

## RGS04 Motorized with 28000 Series

### Linear Rail with Size 11 Double Stack Hybrid Stepper

The RGS04 28000 Series is our smallest screw driven slide that offers exceptional linear speed, accurate positioning and long life in a compact, value-priced assembly. The length and speed of the RGS is not limited by critical screw speed, allowing high RPM and linear speeds, even over long spans.

Recommended for horizontal loads up to 15 lbs (67N).



RGS04 Motorized  
Size 11 28000 Series Double Stack

To determine what is best for your application see the [Linear Rail Applications Checklist](#).

### Identifying the Motorized RGS Part Numbers when Ordering

RG	S	04	K	M	0100	XXX
<b>Prefix</b> RG = Rapid Guide Screw	<b>Frame Style</b> S = Standard	<b>Frame Size Load</b> 04 = 15 lbs (67 N) (Maximum static load)	<b>Coating</b> K = TFE Kerkote	<b>Drive / Mounting</b> M = Motorized	<b>Nominal Thread Lead Code</b> 0025 = .025-in (.635) 0039 = .039-in (1.00) 0050 = .050-in (1.27) 0063 = .0625-in (1.59) 0079 = .079-in (2.00) 0100 = .100-in (2.54) 0118 = .118-in (3.00) 0200 = .200-in (5.08) 0250 = .250-in (6.35) 0394 = .394-in (10.00) 0500 = .500-in (12.70) 0750 = .750-in (19.05)	<b>Unique Identifier</b> Suffix used to identify specific motors or a proprietary suffix assigned to a specific customer application. The identifier can apply to either a standard or custom part

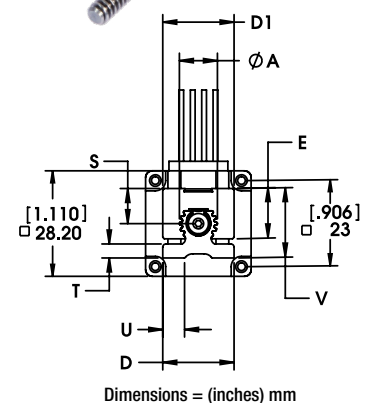
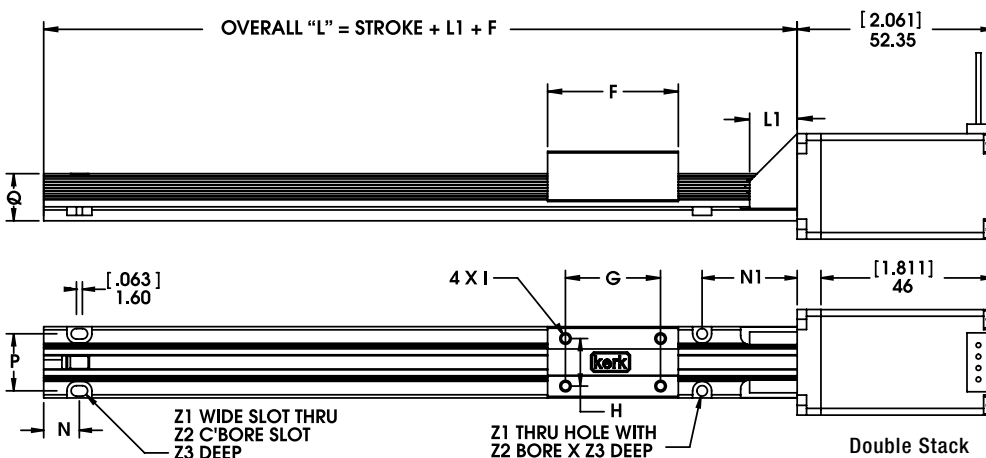
**NOTE:** Dashes must be included in Part Number (-) as shown above. For assistance call our Engineering Team at 603 213 6290. Carriage holes available in metric sizes M3, M4.

