

Haydon® Z20000 Series – economical stepper motors for high volume, applications.

Utilizing rare earth (neodymium) magnets, the Haydon® Z-Series linear actuators consistently deliver exceptional performance at an economical price. Also available in a special “earless” configuration without a mounting flange, which is ideal for space constrained applications.

Three motors are available... captive, non-captive and external linear. All units are built with reliable dual ball bearings.

Specifications

Ø 20 mm (.79-in) Z-Series motor		
Wiring		Bipolar
Part No.	Captive	Z2054 †
	Non-captive	Z2084 †
	External*	Z2054 - 9 †*
Step angle		15°
Winding voltage		5 VDC 12 VDC
Current (RMS)/phase		250 mA 100 mA
Resistance/phase		20 Ω 118 Ω
Inductance/phase		5.4 mH 27 mH
Power consumption		2.5 W
Rotor inertia		1.13 gcm ²
Insulation Class		Class B
Weight		.85 oz. (24.1 g)
Insulation resistance		20 M Ω

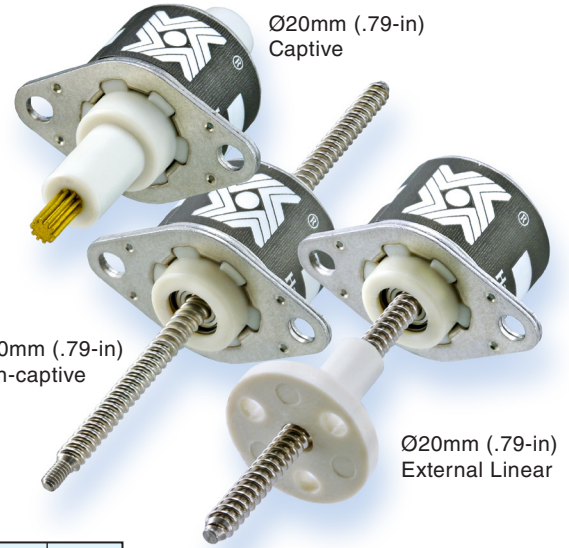
† Part numbering information on page 4

*When ordering Z-Series External Linear motors, add -900 to end of the Part Number.

Linear Travel / Step		Order Code I.D.
15° Step Angle		
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.

Standard motors are Class B rated for maximum temperature of 130° C (266° F).

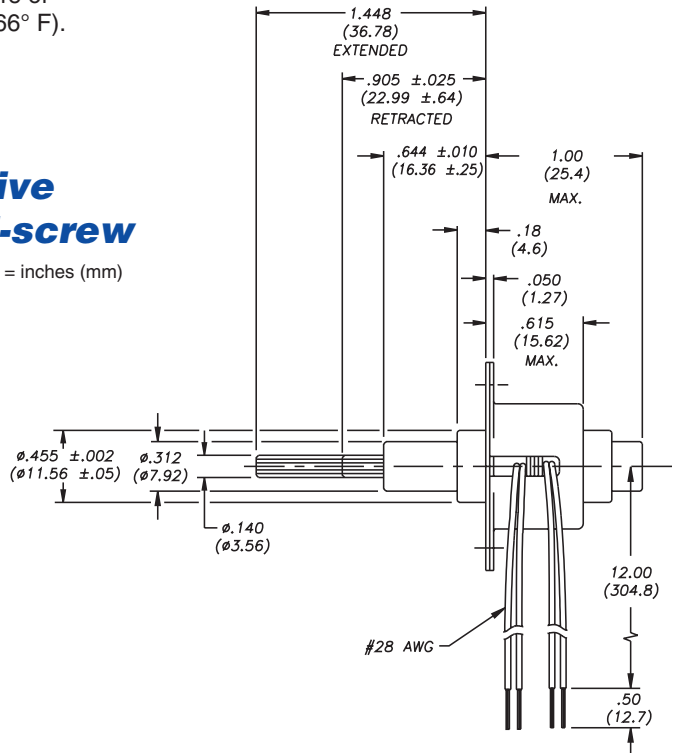
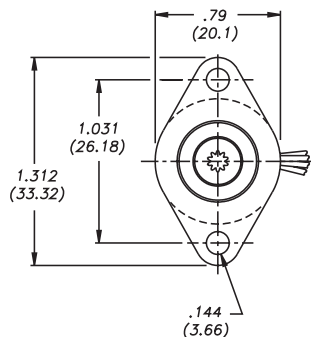


Option: Earless Z20000 Series Actuator



Captive Lead-screw

Dimensions = inches (mm)



