# **Electro Craft**powering innovation™





### **Build It Better ... With The New ElectroCraft**

ElectroCraft has over 60 years experience in providing dependable, application- engineered speciality products whilst utilising its Lean business philosophy. With operations in the United States, Europe and Asia we can consistently meet the needs of ours customers worldwide.

ElectroCraft products are found in light industrial equipment, pumps, office equipment, medical devices, aircraft and many other applications.

#### **Europe, Middle East & Asia (EMEA)**

#### ElectroCraft Ltd (Crewe, UK)

The European business provides a multitude of services to the Drive and Motor marketplace. In addition to stocking solutions, selling, repair and service of the wide range of motors the Crewe facility also provides Motor and Cable Value Add Engineering; giving European customers a tailored solution to their component and system needs.

#### ElectroCraft Gmbh, Germany

Electrocraft GmBH provide innovative design with customised or standard configurations to the EC Drive range.

Offering reliability, precision and exact results for medical science, laboratory equipment, factory automation, robotic, optical and aerospace applications.

#### ElectroCraft, Zhuhai, China

DMI Technology (Asia) is the Asian division of ElectroCraft with a head office in Hong Kong and a manufacturing facility at Zhuhai in Mainland China. The Hong Kong office provides our Asian customers with an interface for their services and sourcing needs worldwide, whilst the Zhuhai factory supplies value-added assembly and manufacturing capability for both PMDC motors and brushless DC motors.

#### **North America**

#### ElectroCraft Gallipolis, USA

Our site in Gallipolis, USA, supplies customized solutions for OEM power transmission requirements and offer premium AC, DC servo, and brushless DC motors, which have become world recognized for their quiet operation, high efficiency, and robust designs.

#### ElectroCraft NH, USA

Our site in New Hampshire, USA is an engineering driven company with experienced engineering staff and a flexible and responsive production team who can recommend innovative solutions, providing prototypes quickly and easily.

#### ElectroCraft Arkansas, USA

A leading supplier of sub-fractional horsepower AC and DC electric motors, also supplying "Value Added" assemblies to many of its customers and utilising global sourcing and local production capabilities.





### **Table of Contents**

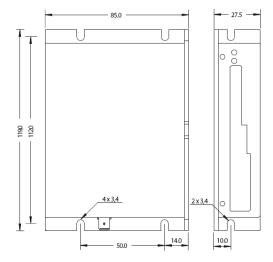
2	Brushless Servo Module - Models EA4709 / EA4718
3	Brushless Servo Motors - BDC-3622-4A (E22) / BDC 3633-3Y (E37)
4	NEMA Brushless Servo Motors - RapidPower 17 / 23 Frame
5	NEMA Brushless Servo Motors - RapidPower 34 / 42 Frame
6	Linear - Models DA4303 & PWM DA4709 / DA4718
7	DC Permanent Magnet Servo Motors - S372 / S2xx Metric
8	DC Permanent Magnet Servo Motors - S6xx Metric
9	DC Permanent Magnet Servo Motors - S7xx Metric
10	XBR Motors
13	Stepper Drive
14	Linear Actuator
15	Stepper Motor Range
17	System Accessories
18	Cable Selector
20	Repair
21	Notes
22	Contact Details

**Note:** Due to continuous improvement, specifications are subject to change.

### EA4709 / EA4718 Brushless Servo Module

- Servo-amplifier in a rugged miniature aluminium case in book form
- Different methods of mounting for fast integration
- Tool free connection of the power terminal strips
- Input and outputs with RJ45-CAT5 plugs
- Easy operation mode setting by Dilswitches
- Wide range of power supply voltage from 9 70 V for different kinds of power sources.
- Protected against over current
- Protected against over temperature
- Adjustable current limit.
- MOSFet-technology, efficiency 97%





#### **Technical Data**

Electrical data		EA4709	EA4718
-Power supply voltage	[VDC]	09 to 70	
- Nominal current with heatsink	[A]	09	18
- Peak current	[A]	18	36
Ambient conditions:			
-Operation temperature	[°C]	-10 to +45	
-Storage temperature	[°C]	-40 to +85	

#### **Operation Mode**

Commutation amplifier

Speed-control using sensor feedback

Speed-control using encoder feedback

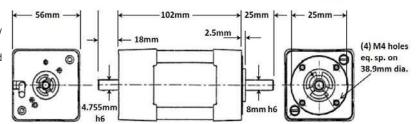
Torque-control

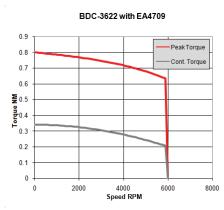
# **BDC-3622-4A (E22) / BDC 3633-3Y (E37) Brushless Servo Motors**

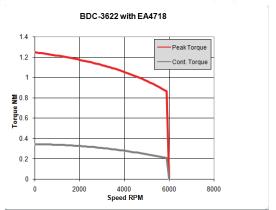


The E22 offers reliable performance in a small package for your low voltage, lower torque applications. This series utilises integrated hall effects to provide consistent speed in either rotation within a small envelope.

