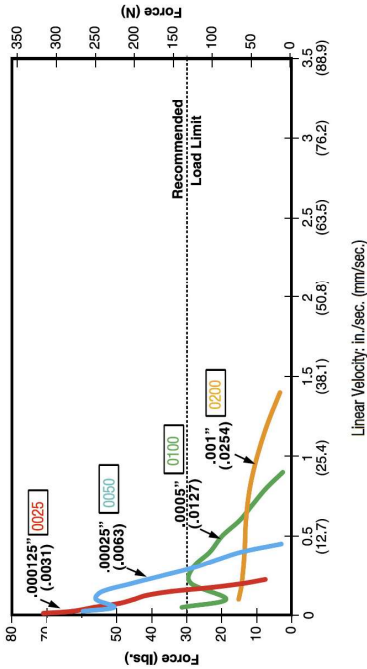




Double Stack

28000 Series Size 11 Linear Actuator

FORCE vs. PULSE RATE  
 - Cropper - Bipolar - 100% Duty Cycle



0.000125" (0.0031) = Full Step Resolution  
 #### = Lead Code

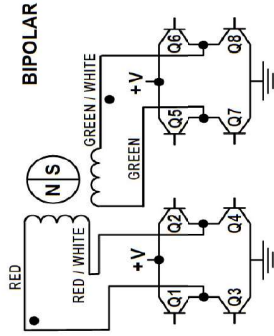
Hybrids: Stepping Sequence

Bipolar Step	Q2-Q3	Q1-Q4	Q6-Q7	Q5-Q8
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

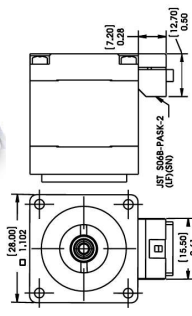
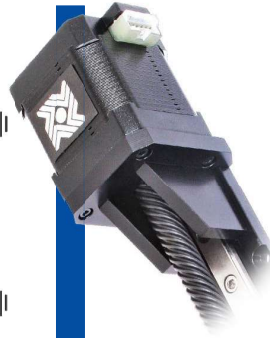
Note: Half stepping is accomplished by inserting an off state between transitioning phases.

Size 11 28000 Series • Stepping Sequence & Wiring

Hybrids: Wiring



Size 11 28000 Series • Integrated Connector



Motor Connector: JST part # S06B-PAS-K-2  
 Wiring Connector: JST part # PAP-06V-S  
 Wire to Board Connector: Haydon Kerk Part # 506B-1210-5 (12 in. Leads)  
 JST part number: SPHD-0011-POJ5

Pin #	Bipolar	Unipolar	Color
1	Phase 2 Start	Phase 2 Start	GW
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 (6.7N).

To determine what is best for your application see the Linear Rail Applications Checklist

[Linear Rail Check List](#)

Identifying the Motorized RGS04 Part Number Codes when Ordering

RG	S	04	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	04 = 15 lbs (6.7 N) (Maximum static load)	K = TFE Kerolube	M = Motorized G = IDEA Integrated programmable drive, USB communications J = IDEA integrated programmable drive, RS485 communications	0025 = .025-in (0.635) 0030 = .030-in (1.00) 0050 = .050-in (1.27) 0063 = .0625-in (1.59) 0075 = .075-in (2.00) 0100 = .100-in (2.54) 0118 = .118-in (3.00) 0200 = .200-in (5.08) 0250 = .250-in (6.35) 0304 = .304-in (7.72) 0500 = .500-in (12.70) 0750 = .750-in (19.05)	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: Dashies must be included in Part Number (I) as shown above. For assistance call our Engineering team at 603 213 6290.

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

Wiring	Single Stack			Double Stack		
	Bipolar	Unipolar**	IDEA™ Drive Available	Bipolar	Unipolar**	IDEA™ Drive Available
Programmable Drive	IDEA™ Drive Available	N/A	IDEA™ Drive Available	IDEA™ Drive Available	N/A	IDEA™ Drive Available
Winding Voltage	2.33 VDC <sup>1</sup>	5 VDC	12 VDC	5 VDC	12 VDC	12 VDC
Current (RMS)/phase	1.5 A	700 mA	290 mA	700 mA	230 mA	2.6 A
Resistance/phase	1.56 Ω	7.2 Ω	41.5 Ω	7.2 Ω	41.5 Ω	0.9 Ω
Inductance/phase	1.9 mH	8.7 mH	54.0 mH	4.4 mH	27.0 mH	1.33 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.







## RGS04 Non-Motorized Linear Rails

**Screw driven linear rail or linear rail without screw**

The non-motorized RGS Series features standard wear compensating, anti-backlash driven carriages to ensure 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.



RGS04 Non-Motorized Screw Driven Linear Rail

### Identifying the Non-Motorized RGS Part Numbers when Ordering

RG	S	04	K	A	0100	XXX
Prefix RG = Rapid Guide Screw	Frame Style S = Standard	Frame Size Lead 04 = 15 lbs (67 N) (Maximum static load)	Coating K = TFE Kerkote	Drive / Mounting A = None	Nominal Thread Lead Code 0000 = No Screw 0100 = .100-in (2.54) 0200 = .200-in (5.08) 0500 = .500-in (12.70) 1000 = 1.000-in (25.4)	Unique Identifier 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

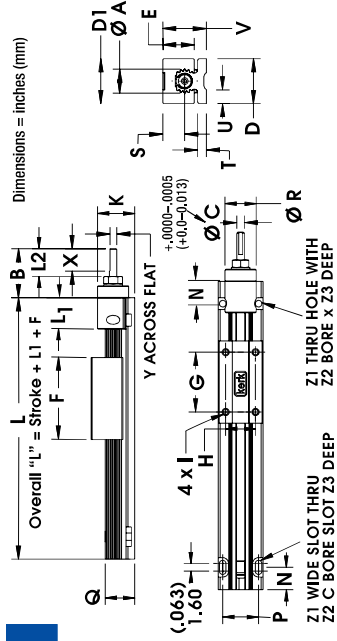
NOTE: (bases must be included in Part Number) — as shown above. For assistance call our Engineering team at 603 213 6200. Carriage index available in metric sizes M3, M4.

### Specifications

Inch Lead	Thread Lead Code	Nominal Rail Diam.	Nominal Screw Diam.	Typical Drag Torque	Life @ 1/4 Design Lead*	Torque-to-Move Load	Design Load	Screw Inertia
inch (mm)		inch (mm)	inch (mm)	oz - in (N-m)	inch (cm)	oz-in/lb (Nm/Kg)	lbs (N)	oz-in-sec <sup>2</sup> /in (kg-m-sec <sup>2</sup> /m)
.100 (2.54)	0100	0.4 (10.2)	1/4 (6.4)	3.0 (0.2)	100,000,000 (254,000,000)	1.0 (.016)	15 (67)	3 x 10 <sup>-5</sup> (6.5 x 10 <sup>-6</sup> )
.200 (5.08)	0200			4.0 (.03)		1.5 (.023)		
.500 (12.70)	0500			5.0 (.04)		2.5 (.039)		
1.000 (25.40)	1000			6.0 (.04)		4.5 (.070)		

NOTE: RGS assemblies with lengths over 36 inches (914.4 mm) and/or leads higher than .5 inch (12.7 mm) will likely have higher drag torque than listed values.  
\*Determined with lead in a horizontal position.

### Non-Motorized with Lead Screw Dimensional Drawings



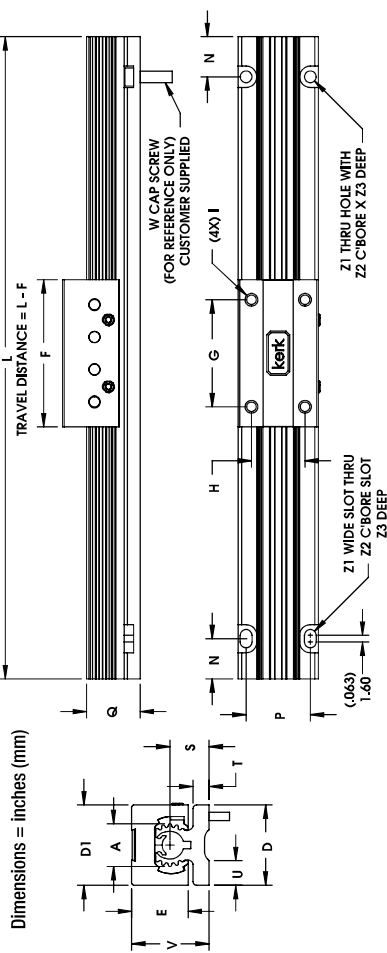
A	B	C	D	D1	E	F	G	H	I	J	K	L1	L2	N	P	Q	R	S	T	U	V	X	Z1	Z2	Z3	
inch	0.40	.83	1.250	0.75	0.75	1.38	1.00	0.50	4-40	.60	.50	.52	.37	0.15	0.23	0.7	.38	0.115	0.20	0.09						
mm	10.2	21.1	31.75	19.1	19.1	35.1	25.4	12.7	UNC	15	13.5	11.9	9.53	15.24	12.7	13.2	9.4	3.8	5.8	18.0	9.7	2.92	5.1	2.3		

\*Metric carriage hole sizes available M3, M4.



RGS04 Non-Motorized Linear Rail without Screw

### Non-Motorized without Lead Screw Dimensional Drawings



Dimensions = inches (mm)

A	D	D1	E	F	G	H	I	J	K	L	N	P	Q	S	T	U	V	Z1	Z2	Z3
inch	0.40	0.75	0.75	0.53	1.4	1.00	0.50	4-40	.375	.60	.50	0.37	0.15	0.23	0.7	0.11	0.20	0.09		
mm	10.2	19.1	19.1	13.5	36	25.4	12.7	UNC	9.53	15.24	12.7	9.4	3.8	5.8	18.0	2.8	5.1	2.3		

\*Metric carriage hole sizes available M3, M4.

Linear Rail Check List

### Material Coatings

#### Kerkite® Polymers

Compounded with lubricants, reinforcements and thermoplastic polymers, Kerkite Polymers are formulated to provide optimum performance in its target conditions and applications.

- Injection molded
- High performance
- Exceptional wear properties

#### Kerkote® TFE Coating

A dry lubricant, Kerkote will not become dry and paste-like, and does not attract dirt or debris. Kerkote differs from conventional plating and coating because it is soft, more evenly distributed than other lubricants, and decreases erratic drag torques and unpredictable wear.

- Reduces friction
- Cost effective
- Long term and maintenance free

Kerkote provides the maximum level of self-lubrication, requiring no additional external lubrication or maintenance.



