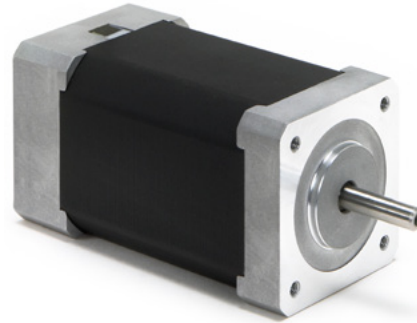


### Compact yet powerful.

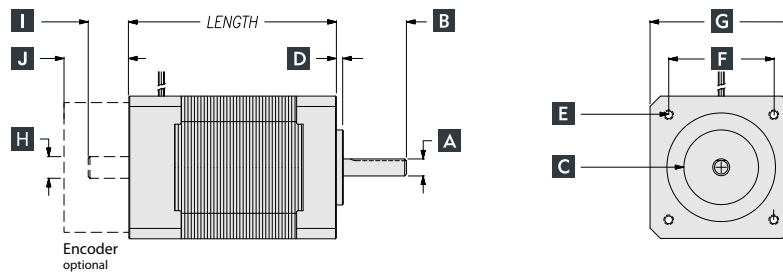
Our ElectroCraft RapidPower™ Nema 17 is a small-sized, high-performance and high-speed brushless motor with ball-bearing construction, dynamically balanced rotors, and low audible and magnetic noise. It does not include brushes or a commutator. It is compatible with all three-phase brushless DC motor amplifiers.



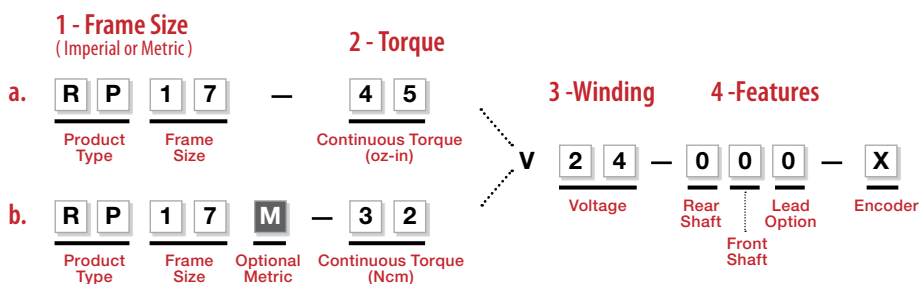
### RP17 RapidPower™ BLDC Motor

<b>Size:</b>	Nema 17
<b>Peak Torque:</b>	to 136 oz-in or 96 Ncm

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 Pattern (Ref)	Mount Hole Spacing (Ref)	Flange External Dimension SQ (Ref)	Rear Shaft Diameter	Rear Shaft Length	Encoder Length (Ref) Single Ended Differential
RP17-12	1.60 in	0.1968 in 0.1963 in	0.81 in ±0.03	0.8660 in 0.8648 in	0.08 in	[4] 4-40 in UNC-2B 0.17 in Deep Min	1.22 in	1.65 in	0.2500 in 0.2495 in	0.47 in ±0.040	0.35 in
RP17-22	2.40 in										0.55 in
RP17-36	3.20 in										
RP17-45	4.00 in										
RP17-M-8	41 mm	5.000 mm 4.987 mm	20.6 mm ±0.76	22.00 mm 21.97 mm	2 mm	[4] M3 x 0.5 4.3 mm Deep Min	31 mm	42 mm	6.350 mm 6.337 mm	11.4 mm ±0.7	8.9 mm
RP17-M-16	61 mm										14.0 mm
RP17-M-25	81 mm										
RP17-M-32	101 mm										