- Dynamically balanced armature
- High torque-to-weight and inertia ratios
- Non-contact sealed ball bearings for improved efficiency and smooth operation
- Rare earth neodymium magnets for high acceleration and speed capability

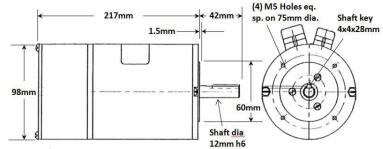


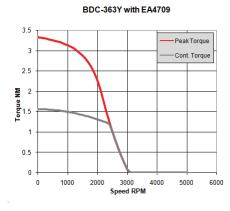


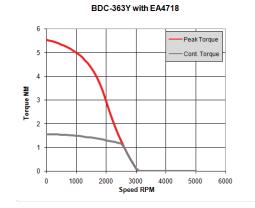


The E37 offers high output in a highly efficient package for mid to low voltage, mid-level to high torque applications. This series features an economic design with a range of optical encoders.

- Dynamically balanced armature
- Skewed magnetization for low torque ripple and smooth low speed performance
- Non-contact sealed ball bearings for improved efficiency and smooth operation
- M-8 ceramic magnets for high acceleration







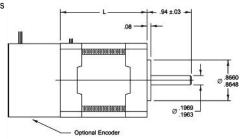
# RP17 / RP23 NEMA Frame Brushless Servo Motors

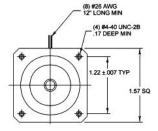


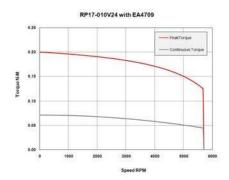
ElectroCraft offers a full line of brushless DC servo motors from size 17 to 42. Our servo motors feature high energy neodymium magnets for high torque in a compact package.

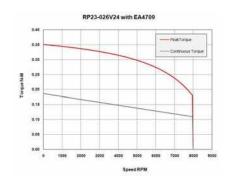
ElectroCraft servo motors operate at high speed and provide extremely smooth and precise motion when stepping motor technology has reached its limits.

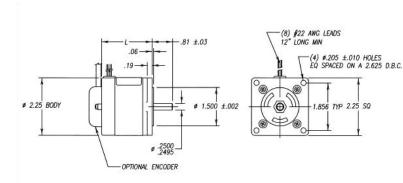
- \* Note NEMA motors are dimensioned in Inch units.
- NEMA standard size 17 and 23 mechanical designs
- Optical encoders (optional).
- High speed, smooth operation.
- Cost-effective designs for OEM applications.

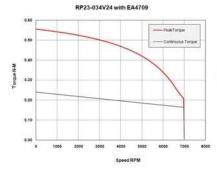




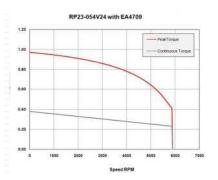




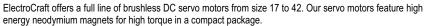






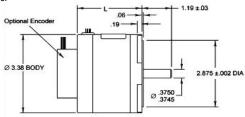


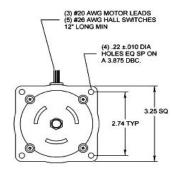
# RP34 / RP42 NEMA Frame Brushless Servo Motors

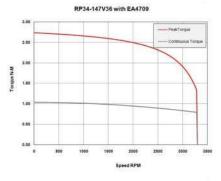


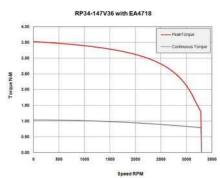
ElectroCraft servo motors operate at high speed and provide extremely smooth and precise motion when stepping motor technology has reached its limits.

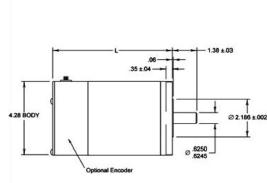
- \* Note NEMA motors are dimensioned in Inch units.
- NEMA standard size 34, and 42 mechanical designs
- Optical encoders (optional).
- High speed, smooth operation.
- Cost-effective designs for OEM applications.