Size 11 Double Stack: 28 mm (1.1-in) Hybrid External Linear Actuator (1.8° Step Angle)			
<b>Wiring</b>	Bipolar	<b>Power Consumption</b>	7.5 W Total
<b>Winding Voltage</b>	2.1 VDC	<b>Rotor Inertia</b>	13.5 gcm <sup>2</sup>
<b>Current (RMS)/phase</b>	1.9 A	<b>Insulation Class</b>	Class B (Class F available)
<b>Resistance/phase</b>	1.1 Ω	<b>Weight</b>	5.8 oz (180 g)
<b>Inductance/phase</b>	1.1 mH	<b>Insulation Resistance</b>	20 MΩ

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



Size 11 Double Stack  
28000 Series  
External Linear Actuator



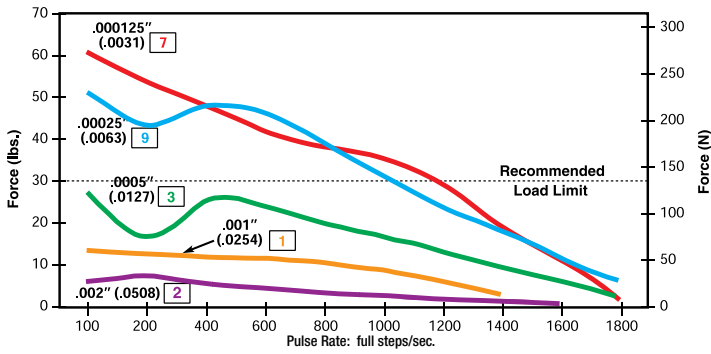
	A	D	D1	E	F	G	H	I*	L1	N	N1	P	Q	S	T	U	V	Z1	Z2	Z3
(inch)	(0.40)	(0.75)	(0.75)	(0.53)	(1.40)	(1.00)	(0.50)	4-40	(0.50)	(0.38)	(1.00)	(0.60)	(0.5)	(0.37)	(0.15)	(0.23)	(0.7)	(0.11)	(0.2)	(0.09)
mm	10.2	19	19	13.5	35.6	25.4	12.7	UNC	12.7	9.52	25.4	15.2	12.7	9.4	3.8	5.8	18.0	2.8	5.1	2.3

\*Metric threads also available for carriage.

Double Stack

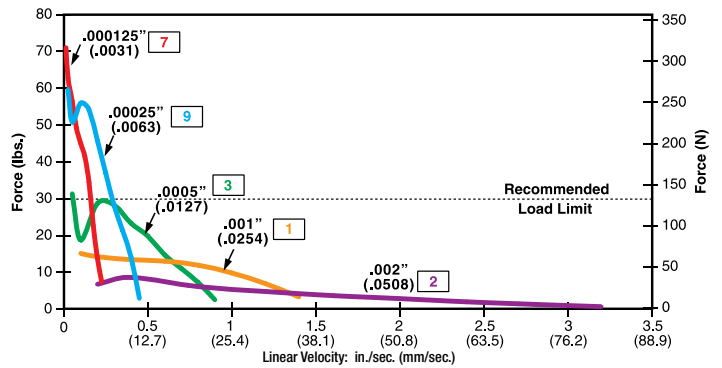
FORCE vs. PULSE RATE

– Chopper – Bipolar – 100% Duty Cycle



FORCE vs. LINEAR VELOCITY

– Chopper – Bipolar – 100% 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. With L/R drives peak force and speeds are reduced, using a unipolar drive will yield a further 30% force reduction.

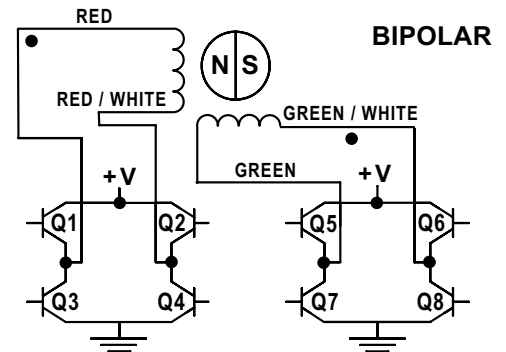
Size 11 28000 Series • Stepping Sequence & Wiring

Hybrids: 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.