### BLDC Model Number



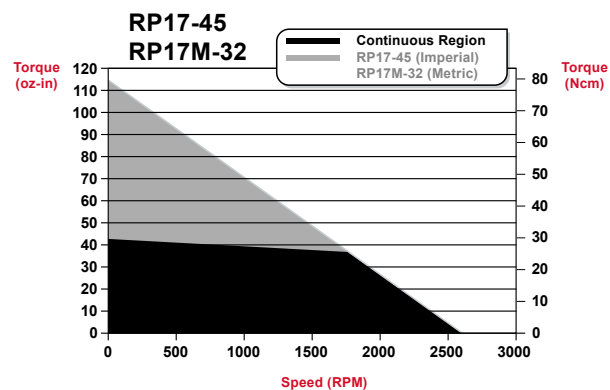
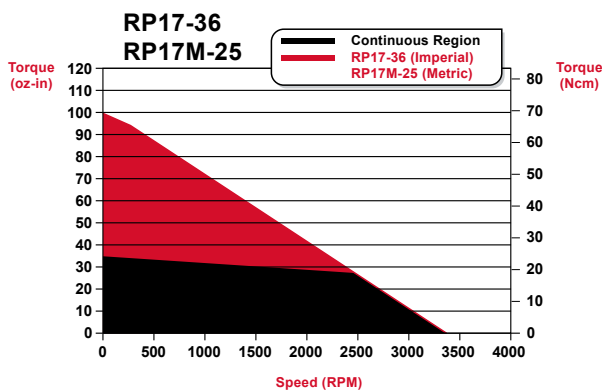
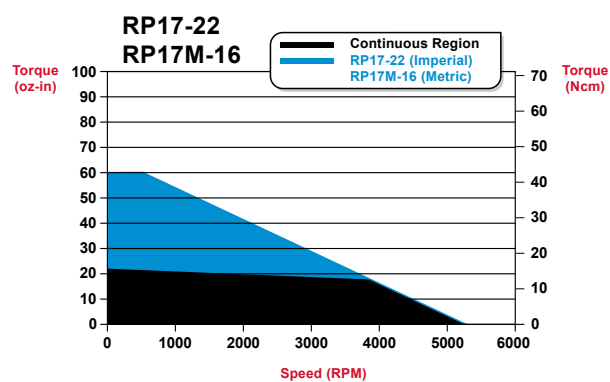
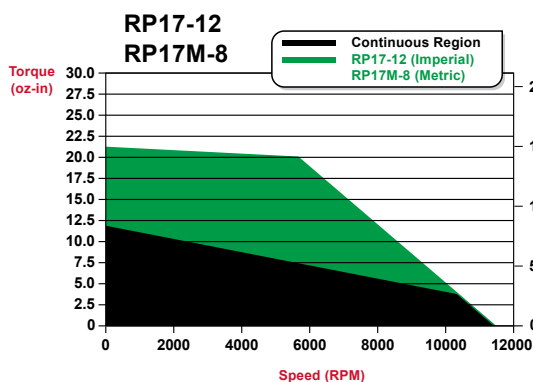
# RP17

## RapidPower™ BLDC Motor

High torque density - smooth power delivery.



### RP17 Speed Torque Performance



### RP17 Mechanical Data

Stack Size Models	RP17- 12	RP17- 22	RP17- 36	RP17- 45
Continuous Stall Torque (oz-in)	12	22	36	45
Continuous Stall Torque (Ncm)	8	16	25	32
Peak Torque (oz-in)	21	60	100	136
Peak Torque (Ncm)	15	42	71	96
Motor Constant (oz-in / √ Watt)	3.50	5.80	8.40	9.00
Motor Constant (Nm / √ Watt)	2.47	4.10	5.93	6.36
Electrical Constant (msec)	0.80	1.10	1.10	1.20
Mechanical Constant (msec)	8.50	4.40	3.10	2.70
Rotor Inertia (oz-in <sup>2</sup> )	0.0008	0.0012	0.0016	0.0019
Rotor Inertia (gm-cm <sup>2</sup> )	56.5	84.7	113.0	134.2
Thermal Resistance (C / Watts)	6.3	5.5	4.0	3.4
Weight (oz)	9.0	17.0	23.5	31.0
Weight (Kg)	0.3	0.5	0.7	0.9
Length (inches)	1.6	2.4	3.1	3.9
Length (mm)	40.6	61.0	78.7	99.1
Number of Poles	4	4	4	4



Your Genius. Our Drive.

