



RP17 : RapidPower™ BLDC Motor

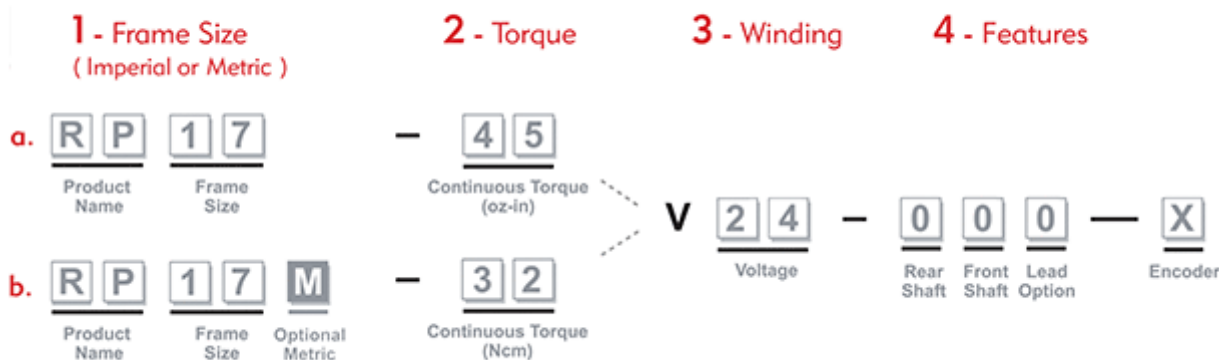
Size: Nema 17

Peak Torque: to 136 oz-in or 96 Ncm

High-Performance. Good Price.

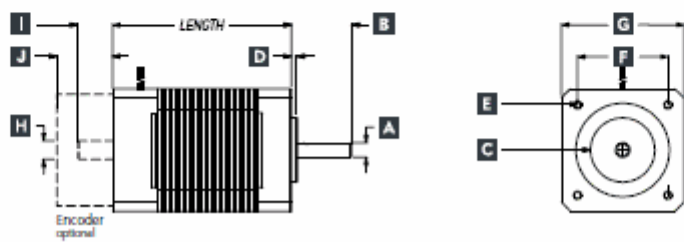
Our ElectroCraft RapidPower™ Nema 17 is a small-sized, high-performance and high-speed brushless motor with ball-bearing construction, dynamically balanced rotors, and low audible and magnetic noise. It does not include brushes or a commutator. It is compatible with all three-phase brushless DC motor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

BLDC Model Number (example)

