

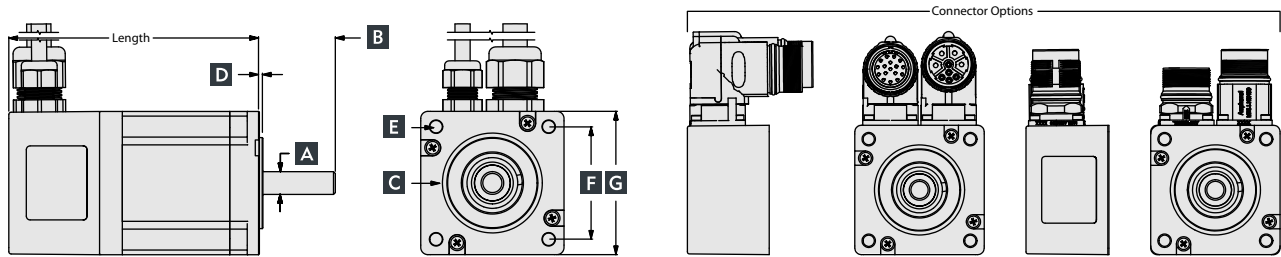
### The Ultimate in Brushless Servo Motor Performance.

The ElectroCraft RapidPower™ Plus RPP23 is a high-performance brushless servo motor incorporating the latest electro-magnetic components producing high continuous torque with low inertia for rapid acceleration. The RPP23 is available with low or high voltage DC winding configurations, and a variety of commutating optical encoders for precise positioning applications.

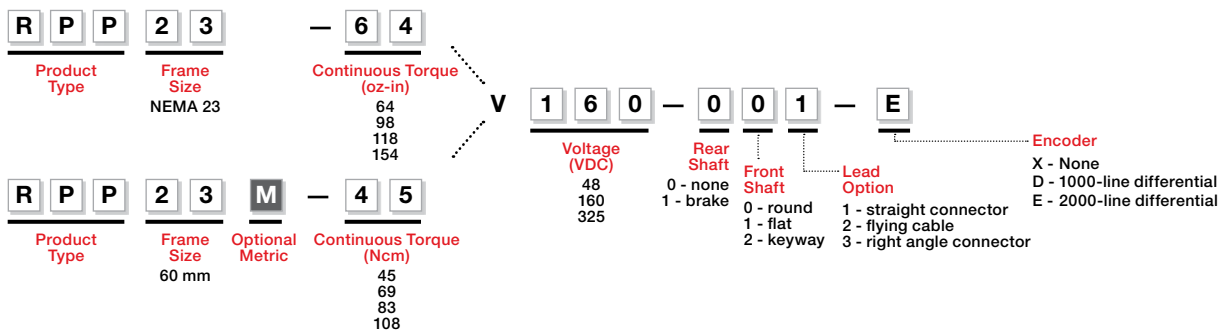


RPP23 RapidPower™ BLDC Motor	
Size:	NEMA 23
Peak Torque:	to 400 oz-in or 282 Ncm

Model	MAX Length	A	B	C	D	E	F	G
		Front Shaft Diameter	Front Shaft Length	Pilot Diameter	Pilot Length (Ref)	Mount Hole Pattern (Ref)	Mount Hole Spacing (Ref)	Flange External Dimension SQ (Ref)
RPP23-64	4.20 in	0.3750 in 0.3745 in	1.25 in ± 0.03	1.500 in 1.498 in	0.06 in	[4] 0.205 in ± 0.010 on 2.625 in D.B.C.	1.86 in	2.36 in
RPP23-98	4.70 in							
RPP23-118	5.20 in							
RPP23-154	5.70 in							
RPP23M-45	106.7 mm	14.000 mm 13.987 mm	30 mm ± 0.8	50.00 mm 49.95 mm	1.5 mm	[4] 5.5 mm ± 0.25 on 70 mm D.B.C.	49.5 mm	60 mm
RPP23M-69	119.4 mm							
RPP23M-83	132.1 mm							
RPP23M-108	144.8 mm							