## RGS06 and RGW06 Wide Linear Rails with 43000 Series

\*Also available with 57000 Series Hybrid Motor (see pages 6-10)

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 kerkerite® engineered polymers running on Kerkerite® TFE coating, providing a strong, stable platform for a variety of linear motion applications. When integrated with an IDEA Drive, the system combines Haydon™ hybrid linear actuator technology with a fully programmable, integrated stepper motor drive. RGS Series Linear Rail with Hybrid 43000 Series Size 17 Linear Actuator Stepper Motors.

Technical specifications for 43000 Series Size 17 Hybrid Linear Actuator Stepper Motors are on page 3.

To determine what is best for your application see the Linear Rail Applications Checklist

[Linear Rail Check List](#)



RGS06-43000 Series Size 17  
Double Stack with programmable  
IDEA™ Drive

### Identifying the RGS06 Part Number Codes when Ordering

RG	S	06	K	M	0100	XXX
Prefix	Frame Style	Frame Size Load*	Lubrication	Drive / Mounting	Nominal Thread Load Code	Unique Identifier
RG = Rapid Guide Screw	S = Standard W = Wide sensor mount capability	06 = 35 lbs (156 N) (Maximum static load)	K = TFE Kerkerite®	M = Motorized G = Motorized + IDEA™ integrated programmable drive – USB communications J = Motorized + IDEA™ integrated programmable drive – RS485 communications	0050 = 200-in (5.08) 0075 = 275-in (7.03) 0100 = 350-in (8.91) 0157 = 472-in (11.98) 0200 = 500-in (12.70) 0250 = 550-in (13.97) 0375 = 750-in (19.05) 0400 = 800-in (20.32) 0472 = 1200-in (30.48) 0500 = 1300-in (33.02) 0750 = 1750-in (44.27) 0884 = 2500-in (63.50) 1000 = 3000-in (76.20) 1200 = 3600-in (91.44)	XXX 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.

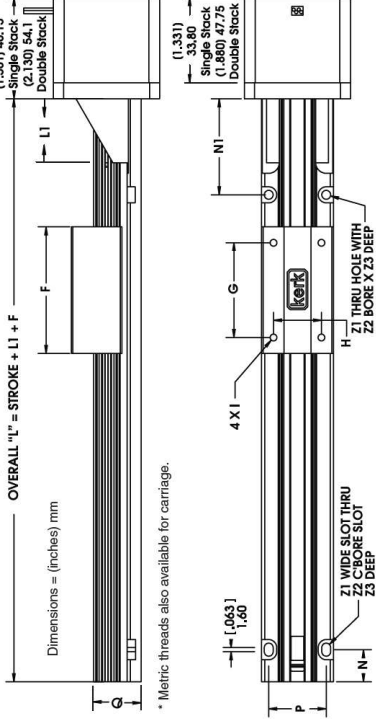
NOTE: Details must be included in Part Number H as shown above. For assistance call our Engineering Team at 603 213 6290.

### RGS06 Linear Rail with 43000 Series Size 17 Single and Double Stack Linear Actuators

Recommended for horizontal loads up to 35 lbs (156 N)

Carriage holes available in Metric sizes M2, M4, M5, M6																			
A	D	D1	E	F	G	H	I*	L1	N	N1	P	Q	S	T	U	V	Z1	Z2	Z3
(inch)	(0.6)	(1.13)	(1.13)	(0.79)	(2.0)	(1.5)	(0.75)	6-32	(1.0)	(0.5)	(0.9)	(0.74)	(0.59)	(0.22)	(0.55)	(1.1)	(0.4)	(0.25)	(0.13)
mm	15.2	28.7	28.7	20.1	50.8	38.1	19.0	UNC	25.4	12.7	22.9	18.8	13.9	5.6	8.9	27.8	3.6	6.3	3.3

\* Metric threads also available for carriage.

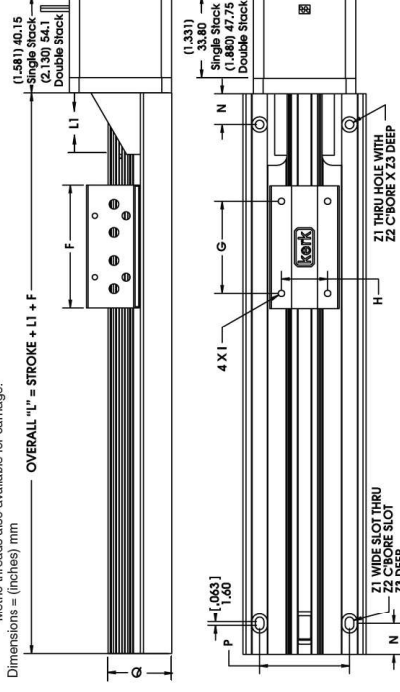


### RGW06 Wide Linear Rail with 43000 Series Size 17 Single and Double Stack Linear Actuators

Recommended for horizontal loads up to 22 lbs (100 N)

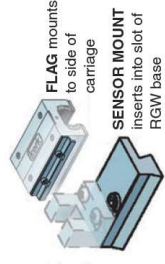
Carriage holes available in Metric sizes M2, M4, M5, M6																		
A	D	D1	F	G	H	I*	L1	N	P	Q	S	T	U	V	Z1	Z2	Z3	
(inch)	(0.6)	(2.0)	(1.13)	(2.0)	(1.5)	(0.75)	6-32	(1.0)	(0.5)	(1.46)	(1.04)	(0.83)	(0.51)	(0.65)	(1.39)	(0.44)	(0.25)	(0.14)
mm	15.2	50.8	28.7	50.8	38.1	19.0	UNC	25.4	12.7	37.1	26.4	21.1	13.0	16.0	35.3	3.6	6.3	3.6

\* Metric threads also available for carriage.



### RGW06 Sensor Mount Kit Part No. RGW06SK

Sensor mounting 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

43000 Series Size 17

Size 17: 43 mm (1.7-in) Hybrid External Linear Actuator (1.8° Step Angle)	
Wiring	Bipolar Unipolar**
Programmable Drive	IDEA™ Drive Option Available Not Applicable
Winding Voltage	2.33 VDC* 5 VDC
Current (RMS)/phase	1.5 A 700 mA 290 mA 700 mA 12 VDC
Resistance/phase	156 Ω 72 Ω 41.5 Ω 72 Ω 290 mA
Inductance/phase	1.9 mH 8.7 mH 54.0 mH 4.4 mH 41.5 Ω
Power Consumption	7 W 37 gm²
Rotor Inertia	Class B (Class F available)
Insulation Class	8.5 oz (241 g)
Weight	20 MΩ
Insulation Resistance	

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

Double Stack

43000 Series Size 17

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

- Fully Programmable
- Real-time Communication
- USB or RS-485 Communication
- Microstepping Capability – Full, 1/2, 1/4, 1/8, 1/16, 1/32, 1/64
- Graphic User Interface
- Auto-population of Drive Parameters
- Programmable Acceleration/Deceleration and Current Control

For more information see the IDEA™ Drive Data Sheet.

Size 17: 43 mm (1.7-in) Double Stack Hybrid External Linear Actuator (1.8° Step Angle)	
Wiring	Bipolar
Programmable Drive	IDEA™ Drive Option Available
Winding Voltage	2.33 VDC* 5 VDC 12 VDC
Current (RMS)/phase	2.6 A 1.3 A 550 mA
Resistance/phase	0.9 Ω 3.8 Ω 21.9 Ω
Inductance/phase	1.33 mH 8.21 mH 45.1 mH
Power Consumption	10.4 W Total
Rotor Inertia	78 gm²
Insulation Class	Class B (Class F available)
Weight	12.5 oz (352 g)
Insulation Resistance	20 MΩ

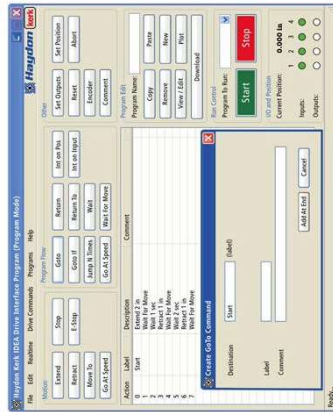
\* 43000 Series Single Stack with IDEA programmable drive. Contact Hayden Kerk if higher voltage motor is desired.  
Standard motors are Class B rated for maximum temperature of 130°C.



43000 Series Size 17 Double Stack External Linear

43000 Series Size 17 Single Stack External Linear

Size 17 External Linear with programmable IDEA Drive



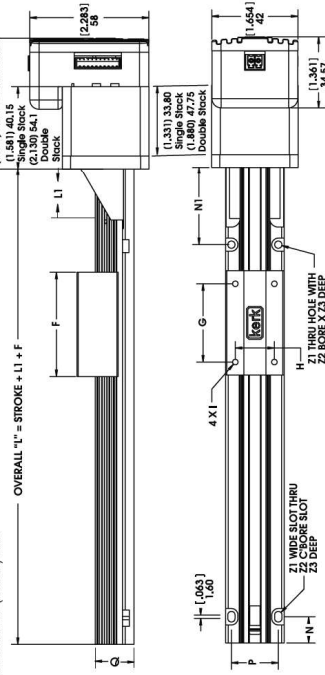
Motorized Size 17

43000 Series Size 17 Single and Double Stack linear motors with IDEA Drive Recommended for horizontal loads up to 35 lbs (156 N)

A	D	D1	E	F	G	H	I*	L1	N	N1	P	Q	S	T	U	V	Z1	Z2	Z3	
(inch)	(0.6)	(1.13)	(1.13)	(0.79)	(2.0)	(1.5)	(0.75)	6-32	(1.0)	(0.5)	(1.5)	(0.9)	(0.74)	(0.55)	(0.22)	(0.35)	(1.1)	(0.14)	(0.25)	(0.13)
mm	15.2	28.7	28.7	20.1	50.8	38.1	19.0	UNC	25.4	12.7	38.1	22.9	18.8	13.9	5.6	8.9	27.9	3.6	6.3	3.3

\* Metric threads also available for carriage.

