

TPE17 & TPE17M : ElectroCraft TorquePower™ Enhanced | Stepper Motor

Size	Holding Torque oz-in (Ncm)	Speeds up to RPS
Nema 17	78(55)	80



Compact. Powerful.

The ElectroCraft Torque Power™ Enhanced Nema 17 is a high performance stepper motor incorporating creative design and manufacturing techniques to offer improved holding torque. Motors are available in both bipolar and unipolar windings with a variety of shaft configurations and encoder options to meet the needs of any application.

To build your own motor, choose the:

1 - Frame Size
(Metric or Imperial)

a. **TPE17**
Product Name Frame Size

b. **TPE17M**
Product Name Frame Size Optional Metric

2 - Torque
(Stack Length)

— **45**
Holding Torque (oz-in) Bipolar

— **32**
Holding Torque (Ncm) Bipolar

3 - Winding

A **10**
Bipolar Current (Amps x 10)

V **10**
Unipolar Voltage (Volts x 10)

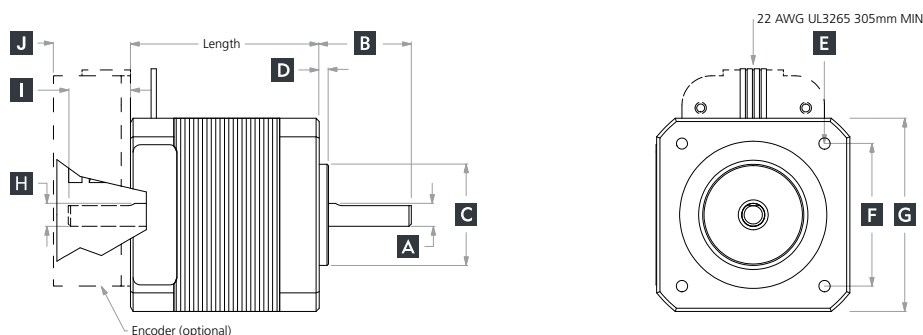
4 - Features
(see page 39)

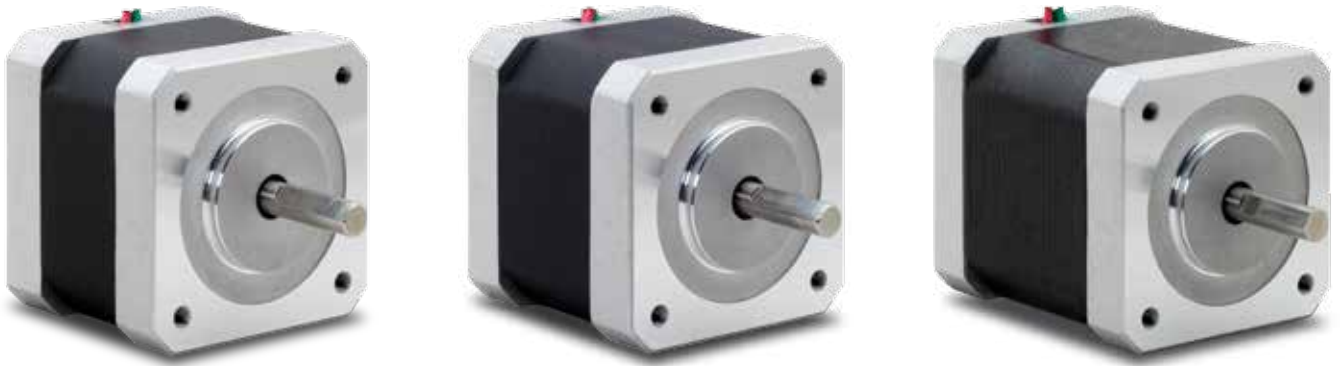
— **1111** — **X**
Step Angle Front Shaft Rear Shaft Termination Encoder

Step 1:

TPE17 & TPE17M Frame Size Drawing Key

Bipolar Model	Unipolar Model	MAX Length	A	B	C	D	E	F	G	H	I	J
			Front Shaft Diameter	Front Shaft Length	Pilot Diameter	Pilot Length (Ref)	Mount Hole Callout (Ref)	Mount Hole Spacing (Ref)	Flange External Dimension (Ref)	Rear Shaft Diameter	Rear Shaft Length	Encoder Length (max)
TPE17-45	TPE17-35	1.42 in ±0.03	0.1968 in 0.1963 in	0.79 in ±0.03	0.8660 in 0.8648 in	0.08 in	[4] 4-40 UNC-2B 0.17 in Deep Min	1.22 in ±0.07	1.65 in square	0.1968 in 0.1963 in	0.53 in ±0.04	0.70 in
TPE17-63	TPE17-48	1.62 in ±0.03										
TPE17-78	TPE17-60	1.93 in ±0.03										
TPE17M-32	TPE17M-25	36.1 mm ±0.8	4.999 mm 4.986 mm	20 mm ±0.8	22.00 mm 21.97 mm	2.0 mm	(4) M3 x 0.5-6H 4.31 mm Deep min	31.0 mm ±0.15	42 mm square	4.999 mm 4.986 mm	13.5 mm ±1.0	17.8 mm
TPE17M-44	TPE17M-34	41.1 mm ±0.8										
TPE17M-55	TPE17M-42	49.1 mm ±0.8										





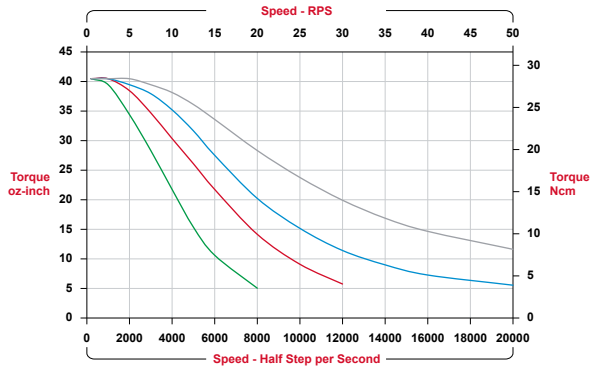
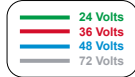
Step 2: TPE17 & TPE17M Torque and Mechanical Data						
Stack Size Models	Bipolar			Unipolar		
Imperial	45A	63A	78A	35V	48V	60V
Metric	32A	44A	55A	25V	34V	42V
Holding Torque oz-in (Ncm)	45 (32)	63 (44)	78 (55)	35 (25)	48 (34)	60 (42)
Step Angle °/step	1.8°	1.8°	1.8°	1.8°	1.8°	1.8°
Rotor Inertia oz-in-sec ² (kg-cm ²)	0.00058 (0.0407)	0.00086 (0.0606)	0.00117 (0.0827)	0.00058 (0.0407)	0.00086 (0.0606)	0.00117 (0.0827)
Weight oz (g)	9 (250)	11 (300)	13 (370)	9 (250)	11 (300)	13 (370)

Step 3: Available Windings									
Bipolar									
Imperial	45A10	45A15	45A20	63A10	63A15	63A20	78A10	78A15	78A20
Metric	32A10	32A15	32A20	44A10	44A15	44A20	55A10	55A15	55A20
Current Bipolar (A/Phase)	1.00	1.50	2.00	1.00	1.50	2.00	1.00	1.50	2.00
Phase Resistance (ohm)	4.28	1.90	1.07	4.99	2.22	1.25	6.12	2.72	1.58
Phase Inductance (mH)	7.55	3.36	1.89	9.30	4.14	2.32	14.42	6.42	3.40
Unipolar									
Imperial	35V40	35V60	35V120	48V40	48V60	48V120	60V40	60V60	60V120
Metric	25V40	25V60	25V120	34V40	34V60	34V120	42V40	42V60	42V120
Unipolar (V/Phase)	4.0	6.0	12.0	4.0	6.0	12.0	4.0	6.0	12.0
Unipolar (A/Phase)	1.05	0.70	0.35	1.27	0.85	0.45	1.47	0.98	0.49
Phase Resistance (ohm)	3.81	8.56	34.24	3.15	7.06	26.68	2.72	6.12	24.49
Phase Inductance (mH)	3.37	7.56	30.24	2.93	6.58	26.33	3.21	7.21	28.86
Bipolar (A/Phase)*	0.74	0.50	0.25	0.90	0.60	0.32	1.04	0.69	0.35