Hybrids: Wiring

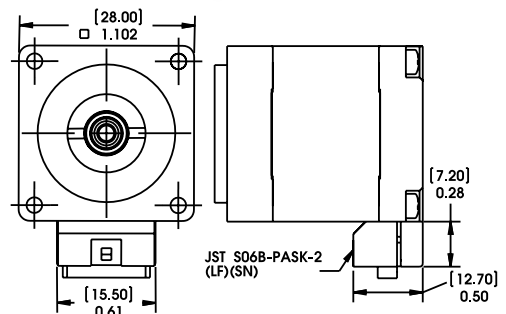
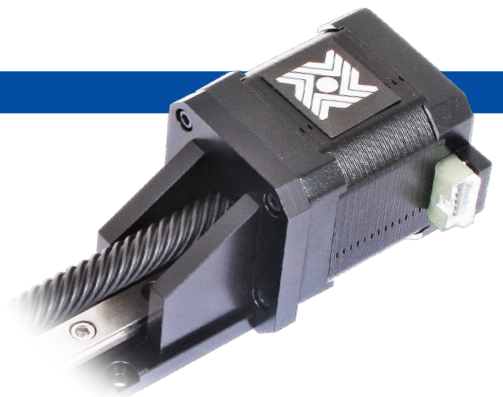


Size 11 28000 Series • Integrated Connector

Offered alone or with a harness assembly, the integrated connector is RoHS compliant and features a positive latch in order for high connection integrity. The connector is rated up to 3 amps and the mating connector will handle a range of wire gauges from 22 to 28. Ideal for those that want to plug in directly to pre-existing harnesses.

- Motor Connector:** JST part # S06B-PASK-2
- Mating Connector:** JST part # PAP-06V-S  
Haydon Kerk part # 56-1210-5 (12 in. Leads)
- Wire to Board Connector:** JST part # SPHD-001T-P0.5

Pin #	Bipolar	Unipolar	Color
1	Phase 2 Start	Phase 2 Start	G/W
2	Open	Phase 2 Common	–
3	Phase 2 Finish	Phase 2 Finish	Green
4	Phase 1 Finish	Phase 1 Finish	R/W
5	Open	Phase 1 Common	–
6	Phase 1 Start	Phase 1 Start	Red



## RGS04 Motorized with 43000 Series

Linear Rail with Size 17 Single or Double Stack Hybrid Stepper with or without an integrated programmable IDEA™ Drive

The RGS04 is a screw driven rail that offers exceptional linear speed, accurate positioning and long life in a compact assembly. The length and speed of the RGS is not limited by critical screw speed, allowing high RPM and linear speeds even over long spans. Recommended for horizontal loads up to 15 lbs (67N).



RGS04 Motorized  
Size 17 43000 Series Double Stack

### Identifying the Motorized RGS Part Numbers when Ordering

RG	S	04	K	M	0100	XXX
<b>Prefix</b> RG = Rapid Guide Screw	<b>Frame Style</b> S = Standard	<b>Frame Size Load</b> 04 = 15 lbs (67 N) (Maximum static load)	<b>Coating</b> K = TFE Kerkote	<b>Drive / Mounting</b> M = Motorized G = IDEA Integrated programmable drive, USB communications J = IDEA integrated programmable drive, RS485 communications	<b>Nominal Thread Lead Code</b> 0025 = .025-in (.635) 0039 = .039-in (1.00) 0050 = .050-in (1.27) 0063 = .0625-in (1.59) 0079 = .079-in (2.00) 0100 = .100-in (2.54) 0118 = .118-in (3.00) 0200 = .200-in (5.08) 0250 = .250-in (6.35) 0394 = .394-in (10.00) 0500 = .500-in (12.70) 0750 = .750-in (19.05)	<b>Unique Identifier</b> Suffix used to identify specific motors or a 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 603 213 6290. Carriage holes available in metric sizes M3, M4, M5, M6.

### Size 17: 43 mm (1.7-in) External Linear Actuator (1.8° Step Angle)

Wiring	Single Stack					Double Stack					
	Bipolar		Unipolar**			Bipolar					
Programmable Drive	IDEA™ Drive Available					N/A			IDEA™ Drive Available		
Winding Voltage	2.33 VDC†	5 VDC	12 VDC	5 VDC	12 VDC	2.33 VDC†	5 VDC	12 VDC			
Current (RMS)/phase	1.5 A	700 mA	290 mA	700 mA	290 mA	2.6 A	1.3 A	550 mA			
Resistance/phase	1.56 Ω	7.2 Ω	41.5 Ω	7.2 Ω	41.5 Ω	0.9 Ω	3.8 Ω	21.9 Ω			
Inductance/phase	1.9 mH	8.7 mH	54.0 mH	4.4 mH	27.0 mH	1.33 mH	8.21 mH	45.1 mH			
Power Consumption	7 W					13.2 W					
Rotor Inertia	37 gcm <sup>2</sup>					78 gcm <sup>2</sup>					
Insulation Class	Class B (Class F available)					Class B (Class F available)					
Weight	8.5 oz (241 g)					12.5 oz (352 g)					
Insulation Resistance	20 MΩ					20 MΩ					

