

Linear Actuator Series 20000, Ø 20 mm (3/4")

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Engineered with unique features reliable long life and performance.

Salient Characteristics

Ø 20 mm (.79") motor		
Wiring		Bipolar
Part No.	Captive	2054X-V
	Non-captive	2084X-V
Step angle		15°
Operating voltage		5 VDC 12 VDC
Current/phase		270 mA 113 mA
Resistance/phase		18.5 Ω 106 Ω
Inductance/phase		5.5 mH 32 mH
Power consumption		2.7 W
Rotor inertia		0.5 gcm ²
Temperature rise		135°F Rise (75°C Rise)
Weight		1 oz (28 g)
Insulation resistance		20 MΩ

Linear Travel / Step		Order Code I.D.
inches	mm	
0.001	0.0254	1
0.002	0.051	2
0.004	0.102	4

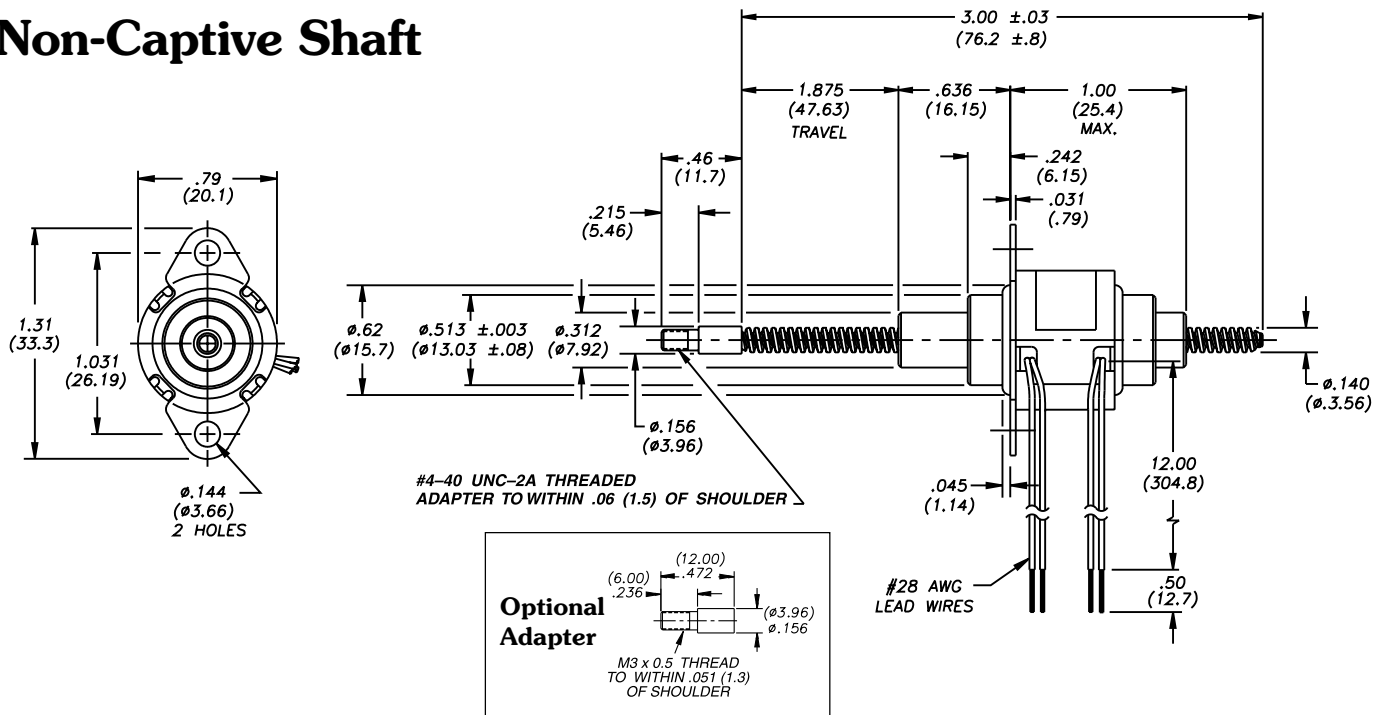
Special drive considerations may be necessary when leaving shaft fully extended or fully retracted.

