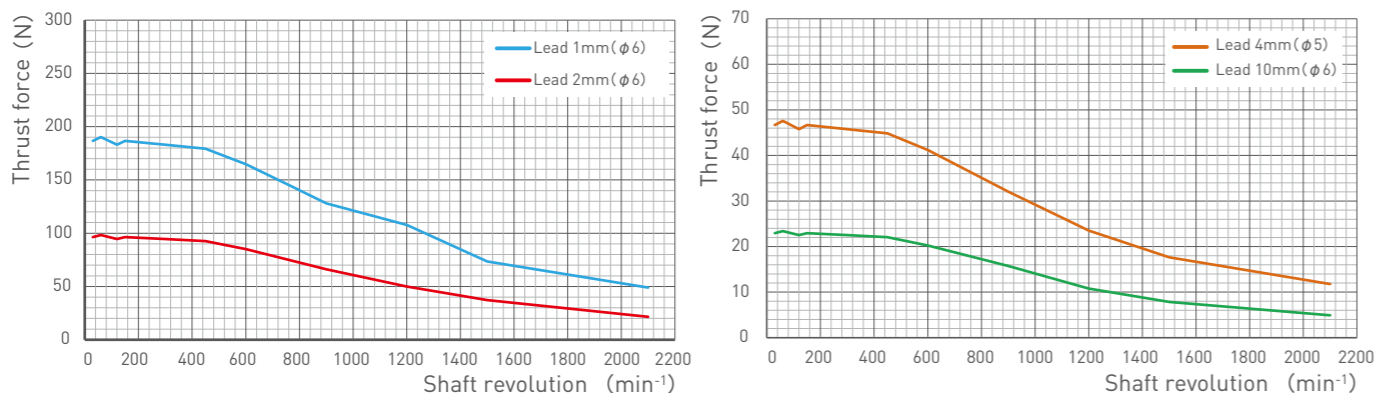
Motor model : 08E2004 (□20)
 Applicable Actuator : DMBR0401, DMBR0402



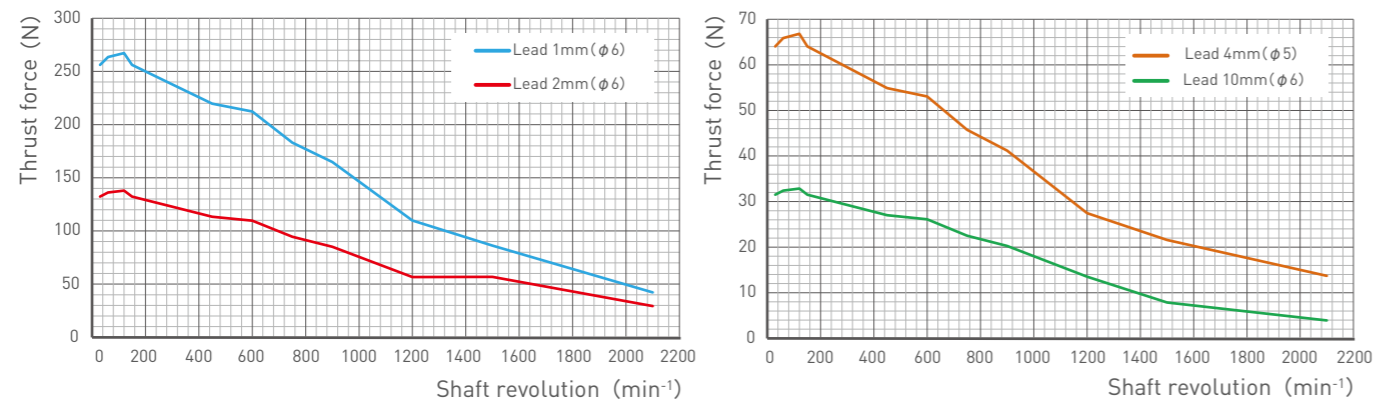
Motor model : 08E2105 (□20)
 Applicable Actuator : DMBR0401, DMBR0402