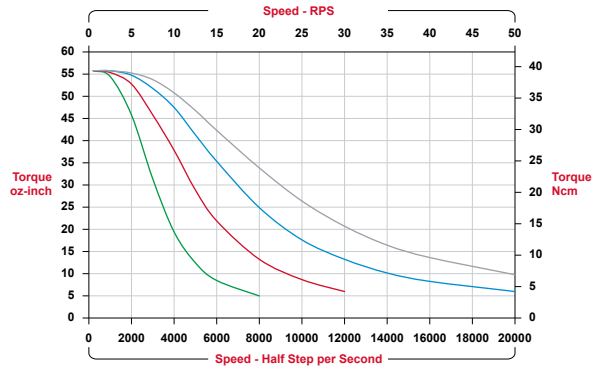
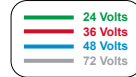
TPE17 & TPE17M Speed - Torque Curves

Bipolar

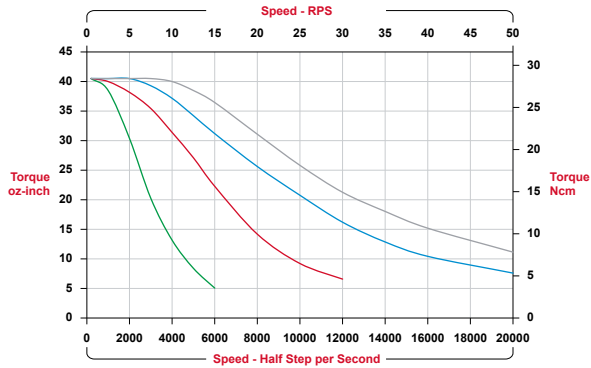
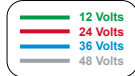
TPE17-45A10
TPE17M-32A10
1 Amp/phase (RMS)



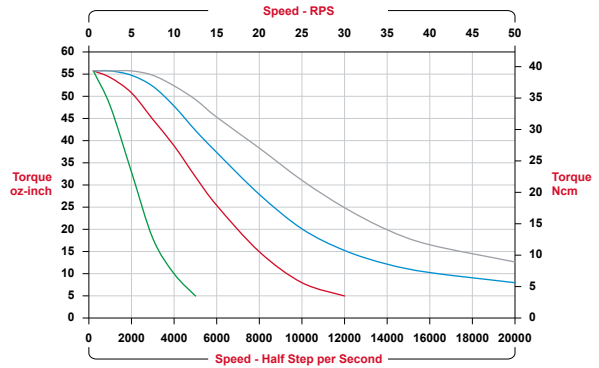
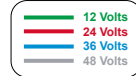
TPE17-63A10
TPE17M-44A10
1 Amp/phase (RMS)



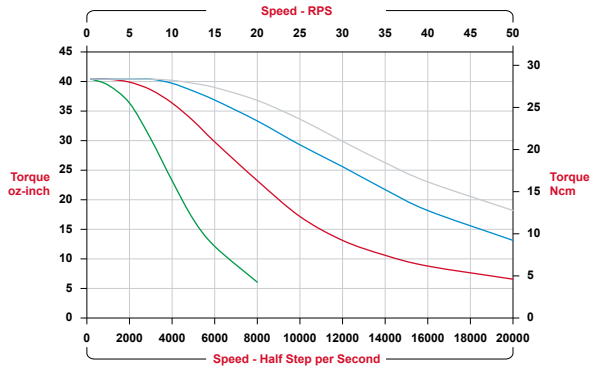
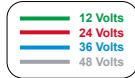
TPE17-45A15
TPE17M-32A15
1.5 Amp/phase (RMS)



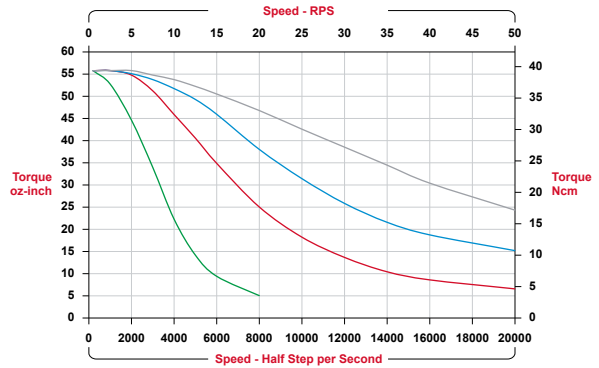
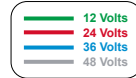
TPE17-63A15
TPE17M-44A15
1.5 Amp/phase (RMS)



TPE17-45A20
TPE17M-32A20
2 Amp/phase (RMS)



TPE17-63A20
TPE17M-44A20
2 Amp/phase (RMS)



TPE17 & TPE17M Speed - Torque Curves

Bipolar

Unipolar