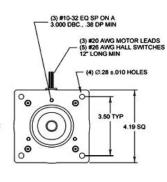


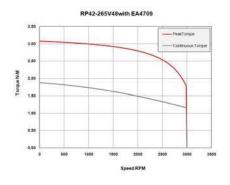


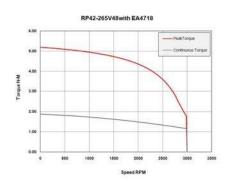








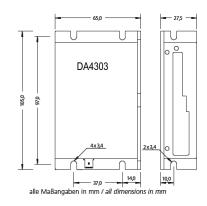


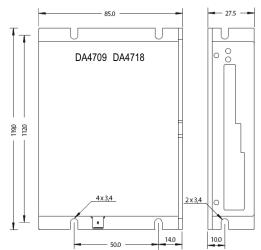


# **DA4303 / DA4709 / DA4718 DC Servo Module**

- Servo-amplifier in a rugged miniature aluminium case in book form
- Different methods of mounting for fast integration
- Tool free connection of the power terminal strips
- Input and outputs with RJ45-CAT5 plugs
- Easy operation mode setting by Dilswitches
- Wide range of power supply voltage from 11 70 or 11 30 V DC for different kinds of power sources.
- Protected against over current
- Protected against over temperature
- Adjustable current limit







#### **Technical Data**

Electrical data		DA4303	DA4709	DA4718
- Power supply voltage	[VDC]	11 to 30	11 to 70	11 to 70
- Nominal current with H/S	[A]	11 to 30	11 to 70	11 to 70
- Peak current	[A]	3	18	36
		[W]	Linear 75	

#### Ambient conditions:

- Operation temperature [°C] - 10 to + 45
- Storage temperature [°C] - 40 to + 85

