# 15000 Series Ø 15 mm (.59-in) Can-Stack Stepper Motor Linear Actuators

Delivering force of up to 8 lbs (35N) without compromising long life or cost. Lightweight models can also be microstepped for even finer resolution. Bi-directional travel motor. Available as connector stator or "space saving" flying leads type motor bodies.

#### The world's smallest commercial linear stepper motor

### Multiple versions available

- Captive
- External Linear with free-wheeling BFW nut
- External Linear with ZBM anti-backlash nut\*
  \*May not be available in all leads

#### Specifications

Ø 15 mm (.59-in) Motor				
Dest No.	Captive	LC1574 –	- <sup>†</sup>	
Part No.	External Linear	LE1574 – – – <sup>†</sup>		
Wiring		Bipolar		
Step angle		18°		
Winding Voltage	4 VDC	5 VDC	12 VDC	
Current (RMS)/phase	0.2 A 0.16 A 0.07		0.07 A	
Resistance/phase	20 Ω	31 Ω	180 Ω	
Inductance/phase	5.6 mH	8.7 mH	48.8 mH	
Power Consumption	1.6 W			
Rotor Inertia	0.09 gcm <sup>2</sup>			
Insulation Class	Class B (Class F available)			
Weight	LC15 0.49 oz (14 g) LE15 0.39 oz (11 g)			
Insulation Resistance	20 ΜΩ			
Stroko	Captive 0.5-in. (12.7 mm)			
Struke	External Linear up to 1.79-in. (45.4 mm)			

<sup>†</sup>Part numbering information below.

# Identifying the Can-Stack Number Codes when Ordering

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Ø15mm (.59-in) Captive

New encoder option

574W-04 EN

available!

See page 4.

Ø15mm (.59-in) External Linear with ZBMR Nut

Linear Tra	Order Code L D		
inches	mm	0000 1.D.	
.00059*	.015	BZ**	
.00079*	.02	W**	
.00098*	.025	AQ**	
.00197*	.05	BH	
.00394*	.10	DC	

\*Values truncated \*\*Black Ice not available

Available Standard Connectors for Series 15000					
Connector	PIN				
CONNECTOR	1	2	3	4	
JST PHR-4	Red	White	Green	Black	
Molex 51021-0400	Black	Green	White	Red	

Available Flying Leads			
Length	Order Code I.D. Suffix (add to end on I.D.)		
12 inches (304.8 mm)	-999		

Special drive considerations may be necessary when leaving shaft fully extended or fully retracted. Standard motors are Class B rated for maximum temperature of 130° C (266° F).

LC	15	7	4	W	04	999
Prefix	Series Number	Step Angle	Coils	Code ID Resolution	Voltage	Suffix
LC = Captive	Designation	<b>7</b> = 18°	4 = Bipolar	Travel/Step	<b>04</b> = 4 VDC	Stroke
LE = External	15 = 15000		(4 wire)	<b>BZ</b> = .00059-in (.015)	<b>05</b> = 5 VDC	Example: $-999 = 12$ -in leads
Linear	(Series numbers			<b>W</b> = .00079-in (.02)	<b>12</b> = 12 VDC	-XXX = Proprietary suffix assigned
	approximate			AQ = .00098-in (.025)		to a specific customer application.
	diameters of			<b>BH</b> = .00197-in (.05)	Custom V available	The identifier can apply to either
	motor body)			<b>DC</b> = .00394-in (.10)	availabio	a standard or custom part.

NOTE: Dashes must be included in Part Number (-) as shown above. For assistance call our Engineering Team at 203 756 7441.



1

### 15000 Series • Can-Stack Stepper Motor Linear Actuators

### **Captive Lead Screw**

Dimensions = (mm) inches



# **External Linear**



2.

# **MICRO Series**

 $\mathsf{Dimensions} = (\mathsf{mm}) \mathsf{ inches}$ 

Standard nut styles. Consult the factory for custom solutions.

MICRO Series Nut Styles				
Part No.	BFW Nut Style	Dynamic Load Ibs (Kg)	Drag Torque oz-in (NM)	
BFWB	Barrel Mount	10 (4 5)	Eroo Whooling	
BFWR	Rectangular Flange	10 (4.5)	FIEE WIIEEIIIIG	

Barrel Nut Style





**METEK** 

2





NOTE: All chopper drive curves were created with a 5 volt motor and a 40 volt power supply.

Ramping can increase the performance of a motor either by increasing the top speed or getting a heavier load accelerated up to speed faster. Also, deceleration can be used to stop the motor without overshoot.

#### 15000 Series • Can-Stack Stepper Motor Linear Actuators Wiring & Stepping Sequence

# Can-Stacks: Wiring



# Can-Stacks: Stepping Sequence

	Bipolar	Q2-Q3	Q1-Q4	Q6-Q7	Q5-Q8	
E T	Step					
END	1	ON	OFF	ON	OFF	
CW	2	OFF	ON	ON	OFF	5
	3	OFF	ON	OFF	ON	ACT
↓	4	ON	OFF	OFF	ON	
	1	ON	OFF	ON	OFF	

Note: Half stepping is accomplished by inserting an off state between transitioning phases.

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# New! 15000 Series E16 Encoder

15000 Series E16 optical encoder is designed to provide A, B and Index digital quadrature signals for high volume, restricted space applications.

- Resolutions from 250/256 to 4000/4096
- Single-ended only
- Low power consumption, 5V @ 26mA max

#### Assembly Options:

- Detachable cable

Pin #	Description	
1	Ground	
2	Index	
3	A channel	
4	+5VDC power	
5	B channel	



# **Custom Free-Wheeling Nuts**

Modified and custom free-wheeling nuts are available for the LE external linear versions. Custom geometries and materials can be combined for a wide variety of product application requirements, to help eliminate additional adjacent components as well as to deliver cost and space-saving benefits.

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Ø16