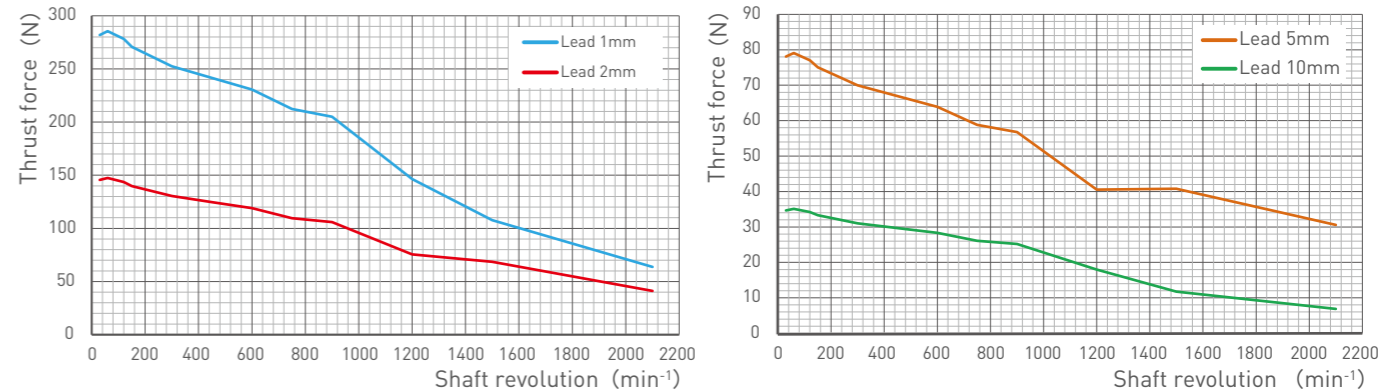
Motor model : 11E2110 (□28)
 Applicable Actuator : DMBR0504, DMBR0601, DMBR0602, DMBR0610



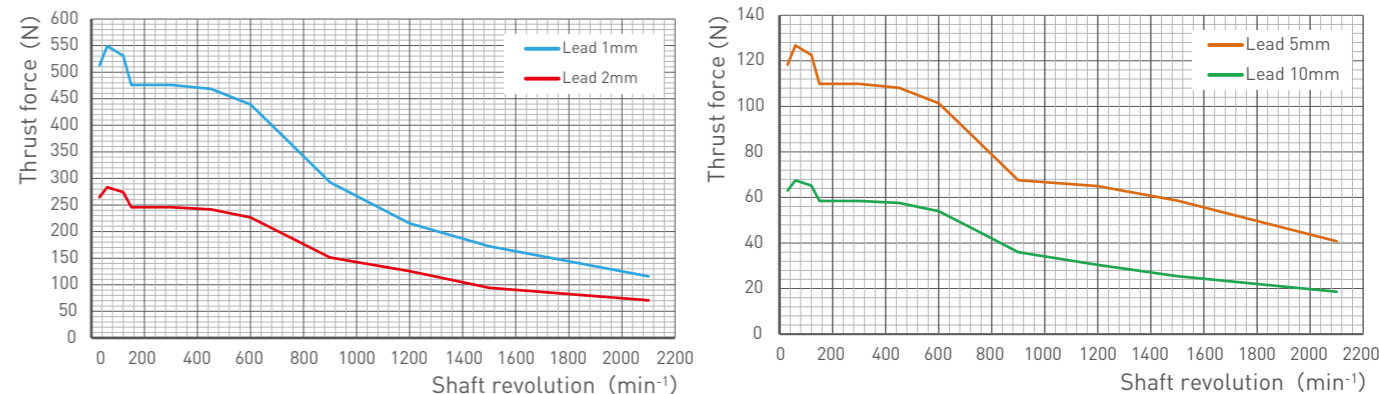
Motor model : 11E2216 (□28)
 Applicable Actuator : DMBR0504, DMBR0601, DMBR0602, DMBR0610



