

RGS10 and RGW10 Wide Linear Rails

with 57000 Series Size 23 Hybrid Linear Actuators

Driven by a Size 23 Hybrid motor, the 25.4 mm (1-inch) diameter splined carriage guide has been designed to carry a weight load up to 100 lbs (445 N). A high performance motion control system combines power and precision. The system combines many Haydon Kerk Motion Solutions patented motion technologies into a single integrated, linear motion control system. The Motorized RGS linear rails feature standard wear-compensating, anti-backlash driven carriages to insure repeatable and accurate positioning. All moving surfaces include Kerkite® engineered polymers running on Kerkote® TFE coating, providing a strong, stable platform for a variety of linear motion applications. RGS Series Linear Rail with Hybrid 57000 Series Size 23 Linear Actuator Stepper Motors

Technical specifications for 57000 Series Size 23 Hybrid Linear Actuator Stepper Motors are on page 3.

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



RGS08
57000 Series Size 23
Double Stack

■ Identifying the RGS10 and RGW10 Part Number Codes when Ordering

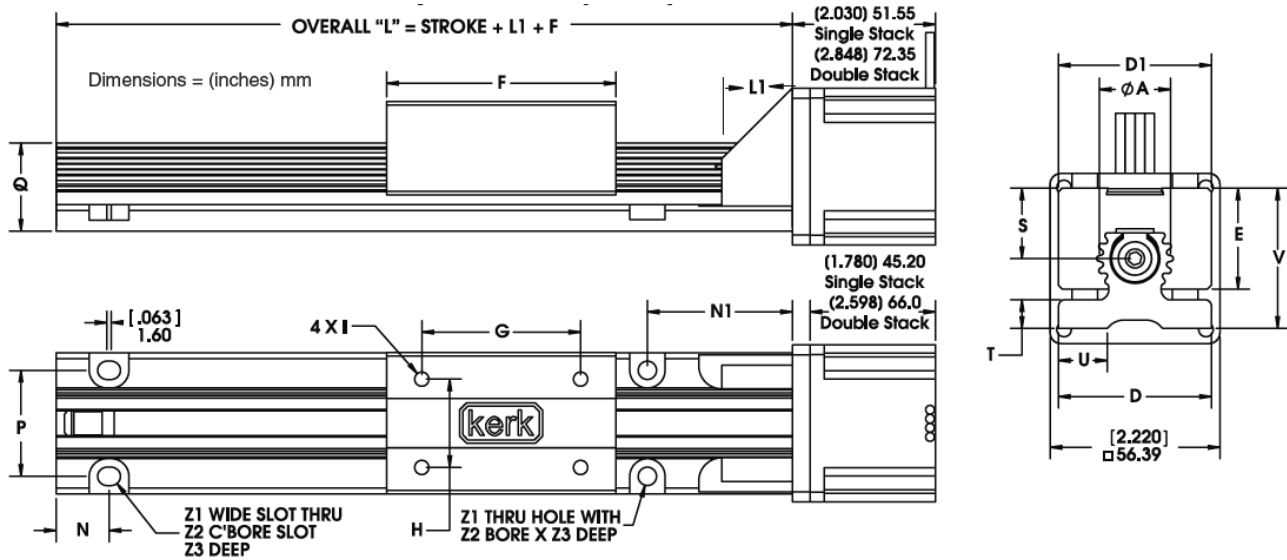
RG	S	10	K	M	0100	XXX
Prefix	Frame Style	Frame Size Load*	Lubrication	Drive / Mounting	Nominal Thread Lead Code	Unique Identifier
RG = Rapid Guide Screw	S = Standard W = Wide sensor mount capability	10 = 100 lbs (445 N) (Maximum static load)	K = TFE Kerkote®	M = Motorized	0100 = .100-in (2.54) 0125 = .125-in (3.18) 0200 = .200-in (5.08) 0250 = .250-in (6.35) 0315 = .315-in (8.00) 0500 = .500-in (12.70) 0630 = .630-in (16.00) 1000 = 1.000-in (25.4) 1500 = 1.500-in (38.10) 2000 = 2.000-in (50.80)	Suffix used to identify specific motors (43000 Single/ Double Stack – 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

■ RGS10 with 57000 Series Size 23 Single and Double Stack Linear Actuators

Recommended for horizontal loads up to 100 lbs (445 N)

