

# 28000 Series: Size 11 Linear Actuator



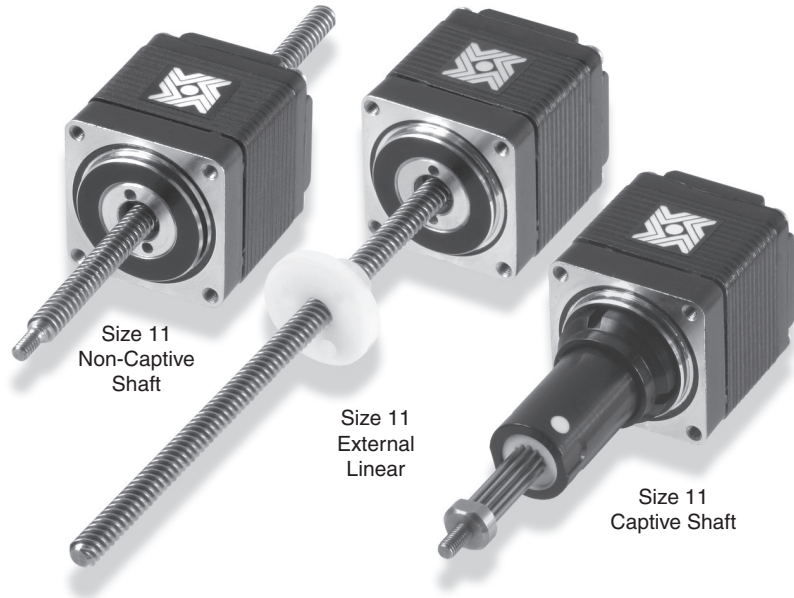
Haydon Kerk Motion Solutions, Inc. • www.HaydonKerk.com • Phone: 800.243.2715 • International: 203.756.7441

## Haydon™ brand Size 11 hybrid linear actuators offer compact, production-proven precision in motion.

HYBRID LINEAR ACTUATOR STEPPER MOTORS

The various patented designs deliver high performance, opening avenues for equipment designers who require performance and endurance in a very small package.

Three designs are available, captive, non-captive and external linear versions. The 28000 Series is available in a wide variety of resolutions - from 0.000125-in (.003175 mm) per step to 0.002-in (.0508 mm) per step. The Size 11 actuator delivers thrust of up to 20 lbs. (90 N).



### Salient Characteristics

Size 11: 28 mm (1.1-in) Hybrid Linear Actuator (1.8° Step Angle)					
Part No.	Captive	28H4(X)-V			28H6(X)-V
	Non-captive	28F4(X)-V			28F6(X)-V
	External Lin.	E28H4(X)-V			E28H6(X)-V
Wiring		Bipolar			Unipolar**
Winding voltage	2.1 VDC	5 VDC	12 VDC	5 VDC	12 VDC
Current/phase	1.0 A	0.42 A	0.18 A	0.42 A	0.18 A
Resistance/phase	2.1 Ω	11.9 Ω	68.6 Ω	11.9 Ω	68.6 Ω
Inductance/phase	1.5 mH	6.7 mH	39.0 mH	3.3 mH	19.5 mH
Power consumption	4.2 W				
Rotor inertia	9.0 gcm <sup>2</sup>				
Insulation Class	Class B (Class F available)				
Weight	4.2 oz (119 g)				
Insulation resistance	20 MΩ				

Linear Travel / Step		Order Code I.D.
Screw Ø.1875" (4.76mm) inches	mm	
.000125	.0031*	7
.00025	.0063*	9
.0005	.0127	3
.001	.0254	1
.002	.0508	2