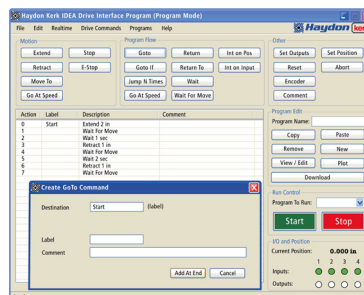
†43000 Series with IDEA™ Drive. Contact us if higher voltage motor is desired.  
\*\*Unipolar drive gives approximately 30% less thrust than bipolar drive.

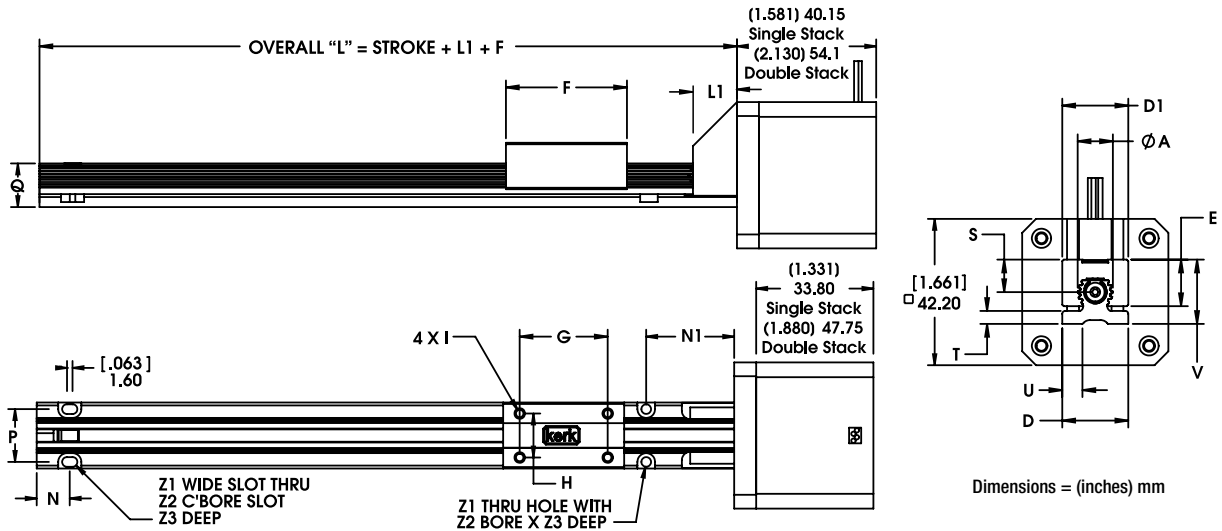


Simple to use IDEA™ Drive software with on-screen buttons and easy-to-understand programming guides

Software program generates motion profiles directly into the system and also contains a “debug” utility allowing line-by-line execution of a motion program for easy troubleshooting.

NOTE: For more information see the Haydon Kerk [IDEA Drive webpages](http://www.haydonkerkpittman.com).