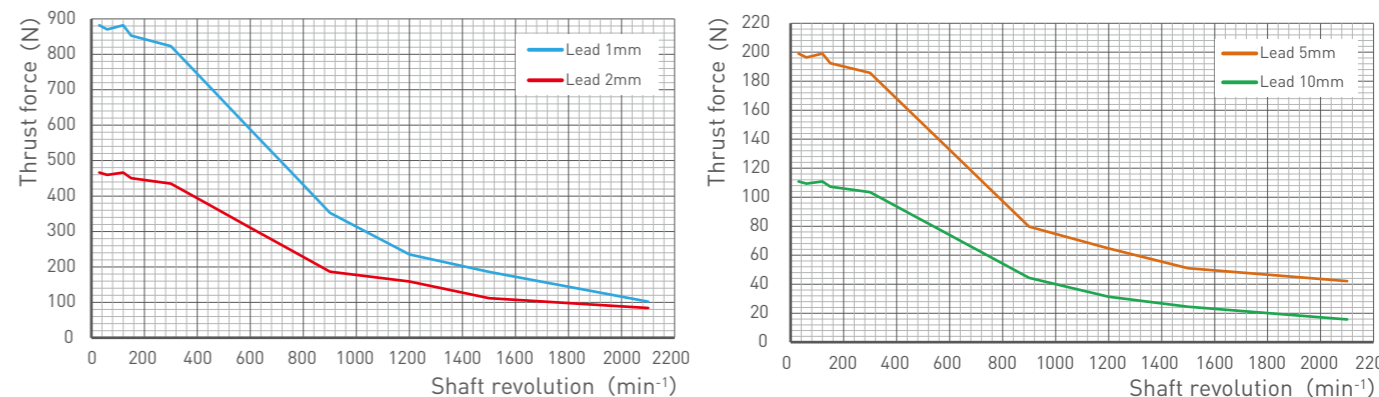
Motor model : 14E2110 (□35)
 Applicable Actuator : DMBR0801, DMBR0802, DMBR0805, DMBR0810



Motor model : 14E2215 (□35)
 Applicable Actuator : DMBR0801, DMBR0802, DMBR0805, DMBR0810



Motor model : 17E2115 (□42)
 Applicable Actuator : DMBR0801, DMBR0802, DMBR0805, DMBR0810



Note) Force-speed diagrams above are measurement data of samples. It may vary depending on each motor's characteristic. Please consider these diagrams as reference data.

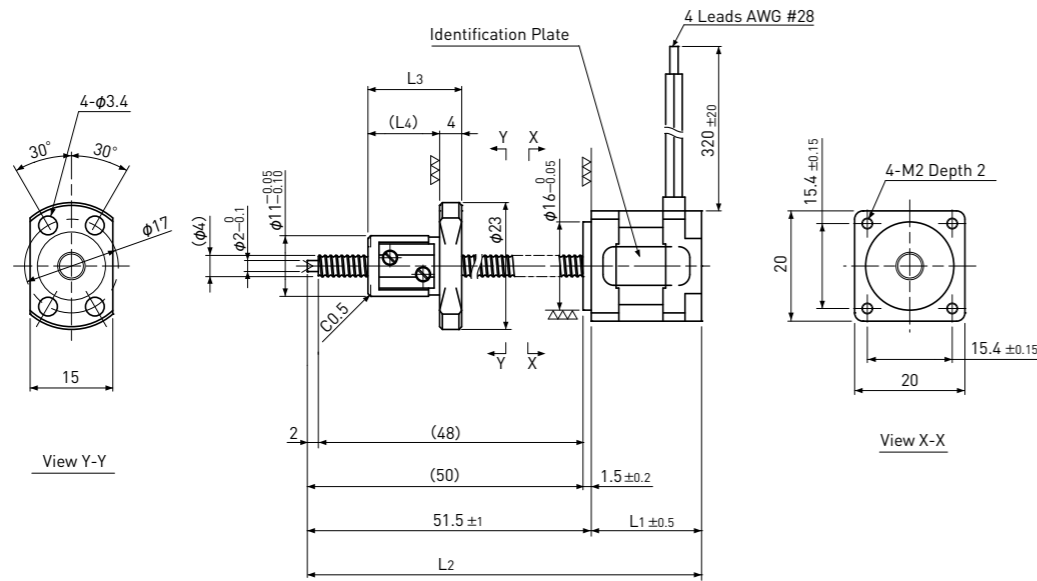
Standard style of DMB series

Dimensions & Specifications

Rolled Ball Screw + 2-phase Stepping Motor

DMBR □20 / NEMA 08

Shaft dia. $\phi 4$



Unit:mm

Model	Lead	Travel	L1	L2	L3	L4	Mass (g)
DMBR0401-08E2004	1	23	20	71.5	17	13	52
DMBR0402-08E2004	2	21	20	71.5	19	15	52
DMBR0401-08E2105	1	23	27.2	78.7	17	13	62
DMBR0402-08E2105	2	21	27.2	78.7	19	15	62

Motor Wire	
A	Red
\bar{A}	Red/White
B	Green
\bar{B}	Green/White

Note) Refer to page P161 for connection diagram of recommended Drivers.