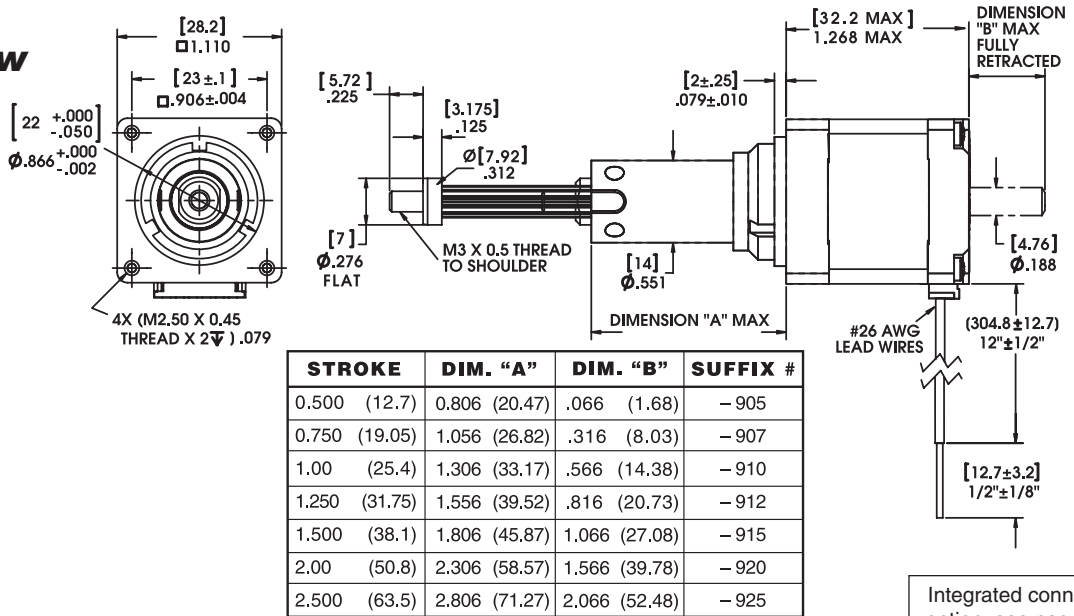
\*Values truncated

Standard motors are Class B rated for maximum temperature of 130°C.

Special drive considerations may be necessary when leaving shaft fully extended or fully retracted.

\*\* Unipolar drive gives approximately 30% less thrust than bipolar drive.

**Captive Lead-screw**

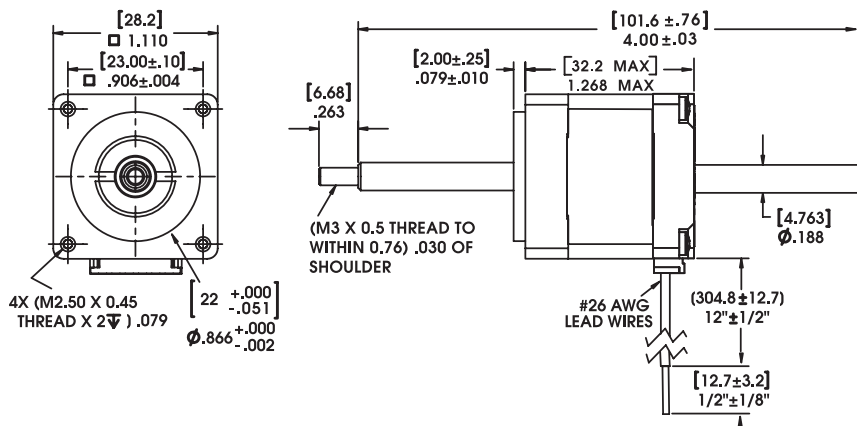


Integrated connector option, see page 121

HYBRID LINEAR ACTUATOR  
STEPPER MOTORS

**Non-Captive Lead-screw**

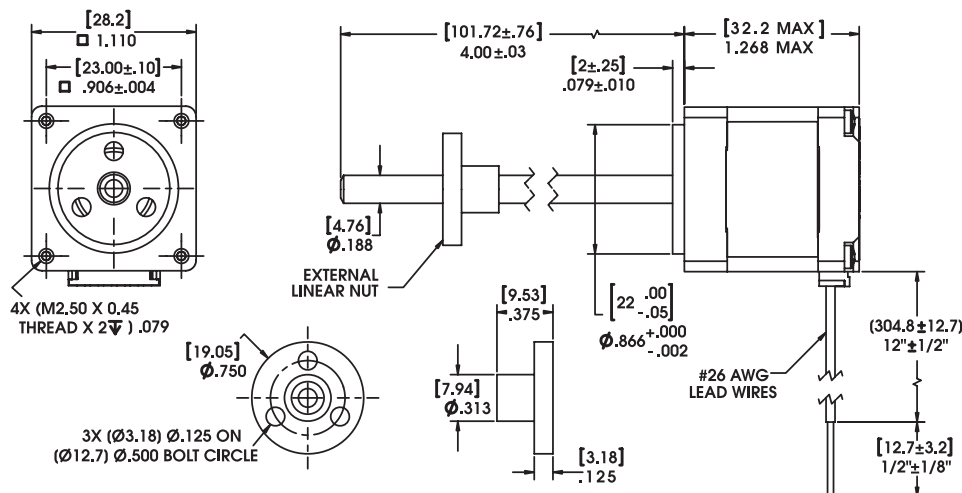
Up to 8-in (203 mm) standard screw lengths. Longer screw lengths are available.



Integrated connector option, see page 121

**External Linear**

Up to 8-in (203 mm) standard screw lengths. Longer screw lengths are available.



