

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 micro-stepped 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

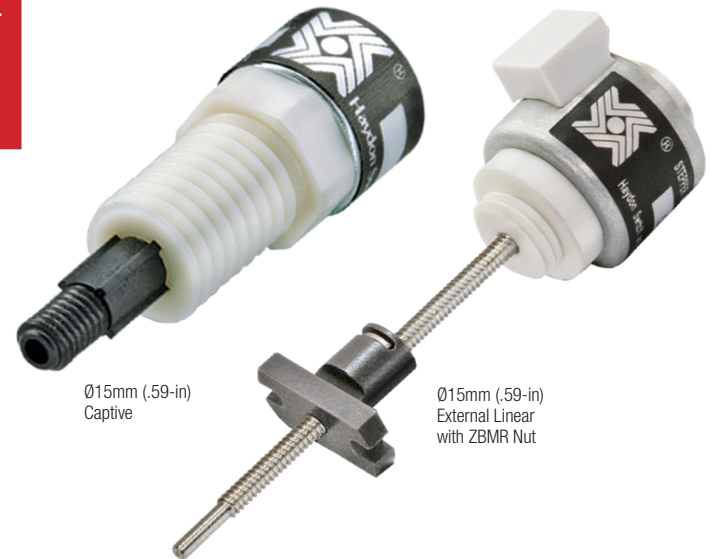
- Captive
- External Linear with free-wheeling BFW nut
- External Linear with ZBM anti-backlash nut*

*May not be available in all leads

Specifications

Ø 15 mm (.59-in) Motor			
Part No.	Captive	LC1574  –  –  †	
	External Linear	LE1574  –  –  †	
Wiring	Bipolar		
Step angle	18°		
Winding Voltage	4 VDC	5 VDC	12 VDC
Current (RMS)/phase	0.2 A	0.16 A	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 ²		
Insulation Class	Class B (Class F available)		
Weight	LC15 0.49 oz (14 g) LE15 0.39 oz (11 g)		
Insulation Resistance	20 MΩ		
Stroke	Captive	0.5-in. (12.7 mm)	
	External Linear	up to 1.79-in. (45.4 mm)	

[†]Part numbering information below.



Linear Travel / Step		Order Code I.D.
inches	mm	
.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			
	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).

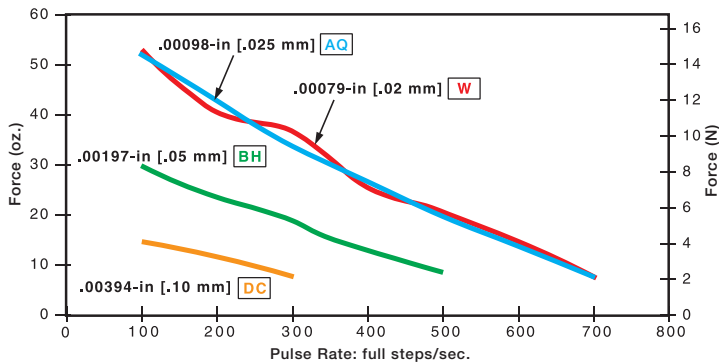
Identifying the Can-Stack Number Codes when Ordering