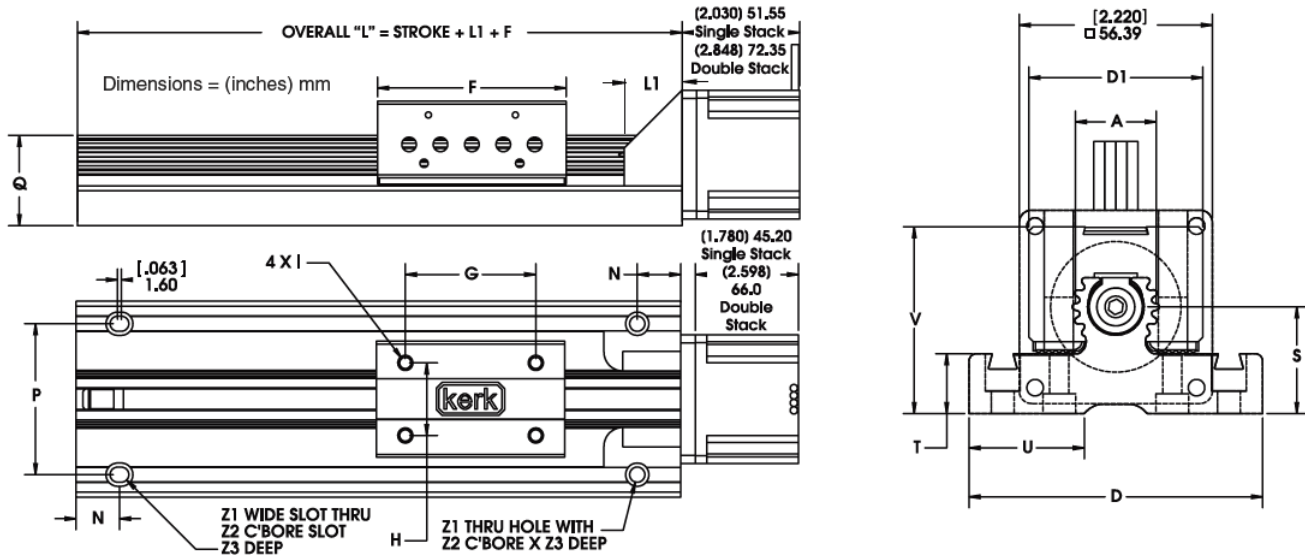


	A	D	D1	E	F	G	H	I*	L1	N	N1	P	Q	S	T	U	V	Z1	Z2	Z3
(inch)	(1.0)	(2.0)	(2.0)	(1.32)	(3.3)	(2.25)	(1.25)	1/4-20	(1.0)	(0.75)	(2.045)	(1.5)	(1.25)	(0.92)	(0.375)	(0.64)	(1.83)	(0.26)	(0.5)	(0.22)
mm	25.4	50.8	50.8	33.5	83.8	57.1	31.7	UNC	25.4	19.0	52.2	38.1	37.1	23.4	9.53	16.3	46.5	6.6	12.7	5.6

* Metric threads also available for carriage.

■ RGW10 Wide with 57000 Series Size 23 Single and Double Stack Linear Actuators

Recommended for horizontal loads up to 100 lbs (445 N)

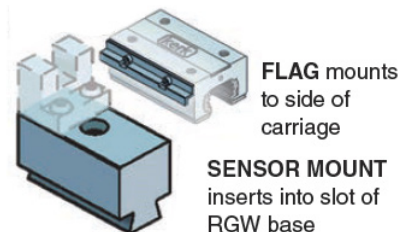


	A	D	D1	F	G	H	I*	L1	N	P	Q	S	T	U	V	Z1	Z2	Z3
(inch)	(1.0)	(3.38)	(2.0)	(3.3)	(2.25)	(1.25)	1/4-20	(1.0)	(0.75)	(2.6)	(1.56)	(1.22)	(0.69)	(1.33)	(2.15)	(0.26)	(0.4)	(0.43)
mm	25.4	85.9	50.8	83.8	57.1	31.7	UNC	25.4	19.0	66.0	39.6	31.0	17.5	33.8	54.6	6.6	10.2	10.9

* Metric threads also available for carriage.