Recommended Drivers	SD4015B3
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Ball Screw Specifications	
Accuracy grade	JIS Ct7
Thread direction	Right
Axial play	Max 0.03mm
Ball Screw material	Chrome-molybdenum steel
Surface hardness	Min. HRC58
Lubricant	KSS original grease MSG No.2

Note) Please contact KSS if different journal profile or length from the above is required.

Motor Specifications		
Motor Model	08E2004	08E2105
Basic step angle	1.8°	
Driving method	2-phase Bi-polar	
Rated Voltage	DC 3.5 V	DC 2.6 V
Rated current	DC 0.4A/phase	DC 0.5A/phase
Winding resistance	8.8 Ω	5.1 Ω
Holding Torque	0.003Nm	0.0035Nm
Rotor inertia	2.4g·cm ²	2.6g·cm ²
Operating temperature	-10°C~50°C	

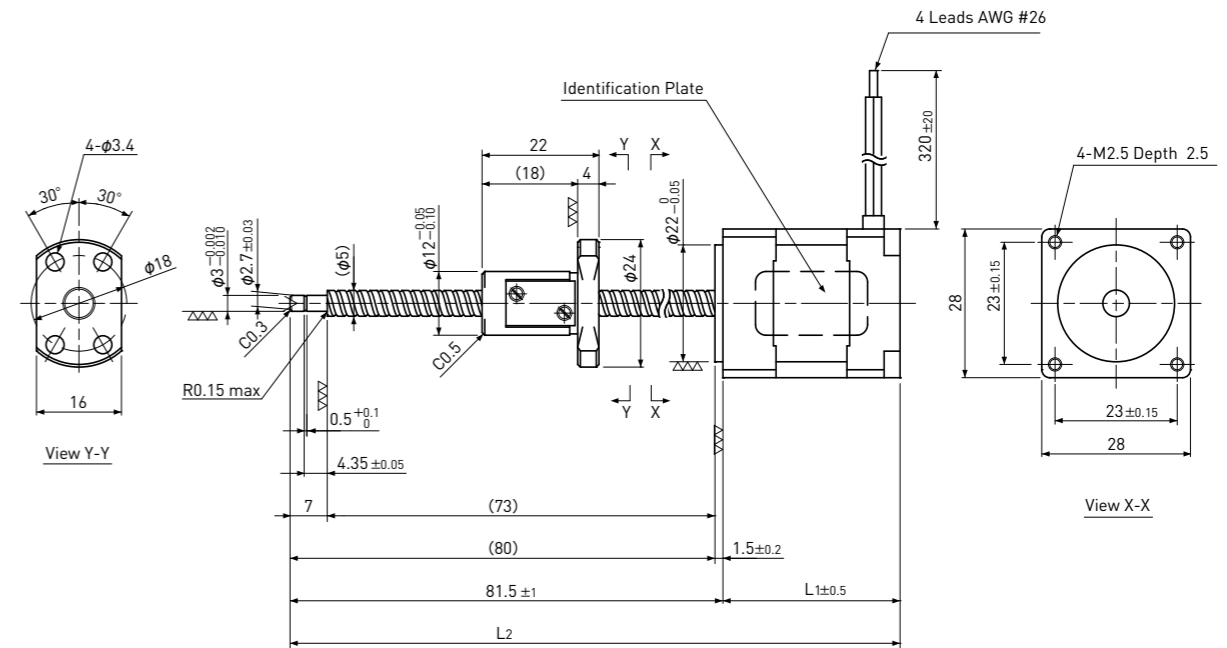
Standard style of DMB series

Dimensions & Specifications

Rolled Ball Screw + 2-phase Stepping Motor

DMBR □28 / NEMA 11

Shaft dia. $\phi 5$



Unit:mm

Model	Lead	Travel	L1	L2	Mass (g)
DMBR0504-11E2110	4	39	33.35	114.85	140
DMBR0504-11E2216	4	39	45	126.5	194

Motor Wire	
A	Red
\bar{A}	Red/White
B	Green
\bar{B}	Green/White

Note) Refer to page P161 for connection diagram of recommended Drivers.

