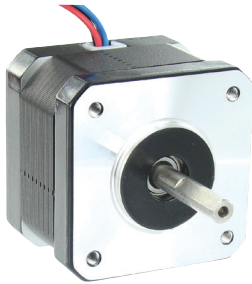


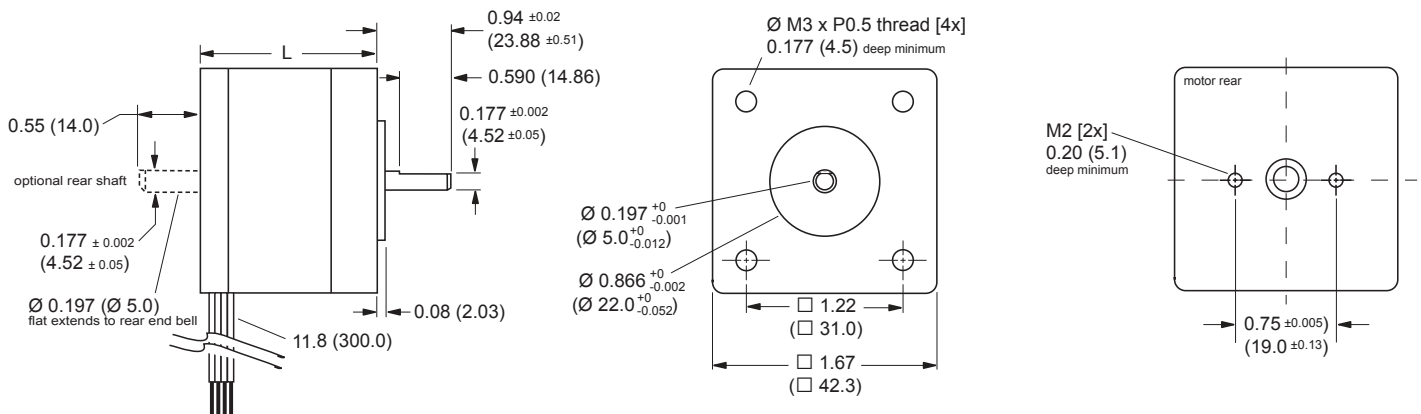
NEMA17 stepper motors

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)

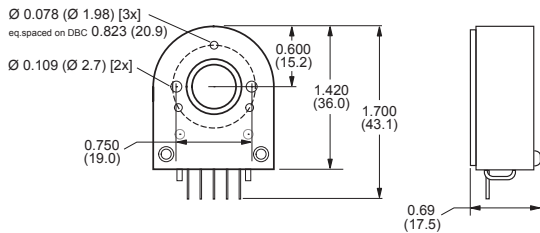
Electrical and mechanical data

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-sec ²	0.000538	0.0008037	0.0011562
	kg-cm ²	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

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)



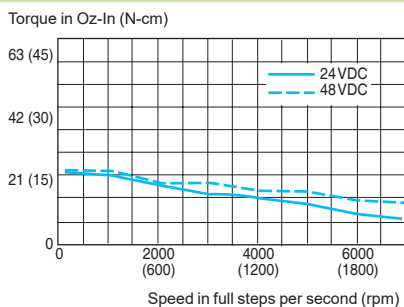
Encoders

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	ED-CABLE-6
Mating cable lengths feet (m)	1.0 (0.3)	6.0 (1.8)

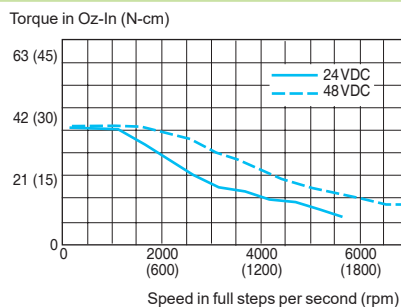
(1) All encoders have an index mark, except the 1000 line count version.

Speed-torque curves

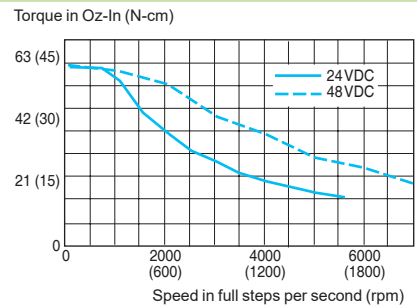
M-1713-1.5•


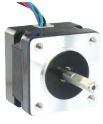

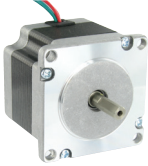
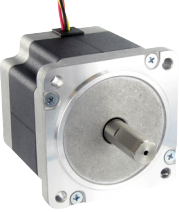


M-1715-1.5•

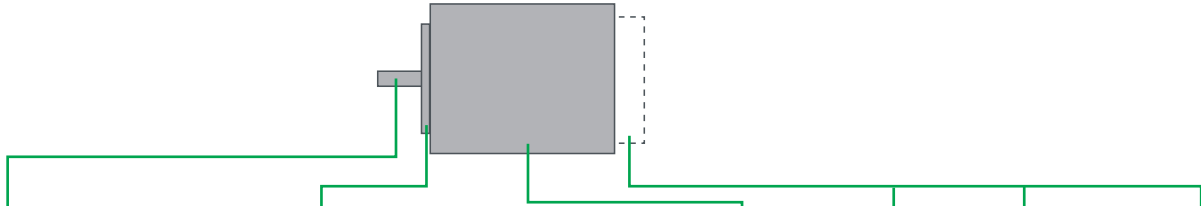


M-1719-1.5•



Complete product offer		M-11•	M-14•	M-17•	M-22•	M-34•
2-phase stepper motors						
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		
	inches	mm	inches	mm	inches	mm						
M-11•												
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•												
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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