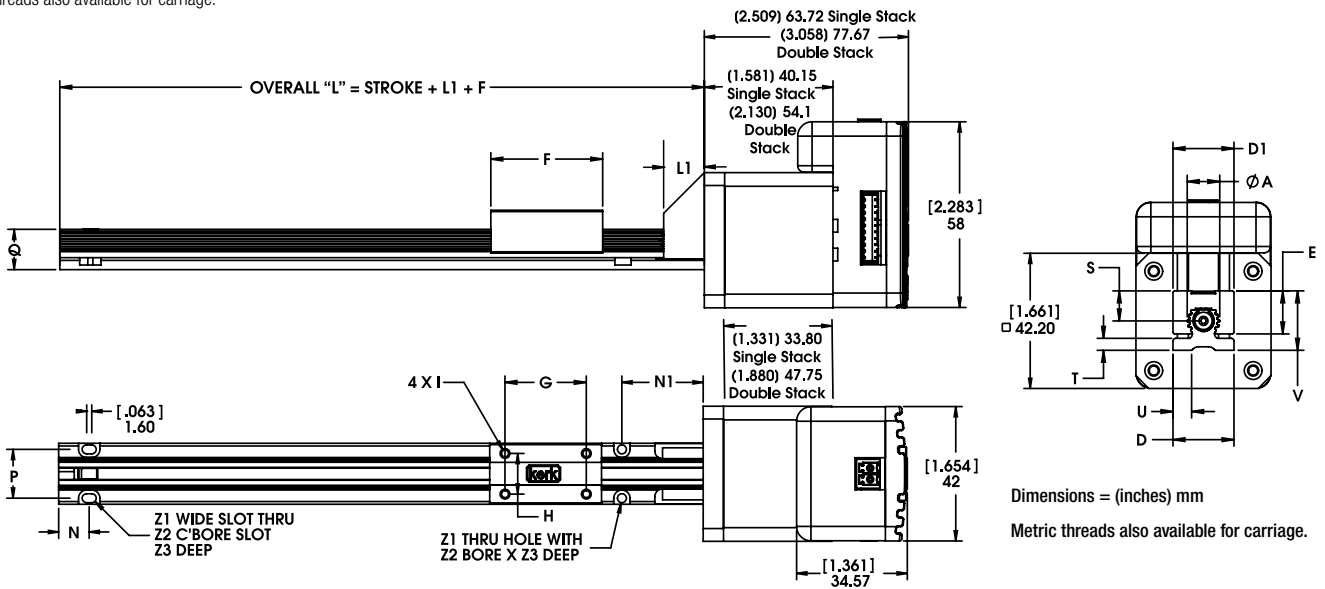




RGS04 with 43000 Series Size 17 Single or Double Stack Linear Actuator (drawing above)  
or Double Stack Linear Actuator with integrated programmable IDEA™ Drive (drawing below)

	A	D	D1	E	F	G	H	I'	L1	N	N1	P	Q	S	T	U	V	Z1	Z2	Z3
(inch)	(0.40)	(0.75)	(0.75)	(0.53)	(1.40)	(1.00)	(0.50)	4-40	(0.50)	(0.38)	(1.00)	(0.60)	(0.5)	(0.37)	(0.15)	(0.23)	(0.73)	(0.11)	(0.2)	(0.09)
mm	10.2	19	19	13.5	35.6	25.4	12.7	UNC	12.7	9.52	25.4	15.2	12.7	9.4	3.8	5.8	18.0	2.8	5.1	2.3

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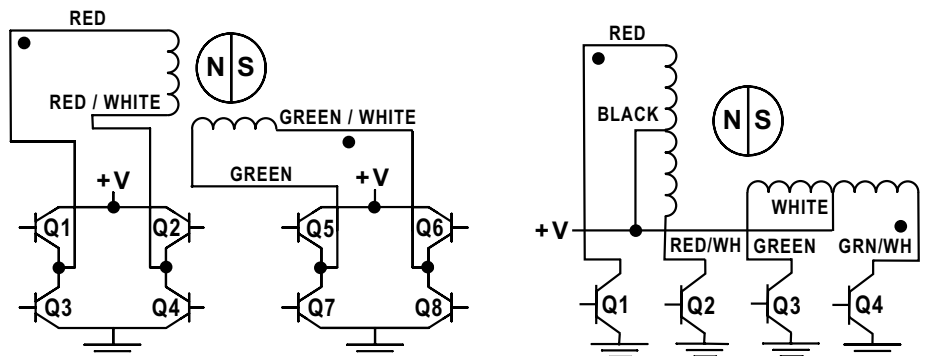
Size 17 43000 Series • Stepping Sequence & Wiring

Hybrids: Stepping Sequence

Bipolar	Q2-Q3	Q1-Q4	Q6-Q7	Q5-Q8
Unipolar	Q1	Q2	Q3	Q4
Step				
1	ON	OFF	ON	OFF
2	OFF	ON	ON	OFF
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Note: Half stepping is accomplished by inserting an off state between transitioning phases.