NOTE: See page 5 to identify product code information before placing order.

For Wiring and Stepping Sequence see page 6.

Linear Series 20000 Dimensional Drawings

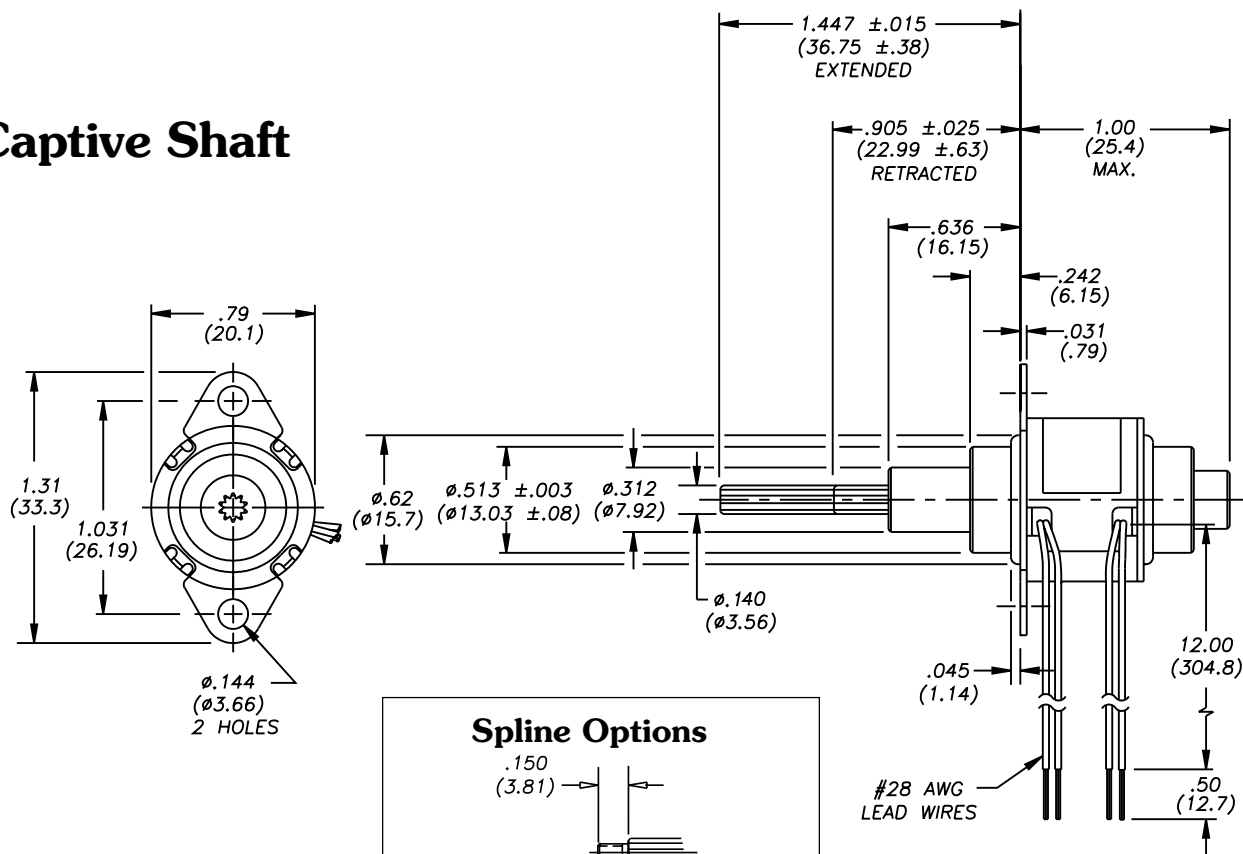
Non-Captive Shaft



Linear Series 20000 Dimensional Drawings