### RPP Model Number

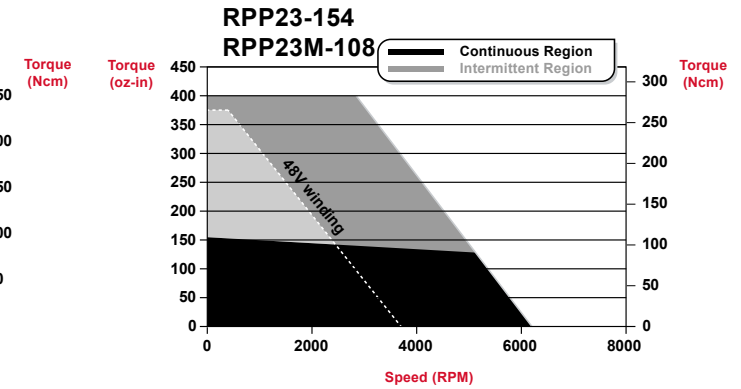
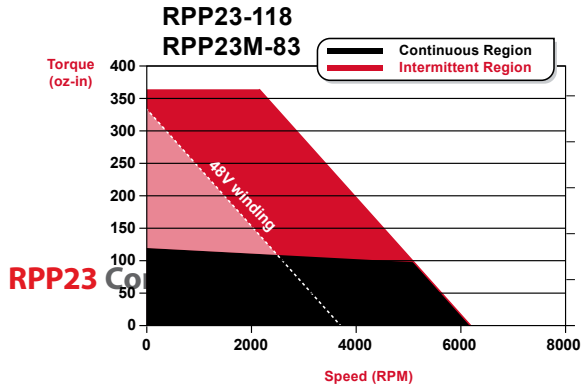
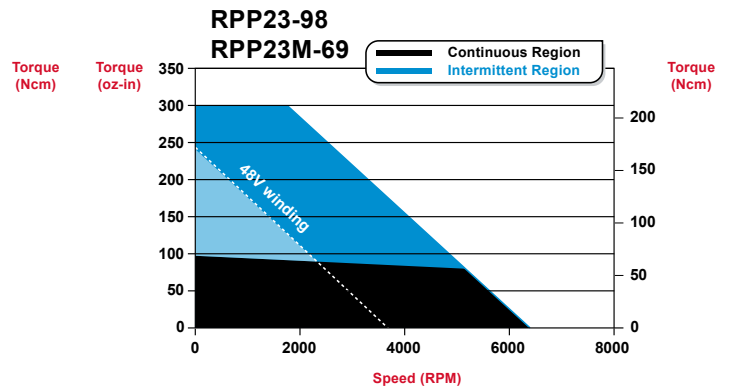
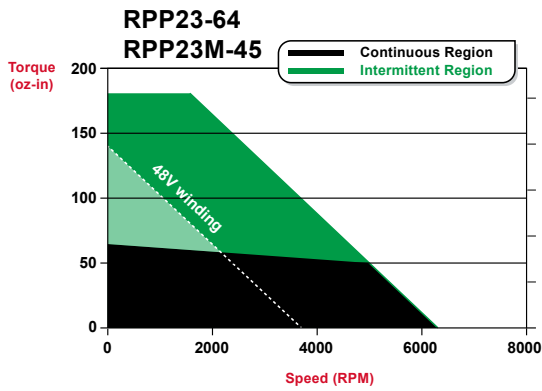