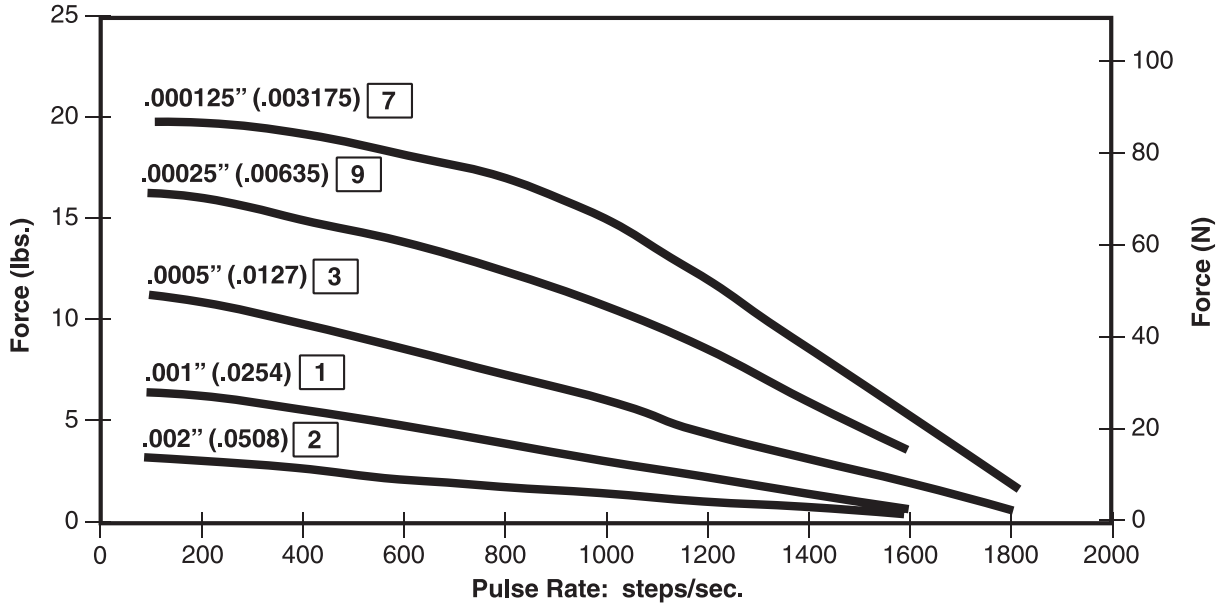
Integrated connector option, see page 121

# 28000 Series: Size 11 Performance Curves

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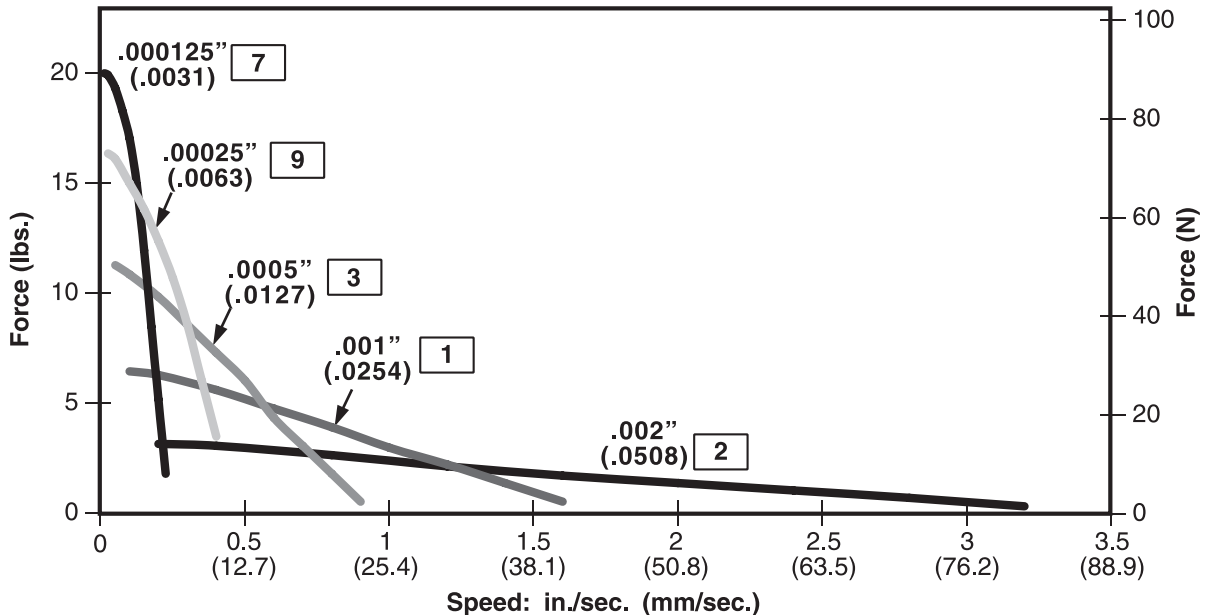
## FORCE vs. PULSE RATE Bipolar • Chopper • 100% Duty Cycle

Ø .187 (4.75) Lead-screw



## FORCE vs. LINEAR VELOCITY Bipolar • Chopper • 100% Duty Cycle

Ø .187 (4.75) Lead-screw



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.

With L/R drives peak force and speeds are reduced, using a unipolar drive will yield a further 30% force reduction.