ElectroCraft, Inc.  
1 Progress Drive  
Dover, NH 03820

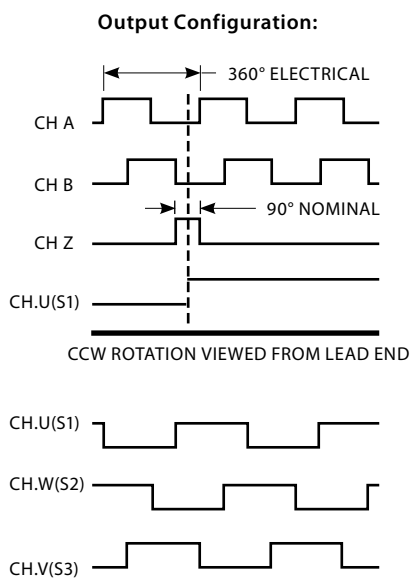
Tel: (812) 338-8114  
Fax: (812) 385-3013

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

## RP17 Winding Data

Winding Models	12V24	12V48	12V60	22V24	22V48	22V60	36V24	36V48	36V60	45V24	45V48	45V60
	8V24	8V48	8V60	16V24	16V48	16V60	25V24	25V48	25V60	32V24	221V90	32V60
Design Voltage (VDC)	24	48	60	24	48	60	24	48	60	24	48	60
Continuous Current (Amps)	4.2	2.1	1.7	3.6	1.8	1.4	3.7	1.9	1.5	3.6	1.8	1.4
Peak Current (Amps)	7.6	3.8	3.0	9.9	4.9	3.9	10.4	5.2	4.2	10.9	5.5	4.4
Voltage Constant ±10% (VDC/kRPM)	2.1	4.2	5.3	4.5	9.0	11.3	7.1	14.2	17.8	9.2	18.4	23.0
Torque Constant ±10% (oz-in / Amp)	2.8	5.7	7.2	6.1	12.2	15.2	9.6	19.2	24.1	12.4	24.9	31.1
Torque Constant ±10% (Ncm / Amp)	1.977	4.025	5.084	4.308	8.615	10.734	6.779	13.558	18.018	8.756	17.583	21.961
Resistance ±10% (Ohms)	0.7	2.5	4.0	1.1	4.4	5.5	1.3	4.8	7.2	1.9	7.6	11.4
Inductance ±10% (mH)	0.5	2.0	3.0	1.2	4.8	6.2	1.4	5.0	7.5	2.3	9.2	14.0

## RP17 Connection



Hall Pinouts	
Color	Function
ORANGE	+4.5-24 VDC
BLACK	GROUND
YELLOW	S1
GREY	S2
GREEN	S3

Low Profile Encoder	
Character	Lines
J	500 CPR
K	1000 CPR
L	2000 CPR

Encoder Pinouts	
Color	Function
BLACK	GROUND
ORANGE	CHANNEL Z
YELLOW	CHANNEL A
RED	+5 VDC
BLUE	CHANNEL B
GREEN	S1
BROWN	S2
WHITE	S3
BRN	S2

Differential Encoder	
Character	Lines
C	500 CPR
D	1000 CPR
E	2000 CPR
Encoder Pinouts	
Color	Function
YELLOW	CH A
YEL/WHT	CH A COMP
BLUE	CH B
BLU/WHT	CH B COMP
ORANGE	CH Z
ORG/WHT	CH Z COMP
GREEN	S1
GRN/WHT	NOT USED
BROWN	S2
BRN/WHT	NOT USED
WHITE	S3
GREY/WHT	NOT USED
RED	VCC
BLACK	GROUND
GREY	NOT USED