#### **Operation Mode**

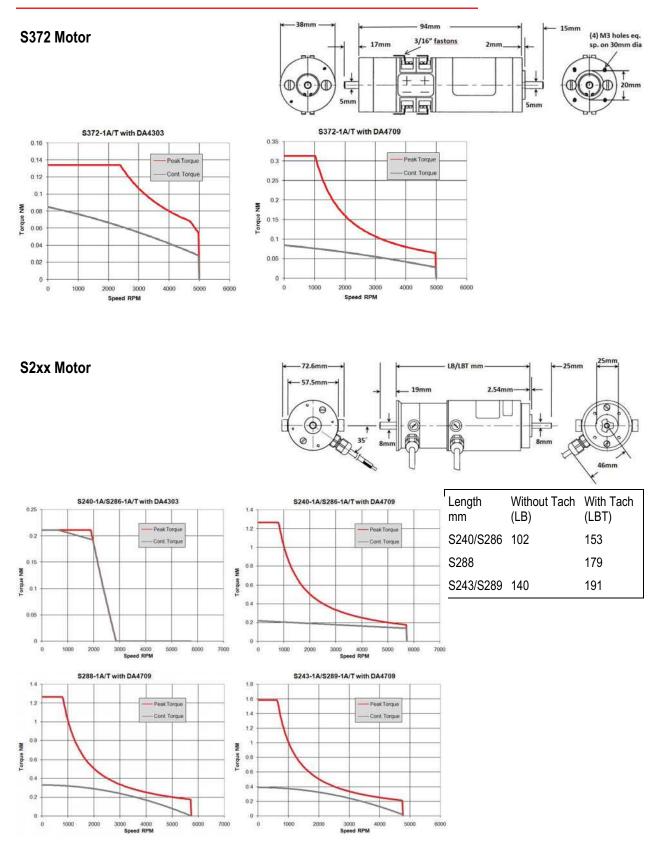
Speed control using voltage feedback

Torque-control

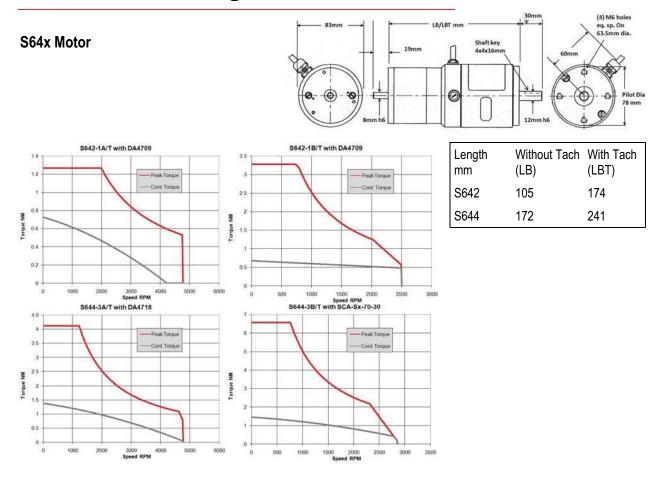
IxR- compensation

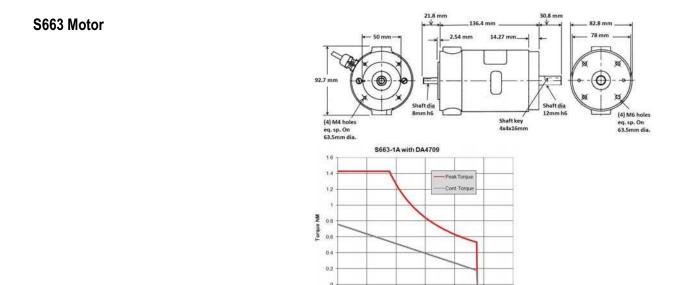
Speed control using DC-Tacho feedback

# S372 / S2xx Metric DC Permanent Magnet Servo Motors

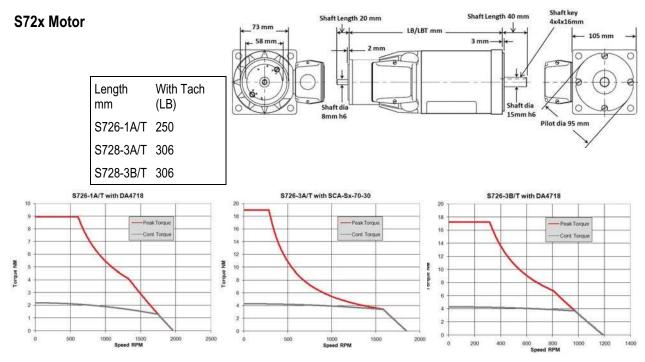


# **S6xx Metric DC Permanent Magnet Servo Motors**





# **S7xx Metric DC Permanent Magnet Servo Motors**



#### **DC Motor Dimension table**

Motor/ Tachometer	Front		Body			Rear				
					Ler	igth				
	Shaft h6	Key	Pilot	Fixing	Motor LB	M-tach LBT	Nom. Diameter	Shaft	Pilot	Dia.
S372-1A/T	5 x 15	-	20 x 2	30 x M3	-	94	38	5 x 17		
S240-1A6	6 x 25	-	25 x 2.54	38.9 x M4	102	-	57.5	8 x 19	-	-
S240-1A8	8 x 25	-	25 x 2.54	38.9 x M4	102	-	57.5	8 x 19	-	-
S243-1B	8 x 25	-	25 x 2.54	38.9 x M4	140	-	57.5	8 x 19	-	-
S286-1A/T6	6 x 25	-	25 x 2.54	38.9 x M4	-	153	57.5	8 x 19	-	-
S286-1A/T8	8 x 25	-	25 x 2.54	38.9 x M4	-	153	57.5	8 x 19	-	-
S288-1B/T	6 x 25	-	25 x 2.54	38.9 x M4	-	179	57.5	8 x 19	-	-
S289-1B/T	8 x 25	-	25 x 2.54	38.9 x M4	-	191	57.5	8 x 19	-	-
S642-1A	12 x 30	4 x 4 x 16	78 x 7.6	63.5 x M6	105	-	83	8 x 19	-	83
S642-1B	12 x 30	4 x 4 x 16	78 x 7.6	63.5 x M6	105	-	83	8 x 19	-	83
S644-3A	12 x 30	4 x 4 x 16	78 x 7.6	63.5 x M6	172	-	83	8 x 19	-	83
S644-3B	12 x 30	4 x 4 x 16	78 x 7.6	63.5 x M6	172	-	83	8 x 19	-	83
S663-1A	12 x 30	4 x 4 x 16	78 x 14.3	63.5 x M6	136	-	83	8 x 19	50 x 2.54	83
S642-1A/T	12 x 30	4 x 4 x 16	78 x 7.6	63.5 x M6	-	174	83	8 x 19	-	83
S642-1B/T	12 x 30	4 x 4 x 16	78 x 7.6	63.5 x M6	-	174	83	8 x 19	-	83
S644-3A/T	12 x 30	4 x 4 x 16	78 x 7.6	63.5 x M6	-	241	83	8 x 19	-	83
S644-3B/T	12 x 30	4 x 4 x 16	78 x 7.6	63.5 x M6	-	241	83	8 x 19	-	83
S726-1A	15 x 40	4 x 4 x 30	95 x 3	120 x 10	-	250	105	8 x 20	58 x 2	73
S728-3A/T	15 x 40	4 x 4 x 30		120 x 10	-	306	105	8 x 20	58 x 2	73
S728-3B/T	15 x 40	4 x 4 x 30	95 x 3	120 x 10	-	306	105	8 x 20	58 x 2	73

#### **XBR NEMA Frame IP65 Motors**

XBR motors are used in medium inertia applications such as semiconductor manufacturing, material handling, web processing, robotics and packaging machinery.



#### Servo Motors feature the following:

- NEMA 23, 34 42 and 56 style mounting frames
- Continuous torque from 0.2 to 6 N-m (1.8 to 53 lb-in.) and peak torque from 0.5 to 17 N-m (4.4 to 150 lb-in) with speeds
  up to 6000rpm.
- High torque to size ratio.
- High energy ring magnet rotor.
- Internal thermal switch to prevent overheating.
- Water-tight, nickel-plated MS connections are compatible with standard cable assemblies.
- Extruded aluminium housing and environmental connectors providing an IP65 rating with shaft seal installed.