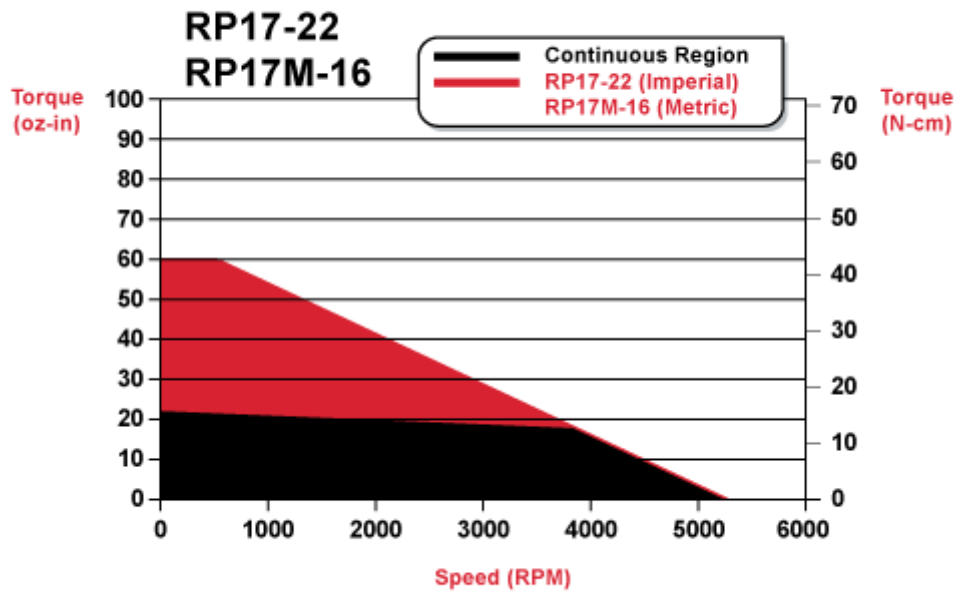
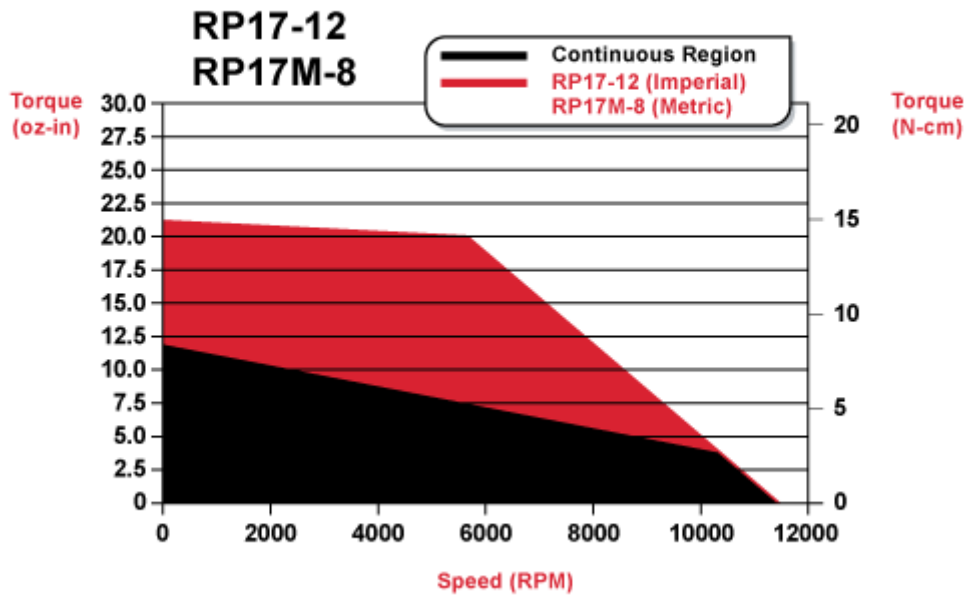


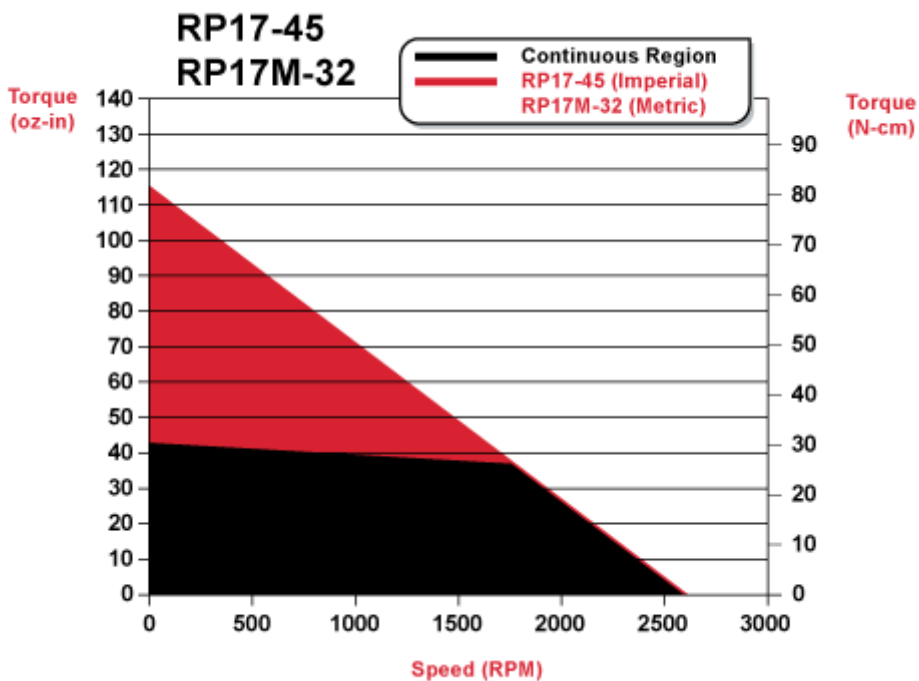
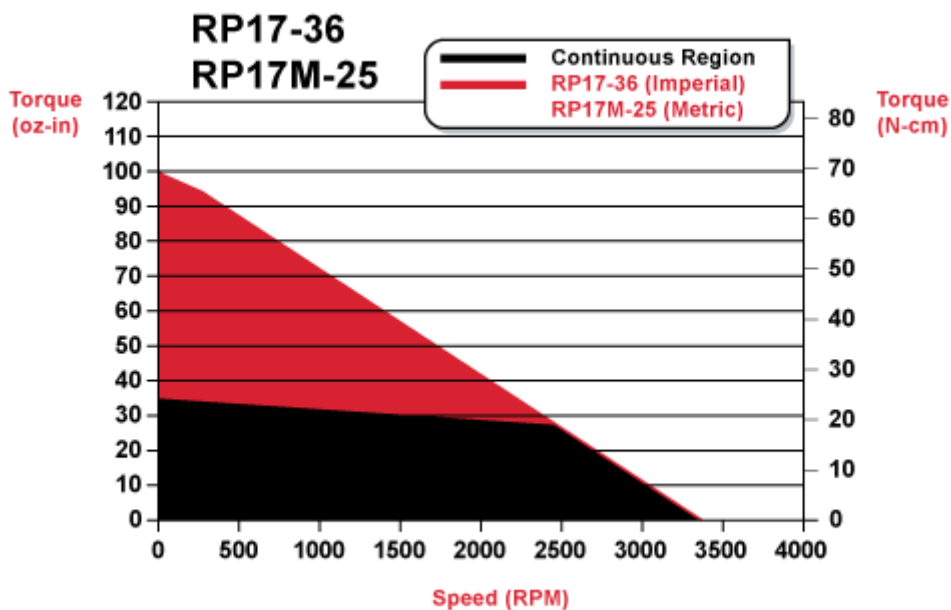
RP17 Outline Drawing