Spline Options

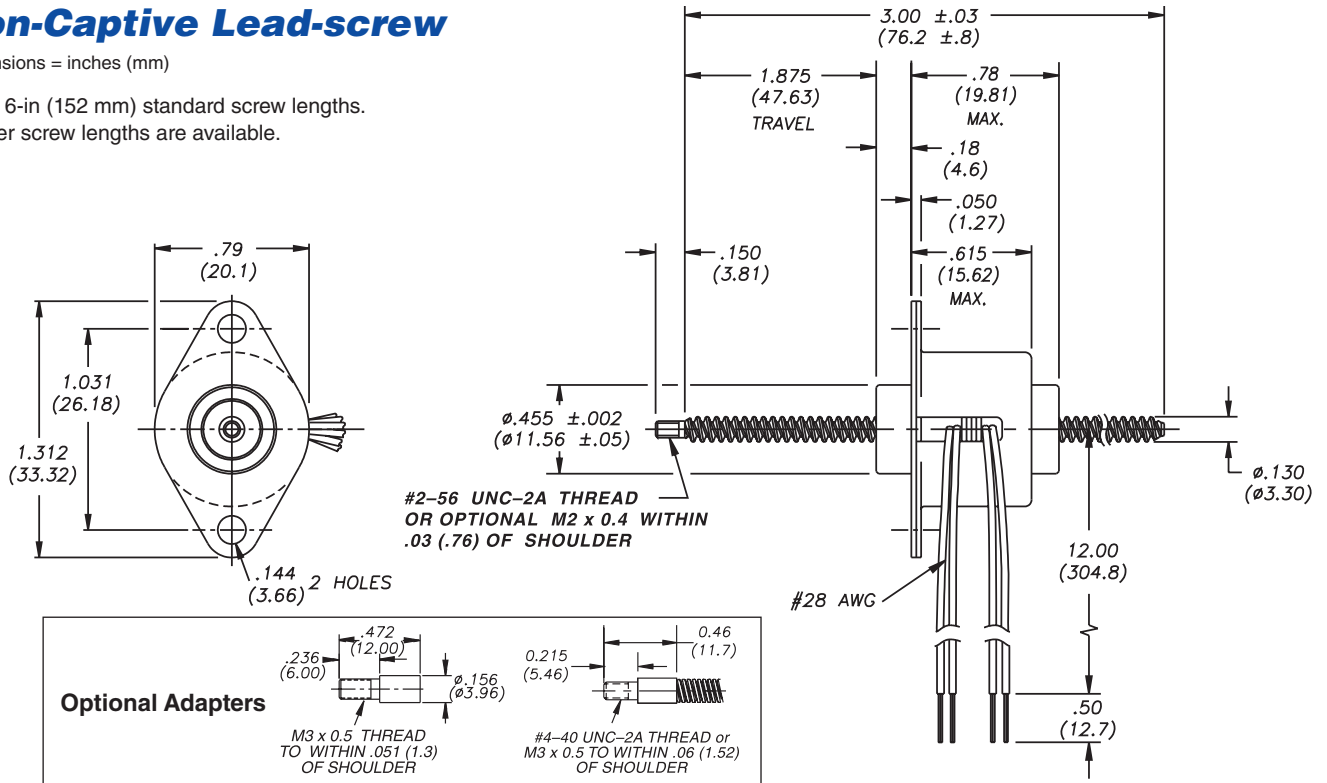
#2-56 UNC-2A THREAD or M2 x 0.4 TO BE WITHIN .030 (.76) MAX. OF SHOULDER

Spline is also available with optional #4-40 UNC-2A or M3 x 0.5 threaded adapter as shown in non-captive drawing.

Non-Captive Lead-screw

Dimensions = inches (mm)