#### **XBR Standard Encoder Features**

XBR motors are available with an optical encoder. This standard encoder features:

- 2000 line (8000 quadrature pulses) (4000 quadrature for XBR-23xx motors) per revolution.
- Index pulse.
- Standard commutation channels for drives.

#### **XBR Options**

XBR motors are available with the following options:

- 5000 line optical encoder (not available on XBR-23xx motors or brake motors)
- Shaft oil seal kit available for field installation.
- Spring set, magnetic release, 24V dc holding brake.
- MS connectors for building custom power and encoder cables with straight or right angle housings, and solder or crimp connections.

### **XBR NEMA Frame IP65 Motors**

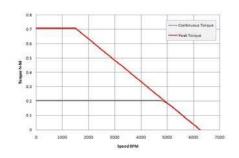
#### **XBR(115V) Performance Specifications**

Motor	Maximum Speed rpm	Continuous Stall Torque N-m (lb-in)	Peak Stall Torque N-m (lb-in)	Motor Rated Output kW	Rotor Inertia kg-m <sup>2</sup> (lb-ins <sup>2</sup> )
XBR-2310	6000	0.2 (1.8)	0.5 (4.4)	0.10	0.000009 (0.00008)
XBR-2325	6000	0.5 (4.4)	1.4 (12.4)	0.27	0.000011 (0.00010)

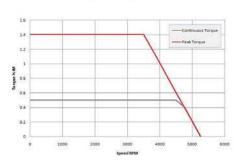
#### XBR (230V) Performance Specifications

Motor	Maximum Speed rpm	Continuous Stall Torque N-m (lb-in)	Peak Stall Torque N-m (lb-in)	Motor Rated Output kW	Rotor Inertia kg-m² (lb-ins²)
XBR-2910	6000	0.7 (6.2)	2.1 (18.6)	0.31	0.000049 (0.00044)
XBR-2920	5500	1.6 (14.2)	4.1 (36.3)	0.80	0.000092 (0.00081)
XBR-3320	4500	2.0 (17.7)	5.1 (45.1)	0.94	0.000177 (0.00156)
XBR-3330	5000	2.9 (25.7)	7.1 (62.8)	0.88	0.000247 (0.00219)
XBR-4230	4000	3.8 (33.6)	10.7 (94.7)	1.20	0.000572 (0.00506)
XBR-4240	4000	5.2 (46.0)	13.0 (115.0)	1.60	0.000692 (0.00613)
XBR-4250	3000	6.0 (53.1)	17.0 (150.5)	1.40	0.000798 (0.00706)

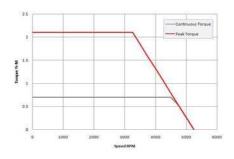
#### XBR2310 (115V Drive)



#### XBR2325 (115V Drive)

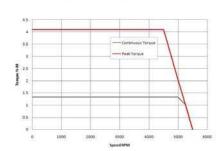


#### XBR2910 (230V Drive)

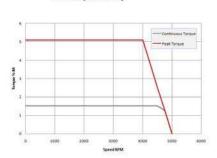


# **XBR NEMA Frame IP65 Motors**

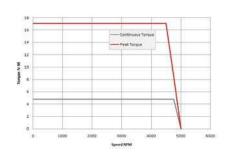
#### XBR2920 (230V Drive)



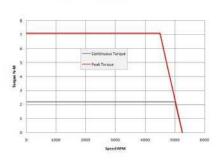
#### XBR3320 (230V Drive)



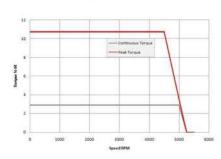
#### XBR4250 (230V Drive)



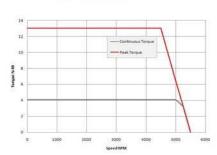
#### XBR3330 (230V Drive)



#### XBR4230 (230V Drive)



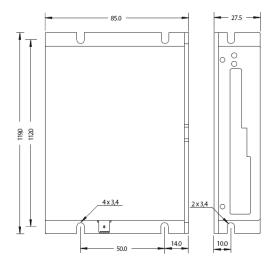
#### XBR4240 (230V Drive)



# SA4505 / SA4510 Stepper Amplifier Module

- Stepper-amplifier in a rugged miniature aluminium case in book form
- Different methods of mounting for fast integration
- Tool free connection of the power terminal strips
- Input and outputs with RJ45-CAT5 plugs
- Power supply voltage from 12– 50 V
- Protected against over temperature
- Easy operation mode setting by Dilswitches
- Microstepping to 1/16 step.
- Selectable current.
- Current fallback selection.
- Step and Direction or Internal speed input setting