Dimensions = (inches) mm



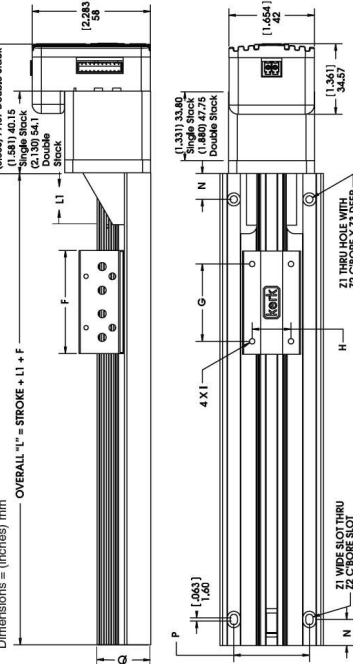
Dimensions = (inches) mm

RGW06 Wide Rail with 43000 Series Size 17 Single Stack and Double Stack linear motors with IDEA Drive Recommended for horizontal loads up to 35 lbs (156 N)

A	D	D1	F	G	H	I*	L1	N	P	Q	S	T	U	V	Z1	Z2	Z3	
(inch)	(0.6)	(2.0)	(1.13)	(2.0)	(1.5)	(0.75)	6-32	(1.0)	(0.5)	(1.46)	(1.04)	(0.83)	(0.51)	(0.63)	(1.39)	(0.14)	(0.25)	(0.14)
mm	15.2	50.8	28.7	50.8	38.1	19.0	UNC	25.4	12.7	37.1	26.4	21.1	13.0	16.0	35.3	3.6	6.3	3.6

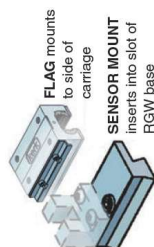
\* Metric threads also available for carriage.

Dimensions = (inches) mm



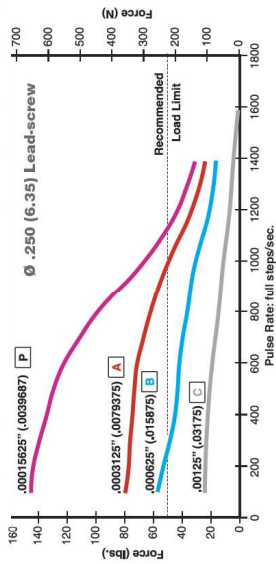
Dimensions = (inches) mm

**RGW06 Sensor Mount Kit Part No. RGW06SK**  
Sensor mounting 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.

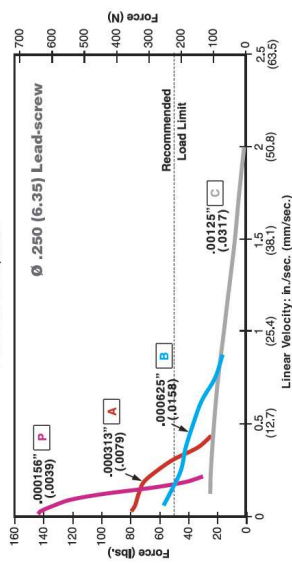


Single Stack

FORCE vs. PULSE RATE  
 - Chopper - Bipolar - 100% Duty Cycle

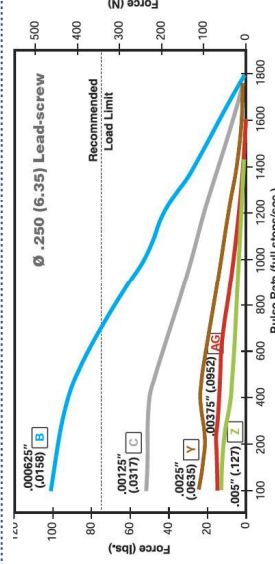


FORCE vs. LINEAR VELOCITY  
 - Chopper - Bipolar - 100% Duty Cycle

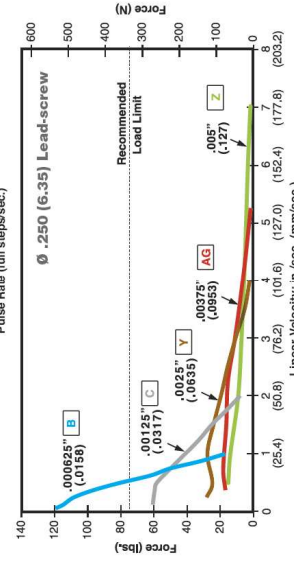


Double Stack

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

RGS06 and RGW06 Wide Linear Rails with 57000 Series Hybrid Motor

A combination of Haydon Kerk Motion Solutions patented motion technologies into a single integrated, linear motion control system, 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 8.

To determine what is best for your application see the Linear Rail Applications Checklist

Linear Rail Check List



RGW06  
 57000 Series Size 23  
 Double Stack

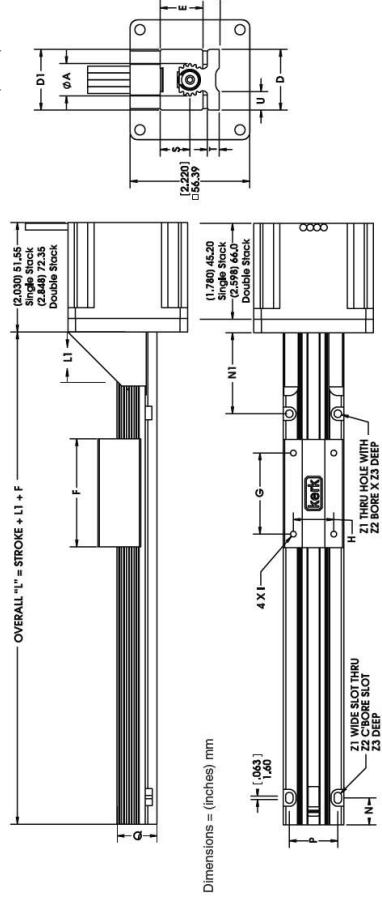
Identifying the BGS Part Number Codes when Ordering

RG	S	06	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	06 = 35 lbs (156 N) (Maximum static load)	K = TFE Kerkote®	M = Motorized	0050 = .050-in (1.27) 0075 = .075-in (2.00) 0100 = .100-in (2.54) 0157 = .157-in (4.00) 0197 = .197-in (5.00) 0200 = .200-in (5.08) 0250 = .250-in (6.35) 0375 = .375-in (9.53) 0400 = .400-in (10.16) 0472 = .472-in (12.00) 0500 = .500-in (12.70) 0750 = .750-in (19.05) 0984 = .984-in (25.00) 1000 = 1.000-in (25.4) 1200 = 1.200-in (30.48)	Suffix used to identify specific motors (63000 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: Options must be included in Part Number (H) as shown above. For assistance call our Engineering team at 603 213 6290.



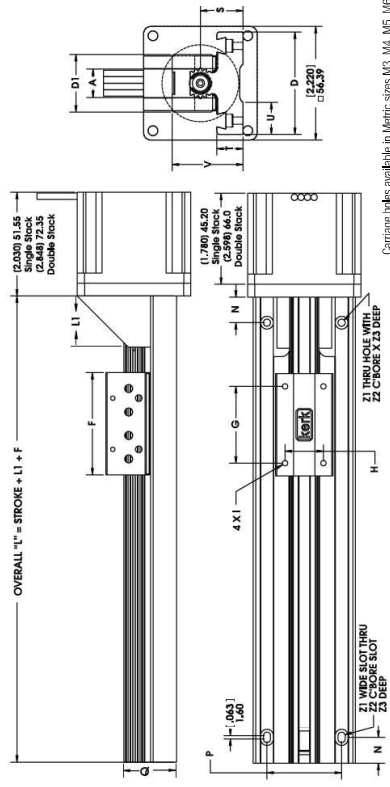
- RGS06 with 57000 Series Size 23 Single and Double Stack linear motors  
Recommended for horizontal loads up to 35 lbs (156 N)



	A	D	D1	F	G	H	I*	L1	N	N1	P	Q	S	T	U	V	Z1	Z2	Z3
(inch)	0.6	1.13	1.13	2.0	1.5	0.75	6-32	1.0	0.5	1.5	0.9	0.74	0.55	0.22	0.35	1.1	0.14	0.25	0.13
mm	15.2	28.7	28.7	50.8	38.1	19.0	UNC	25.4	12.7	38.1	22.9	18.8	13.9	5.6	8.9	27.9	3.6	6.3	3.3

\* Metric threads also available for carriage.  
Carriage holes available in Metric sizes M3, M4, M5, M6

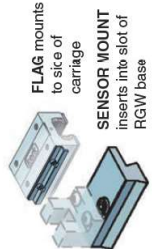
- RGW06 Wide 57000 Series Size 23 Single Stack and Double Stack linear motors  
Recommended for horizontal loads up to 35 lbs (156 N)



	A	D	D1	F	G	H	I*	L1	N	N1	P	Q	S	T	U	V	Z1	Z2	Z3
(inch)	0.6	2.0	1.13	2.0	1.5	0.75	6-32	1.0	0.5	1.5	1.46	1.04	0.83	0.51	0.63	1.39	0.14	0.25	0.14
mm	15.2	50.8	28.7	50.8	38.1	19.0	UNC	25.4	12.7	37.1	26.4	21.1	13.0	16.0	35.3	3.6	6.3	3.6	

\* Metric threads also available for carriage.

**RGW06 Sensor Mount Kit Part No. RGW06SK**  
Sensor mounting 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.



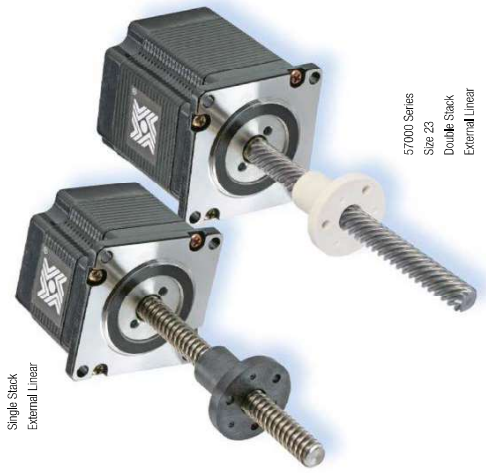
- Single Stack
- 57000 Series Size 23

Size 23: 57 mm (2.3-in) Hybrid External Linear Actuator (1.8° Step Angle)			
Wiring	Bipolar		Unipolar**
	Winding Voltage	3.25 VDC	5 VDC
Current (RMS)/phase	2.0 A	1.3 A	.54 A
Resistance/phase	1.63 Ω	3.85 Ω	22.2 Ω
Inductance/phase	3.5 mH	10.5 mH	58 mH
Power Consumption	13 W		
Rotor Inertia	166 gcm <sup>2</sup>		
Insulation Class	Class B (Class F available)		
Weight	18 oz (511 g)		
Insulation Resistance	20 MΩ		