Recommended Drivers	SD4030B3
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Ball Screw Specifications	
Accuracy grade	JIS Ct7
Thread direction	Right
Axial play	Max 0.03mm
Ball Screw material	Chrome-molybdenum steel
Surface hardness	Min. HRC58
Lubricant	KSS original grease MSG No.2

Note) Please contact KSS if different journal profile or length from the above is required.

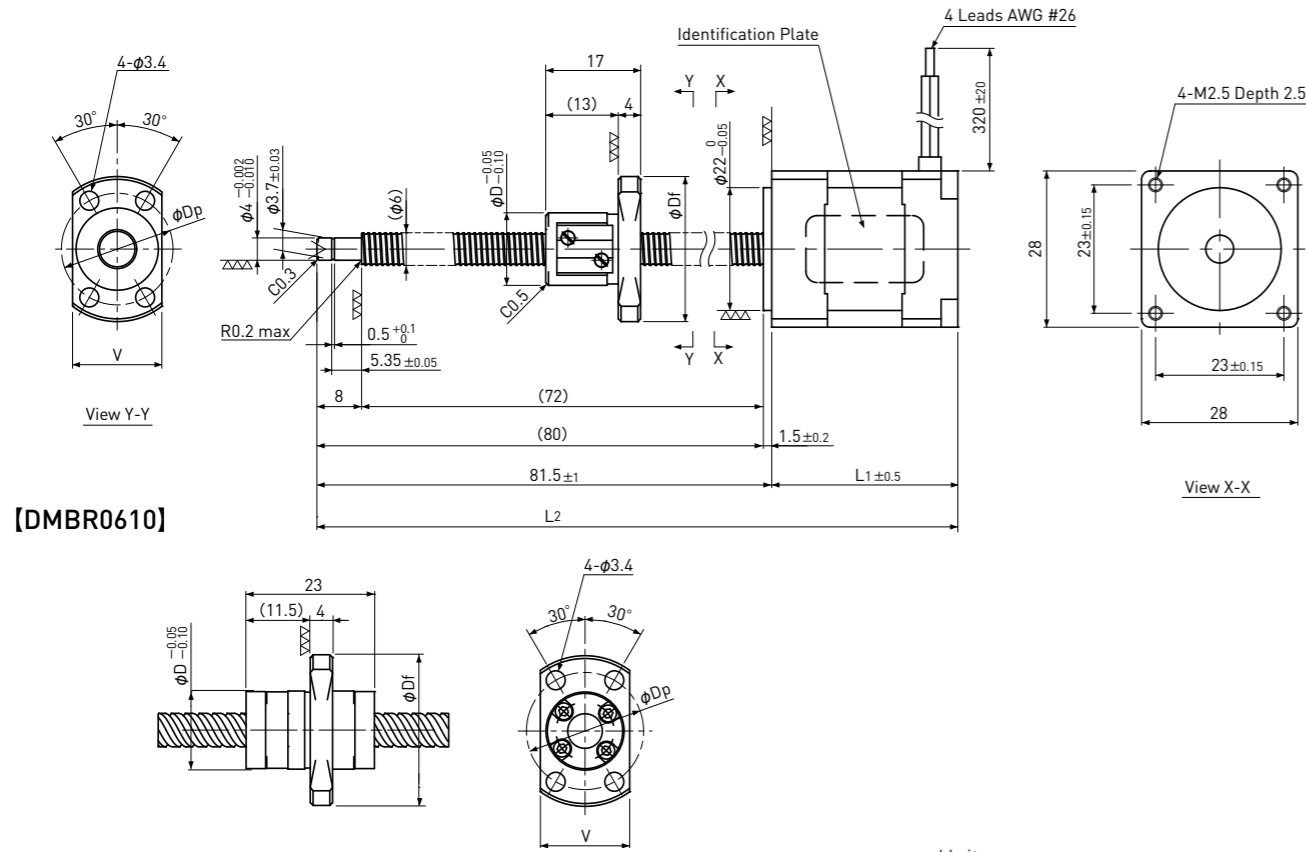
Motor Specifications		
Motor Model	11E2110	11E2216
Basic step angle	1.8°	
Driving method	2-phase Bi-polar	
Rated Voltage	DC 2.1 V	DC 2.4 V
Rated current	DC 1.0A/phase	DC 1.6A/phase
Winding resistance	2.1 Ω	1.5 Ω
Holding Torque	0.036Nm	0.052Nm
Rotor inertia	6.7g·cm ²	11.5g·cm ²
Operating temperature	-10°C~50°C	

