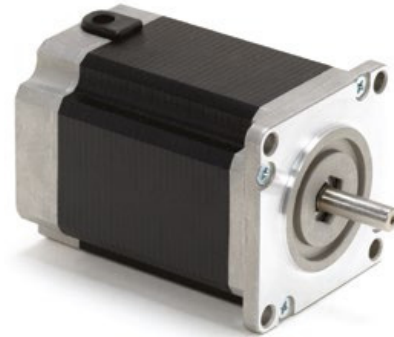


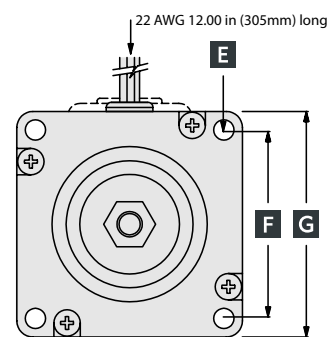
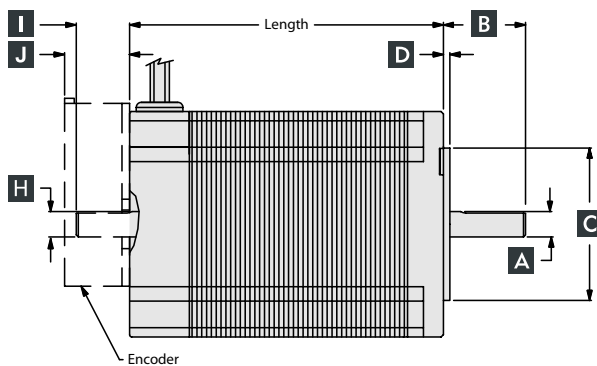
### Powerful. Precise.

This 1.8 degree size 23 hybrid DC stepping motor is totally enclosed with permanently lubricated ball bearings. The bi-directional size 23 has holding torque up to 240 oz-in with a step angle accuracy of ±3%.



TPP23 STEPPER MOTOR	
Size	Nema 23, 1.8°
Holding Torque	up to 240 oz-in or 169 Ncm
Speed	up to 90 RPS

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)
TPP23-90	TPP23-72	1.75 in ±0.03	0.2500 in 0.2495 in	0.81 in ±0.03	1.502 in 1.498 in	0.06 in	(4) 0.205 in ±0.01 Through	1.86 in	2.22 in	0.2500 in 0.2495 in	0.53 in ±0.04	0.70 in
TPP23-150	TPP23-120	2.21 in ±0.03										
TPP23-240	TPP23-190	3.09 in ±0.03										
TPP23M-64	TPP23M-50	44.5 mm ±0.8	7.988 mm 7.976 mm	20.5 mm ±0.8	38.15 mm 38.05 mm	1.5 mm	(4) 5.21 mm ±0.25 Through	47.1 mm	56.4 mm	4.998 mm 4.986 mm	13.5 mm ±0.8	17.8 mm
TPP23M-106	TPP23M-84	56.1 mm ±0.8										
TPP23M-170	TPP23M-134	78.5 mm ±0.8										