RGW10 Sensor Mount Kit Part No. RGW10SK

Sensor mount kits, based on a U-channel optical sensor, are available for the RGW Series. Each kit includes one flag, three sensor mounts, and all mounting hardware. Sensors are not included in the kit and must be ordered separately from the sensor manufacturer.



Single Stack

57000 Series Size 23

Size 23: 57 mm (2.3-in) Hybrid Linear Actuator (1.8° Step Angle)

Wiring	Bipolar			Unipolar**	
Winding Voltage	3.25 VDC	5 VDC	12 VDC	5 VDC	12 VDC
Current (RMS)/phase	2.0 A	1.3 A	.54 A	1.3 A	.54 A
Resistance/phase	1.63 Ω	3.85 Ω	22.2 Ω	3.85 Ω	22.2 Ω
Inductance/phase	3.5 mH	10.5 mH	58 mH	5.3 mH	23.6 mH
Power Consumption	13 W				
Rotor Inertia	166 gcm ²				
Insulation Class	Class B (Class F available)				
Weight	18 oz (511 g)				
Insulation Resistance	20 M Ω				

** Unipolar drive gives approximately 30% less thrust than bipolar drive.
Standard motors are Class B rated for maximum temperature of 130°C.

Double Stack

57000 Series Size 23

Size 23 Double Stack: 57 mm (2.3-in) Hybrid Linear Actuator (1.8° Step Angle)

Wiring	Bipolar		
Winding Voltage	3.25 VDC	5 VDC	12 VDC
Current (RMS)/phase	3.85 A	2.5 A	1 A
Resistance/phase	0.98 Ω	2.0 Ω	12.0 Ω
Inductance/phase	2.3 mH	7.6 mH	35.0 mH
Power Consumption	25 W Total		
Rotor Inertia	321 gcm ²		
Insulation Class	Class B (Class F available)		
Weight	32 oz (958 g)		
Insulation Resistance	20 M Ω		

57000 Series Size 23

Single Stack
External Linear



57000 Series Size 23
Double Stack
External Linear

Size 23 57000 Series • Stepping Sequence & Wiring

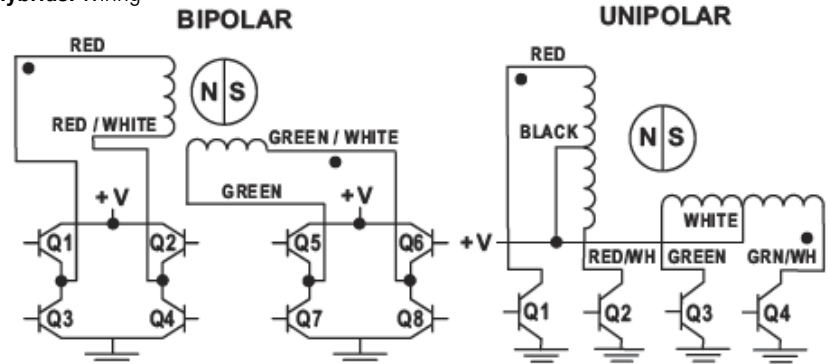
Hybrids: Stepping Sequence

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
3	OFF	ON	OFF	ON
4	ON	OFF	OFF	ON
1	ON	OFF	ON	OFF

EXTEND CW
↓

↑
RETRACT CCW

Hybrids: Wiring

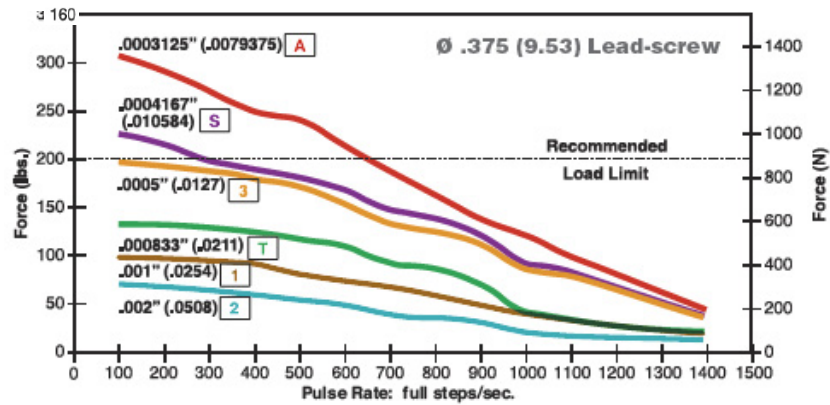


Note: Half stepping is accomplished by inserting an off state between transitioning phases.