Technical Data		SA4505	SA4510
Electrical data			
-Power supply voltage	[VDC]	12 to 50	12 to 50
Ambient conditions:			
-Operation temperature	[°C]	-10 to +45	-10 to +45
-Storage temperature	[°C]	-40 to +85	-40 to +85
<b>Current:</b>			
-Operating current settings	[A]	0.2	0.4
	[A]	0.4	0.8
	[A]	0.8	1.6
	[A]	1.2	2.4
	[A]	2.0	4.0
	[A]	3.0	6.0
	[A]	4.0	8.0
	[A]	5.0	10.0

### **Linear Actuator Range**



#### **High Torque Linear Actuator Duraplus Size 11**

ElectroCraft motors Size 11 series Duraplus linear actuator is a precision engineered stepper motor with an integrated rotating nut.

#### Nema Size 17 Conventional Linear Actuator up to 155 Newtons

Our Size 17 linear actuators are based on the 1.8° hybrid stepping motor. Size 17 linear actuators are bi-directional devices and are totally enclosed with permanently lubricated ball bearings.

The internal rotating nut is made of SAE 660 bearing bronze and the actuating leadscrew is made of cold rolled steel.

Leadscrew lubrication is required for maximum life. Lubricants containing molybdenum Disulphide are recommended.

The lubricant used in tests conducted to develop these force speed curves is available in two tube sizes:

1/4 oz. Leadscrew Lube: P/N 12210105 & 31/2 oz. Leadscrew Lube: P/N 12210106

#### **DuraPlus L1 Series Size 17 High Torque Linear Actuator Up to 311 Newtons**

Our high torque Size 17 stepping motors and our new DuraPlus system have been combined in our L1 series actuator. The L1 frame DuraPlus actuator is a precision engineered device based on a high performance 1.8° stepping motor with an integrated rotating nut. The nut is fabricated from a wide range of optional engineering polymers or SAE 660 bearing bronze to suit the application requirement. The standard polymer used for the catalogue offering is Delrin AF.

The actuating screw is made of precision rolled stainless steel designed to minimize tolerances in positioning applications. When combined with the polymer nut, the DuraPlus system provided longer life and a smoother, quieter operation than conventional designs.

#### Nema Size 23 Conventional Linear Actuator Up to 622 Newtons

Our Size 23 linear actuators are based on the 1.8° hybrid stepping motor. As such, Size 23 linear actuators are bi-direction devices.

The internal rotating nut is made of SAE 660 bearing bronze and the actuating leadscrew is made of cold rolled steel.

Leadscrew lubrication is required for maximum life. Lubricants containing molybdenum Disulphide are recommended.

The lubricant used in tests conducted to develop these force speed curves is available in two tube sizes:

 $1\!\!/_{\!\!4}$  oz. Leadscrew Lube: P/N 12210105 &  $31\!\!/_{\!\!2}$  oz. Leadscrew Lube: P/N 12210106

#### DuraPlus L2 Series Size 23 High Torque Linear Actuator Up to 556 Newtons

Our high torque Size 23 stepping motors and our new DuraPlus system have been combined in our L2 series actuator.

The L2 frame DuraPlus actuator is a precision engineered device based on a high performance 1.8° stepping motor with an integrated rotating nut. The nut is fabricated from a wide range of optional engineering polymers or SAE 660 bearing bronze to suit the application requirement. The standard polymer used for the catalogue offering is Delrin AF.

The actuating screw is made of precision rolled stainless steel designed to minimize tolerances in positioning applications. When combined with the polymer nut, the DuraPlus system provided longer life and a smoother, quieter operation than conventional designs.

#### Nema Size 34 Conventional Linear Actuator up to 1556 Newtons

Our Size 34 linear actuators are based on EAD's standard single stack 1.8° hybrid stepping motors. Size 34 linear actuators are totally enclosed with permanently lubricated ball bearings.

The internal rotating nut is made of bearing bronze and the actuating shaft is a rolled thread made of cold rolled steel.

Leadscrew lubrication is required for maximum life. Lubricants containing

molybdenum Disulphide are recommended. The lubricant used in tests conducted to develop these force speed curves is available in two tube sizes: ¼ oz. Leadscrew Lube: P/N 12210105 & 3½ oz. Leadscrew Lube: P/N 12210106

#### DuraPlus L3 Series Size 34 High Torque Linear Actuator Up to 4715 Newtons

Our high torque Size 34 stepping motors and the new DuraPlus system have been combined with shaft bearing enhancements in our L3 series actuator. The combination provides longer life with a smoother and quieter operation than conventional designs.