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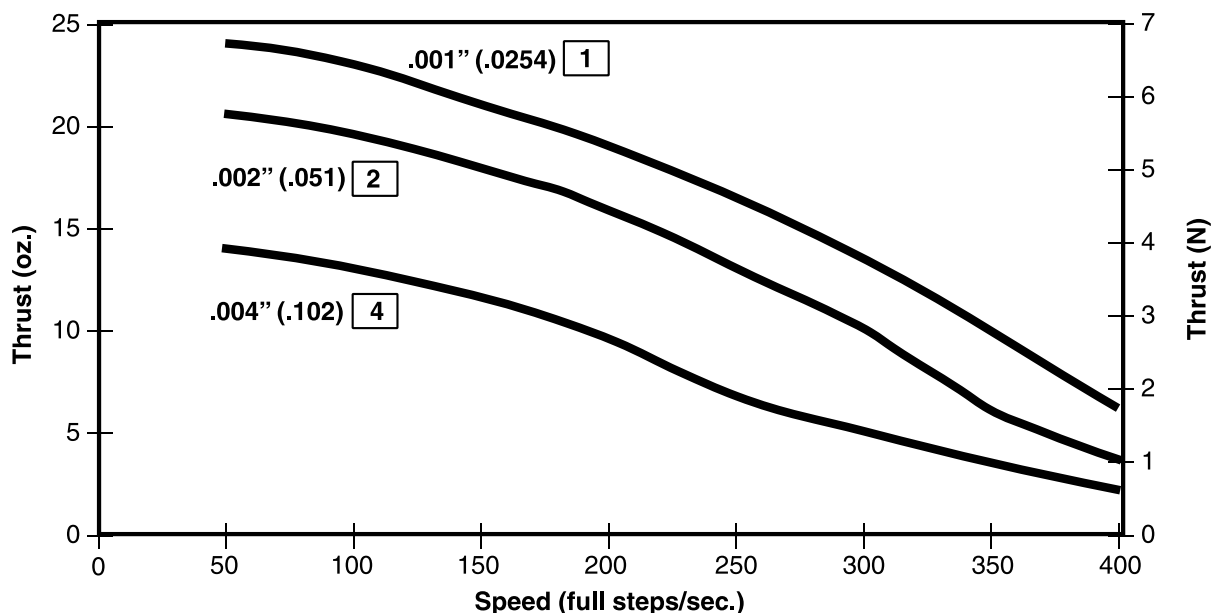
Captive Shaft



Linear Series 20000 Step Rate vs. Thrust Curves

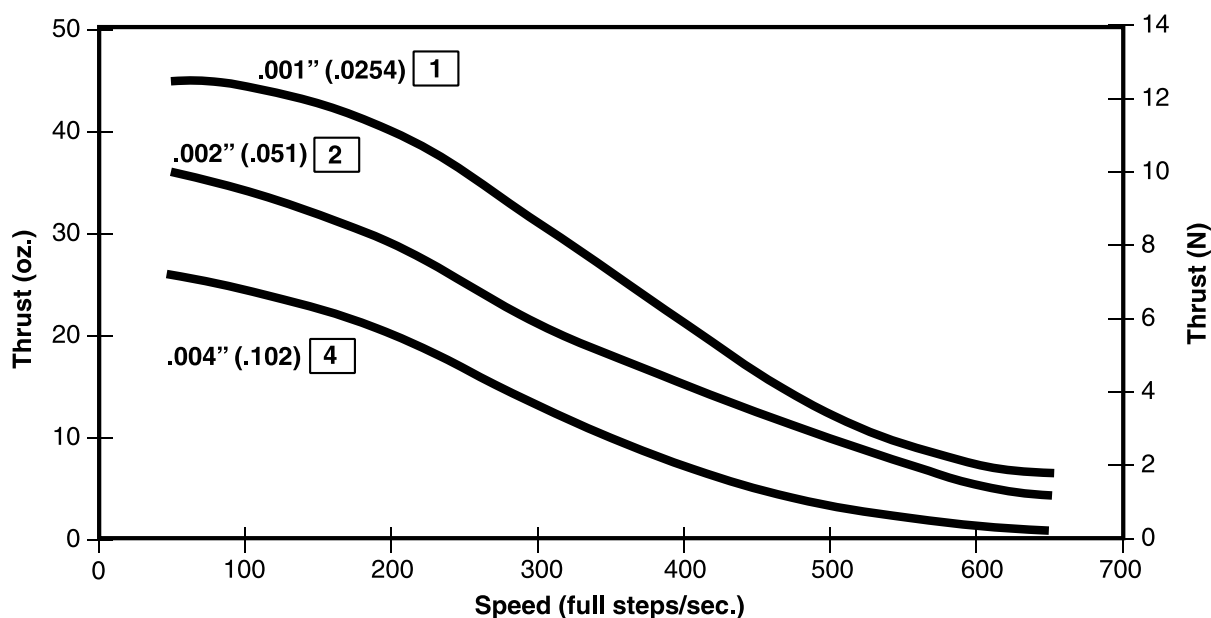
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Bipolar • L/R Drive • 100% Duty Cycle