Single Stack

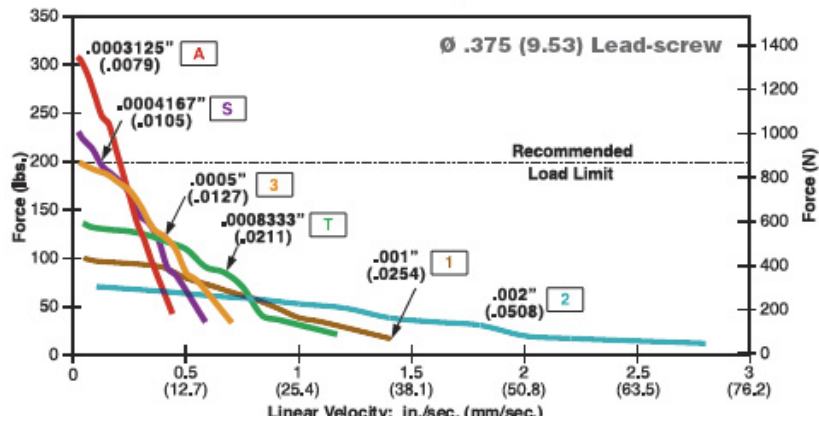
FORCE vs. PULSE RATE

- Chopper
- Bipolar
- 100% Duty Cycle



FORCE vs. LINEAR VELOCITY

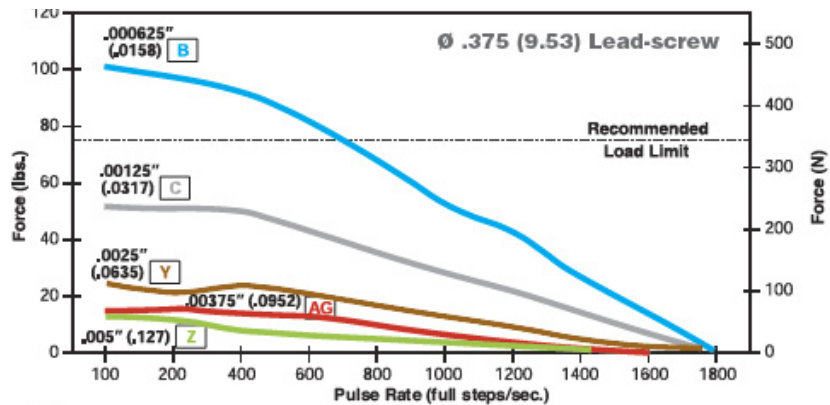
- Chopper
- Bipolar
- 100% Duty Cycle



Double Stack

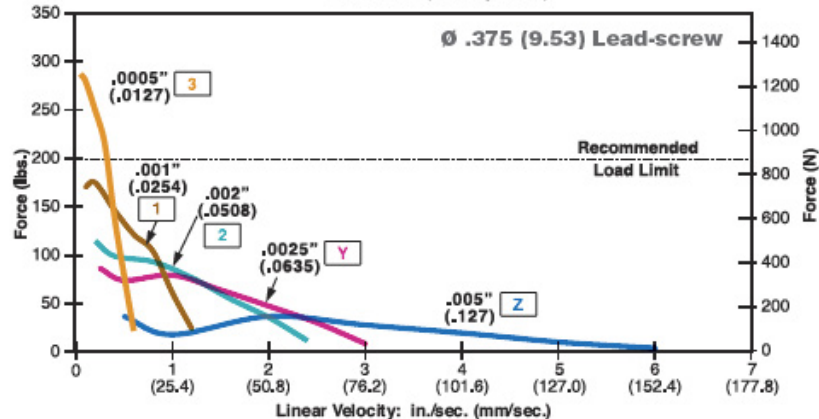
FORCE vs. PULSE RATE

- Chopper
- Bipolar
- 100% Duty Cycle



FORCE vs. LINEAR VELOCITY

- Chopper
- Bipolar
- 100% Duty Cycle



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