Model	MAX Length	A Front Shaft Diameter	B Front Shaft Length	C Pilot Diameter	D Pilot Length (Ref)	E Mount Hole Pattern (Ref)	F Mount Hole Spacing (Ref)	G Flange External Dimension SQ (Ref)	H Rear Shaft Diameter	I Rear Shaft Length	J Encoder Length (Ref) Single Ended Differential
RP17-12	1.60 in										
RP17-22	2.40 in	0.1968 in	0.81 in ±0.03	0.8660 in	0.08 in	[4] 4-40 In UNC-2B 0.17 in Deep Min	1.22 in	1.65 in	0.2500 in	0.47 in ±0.040	0.35 in 0.55 in
RP17-36	3.20 in	0.1963 in		0.8648 in					0.2495 in		
RP17-45	4.00 in										
RP17M-8	41 mm										
RP17M-16	61 mm	5.000 mm	20.6 mm ±0.76	22.00 mm	2 mm	[4] M3 x 0.5 4.3 mm Deep Min	31 mm	42 mm	6.350 mm	11.4 mm ±0.7	8.9 mm 14.0 mm
RP17M-25	81 mm	4.987 mm		21.97 mm					6.337 mm		
RP17M-32	101 mm										



RP17 Speed / Torque Curves





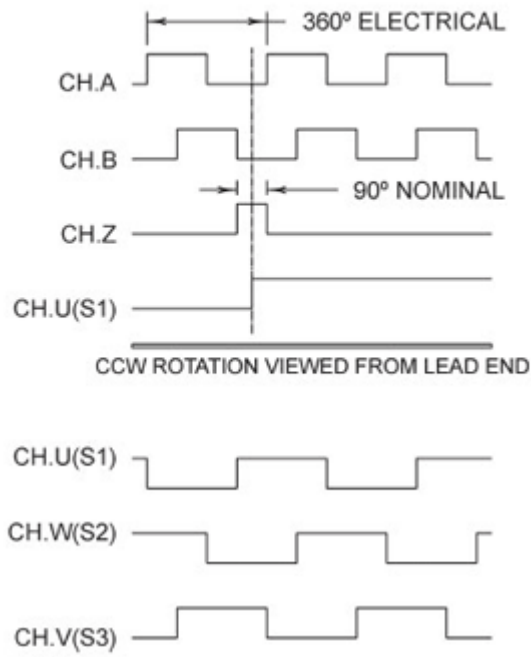
RP17 Mechanical / Winding Data

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 ²)	0.0008	0.0012	0.0016	0.0019
Rotor Inertia (gm-cm ²)	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

Winding Models	12V24	12V48	12V60	22V24	22V48	22V60	36V24	36V48	36V60	45V24	45V48	45V60
	8V24	8V48	8V60	16V24	16V48	16V60	25V24	25V48	25V60	32V24	32V48	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	17.018	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

Output Configuration:

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