\*\* 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

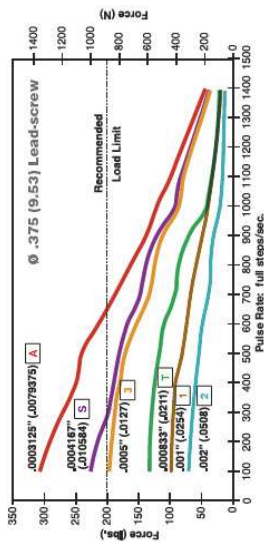
Size 23: 57 mm (2.3-in) Double Stack Hybrid External Linear Actuator (1.8° Step Angle)			
Wiring	Bipolar		Unipolar**
	Winding Voltage	3.25 VDC	
Current (RMS)/phase	3.85 A	2.5 A	1 A
Resistance/phase	0.98 Ω	2.0 Ω	12.0 Ω
Inductance/phase	2.3 mH	7.6 mH	35.0 mH
Power Consumption	25 W Total		
Rotor Inertia	332 gcm <sup>2</sup>		
Insulation Class	Class B (Class F available)		
Weight	32 oz (958 g)		
Insulation Resistance	20 MΩ		



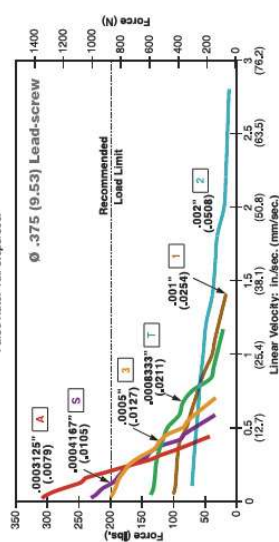
57000 Series  
Size 23  
Single Stack  
External Linear

Single Stack

FORCE vs. PULSE RATE  
- Chopper - Bipolar - 100% Duty Cycle

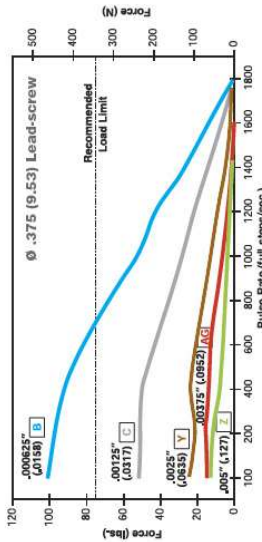


FORCE vs. LINEAR VELOCITY  
- Chopper - Bipolar - 100% Duty Cycle

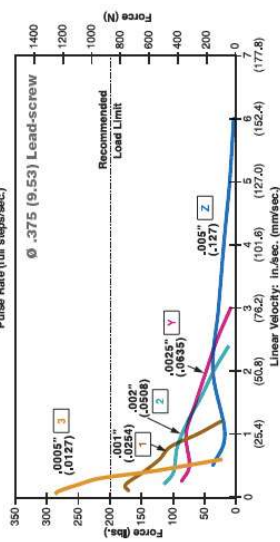


Double Stack

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 5.5 volt motor and a 4.0 volt driver 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 LVR drives peak force and speeds are reduced, using a unipolar drive will yield a further 30% force reduction.

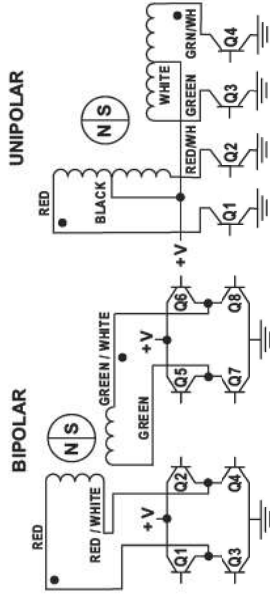
43000 Series Size 17 and 57000 Series Size 23

Hybrids: Stepping Sequence

Hybrids: Wiring

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

RETRACT CW →



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

Size 17 43000 Series • Integrated Connectors

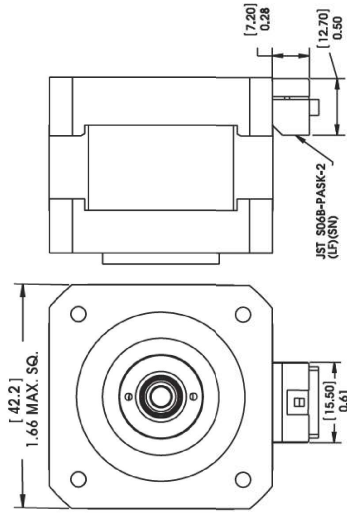
Haydon Kerk Hybrid Size 17 Single and Double Stack linear actuators are available with an integrated connector. Offered alone or with a harness assembly, this connector is RoHS compliant and features a positive latch in order for high connection integrity. The connector is rated up to 3 amps and the mating connector will handle a range of wire gauges from 22 to 28. This motor is ideal for those that want to plug in directly to pre-existing harnesses. In addition to standard configurations, Haydon Kerk Motion Solutions can custom design this motor to meet your specific application requirements.



Dimensional Drawings

Integrated Connector with 43000 Series Size 17

Dimensions = (mm) inches



Motor Connector: JST part # S06B-PASK-2

Mating Connector: JST part # PAP-06/V-S

Haydon Kerk Part #56-1210-5 (12 in. Leads)

Wire to Board Connector: JST part number SPHD-001T-P0.5

Pin #	Bipolar	Unipolar	Color
1	Phase 2 Start	Phase 2 Start	GW
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

## RGS06 Non-Motorized Linear Rails

- **Screw driven linear rails in standard or wide format**
- **Linear rails without screw in standard or wide format**

The non-motorized RGS Series features standard wear compensating, anti-backlash driven carriages to ensure repeatable and accurate positioning. All moving surfaces include KerKote® engineered polymers running on KerKote® TFE coating, providing a strong, stable platform for a variety of linear motion applications. Recommended for horizontal loads up to 35 lbs (156 N).



RGS06 Wide Series, Non-Motorized Screw Driven Linear Rail

### Identifying the Non-Motorized RGS Part Numbers when Ordering

RG	Prefix	RG	S	06	K	A	0100	XXX
	RG = Rapid Guide Screw		Frame Style S = Standard W = Wide Sensor Mount Capability	Frame Size Load 06 = 35 lbs (156 N) (Maximum static load)	Coating K = TFE KerKote	Drive / Mounting A = None B = Inline Screw Motor Mount	Nominal Thread Lead Code 0000 = No Screw 0100 = 100-in (2.54) 0200 = 200-in (5.08) 0500 = 500-in (12.70) 1000 = 1,000-in (25.4)	Unique Identifier 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: chassis must be included in Part Number (as shown above. For assistance call our Engineering Team at 603 213 6294).

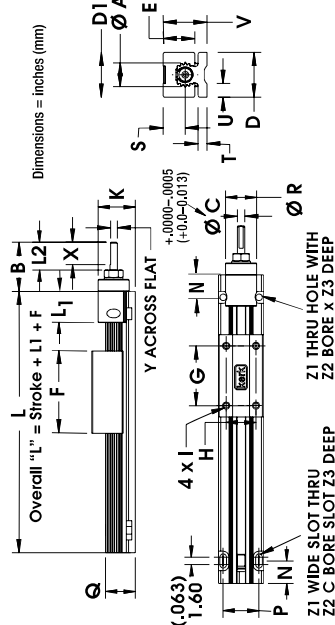
### Specifications

RGS06 Non-Motorized with Guide Screw	Inch Lead	Thread Lead Code	Nominal Rail Diam.	Nominal Screw Diam.	Typical Drag Torque	Life @ 1/4 Design Load*	Torque-to-Move Load	Design Load*	Screw Inertia
	inch (mm)		inch (mm)	inch (mm)	oz - in (N-m)	inch (cm)	oz-in/lb (Nm/Kg)	lbs (N)	oz-in-sec <sup>2</sup> /in (kg-m-sec <sup>2</sup> /m)
	.100 (2.54)	0100	0.6 (15.2)	3/8 (9.5)	4.0 (0.3)	100,000,000 (254,000,000)	1.0 (.016) 1.5 (.023) 2.5 (.039) 4.5 (.070)	35 (156)	1.5 x 10 <sup>-5</sup> (4.2 x 10 <sup>-6</sup> )

NOTE: RGS assemblies with lengths over 36 inches (914.4 mm) and/or leads higher than .5 inch (12.7 mm) will likely have higher drag torque than listed values.  
\*Determined with load in a horizontal position.

### Non-Motorized with Lead Screw Dimensional Drawings

- Screw Driven
- Standard Frame



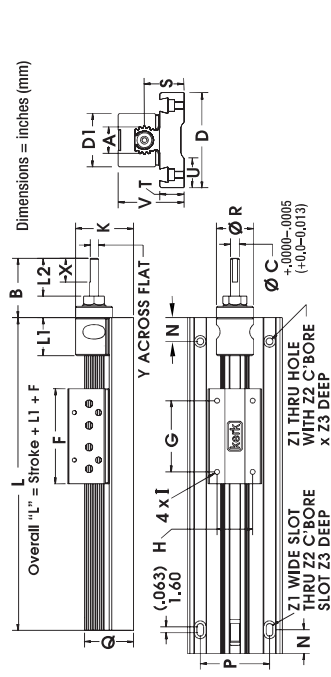
RGS06 Non-Motorized, Screw Driven

A	B	C	D	E	F	G	H	I	J	K	L1	L2	N	P	Q	R	S	T	U	V	X	Z1	Z2	Z3
inch	0.60	1.25	1.875	1.13	1.13	2.0	1.50	0.750	6-32	0.9	.80	.80	.50	.90	.74	.80	.55	.22	.35	1.1	.50	.14	.25	.13
mm	15.2	31.8	47.62	28.6	28.6	20.1	51	38.1	19.1	23	20.3	20.3	12.7	22.8	18.8	20.3	14.0	5.6	8.9	28	12.7	3.6	6.4	3.3

\*Metric carriage hole sizes available M3, M4, M5, M6.