Rolled Ball Screw + 2-phase Stepping Motor

DMBR □28 / NEMA 11

Shaft dia. $\phi 6$

[DMBR0601 / DMBR0602]



[DMBR0610]

Model	Lead	Travel	L ₁	L ₂	D	D _f	V	D _p	Mass (g)
DMBR0601-11E2110	1	43	33.35	114.85	13	26	16	20	140
DMBR0602-11E2110	2	43	33.35	114.85	15	28	19	22	148
DMBR0610-11E2110	10	40	33.35	114.85	14	27	16	21	146
DMBR0601-11E2216	1	43	45	126.5	13	26	16	20	194
DMBR0602-11E2216	2	43	45	126.5	15	28	19	22	202
DMBR0610-11E2216	10	40	45	126.5	14	27	16	21	198

Unit:mm

Motor Wire	
A	Red
\bar{A}	Red/White
B	Green
\bar{B}	Green/White

Recommended Drivers	SD4030B3
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Note) Refer to page P161 for connection diagram of recommended Drivers.

Ball Screw Specifications	
Accuracy grade	JIS Ct7
Thread direction	Right
Axial play	Max 0.03mm
Ball Screw material	Chrome-molybdenum steel
Surface hardness	Min. HRC58
Lubricant	KSS original grease MSG No.2

Motor Specifications		
Motor Model	11E2110	11E2216
Basic step angle	1.8°	
Driving method	2-phase Bi-polar	
Rated Voltage	DC 2.1 V	DC 2.4 V
Rated current	DC 1.0A/phase	DC 1.6A/phase
Winding resistance	2.1Ω	1.5Ω
Holding Torque	0.036Nm	0.052Nm
Rotor inertia	7.2g·cm ²	12.0g·cm ²
Operating temperature	-10°C~50°C	

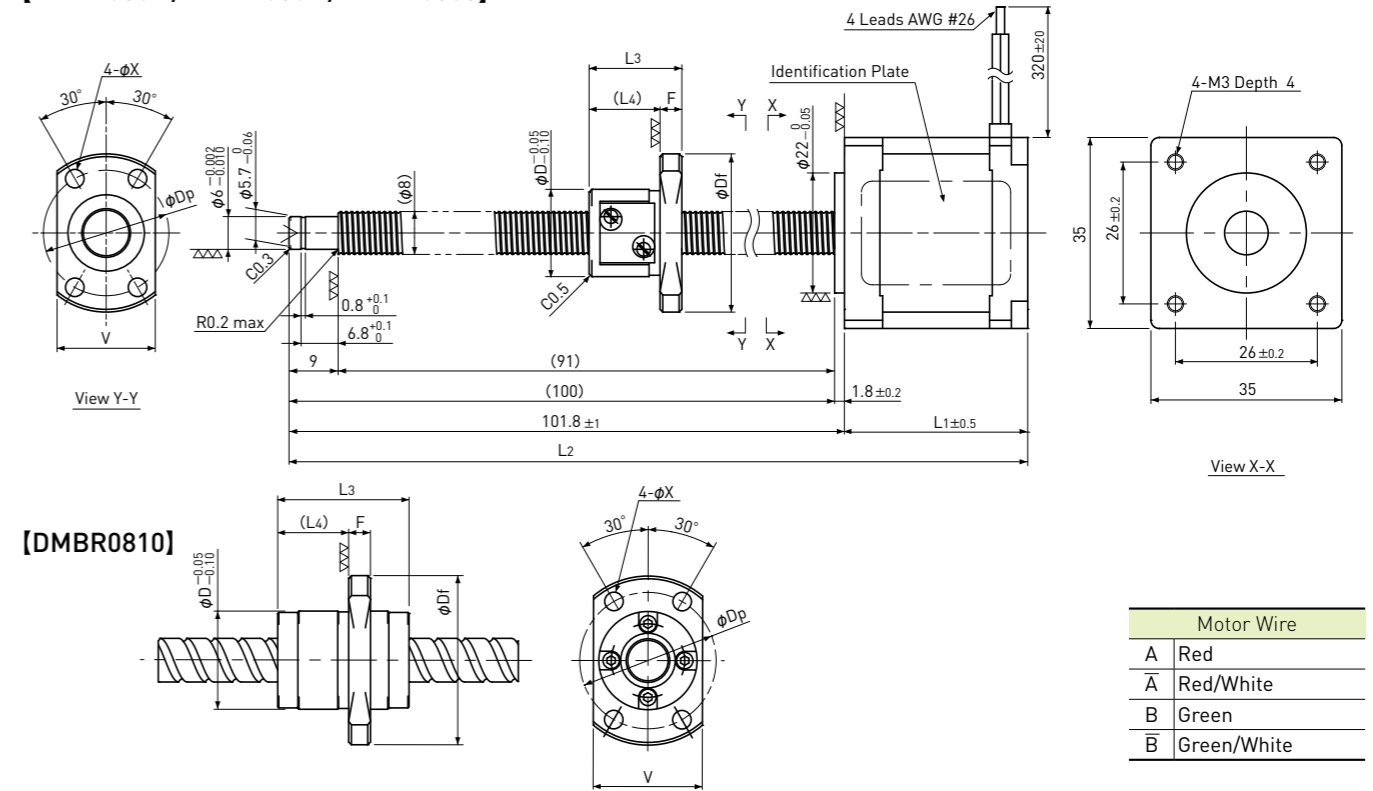
Note) Please contact KSS if different journal profile or length from the above is required.