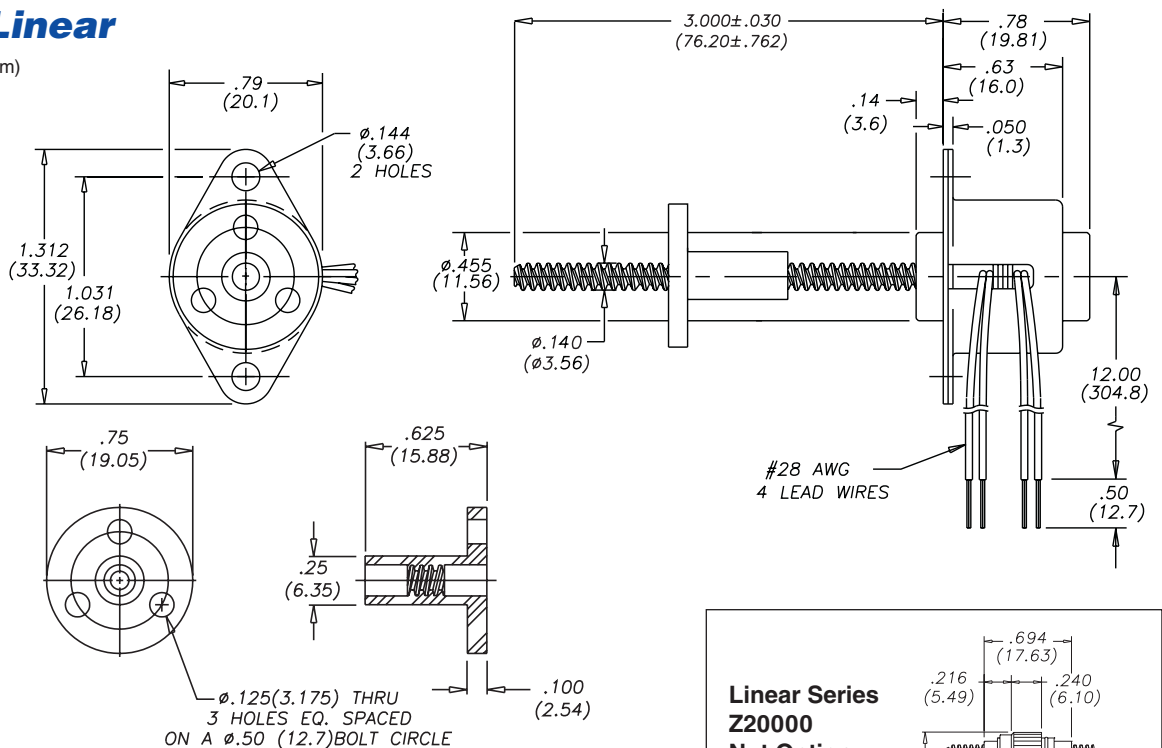
Up to 6-in (152 mm) standard screw lengths.
 Longer screw lengths are available.



External Linear

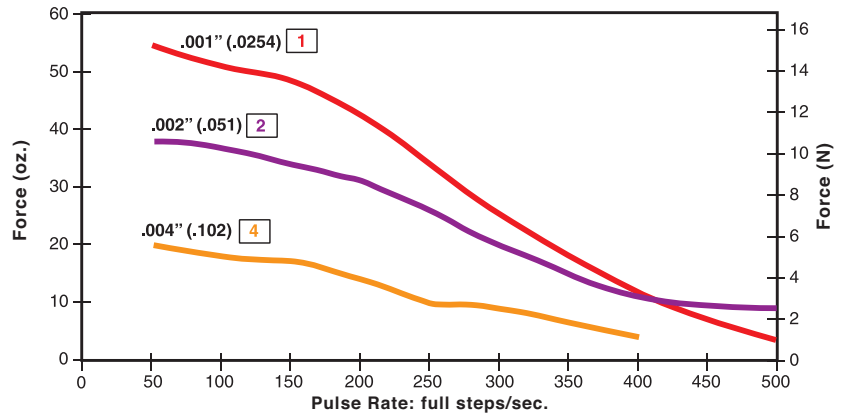
Dimensions = inches (mm)

Up to 6-in (152 mm) standard screw lengths.
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FORCE vs. PULSE RATE