Bipolar • L/R Drive • 25% Duty Cycle

25% duty cycle is obtained by a special winding or by running a standard motor at double the rated voltage.

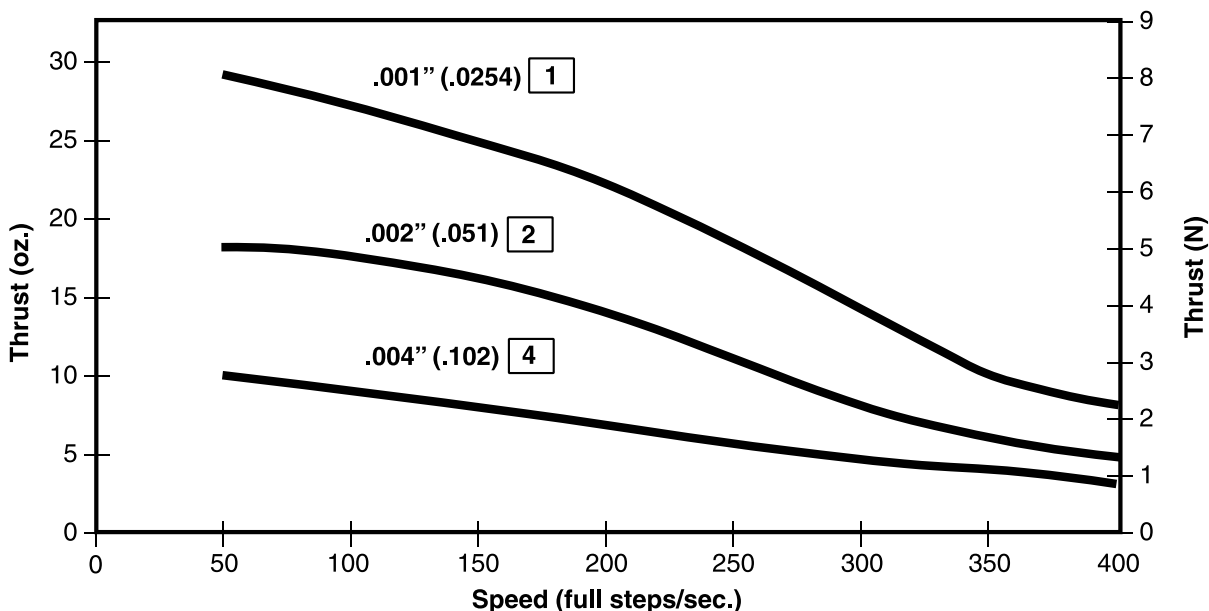


NOTE: Ramping can increase the performance of a motor either by increasing the top speed or getting a heavier load accelerated up to speed faster. Also, deceleration can be used to stop the motor without overshoot.