Rolled Ball Screw + 2-phase Stepping Motor

DMBR □35 / NEMA 14

Shaft dia. $\phi 8$

[DMBR0801 / DMBR0802 / DMBR0805]



[DMBR0810]

Model	Lead	Travel	L ₁	L ₂	L ₃	L ₄	D	D _f	F	V	D _p	X	Mass (g)
DMBR0801-14E2110	1	58	33.6	135.4	17	13	16	29	4	18	23	3.4	212
DMBR0802-14E2110	2	50	33.6	135.4	24	19	20	37	5	22	29	4.5	240
DMBR0805-14E2110	5	47	33.6	135.4	28	24	18	31	4	20	25	3.4	234
DMBR0810-14E2110	10	54	33.6	135.4	24	13	18	31	4	20	25	3.4	226
DMBR0801-14E2215	1	58	45.6	147.4	17	13	16	29	4	18	23	3.4	292
DMBR0802-14E2215	2	50	45.6	147.4	24	19	20	37	5	22	29	4.5	320
DMBR0805-14E2215	5	47	45.6	147.4	28	24	18	31	4	20	25	3.4	314
DMBR0810-14E2215	10	54	45.6	147.4	24	13	18	31	4	20	25	3.4	304

Unit:mm

Motor Wire	
A	Red
\bar{A}	Red/White
B	Green
\bar{B}	Green/White

Recommended Drivers	SD4030B3
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Note) Refer to page P161 for connection diagram of recommended Drivers.

Ball Screw Specifications	
Accuracy grade	JIS Ct7
Thread direction	Right
Axial play	Max 0.03mm
Ball Screw material	Chrome-molybdenum steel
Surface hardness	Min. HRC58
Lubricant	KSS original grease MSG No.2

Motor Specifications		
Motor Model	14E2110	14E2215
Basic step angle	1.8°	
Driving method	2-phase Bi-polar	
Rated Voltage	DC 3.5 V	DC 4.0 V
Rated current	DC 1.0A/phase	DC 1.5A/phase
Winding resistance	3.5Ω	2.7Ω
Holding Torque	0.060Nm	0.10Nm
Rotor inertia	21.0g·cm ²	32.0g·cm ²
Operating temperature	-10°C~50°C	