### TPP23 Model Number

#### 1 - Frame Size (Imperial or Metric)

**T P P 2 3**  
Product Name      Frame Size

**T P P 2 3 M**  
Product Name      Frame Size      Optional Metric

#### 2 - Torque

**- 9 0**  
Holding Torque (oz-in) Bipolar

**- 6 4**  
Holding Torque (Ncm) Bipolar

#### 3 - Winding

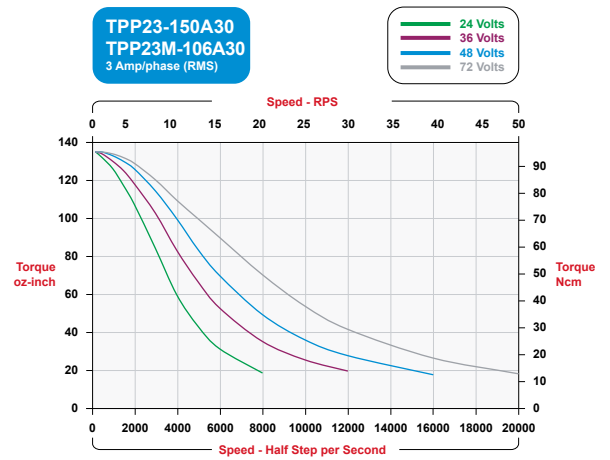
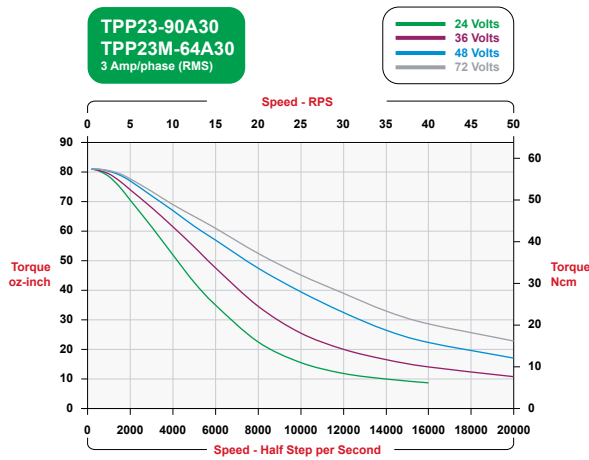
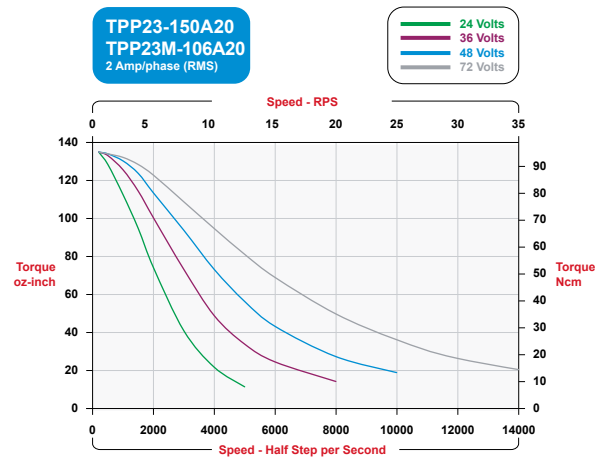
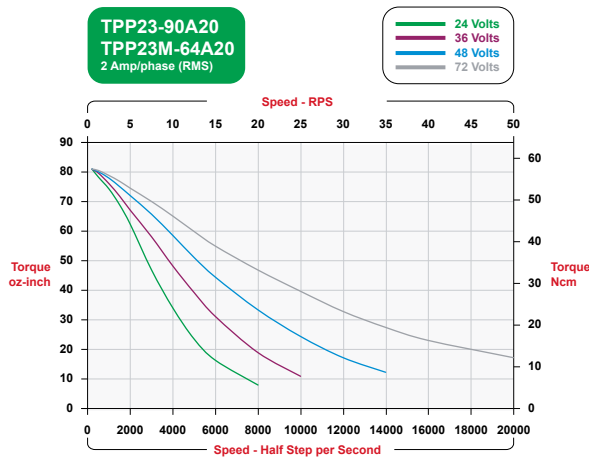
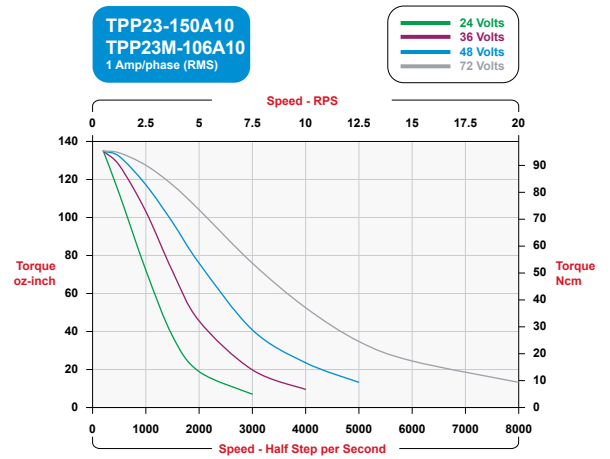
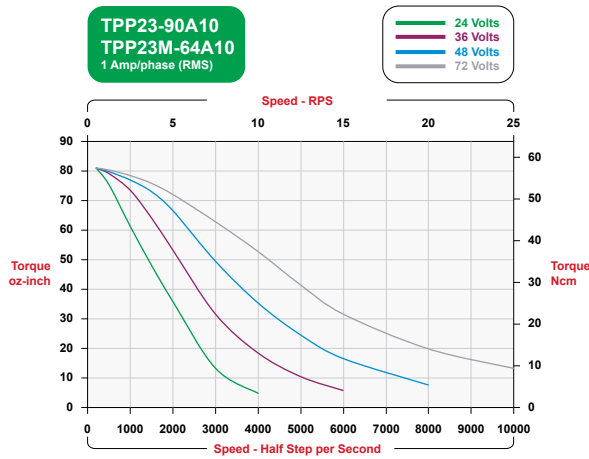
**A 3 0**  
Bipolar      Current (Amps x 10)

