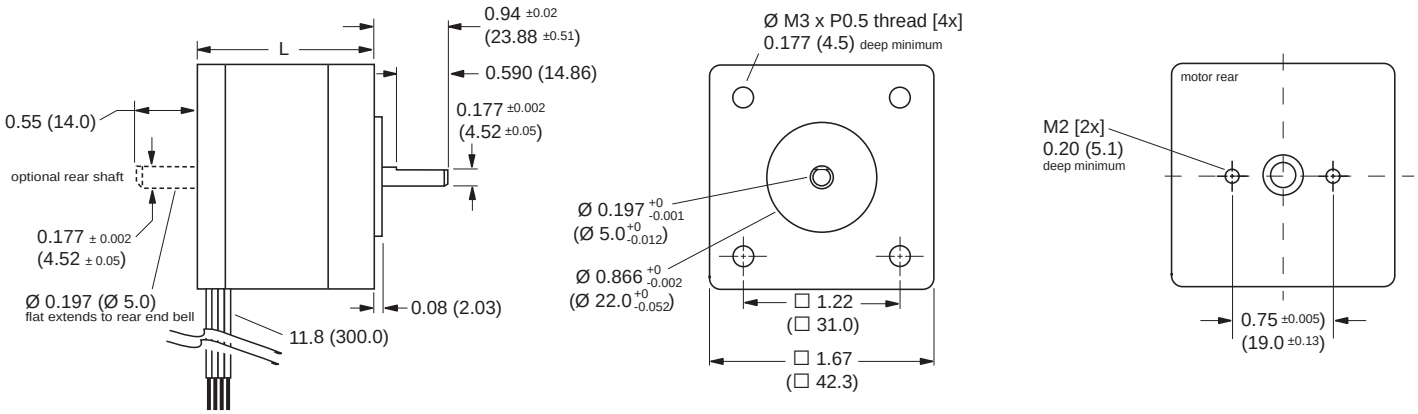
NEMA17 stepper motors

1.8° 2-phase stepper motors

Dimensions — NEMA17

Dimensions in inches (mm)



	L
M-1713-1.5•	1.34 (34)
M-1715-1.5•	1.57 (40)
M-1719-1.5•	1.89 (48)

Ambient conditions

Ambient temperature	**°C**	-25 ... +40
Max. installation height over m.s.l. without power loss	**m**	< 1000
Transport and storage temperature	**°C**	-25 ... +70
Relative humidity	**%**	15 ... 85, no condensation allowed
Thermal class		130 (B)

Electrical and mechanical data

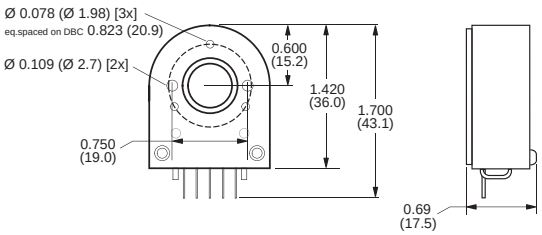
NEMA17		**M-1713-1.5•**	**M-1715-1.5•**	**M-1719-1.5•**
Stack length		single	double	triple
Phase current	**amps**	1.5	1.5	1.5
Holding torque	**oz-in**	32	60	75
	N-cm	23	42	53
Rotor inertia	**oz-in-sec²**	0.000538	0.0008037	0.0011562
	kg-cm²	0.038	0.057	0.082
Phase inductance	**mH**	2.1	5.0	3.85
Phase resistance	Ω	1.3	2.1	2.0
Weight	oz	7.4	8.1	12.7
	grams	210	230	360

NEMA17 stepper motors
1.8° 2-phase

References

Example:	M -	1	7	1	3	- 1 . 5	S
Motor type **M** = stepper motor	**M -**	1	7	1	3	- 1 . 5	S
Flange size **17** = NEMA17 (42 mm)	M -	**1**	**7**	1	3	- 1 . 5	S
Motor length **13** = single stack **15** = double stack **19** = triple stack	M -	1	7	**1**	**3**	- 1 . 5	S
Phase current **1.5** = 1.5 amp	M -	1	7	1	3	**- 1 . 5**	S
Shaft **S** = single shaft **D** = double shaft							**S**
Optional encoder Selecting the encoder option replaces the shaft designator in the part number **ES** = single-end optical encoder **ED** = differential optical encoder **100** = line count **200** = line count **250** = line count **400** = line count **500** = line count **1000** = line count							**ES100**

Dimensions in inches (mm)