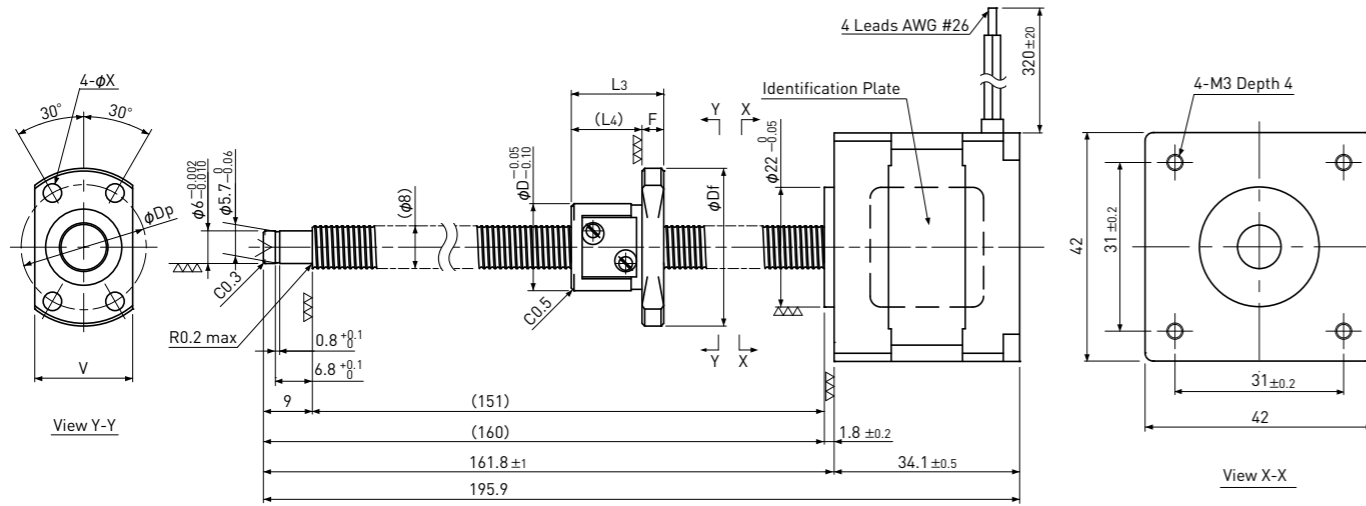
Note) Please contact KSS if different journal profile or length from the above is required.

Rolled Ball Screw + 2-phase Stepping Motor

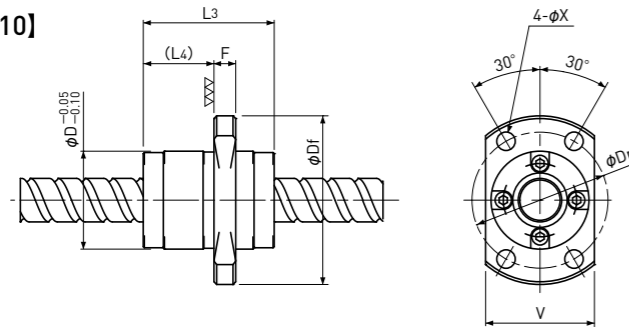
DMBR □42 / NEMA 17

Shaft dia. $\phi 8$

[DMBR0801 / DMBR0802 / DMBR0805]



[DMBR0810]



Unit:mm

Model	Lead	Travel	L3	L4	D	Df	F	V	Dp	X	Mass (g)	Motor Wire	
												A	B
DMBR0801-17E2115	1	118	17	13	16	29	4	18	23	3.4	298	Red	Green
DMBR0802-17E2115	2	110	24	19	20	37	5	22	29	4.5	322	Red/White	Green/White
DMBR0805-17E2115	5	107	28	24	18	31	4	20	25	3.4	318	Red/White	Green/White
DMBR0810-17E2115	10	114	24	13	18	31	4	20	25	3.4	308	Red/White	Green/White

Recommended Drivers

SD4030B3

Note) Refer to page P161 for connection diagram of recommended Drivers.

Ball Screw Specifications	
Accuracy grade	JIS Ct7
Thread direction	Right
Axial play	Max 0.03mm
Ball Screw material	Chrome-molybdenum steel
Surface hardness	Min. HRC58
Lubricant	KSS original grease MSG No.2

Motor Specifications	
Motor Model	17E2115
Basic step angle	1.8°
Driving method	2-phase Bi-polar
Rated Voltage	DC 2.8 V
Rated current	DC 1.5A/phase
Winding resistance	1.85Ω
Holding Torque	0.18Nm
Rotor inertia	36.0g·cm ²
Operating temperature	-10°C~50°C

Note) Please contact KSS if different journal profile or length from the above is required.