**RPP23 Mechanical / Winding Data**

Specifications	Stack Size and Winding Models											
	RPP23-64V48	RPP23-64V160	RPP23-64V325	RPP23-98V48	RPP23-98V160	RPP23-98V325	RPP23-118V48	RPP23-118V160	RPP23-118V325	RPP23-154V48	RPP23-154V160	RPP23-154V325
	RPP23M-45V48	RPP23M-45V160	RPP23M-45V325	RPP23M-69V48	RPP23M-69V160	RPP23M-69V325	RPP23M-83V48	RPP23M-83V160	RPP23M-83V325	RPP23M-108V48	RPP23M-108V160	RPP23M-108V325
Design Voltage (VDC)	48	160	325	48	160	325	48	160	325	48	160	325
No load speed (RPM)	3,700	6,700	6,300	3,740	6,350	6,000	3,780	6,300	6,100	3,740	6,000	5,000
Peak Torque (oz-in)	180			300			360			400		
Peak Torque (Ncm)	127			212			254			282		
Peak Current (Amps)	11.0	8.0	4.3	15.0	9.0	6.0	20.0	12.5	6.8	25.0	17.0	8.5
Continuous Stall Torque (oz-in)	64			98			118			154		
Continuous Stall Torque (Ncm)	45			69			83			108		
Continuous Stall Current (Amps)	3.0	1.6	0.9	4.5	2.5	1.3	6.0	3.0	1.5	7.3	3.7	1.9
Continuous Rated Torque (oz-in)	50.0			80.0			100.0			130.0		
Continuous Rated Torque (Ncm)	35.3			56.5			70.6			91.8		
Continuous Rated Current (Amps)	3.0	1.7	0.9	4.5	2.5	1.3	6.0	2.9	1.9	7.3	3.7	1.9
Continuous Rated Speed (RPM)	3,000	5,000	5,000	3,050	4,600	4,600	3,050	4,900	4,900	2,800	4,500	4,500
Voltage Constant (V / kRPM)	13.0	23.0	45.0	13.0	25.0	58.0	13.0	25.0	50.0	13.2	26.0	59.0
Torque Constant (oz-in / Amp)	18.4	31.2	60.9	18.4	34.0	77.9	18.4	34.0	68.0	18.7	35.4	79.3
Torque Constant (Ncm / Amp)	13.0	22.0	43.0	13.0	24.0	55.0	13.0	24.0	48.0	13.2	25.0	56.0
Resistance (Ohms)	3.6	12.5	46.0	2.2	7.0	26.0	1.5	5.1	20.0	0.7	4.0	16.0
Inductance (mH)	3.5	10.0	38.0	1.9	6.7	26.0	1.7	5.3	21.0	1.0	4.0	17.0
Motor Constant (oz-in / √ Watt)	9.4			15.0			16.4			19.4		
Motor Constant (Ncm / √ Watt)	6.6			10.6			11.6			13.7		
Electrical Constant (msec)	0.8			1.0			1.1			1.0		
Mechanical Constant (msec)	1.8			0.7			0.6			0.4		
Rotor Inertia (oz-in-sec <sup>2</sup> )	0.0010			0.0015			0.0020			0.0026		
Rotor Inertia (g-cm <sup>2</sup> )	70.6			106.0			141.0			184.0		
Thermal Resistance (C / Watt)	1.5			1.2			1.2			1.1		
Weight (oz)	32.0			41.0			48.0			53.0		
Weight (Kg)	0.9			1.2			1.4			1.5		
Length (inch)	4.2			4.7			5.2			5.7		
Length (mm)	106.7			119.4			132.1			144.8		
Number of Poles	8			8			8			8		

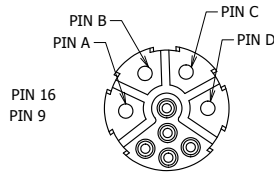
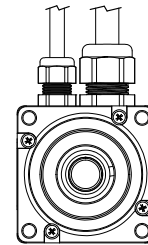


## RPP23 Speed Torque Performance

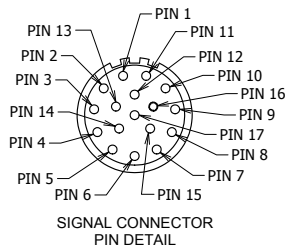


POWER CABLE LEADS	
COLOR	FUNCTION
RED	PHASE A
WHITE	PHASE B
BLACK	PHASE C
GREEN	GROUND

SIGNAL CABLE PINOUT		
COLOR	FEEDBACK FUNCTION	
	OPTION X	OPTION D, E
YELLOW	NOT USED	CH A
YEL/WHT	NOT USED	CH A'
BLUE	NOT USED	CH B
BLU/WHT	NOT USED	CH B'
ORANGE	NOT USED	CH Z
ORN/WHT	NOT USED	CH Z'
GREEN	S1	S1
BROWN	S2	S2
WHITE	S3	S3
RED	+5V	+5V
BLACK	GROUND	GROUND
GRY/WHT	RESERVED	RESERVED
GRAY	RESERVED	RESERVED
GRN/WHT	THERMAL SW	THERMAL SW
BRN/WHT	THERMAL SW	THERMAL SW



POWER CONNECTOR PIN DETAIL



SIGNAL CONNECTOR PIN DETAIL

POWER CONNECTOR PINOUT	
PIN #	FUNCTION
PIN A	PHASE A
PIN B	PHASE B
PIN C	PHASE C
PIN D	GROUND

SIGNAL CONNECTOR PINOUT		
PIN #	FEEDBACK FUNCTION	
	OPTION X	OPTION D, E
PIN 1	NOT USED	CH A
PIN 2	NOT USED	CH A'
PIN 3	NOT USED	CH B
PIN 4	NOT USED	CH B'
PIN 5	NOT USED	CH Z
PIN 6	NOT USED	CH Z'
PIN 7	S1	S1
PIN 8	S2	S2
PIN 9	S3	S3
PIN 10	+5V	+5V
PIN 11	GROUND	GROUND
PIN 12	RESERVED	RESERVED
PIN 13	RESERVED	RESERVED
PIN 14	THERMAL SW	THERMAL SW
PIN 15	THERMAL SW	THERMAL SW
PIN 16	NOT USED	NOT USED
PIN 17	NOT USED	NOT USED