### Non-Motorized with Guide Screw Dimensional Drawings

- Screw Driven
- Wide Frame



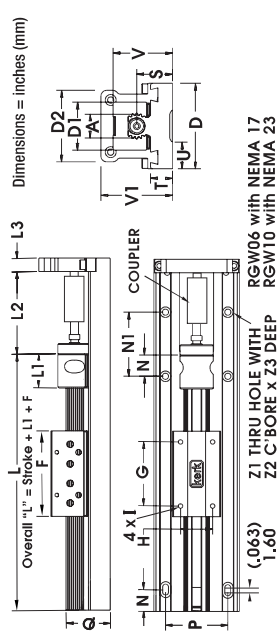
RGS06 Wide Series, Non-Motorized, Screw Driven

A	B	C	D	DI	F	G	H	I	J	K	L1	L2	N	P	Q	R	S	T	U	V	X	Z1	Z2	Z3	
inch	0.60	1.25	1.875	2.0	1.13	2.0	1.50	0.750	6-32	1.2	.80	.80	.50	1.46	1.04	.80	.53	.51	.63	1.4	.50	.170	.14	.25	.14
mm	15.2	31.8	47.62	50.8	28.6	50.8	38.1	19.1	UNC	30	20.3	20.3	12.7	37.0	26.4	20.3	21.2	13.0	16.0	36	12.7	4.32	3.6	6.4	3.6

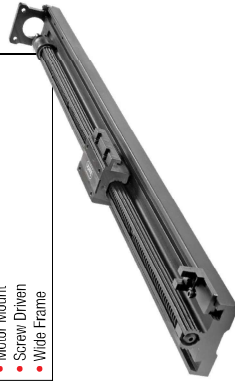
\*Metric carriage hole sizes available M3, M4, M5, M6.

### Motor Mount for Non-Motorized with Lead Screw Dimensional Drawings

- Motor Mount
- Screw Driven
- Wide Frame



Dimensions = inches (mm)



NOTE: The coupling shown in the dimensional drawing is not included.

RGS06 Motor Mount, Wide Series, Non-Motorized, Screw Driven

A	B	C	D	DI	F	G	H	I	J	K	L1	L2	N	P	Q	R	S	T	U	V	X	Z1	Z2	Z3	
inch	0.60	1.25	1.875	2.0	1.13	2.0	1.50	0.750	6-32	1.2	.80	.80	.50	1.46	1.04	.80	.53	.51	.63	1.4	.50	.170	.14	.25	.14
mm	15.2	31.8	47.62	50.8	28.6	50.8	38.1	19.1	UNC	30	20.3	20.3	12.7	37.0	26.4	20.3	21.2	13.0	16.0	36	12.7	4.32	3.6	6.4	3.6

\*Metric carriage hole sizes available M3, M4, M5, M6.

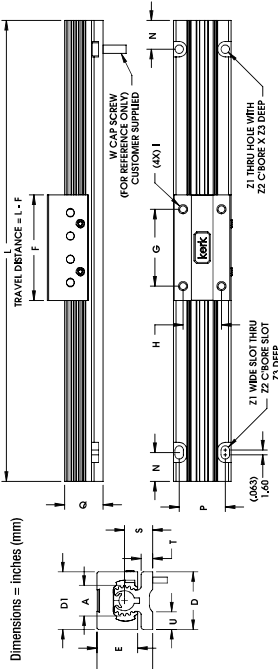
### RGS06 Sensor Mount Kits

Sensor mounting kits based on U-channel optical sensor. 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 sensor manufacturer. Part # RGW06SK



**Non-Motorized without Lead Screw Dimensional Drawings**

- Without Guide Screw
- Standard Frame



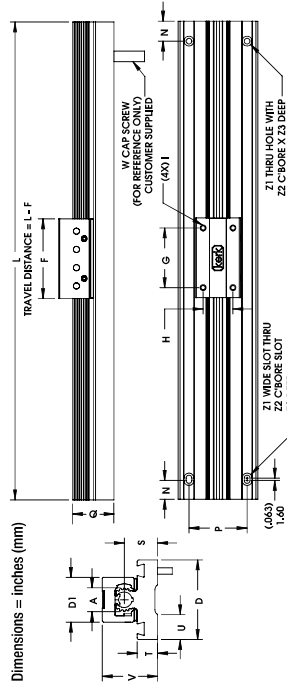
RGS06 Non-Motorized, Without Screw Driven

	A	D	D1	E	F	G	H	I	N	P	Q	S	T	U	V	Z1	Z2	Z3
inch	0.60	1.13	1.13	.79	2.0	1.50	.75	6-32	.50	.90	.74	.55	.22	.35	1.1	1.4	.25	.13
mm	15.2	28.6	28.6	20.1	51	38.1	19	UNC	12.7	22.8	18.8	14	5.6	8.9	28	3.6	6.4	3.3

\*Metric carriage hole sizes available M3, M4, M5, M6.

**Non-Motorized without Guide Screw Dimensional Drawings**

- Without Guide Screw
- Wide Frame



RGS06 Wide Series, Non-Motorized, Without Screw Driven

	A	D	D1	F	G	H	I	N	P	Q	S	T	U	V	Z1	Z2	Z3
inch	0.60	1.13	1.13	2.0	1.50	.75	6-32	.50	1.46	1.04	.83	.51	.63	1.4	1.4	.25	.14
mm	15.2	28.6	28.6	51	38.1	19	UNC	12.7	37	26.4	21.2	13	16	36	3.6	6.4	3.6

\*Metric carriage hole sizes available M3, M4, M5, M6.

**Kerkite® Polymers**

Compounded with lubricants, reinforcements and thermoplastic polymers, Kerkite Polymers are formulated to provide optimum performance in its target conditions and applications.

- Injection molded
- High performance
- Exceptional wear properties

**Kerkote® TFE Coating**

A dry lubricant, Kerkote will not become dry and paste-like, and does not attract dirt or debris. Kerkote differs from conventional plating and coating because it is soft, more evenly distributed than other lubricants, and decreases erratic drag torques and unpredictable wear.

- Reduces friction
- Cost effective
- Long term and maintenance free

Kerkote provides the maximum level of self-lubrication, requiring no additional external lubrication or maintenance.

**Material Coatings**

**Linear Rail Check List**

**RGW06 Non-Motorized Linear Rails**

- Screw driven linear rails in wide format
- Linear rails without screw in wide format

The non-motorized RGW Series features standard wear compensating, anti-backlash driven carriages to ensure 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. Recommended for horizontal loads up to 35 lbs (156 N).



RGW06 Wide Series, Non-Motorized Screw Driven Linear Rail

**Identifying the Non-Motorized RGW Part Numbers when Ordering**

RG	W	06	K	A	0100	XXX
<b>Prefix</b> RG = Rapid Guide Screw	<b>Frame Style</b> W = Wide Sensor Mount Capability	<b>Frame Size Lead</b> 06 = 35 lbs (156 N) (Maximum static load)	<b>Coating</b> K = TFE Kerkote	<b>Drive / Mounting</b> A = None B = Inline Screw Motor Mount	<b>Nominal Thread Lead Code</b> 0000 = No Screw 0100 = 100-in (2.54) 0200 = 200-in (5.08) 0500 = 500-in (12.70) 1000 = 1,000-in (2.54)	<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 603.213.0290.

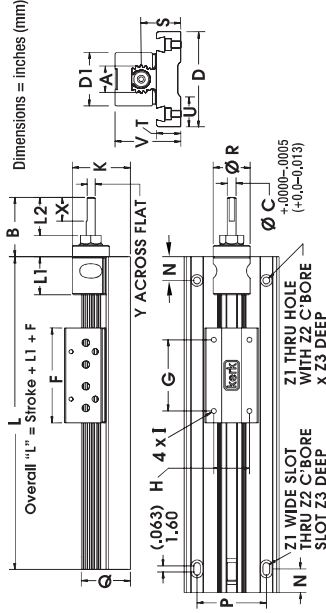
**Specifications**

RGW06 Non-Motorized with Guide Screw	Inch Lead	Thread Lead Code	Nominal Rail Diam.	Nominal Screw Diam.	Typical Drag Torque	Life @ 1/4 Design Load*	Torque-to-Move Load	Design Load*	Screw Inertia
inch (mm)	.100 (2.54)	0100	inch (mm)	inch (mm)	oz-in (N-m)	inch (cm)	oz-in/lb (Ntr/Kg)	lbs (N)	oz-in-sec <sup>2</sup> /in (Kg-m-sec <sup>2</sup> /m)
.200 (5.08)	0200	0.6 (15.2)	3/8 (9.5)	4.0 (0.3)	100,000,000 (254,000,000)	1.0 (.016)	1.5 (.023)	35 (156)	1.5 x 10 <sup>-5</sup> (4.2 x 10 <sup>-6</sup> )
.500 (12.70)	0500	6.0 (0.4)	1.000 (25.40)	7.0 (.05)	4.5 (.070)				

NOTE: RGW assemblies with lengths over .36 inches (91.44 mm) and/or leads higher than .5 inch (12.7 mm) will likely have higher drag torque than listed values. \*Determined with load in a horizontal position.

**Non-Motorized with Lead Screw Dimensional Drawings**

- Screw Driven
- Wide Frame



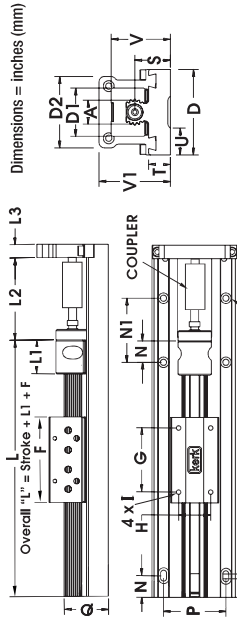
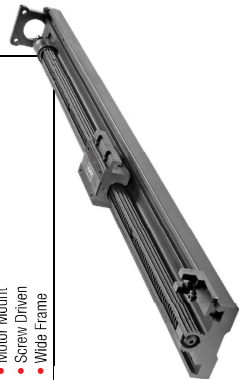
RGW06 Wide Series, Non-Motorized, Screw Driven

	A	B	C	D	DT	F	G	H	I	K	L1	L2	N	P	Q	R	ST	T	U	V	X	Y	Z1	Z2	Z3	
inch	0.60	1.25	.4875	2.0	1.13	2.0	1.50	0.750	6-32	1.2	.80	.80	.50	1.46	1.04	.83	.51	.63	1.4	.50	.470	.14	.25	.14		
mm	15.2	31.8	12.4	50.8	28.6	50.8	38.1	19.1	UNC	30	20.3	20.3	12.7	37.0	26.4	20.3	21.2	13.0	16.0	36	12.7	4.32	3.6	6.4	3.6	

\*Metric carriage hole sizes available M3, M4, M5, M6.

Motor Mount for Non-Motorized with Lead Screw Dimensional Drawings

- Motor Mount
- Screw Driven
- Wide Frame



RGW06 with NEMA 17  
RGW10 with NEMA 23

NOTE: The coupling shown in the dimensional drawing is not included.