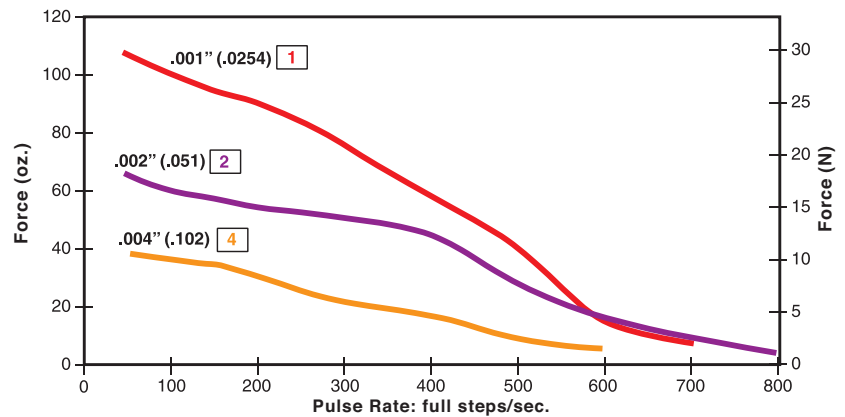
L/R Drive • Bipolar
100% Duty Cycle



FORCE vs. PULSE RATE

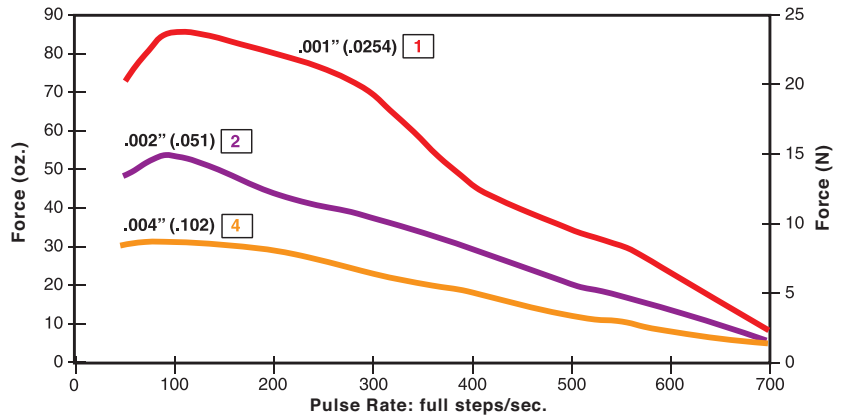
L/R Drive • Bipolar
25% Duty Cycle

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



FORCE vs. PULSE RATE

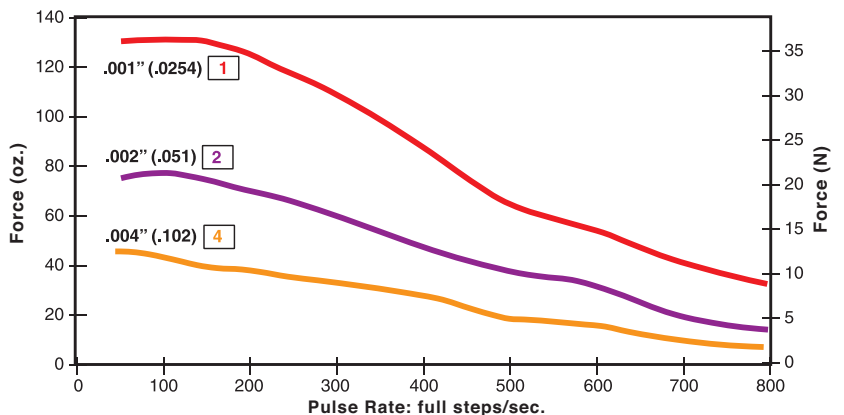
Chopper Drive • Bipolar
100% Duty Cycle



FORCE vs. PULSE RATE

Chopper Drive • Bipolar
25% Duty Cycle

Obtained by a special winding or 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.

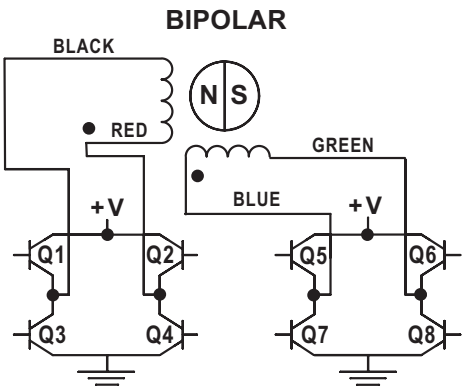
Identifying the Can-Stack part number codes when ordering

Z	20	5	4	2	-	05	-	900
Prefix	Series number designation	Style	Coils	Code ID Resolution Travel/Step		Voltage		Suffix
Z = Series Code	20 = 20000 (Series numbers represent approximate diameters of motor body)	5 = 15° Captive or External (use -900 Suffix for External version) 8 = 15° non-captive	4 = Bipolar (4 wire)	1 = .001-in (.0254) 2 = .002-in (.051) 4 = .004-in (.102)		05 = 5 VDC 12 = 12VDC Custom V available		Stroke Example: -900 used to code Z-Series external linear Suffix also represents: -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 or order entry, call our engineering team at 203 756 7441.

Haydon kerk ExpressSM
 Motion Solutions
 Standard products available 24-hrs. at
www.haydonkerkexpress.com

Can-Stacks: Wiring



Can-Stack Stepper Motor Linear Actuators: OPTIONS

- **SCREW LENGTH OPTIONS**
for captive, non-captive and external linear shaft motors various screw lengths are available to accommodate almost any travel requirement.
- **“EARLESS”, NO FLANGE**
option for Z20000 Series

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	
←	EXTEND CW					RETRACT CCW

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