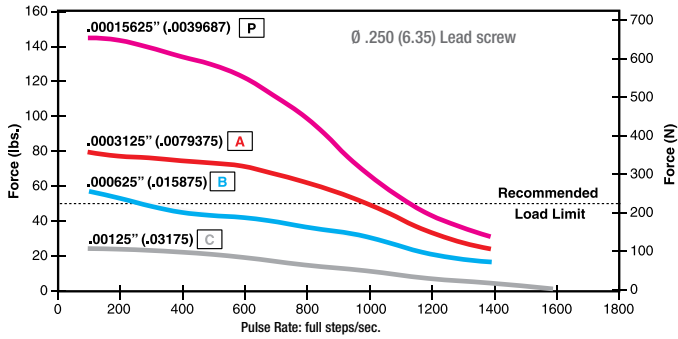
Hybrids: Wiring



Single Stack

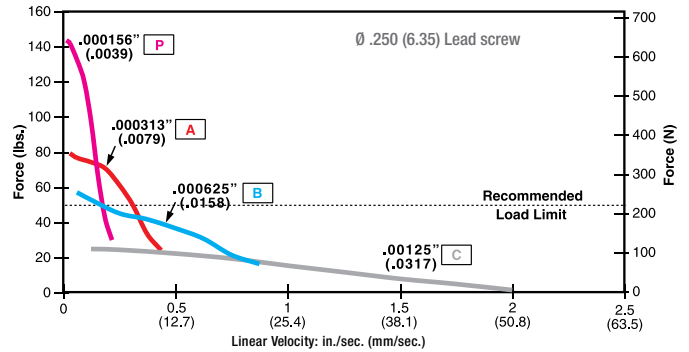
FORCE vs. PULSE RATE

– Chopper – Bipolar – 100% Duty Cycle



FORCE vs. LINEAR VELOCITY

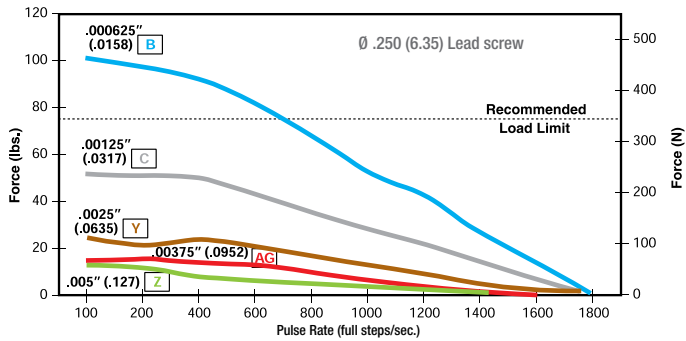
– Chopper – Bipolar – 100% Duty Cycle



Double Stack

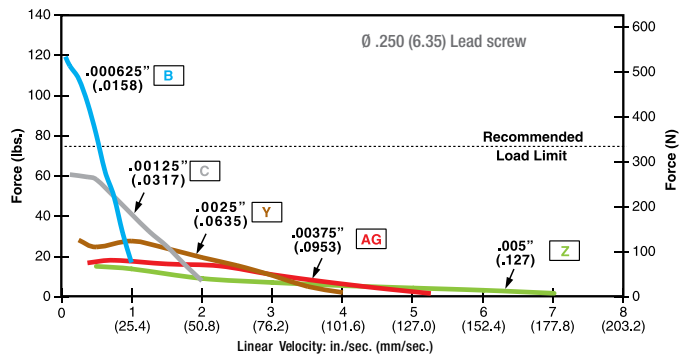
FORCE vs. PULSE RATE

– Chopper – Bipolar – 100% Duty Cycle



FORCE vs. LINEAR VELOCITY

– Chopper – Bipolar – 100% Duty Cycle



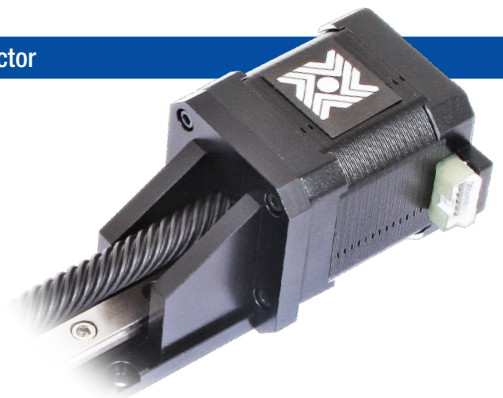
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Size 17 47000 Series • Integrated Connector

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6	Phase 1 Start	Phase 1 Start	Red