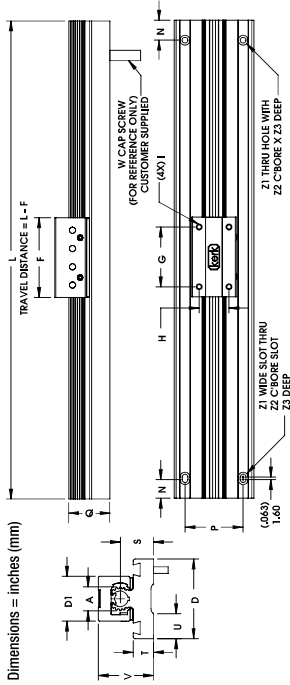
RGW06 Motor Mount, Wide Series, Non-Motorized, Screw Driven

	A	B	C	D	DI	F	G	H	I	K	L1	L2	N	P	Q	R	S	T	U	V	X	Y	Z1	Z2	Z3
inch	0.60	1.25	.1875	2.0	1.13	2.0	1.50	0.750	6-32	1.2	.80	.80	.50	1.46	1.04	.80	.83	.51	.63	1.4	.50	.170	.14	.25	.14
mm	15.2	31.8	4.762	50.8	28.6	50.8	38.1	19.1	UNC	30	20.3	20.3	12.7	37.0	26.4	20.3	21.2	13.0	36	12.7	4.32	3.6	6.4	3.6	

\*Metric carriage hole sizes available M3, M4, M5, M6.

Non-Motorized without Guide Lead Dimensional Drawings

- Without Guide Screw
- Wide Frame



RGW06 Wide Series, Non-Motorized, Without Screw Driven

	A	D	DI	F	G	H	I	N	P	Q	S	T	U	V	X	Y	Z1	Z2	Z3
inch	0.60	1.13	1.13	2.0	1.50	.75	6-32	.50	1.46	1.04	.83	.51	.63	1.4	.14	.25	.14		
mm	15.2	28.6	28.6	51	38.1	19	UNC	12.7	37	26.4	21.2	13	16	36	3.6	6.4	3.6		

\*Metric carriage hole sizes available M3, M4, M5, M6.

Material Coatings

Kerkite® Polymers

- Compounded with lubricants, reinforcements and thermoplastic polymers.
- Injection molded
- High performance
- Exceptional wear properties

Kerkote® TFE Coating

- A dry lubricant, Kerkote will not become dry and paste-like, and does not attract dirt or debris.
- Reduces friction
- Cost effective
- Requires no additional external lubrication or maintenance

Accessory

RGW06 Sensor Mount Kits

Sensor mounting kits based on U-channel optical sensor. 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 sensor manufacturer. Part # RGW06SK

RGS08 Linear Rail for Higher Load Carrying Applications

with 57000 Series Size 23 Single and Double Stack Hybrid Linear Actuators

A combination of Haydon Kerk Motion Solutions patented motion technologies into a single integrated, linear motion control system, 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.

Technical specifications for 57000 Series Size 23 Hybrid Linear Actuator Stepper Motors are on page 235.

To determine what is best for your application see the Linear Rail Applications Checklist

Linear Rail Check List



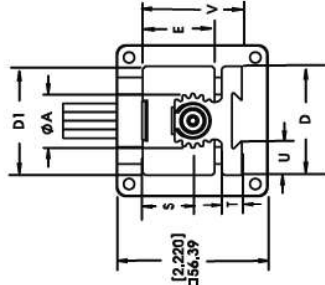
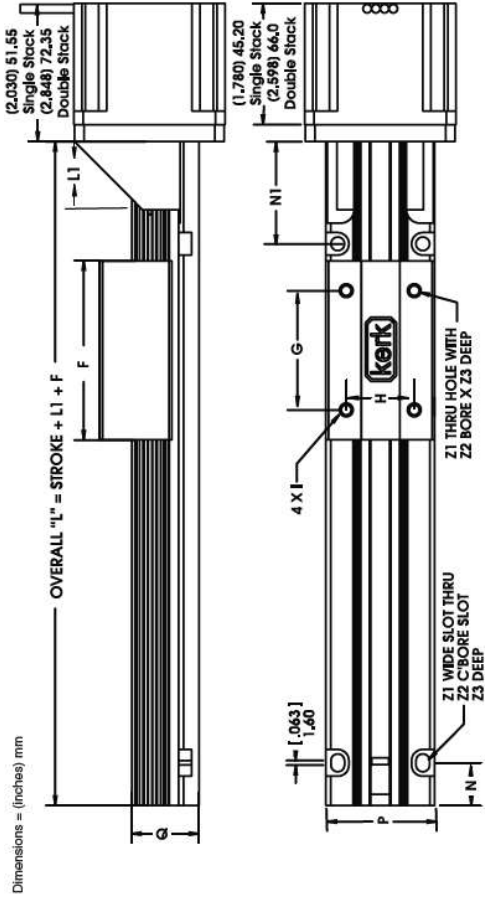
Identifying the RGS08 Part Number Codes when Ordering

RG	S	08	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	08 = 50 lbs (222 N) (Maximum static load)	K = TFE Kerkote® Y = Special (example: Kerkote with grease)	M = Motorized	0098 = .0098-in (2.50) 0100 = .100-in (2.54) 0197 = .197-in (5.00) 0200 = .200-in (5.08) 0500 = .500-in (12.70) 0630 = .630-in (16.00) 1000 = 1.000-in (25.4)	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: Details must be included in Part Number (P) as shown above. For assistance call our Engineering Team at 603 213 6290.

■ RGS08 with 57000 Series Size 23 Single and Double Stack Linear Actuators

Recommended for horizontal loads up to 50 lbs (222 N)



Carriage holes available in Metric sizes: M3, M4, M5, M6

	A	D	D1	E	F	G	H	I*	L1	N	N1	P	Q	S	T	U	V	Z1	Z2	Z3
(inch)	(0.8)	(1.6)	(1.6)	(1.06)	(2.7)	(1.75)	(1.0)	10-24	(1.0)	(0.625)	(1.5)	(1.25)	(1.0)	(0.74)	(0.3)	(0.51)	(1.47)	(0.2)	(0.33)	(0.19)
mm	20.3	40.6	40.6	26.9	68.6	44.5	25.4	UNC	25.4	15.9	38.1	15.9	25.4	18.8	7.6	12.9	37.3	5.1	8.4	4.8

\* Metric threads also available for carriage.

Single Stack

■ 57000 Series Size 23

Size 23: 57 mm (2.3-in) Hybrid External Linear Actuator (1.8° Step Angle)		Unipolar**	
Wiring		Bipolar	
Winding Voltage	3.25 VDC	5 VDC	12 VDC
Current (RMS)/phase	2.0 A	1.3 A	.54 A
Resistance/phase	1.63 Ω	3.85 Ω	22.2 Ω
Inductance/phase	3.5 mH	10.5 mH	58 mH
Power Consumption	13 W		
Rotor Inertia	166 gcm <sup>2</sup>		
Insulation Class	Class B (Class F available)		
Weight	18 oz (511 g)		
Insulation Resistance	20 MΩ		

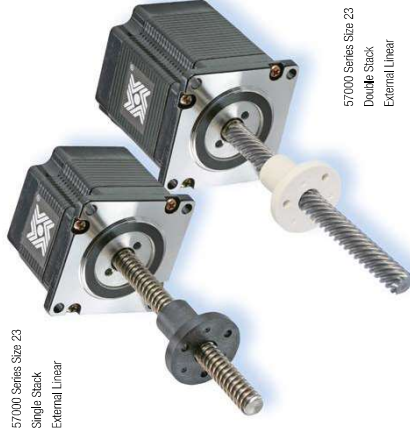
\*\* Unipolar drive gives approximately 30% less thrust than bipolar drive. Standard motors are Class B rated for maximum temperature of 130°C.

Double Stack

■ 57000 Series Size 23

Size 23: 57 mm (2.3-in) Double Stack Hybrid External Linear Actuator (1.8° Step Angle)		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	95.0 mH
Power Consumption	25 W Total		
Rotor Inertia	332 gcm <sup>2</sup>		
Insulation Class	Class B (Class F available)		
Weight	32 oz (958 g)		
Insulation Resistance	20 MΩ		

57000 Series Size 23  
Single Stack  
External Linear



57000 Series Size 23  
Double Stack  
External Linear

Size 23 57000 Series • Stepping Sequence & Wiring

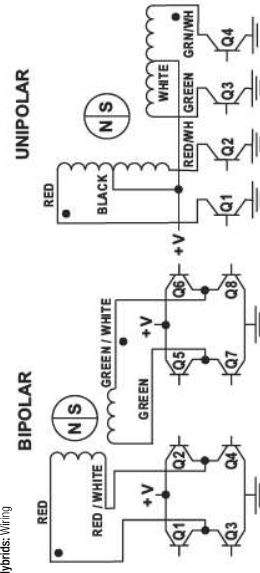
Hybrids: Wiring

Hybrids: Stepping Sequence

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

EXTEND CW ↓

RETRACT CCW ↑



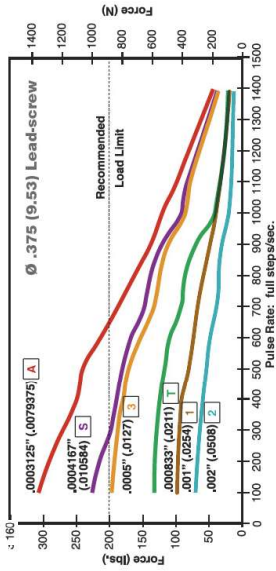
Note: Half stepping is accomplished by inserting an off state between transitioning phases.



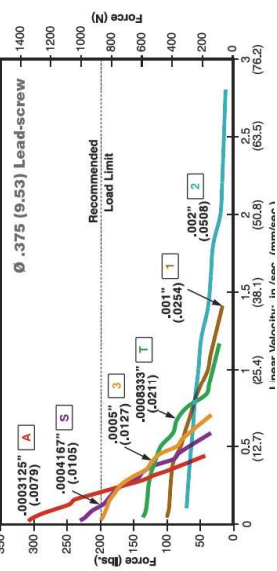
Motorized Size 23 Single and Double Stack

Single Stack

FORCE vs. PULSE RATE  
- Chopper - Bipolar - 100% Duty Cycle

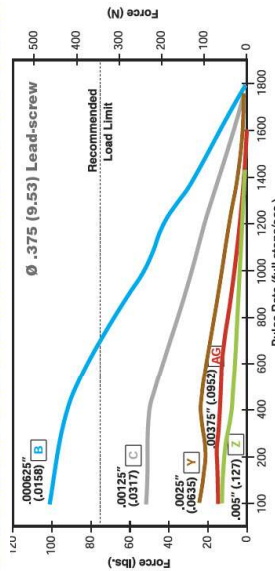


FORCE vs. LINEAR VELOCITY  
- Chopper - Bipolar - 100% Duty Cycle

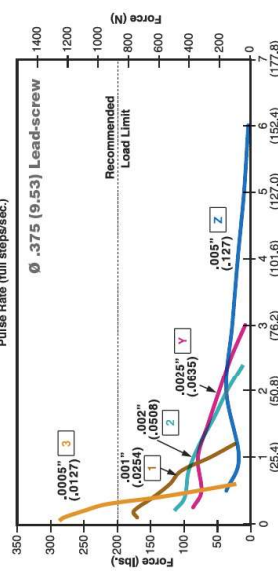


Double Stack

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 LPT drives peak force and speeds are reduced, using a unipolar drive will yield a further 30% force reduction.