Linear Series 20000 Step Rate vs. Thrust Curves

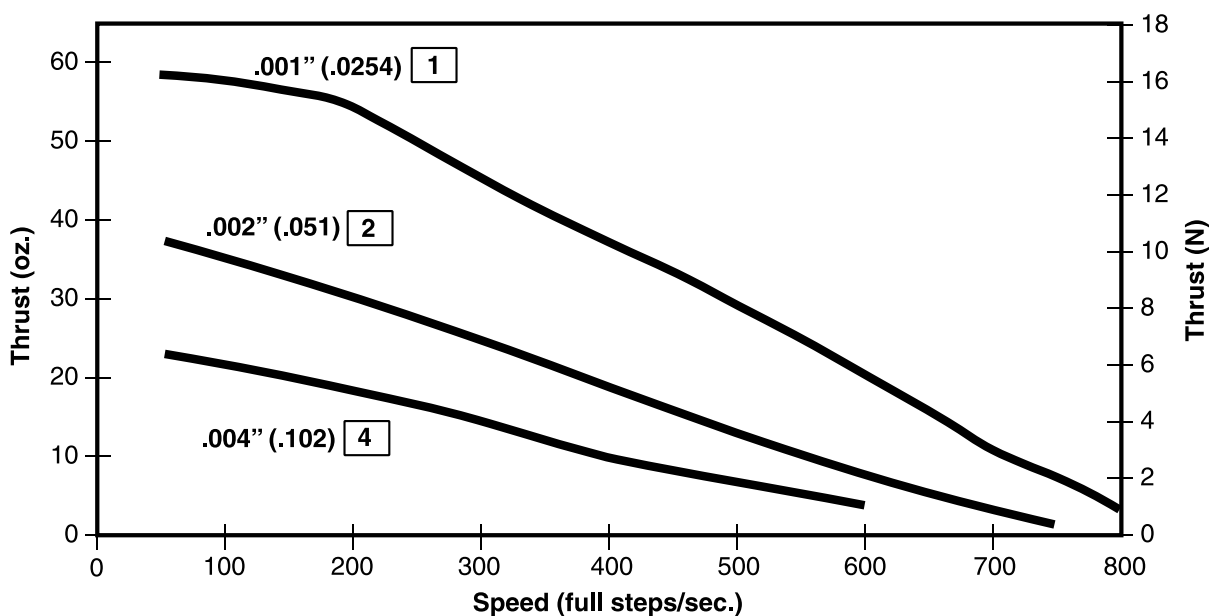
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Bipolar • Chopper Drive • 100% Duty Cycle



Bipolar • Chopper Drive • 25% Duty Cycle

25% duty cycle is obtained by running a standard motor at double the rated current.



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.

Linear Actuators Step Movement Selector Chart

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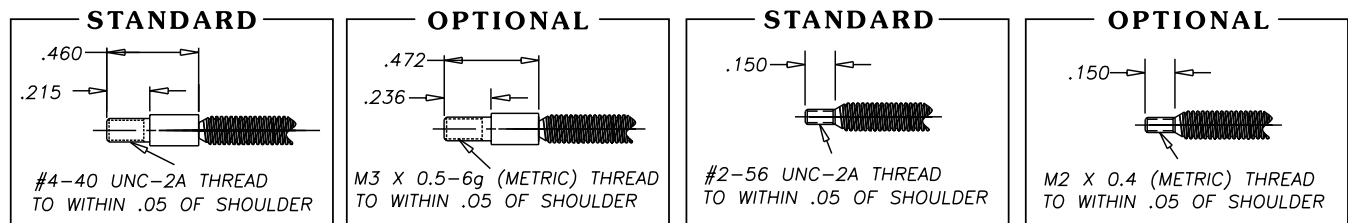
Travel Per Step Code Letters or Digits	Linear Travel Per Step		15000 Series ¹ Ø 15mm (0.59")	20000 Series Ø 20mm (0.79")	26000 Series Ø 26mm (1.0")	36000 Series Ø 36mm (1.4")	46000 Series Ø 46mm (1.8")	Z20000 Series Ø 20mm (.079")	Z26000 Series Ø 26mm (1.0")
			Screw Ø 5mm (0.197")	Screw Ø 3.56mm (0.140")	Screw Ø 3.56mm (0.140")	Screw Ø 3.56mm (0.140")	Screw Ø 5.54mm (0.218")	Screw Ø 3.30mm (0.130")	Screw Ø 3.30mm (0.130")
7	0.000125*	0.0032*				●			
9	0.00025*	0.0064*			●	●			
3	0.0005	0.013			●	●	●		●
W	0.00079	0.02	●						
1	0.001	0.0254		●	●	●	●	●	●
AS	0.00164	0.04166							●
2	0.002	0.051		●	●	●	●	●	●
4	0.004	0.102		●	●	●	●	●	●
8	0.008	0.203					●		
G	0.016	0.406					●		