**V 6 0**  
Unipolar      Voltage (Volts x 10)

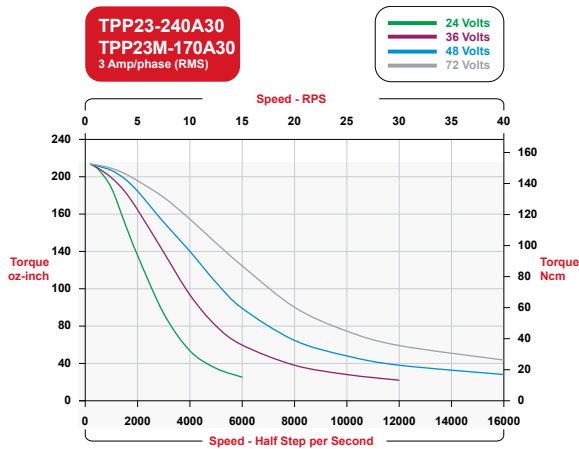
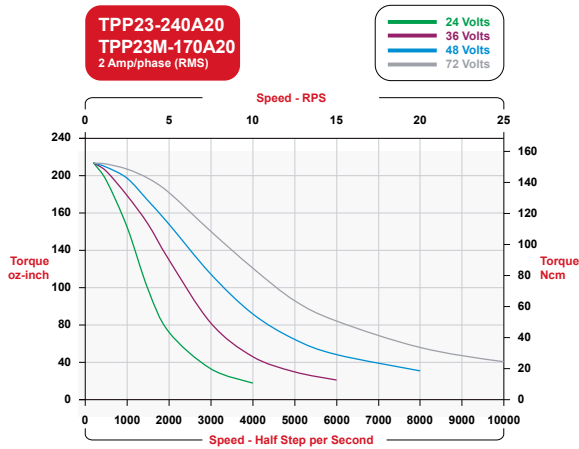
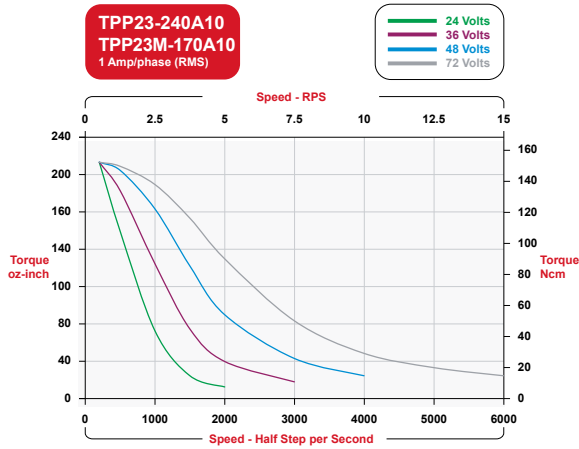
#### 4 - Features

**1 1 0 0 - X**  
Step Angle Shaft      Rear Shaft      Termination      Feedback

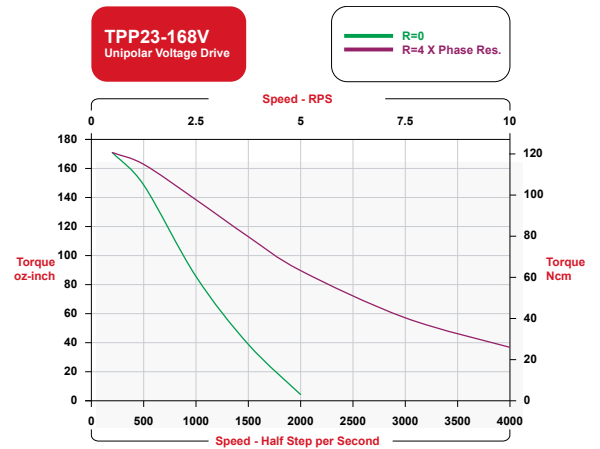
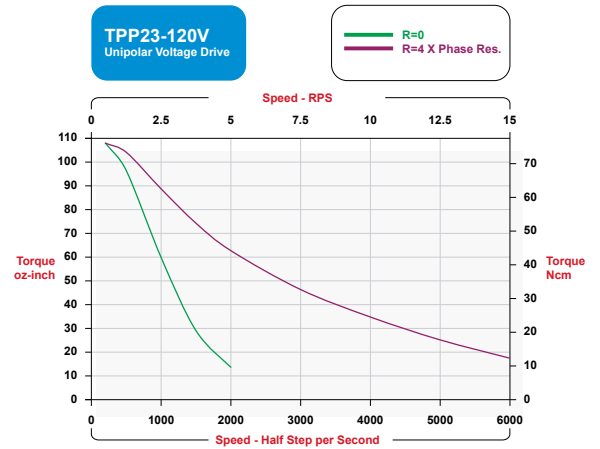
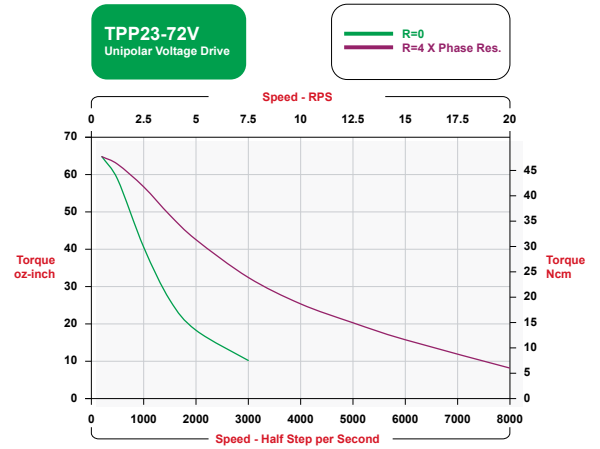
TPP23 - Bipolar Performance



### TPP23 - Bipolar Performance



### TPP23 - Unipolar Performance



Your Genius. Our Drive.