RGS08 Non-Motorized Screw Driven Linear Rail

RGS08 Non-Motorized Linear Rails

Screw driven linear rail or linear rail without screw

The non-motorized RGS Series features standard wear compensating, anti-backlash driven carriages to ensure 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. Recommended for horizontal loads up to 50 lbs (222 N).

Identifying the Non-Motorized RGS Part Numbers when Ordering

RG	S	08	K	A	0100	XXX
Prefix RG = Rapid Guide Screw	Frame Style S = Standard	Frame Size Load 08 = 50 lbs (222 N) (Maximum static load)	Coating K = TFE Kerkote	Drive / Mounting A = None	Nominal Thread Lead Code 0000 = No Screw 0100 = .100-in (2.54) 0200 = .200-in (5.08) 0500 = .500-in (12.70) 1000 = 1.000-in (2.54)	Unique Identifier 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: Dimensions must be included in Part Number H as shown above. For assistance call our Engineering Team at 803.213.6500.

Specifications

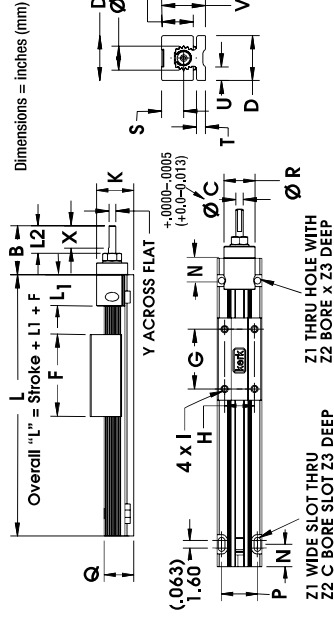
Inch Lead	Thread Lead Code	Nominal Rail Diam.	Nominal Screw Diam.	Typical Drag Torque	Life @ 1/4 Design Load*	Torque-to-Move Load	Design Load*	Screw Inertia
RGS08 Non-Motorized with Guide Screw	0100	inch (mm)	inch (mm)	oz - in (N-m)	inch (cm)	oz-in/lb (Nm/kg)	lbs (N)	oz-in-sec <sup>2</sup> /in (kg-m-sec <sup>2</sup> /m)
.100 (2.54)	0200	0.8 (20.3)	1/2 (12.7)	5.0 (0.4)	100,000,000 (254,000,000)	1.1 (.018)	50 (.222)	5.2 x 10 <sup>-6</sup> (20.0 x 10 <sup>-6</sup> )
.200 (5.08)	0500			6.0 (.04)		1.7 (.027)		
.500 (12.70)	1000			7.0 (.05)		3.0 (.047)		
1.000 (25.40)				8.0 (.06)		6.0 (.096)		

NOTE: RGS assemblies with lengths over 36 inches (914.4 mm) and/or leads higher than .5 inch (12.7 mm) will likely have higher drag torque than listed values.

\*Determined with load in a horizontal position.

Non-Motorized with Guide Lead Dimensional Drawings

- Screw Driven
- Standard Frame



RGS08 Non-Motorized, Screw Driven

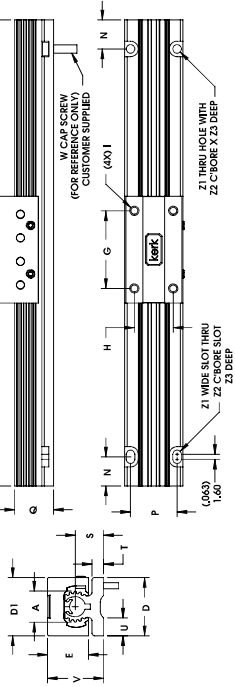
A	B	C	D	DI	E	F	G	H	I	K	L1	L2	N	P	Q	R	S	T	U	V	X	Z1	Z2	Z3
inch	0.80	1.50	.250	1.60	1.06	2.7	1.75	1.00	10-24	1.3	1.09	.27	.625	1.25	1.0	1.04	.74	.30	.51	1.47	.70	.22	.33	.19
mm	20.3	38.1	6.35	40.6	40.6	26.9	69	44.4	25.4	UNC	33	27.7	19.6	15.8	31.75	26.4	18.8	7.6	13	37.3	17.8	5.5	6.4	4.8

Metric carriage hole sizes available: M3, M4, M5, M6.

Non-Motorized without Guide Lead Dimensional Drawings

- Without Guide Screw
- Standard Frame

Dimensions = inches (mm)



RGS08 Non-Motorized, Without Screw Driven

	A	D	DI	E	F	G	H	I*	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	Z1	Z2	Z3		
inch	0.80	1.60	1.60	1.06	2.7	1.75	1.00	10-24	625	1.25	1.00	.74	.30	.51	1.47	.20	.33	.19										
mm	20.3	40.6	40.6	26.9	69	44.4	25.4	UNC	15.8	31.7	25.4	18.8	7.6	13	37.3	5.1	8.3	4.8										

\*Metric carriage hole sizes available: M3, M4, M5, M6.

Linear Rail Check List

Material Coatings

Kerkite® Polymers

Compounded with lubricants, reinforcements and thermoplastic polymers, Kerkite Polymers are formulated to provide optimum performance in its target conditions and applications.

- Injection molded
- High performance
- Exceptional wear properties

Kerkite® TFE Coating

A dry lubricant, Kerkite will not become dry and paste-like, and does not attract dirt or debris. Kerkite offers from conventional plating and coating because it is soft, more evenly distributed than other lubricants, and decreases erratic drag torques and unpredictable wear.

- Reduces friction
- Cost effective
- Long term and maintenance free

Kerkite provides the maximum level of self-lubrication, requiring no additional external lubrication or maintenance.

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 Kerkite® 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

Linear Rail Check List



RGS08 57000 Series Size 23 Double Stack

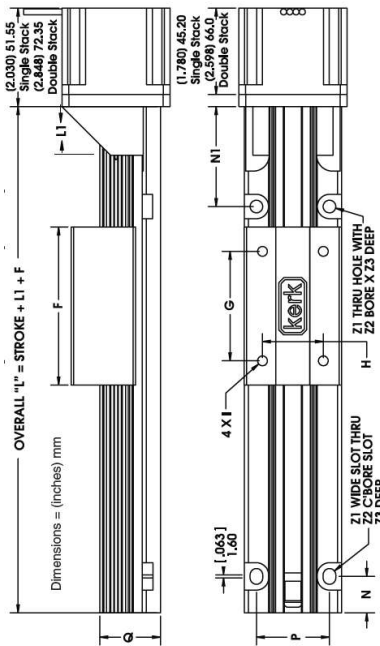
Identifying the RGS10 Part Number Codes when Ordering

RG	S	10	K	M	0100	XXX
Prefix RG = Rapid Guide Screw	Frame Style S = Standard W = Wide sensor mount capability	Frame Size Load* 10 = 100 lbs (445 N) (Maximum static load)	Lubrication K = TFE Kerkite®	Drive / Mounting M = Motorized	Nominal Thread Lead Code 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)	Unique Identifier Suffix used to identify specific motors (53000 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.

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

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



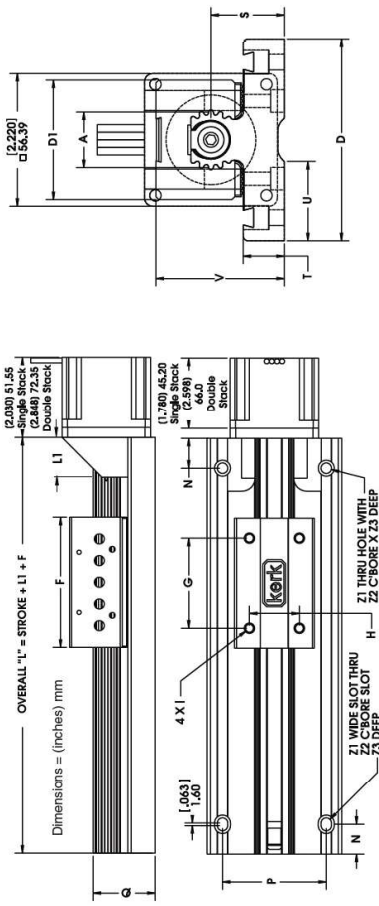
Carriage holes available in Metric sizes M3, M4, M5, M6

	A	D	D1	F	G	H	I*	L1	N	NI	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)	(2.054)	(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)



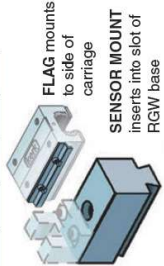
Carriage holes available in Metric sizes M3, M4, M5, M6

	A	D	D1	F	G	H	I*	L1	N	NI	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 mounting 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 External 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	.54 A
Resistance/phase	1.63 Ω	3.85 Ω	22.2 Ω	3.85 Ω	22.2 Ω	22.2 Ω
Inductance/phase	3.5 mH	10.5 mH	58 mH	5.3 mH	23.6 mH	23.6 mH
Power Consumption	13 W					
Rotor Inertia	166 gcm <sup>2</sup>					
Insulation Class	Class B (Class F available)					
Weight	18 oz (511 g)					
Insulation Resistance	20 MΩ					

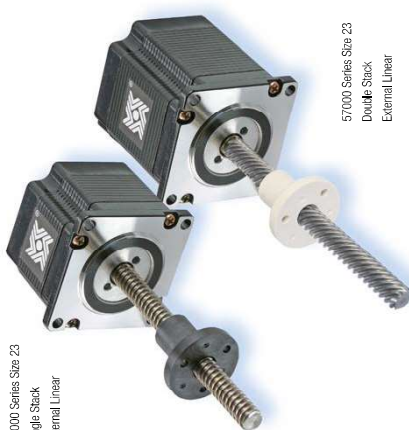
\*\* Unipolar drive drives approximately 30% less thrust than bipolar drive. Standard motors are Class B rated for maximum temperature of 130° C.