* Specialty and high resolution step movements

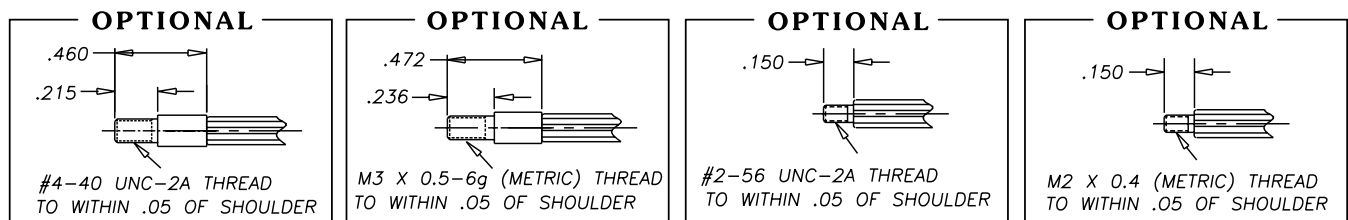
¹ The 15000 Series is currently available with captive screw only

Optional Threaded End Forms for all Z-Series, 20000, 26000 and 36000 Series Motors.

NON-CAPTIVE



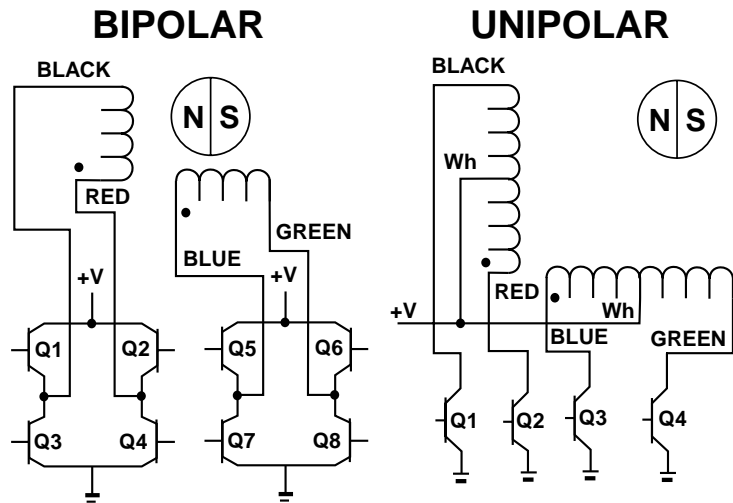
CAPTIVE



Customized ends and adapters are available for most actuators upon request.

Linear Actuators: Wiring Diagram

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Linear Actuators: Stepping Sequence

	Bipolar	Q2-Q3	Q1-Q4	Q6-Q7	Q5-Q8	
	Unipolar	Q1	Q2	Q3	Q4	
Step						
1	Extend	ON	OFF	ON	OFF	
2		OFF	ON	ON	OFF	
3		OFF	ON	OFF	ON	
4		ON	OFF	OFF	ON	
5		ON	OFF	ON	OFF	Retract

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