The L3 actuator is a precision engineered device based on a high performance 1.8° stepping motor with an integrated rotating acme-threaded nut and a translating screw. The nut is fabricated from Torlon for maximum thread life and, with high quality lubrication (vacuum compliant), coupled with a leadscrew-hardening friction-reducing coating to provide long life, maximum efficiency and minimize positioning deadband.

The stainless steel leadscrew allows modifications to be made without introducing a corrosion tendency while maximizing positioning stiffness and performance uniformity over the full length of travel.

### **Stepper Motor Range**



#### TPP11M : TorquePower™ Plus Stepper Motor / Nema 11, to 18 oz-in (12.7 N-cm)

This extremely quiet stepper is made with ball-bearings and dynamically balanced rotors for high-speed operation.

#### TPP17: TorquePower™ Plus Stepper Motor / Nema 17, to 58 oz-in (40.9 N-cm)

This 1.8 degree size 17 hybrid DC stepping motor is totally enclosed with permanently lubricated ball bearings. The bi-directional size 17 has holding torque up to 58 oz-in with a precision accuracy of ±6%.

#### TPP23 : TorquePower™ Plus Stepper Motor / Nema 23, to 240 oz-in (169.5 N-cm)

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 precision accuracy of  $\pm 3\%$ .

#### TPP34 : TorquePower™ Plus Stepper Motor / Nema 34, to 1190 oz-in (840.3 N-cm)

This bi-directional, 1.8° size 34 hybrid DC stepping motor provides a lot of torque in a relatively small size. The TPP34 has holding torque up to 1190 oz-in with a precision accuracy of ±3%.

#### TP23 : TorquePower™ Stepper Motor / Nema 23,TO 150 oz-in (105.9 N-cm)

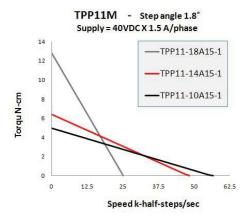
This 1.8° size 23 hybrid DC stepping motor is built with an extra-sturdy casing for when you need small, powerful torque with a little more durability. The motor is totally enclosed with permanently lubricated ball bearings. The bi-directional size 23 has a precision accuracy of ±3%.

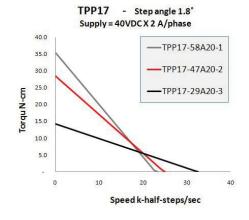
#### TP34: TorquePower<sup>TM</sup> Stepper Motor / Nema 34, to 420 oz-in (296.5 N-cm)

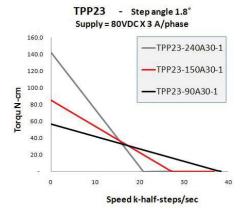
This 1.8 degree size 23 hybrid DC stepping motor is totally enclosed with permanently lubricated ball bearings. The bi-directional size 23 has holding torque up to 620 oz-in with a precision accuracy of ±3%.

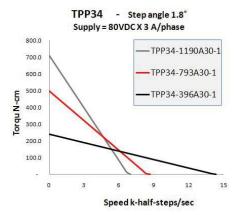
#### TP42 : TorquePower™ Stepper Motor / Nema 42, to 2100 oz-in (1482.9 N-cm)

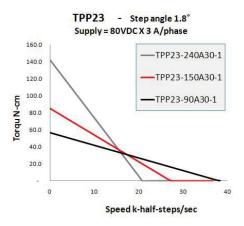
This 1.8 degree size 42 hybrid DC stepping motor is totally enclosed with permanently lubricated ball bearings. The bi-directional size 42 has holding torque up to 2100 oz-in with a precision accuracy of ±3% non-cumulative.

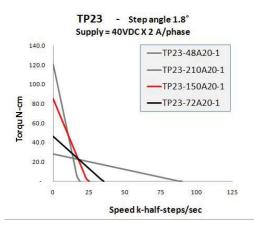


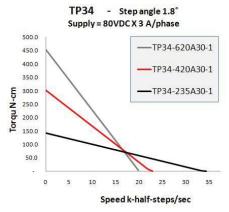


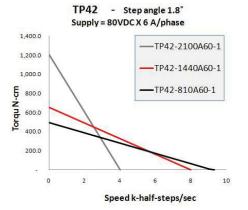












### **System Accessories**

A comprehensive range of planetary, in line and right - angle servo gear heads are offered as standard factory fitted options on both of our own brushed and brushless motors, as well as third party motors. These factory fitted and tested items help to ensure optimum drive solutions configured to satisfy specific application requirements.

Ratios offered cover from 3:1 to 1000:1 for torques up to 1700Nm, with backlash options down to 3 arc minutes.





ElectroCraft motors can be ordered with optical encoders fitted and tested with a variety of interfaces supplied with line counts from 100 to 5000

ElectroCraft offers Power, Feedback, Brake and control cables in both standard flex and high performance flex for continuous rolling flex applications.