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Gallipolis, Ohio 45631

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Fax: (812) 385-3013

Email: sales@electrocrafter.com  
www.electrocrafter.com

## TPP23 Mechanical / Winding Data

### TPP23 Bi-Polar Stack Size

Imperial Models	TPP23-90	TPP23-150	TPP23-240
Metric Models	TPP23M-64	TPP23M-106	TPP23M-170
Holding Torque (oz-in)	90.0	150.0	240.0
Holding Torque (Ncm)	63.55	105.92	169.46
Length (inches)	1.75	2.21	3.09
Length (cm)	4.4	5.6	7.8
Width (inches)	2.2	2.2	2.2
Width (cm)	5.6	5.6	5.6
Weight (oz)	17.0	24.0	37.0
Weight (Kg)	0.5	0.7	1.0
Step Angle (°/step)	1.8	1.8	1.8
Number Leads	4	4	4

### TPP23 Uni-Polar Stack Size

Imperial Models	TPP23-72	TPP23-120	TPP23-190
Metric Models	TPP23M-50	TPP23M-84	TPP23M-134
Holding Torque (oz-in)	72.0	120.0	190.0
Holding Torque (Ncm)	50.8	84.7	134.17
Length (inches)	1.75	2.21	3.09
Length (cm)	4.4	5.6	7.8
Width (inches)	2.2	2.2	2.2
Width (cm)	5.6	5.6	5.6
Weight (oz)	17.0	24.0	37.0
Weight (Kg)	0.5	0.7	1.0
Step Angle (°/step)	1.8	1.8	1.8
Number Leads	6	6	6

### TPP23 Bi-Polar Windings

Imperial Models	90A10	90A20	90A30	150A10	150A20	150A30	240A10	240A20	240A30
Metric Models	64A10	64A20	64A30	106A10	106A20	106A30	170A10	170A20	170A30
Current (A/Phase)	1.0	2.0	3.0	1.0	2.0	3.0	1.0	2.0	3.0
Voltage (V/Phase)	5.8	3.0	1.8	7.9	3.8	2.4	9.1	3.8	3.0
Resistance (R/Phase)	5.8	1.5	0.6	7.9	1.9	0.8	9.1	1.9	1.0
Inductance (mH)	20.3	5.2	2.0	35.0	8.6	3.5	45.4	8.6	4.8

### TPP23 Uni-Polar Windings

Imperial Models	72V18	72V30	72V60	72V120	120V23	120V38	120V60	120V76	120V154	190V28	190V45	190V60	190V92	190V179
Metric Models	50V18	50V30	50V60	50V120	84V23	84V38	84V60	84V76	84V154	134V28	134V45	134V60	134V92	134V179
Current Uni-Polar (A/Phase)	3.0	2.0	1.0	0.5	3.0	2.0	1.3	1.0	0.5	3.0	2.0	1.5	1.0	0.5
Voltage Uni-Polar (V/Phase)	1.8	3.0	6.0	11.9	2.3	3.8	6.0	7.6	15.4	2.8	4.5	6.0	9.2	17.9
Resistance Uni-Polar (R/Phase)	0.6	1.6	6.0	23.5	0.8	1.9	4.8	7.6	30.9	0.9	2.2	4.0	9.2	35.7
Inductance Uni-Polar (mH)	1.0	2.6	10.8	41.4	1.6	4.2	11.7	17.7	67.3	2.1	5.2	14.0	22.5	93.8
Current Bi-Polar (A/Phase)	2.1	1.4	0.7	0.4	2.1	1.4	0.9	0.7	0.4	2.1	1.4	1.1	0.7	0.4
Voltage Bi-Polar (V/Phase)	2.6	4.2	8.5	16.8	3.3	5.4	8.5	10.8	21.8	4.0	6.4	8.5	13.0	25.3
Resistance Bi-Polar (R/Phase)	1.2	3.1	12.0	47.0	1.5	3.8	9.6	15.2	61.8	1.8	4.5	8.0	18.5	71.4
Inductance Bi-Polar (mH)	4.0	10.4	43.2	165.6	6.4	16.8	47.0	70.8	269.2	8.4	20.8	56.0	90.0	375.2