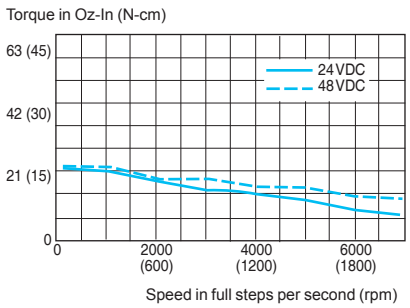
Encoders

Optical encoder	ES• (single-end)	ED• (differential)
Number of signals	3	5
Line counts *(1)*	100, 200, 250, 400, 500 or 1000	100, 200, 250, 400, 500 or 1000
Mating cable part #	ES-CABLE-2 *(2)*	ED-CABLE-6
Mating cable lengths feet (m)	1.0 (0.3)	6.0 (1.8)

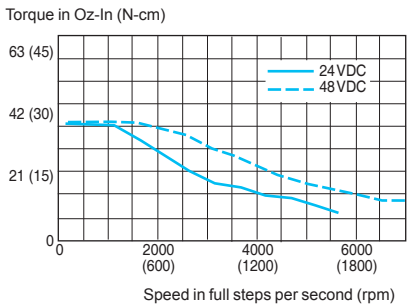
(1) All encoders have an index mark, except the 1000 line count version.
(2) Mating cable is not included and must be ordered separately.

Speed-torque curves

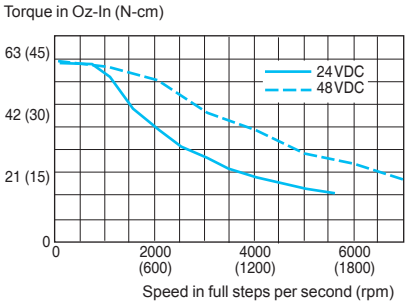
M-1713-1.5•



M-1715-1.5•



M-1719-1.5•



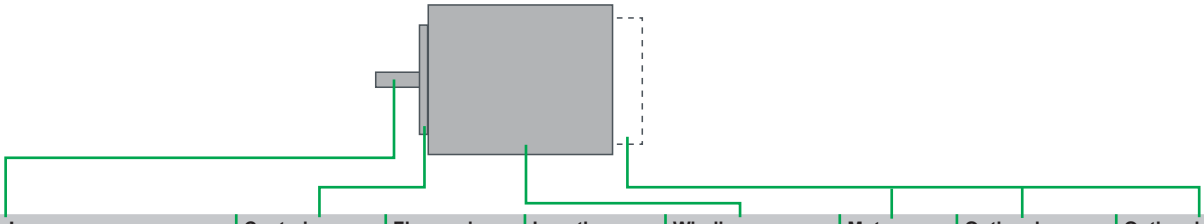
Product line overview

Stepper motors
1.8° 2-phase

Complete product offer

2-phase stepper motors		M-11•	M-14•	M-17•	M-22•	M-34•
						
Size	**NEMA**	11	14	17	23	34
Holding torque	**oz-in**	13 ... 24	10	32 ... 75	90 ... 239	408 ... 1090
	N-cm	9 ... 17	7	23 ... 53	64 ... 169	288 ... 770
Number of full steps per revolution		200				
Step angle α	°	1.8				
Motor connection		pluggable connector	4 flying leads			

Motor types



Shaft version			Centering collar		Flange size		Lengths without shaft		Winding	Motor connection	Optional rear shaft *(1)*	Optional encoder
M-11•	inches	mm	inches	mm	inches	mm	inches	mm				
Round shaft with single flat feature	Ø 0.197	Ø 5.0	Ø 0.866	Ø 22	0.65	16.5	1.22 1.57 2.01	31 40 51	2-phase full coil for bi-polar operation	pluggable connector	Round shaft	1000-line differential
M-14•	inches	mm	inches	mm	inches	mm	inches	mm				
Round shaft with single flat feature	Ø 0.197	Ø 5.0	Ø 0.866	Ø 22	1.39	35.3	1.02	26	2-phase full coil for bi-polar operation	4 flying leads	Round shaft	Single-end or differential
M-17•												
Round shaft with single flat feature	Ø 0.197	Ø 5.0	Ø 0.866	Ø 22	1.67	42.3	1.34 1.57 1.89	34 40 48	2-phase full coil for bi-polar operation	4 flying leads	Flat feature extending to rear end bell	Single-end or differential
M-22•												
Round shaft with single flat feature	Ø 0.25	Ø 6.35	Ø 1.50	Ø 38	2.22	56.4	1.77 2.13 2.99	45 54 76	2-phase full coil for bi-polar operation	4 flying leads	Flat feature extending to rear end bell *(2)*	Single-end or differential
M-34•												
Round shaft with single flat feature	Ø 0.554	Ø 14.0	Ø 2.874	Ø 73	3.386	86.0	2.48 3.15 4.72	63 80 120	2-phase full coil for bi-polar operation	4 flying leads	Flat feature on round shaft	Single-end or differential

(1) Optional rear shaft available except for NEMA23 2.4amp motors.
(2) Optional rear shaft on NEMA23 6.0amp motors is round without a flat feature.

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