Custom third party cable harness design and manufacture is available using our own custom specification cable to ensure the optimum fit for your machine.



#### **Cable Selector**

#### **ElectroCraft Cable Sets for Rockwell Motion Control Products**

ElectroCraft manufacture custom cable sets to connect all current Rockwell Motion Control amplifiers and motors in the Ultra Kinetix and selected Powerflex ranges. This service provides alternatives to the standard Rockwell cable offering where the customer requires non-standard lengths, high-flex cables and /or intermediate connectors.

A cable set will contain a minimum of two cables (power and feedback) but may contain up to nine cables if a brake motor is specified with a 3-section cable set style.

#### \*\*\*\*\*\*Please photocopy the form and use it to specify the cable set \*\*\*\*\*\*

Enter data as per the following:

Axis Title Optionally enter an axis name or description in the first field.	
Motor Model Number Enter the complete Rockwell motor model number	
<b>Drive Model Number</b>	Enter the complete Rockwell drive model number
Cable Set Style Code	Decide what style you require, either direct from drive to motor, with one intermediate connector (2-section style), or with two intermediate connectors (3-section style).

#### Fill in the appropriate line as follows:

#### Drive end cables (forms A, B or C)

<b>Motor End Connector Style</b>	Enter motor end connector style. For form A (direct from drive to motor) the motor end connector will be defined by the motor part number, but you may specify straight or right-angle connectors. For intermediate connectors Din-Style quick-release connectors will be used throughout—again either in straight or right angle style.				
Cable Type	Enter the cable type. This can be either standard cable, flexible for installation but Static use, High-Flex for moving applications, or high-flex food-grade cable.				
Cable Length	Enter the length to the nearest 0.1M. In most cases cables total lengths from 1 metre to 90 metres are permitted, but in some cases the length is restricted to 30M (consult the Rockwell motion guide). Ensure that the total length of the cable set does not exceed the permitted length.				

#### Intermediate cables (forms D, E, G or H) if required

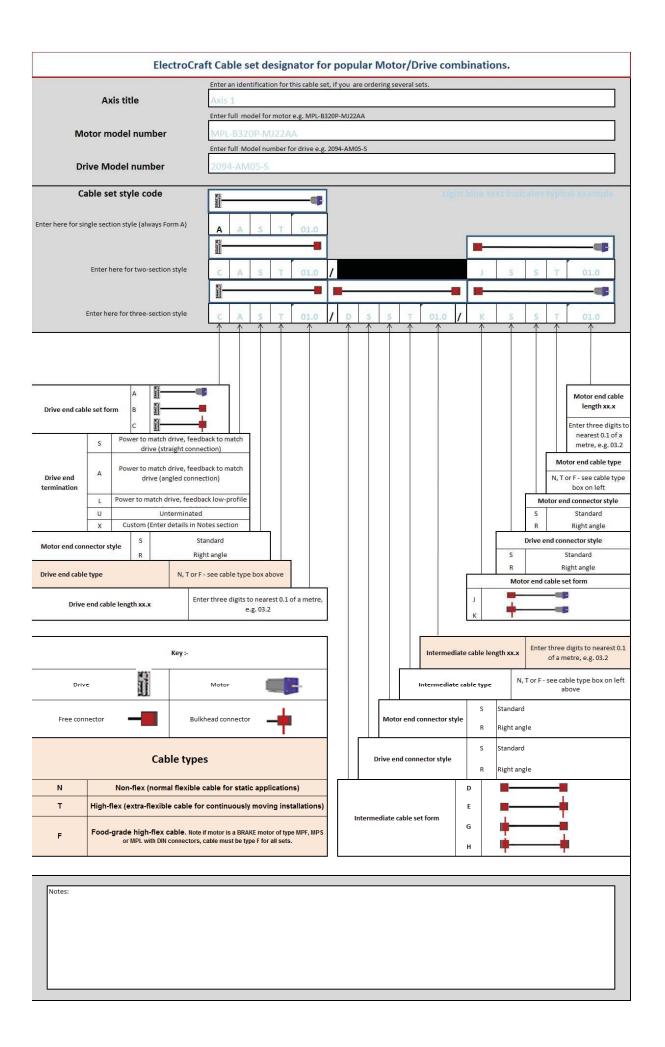
Enter the five fields as above. Note that the connector options (second and third fields) are only straight or right-angle (provided with or without a bulkhead flange as defined by the chosen form Din-style quick release connectors will be used in all cases.

#### Motor-end cables (forms J or K) if required.

Again enter the five fields. The motor end connector type is defined by the motor part number, but a choice of straight or right-angle is generally available.

#### Additional Data.

If you required a custom connector at either Drive end or Motor end, or you have any other custom requirements, please enter details in the notes fields at the bottom of the sheet.





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# Notes



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