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

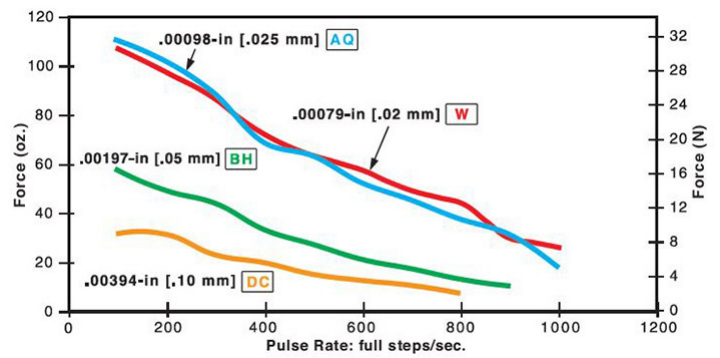
FORCE vs. PULSE RATE

– L/R Drive – Bipolar – 100% Duty Cycle



FORCE vs. PULSE RATE

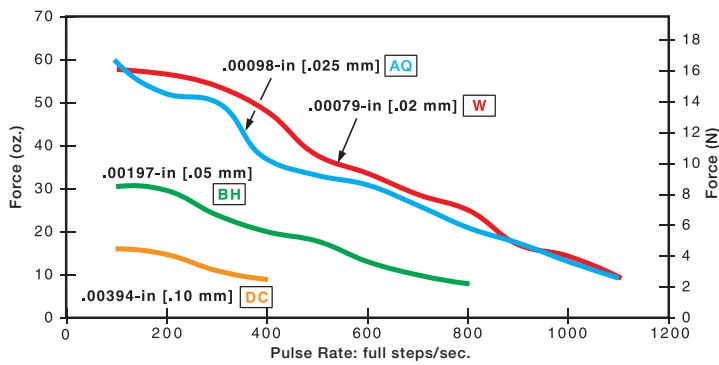
– L/R Drive – Bipolar – 25% Duty Cycle



Obtained by a special winding or by running a standard motor at double the rated current.

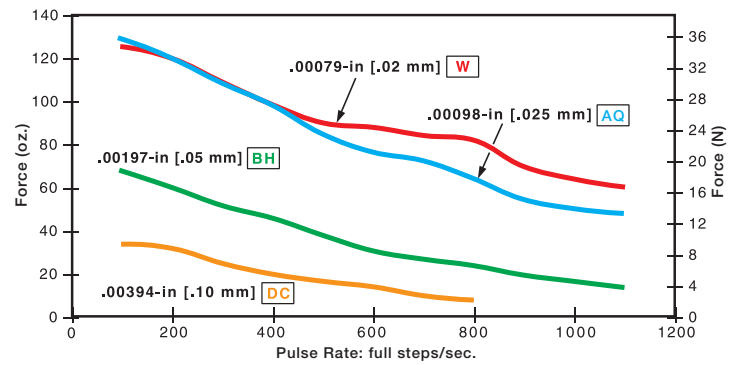
FORCE vs. PULSE RATE

– Chopper Drive – Bipolar – 100% Duty Cycle



FORCE vs. PULSE RATE

– Chopper Drive – Bipolar – 25% Duty Cycle

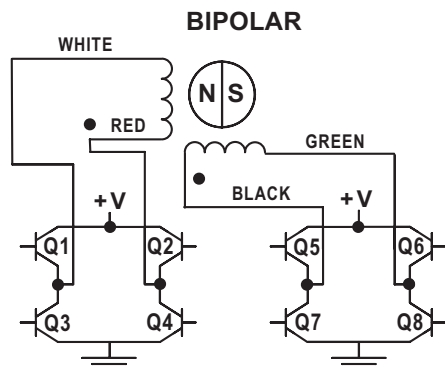


NOTE: All chopper drive curves were created with a 5 volt motor and a 40 volt power supply.

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
Step				
1	ON	OFF	ON	OFF
2	OFF	ON	ON	OFF
3	OFF	ON	OFF	ON
4	ON	OFF	OFF	ON
1	ON	OFF	ON	OFF

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



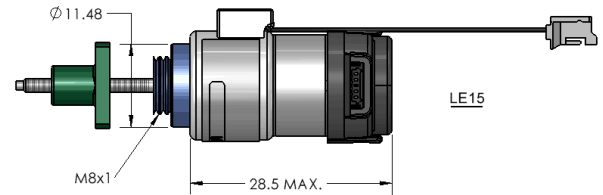
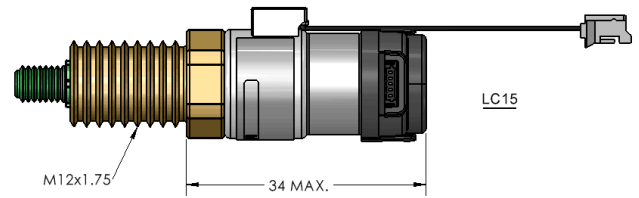
New! 15000 Series E16 Encoder

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

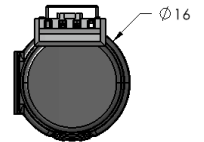
- Resolutions from 250/256 to 4000/4096
- Single-ended only
- Low power consumption, 5V @ 26mA max

Assembly Options:

- Detachable cable



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



Ø15mm (.59-in)
External Linear

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.