Double Stack

■ 57000 Series Size 23

Size 23: 57 mm (2.3-in) Double Stack Hybrid External Linear Actuator (1.8° Step Angle)	Bipolar	
	Winding Voltage	3.25 VDC
Current (RMS)/phase	3.85 A	2.5 A
Resistance/phase	0.98 Ω	2.0 Ω
Inductance/phase	2.3 mH	7.6 mH
Power Consumption	25 W Total	
Rotor Inertia	332 gcm <sup>2</sup>	
Insulation Class	Class B (Class F available)	
Weight	32 oz (958 g)	
Insulation Resistance	20 MΩ	

57000 Series Size 23  
Single Stack  
External Linear

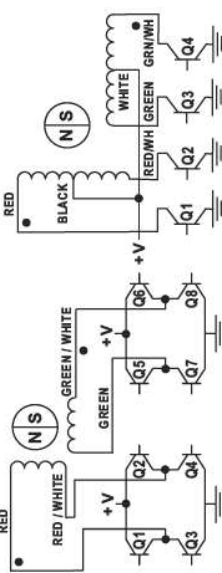


Size 23 57000 Series • Stepping Sequence & Wiring

Hybrids: Stepping Sequence

Hybrids: Stepping Sequence	Q2-Q3	Q1-Q4	Q6-Q7	Q5-Q8
Bipolar	Q1	Q2	Q3	Q4
Unipolar Step	1	2	3	4
1	ON	OFF	ON	OFF
2	OFF	ON	OFF	ON
3	OFF	ON	OFF	ON
4	ON	OFF	OFF	ON
1	ON	OFF	ON	OFF

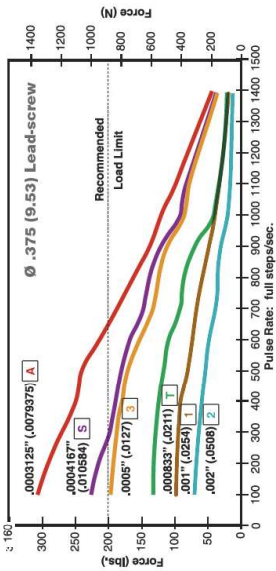
Note: Half stepping is accomplished by inserting an off state between transitioning phases.



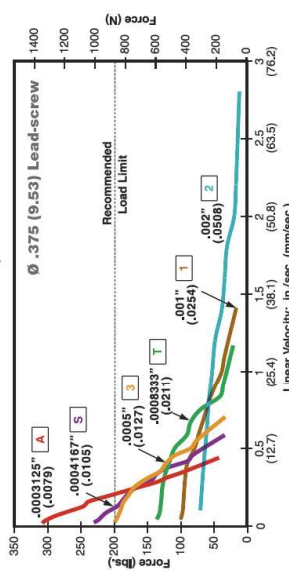


Single Stack

FORCE vs. PULSE RATE  
- Chopper - Bipolar - 100% Duty Cycle

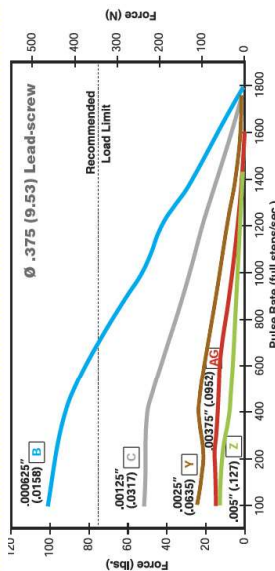


FORCE vs. LINEAR VELOCITY  
- Chopper - Bipolar - 100% Duty Cycle

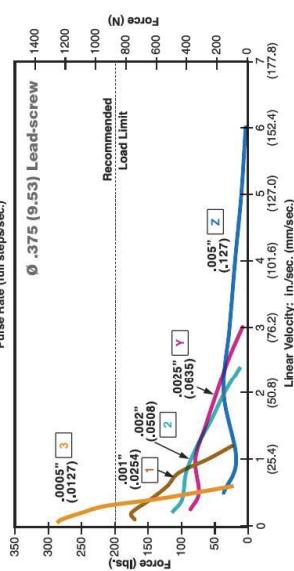


Double Stack

FORCE vs. PULSE RATE  
- Chopper - Bipolar - 100% Duty Cycle



FORCE vs. LINEAR VELOCITY  
- Chopper - Bipolar - 100% Duty Cycle

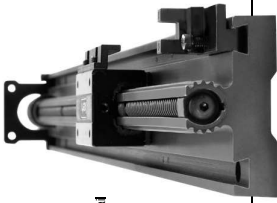


NOTE: All chopper drive curves were created with a 5 volt motor, and a 40 volt power supply. Ramping can increase the performance of a motor either by increasing the top speed or getting a heavier load accelerated up to speed faster. Also, deceleration can be used to stop the motor without overshoot. With LRA drives peak force and speeds are reduced, using a unipolar drive will yield a further 30% force reduction.

RGS10 Non-Motorized Linear Rails

- Screw driven linear rails in standard or wide format
- Linear rails without screw in standard or wide format

The non-motorized RGS Series features standard wear compensating, anti-backlash driven carriages to ensure 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. Recommended for horizontal loads up to 100 lbs (445 N).



RGW10 Wide Series, Non-Motorized Screw Driven Linear Rail

Identifying the Non-Motorized RGS Part Numbers when Ordering

<b>RG</b> Prefix RG = Rigid Guide Screw	<b>S</b> Frame Style S = Standard W = Wide Sensor Mount Capability	<b>10</b> Frame Size Load 10 = 100 lbs (445 N) (Maximum static load)	<b>K</b> Coating K = TFE Kerkote	<b>A</b> Drive / Mounting A = None B = In-line Screw Motor Mount	<b>0500</b> Nominal Thread Lead Code 0000 = No Screw 0100 = .100-in (2.54) 0200 = .200-in (5.08) 0500 = .500-in (12.70) 1000 = 1,000-in (2.54)	<b>XXX</b> Unique Identifier 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
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NOTE: Carriages must be included in Part Number (-) as shown above. For assistance call our Engineering team at 603 213 6290.

Specifications

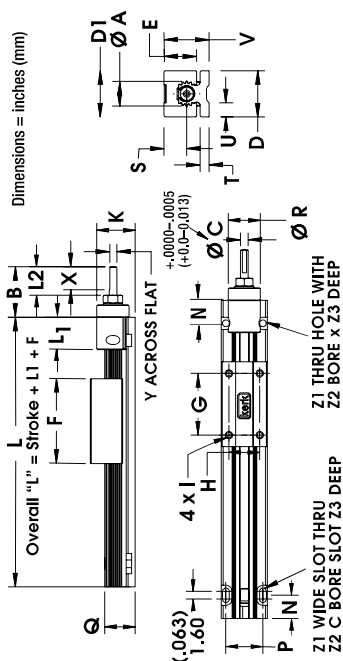
RG10 Non-Motorized With Lead Screw	Inch Lead	Thread Lead Code	Nominal Rail Diam.	Nominal Screw Diam.	Typical Drag Torque	Life @ 1/4 Design Load*	Torque-to-Move Load	Design Load*	Screw Inertia
	.100 (2.54)	0100	1.0 (25.4)	5/8 (15.9)	5.0 (0.4)	100,000,000 (254,000,000)	1.3 (.020)	100 (445)	02-in-sec <sup>2</sup> /m (kg-m-sec <sup>2</sup> /m)
	.200 (5.08)	0200	1.0 (25.4)	5/8 (15.9)	6.5 (.05)		2.0 (.031)		14.2 x 10 <sup>-6</sup> (3.9 x 10 <sup>-6</sup> )
	.500 (12.70)	0500	1.0 (25.4)	5/8 (15.9)	7.0 (.05)		3.0 (.047)		
	1,000 (25.40)	1000	1.0 (25.4)	5/8 (15.9)	8.5 (.06)		6.5 (.101)		

NOTE: RGS assemblies with lengths over 36 inches (914.4 mm) and/or leads higher than .5 inch (12.7 mm) will likely have higher drag torque than listed values.

\*Determined with lead in a horizontal position.

Non-Motorized with Guide Screw Lead Dimensional Drawings

- Screw Driven
- Standard Frame



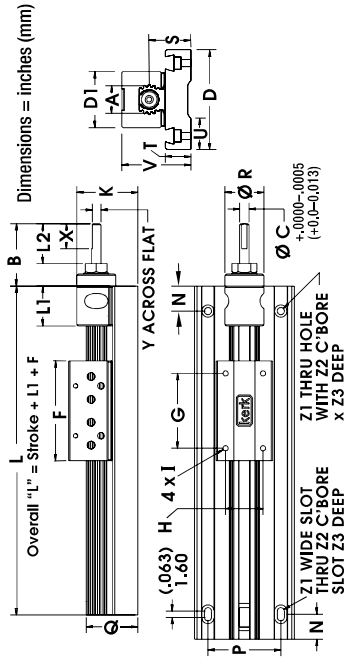
RG10 Non-Motorized, Screw Driven

A	B	C	D	D1	E	F	G	H	I	J	K	L	L1	L2	N	O	R	S	T	U	V	X	Y	Z1	Z2	Z3
inch	1.0	1.75	.312	2.0	2.0	1.32	3.3	2.25	1.25	1.420	1.6	1.3	.30	.75	1.5	1.25	1.3	.92	.375	.64	1.83	.88	.28	.26	.50	.22
mm	25.4	44.5	7.93	50.8	50.8	33.3	83	57.1	31.8	38.1	41	33	33	19	38.1	31.8	33	23.4	9.5	16.3	46.5	22.4	7.1	6.6	12.7	5.6

\*Metric carriage hole sizes available M3, M4, M5, M6.

**Non-Motorized with Lead Screw Dimensional Drawings**

- Screw Driven
- Wide Frame



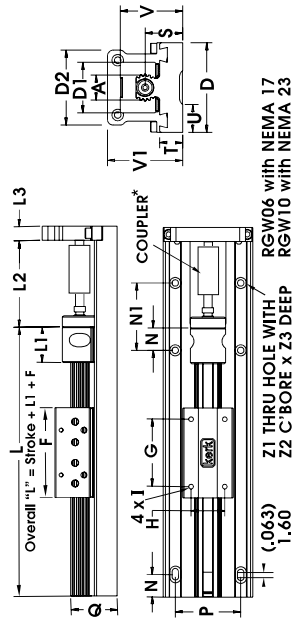
RGS10 Wide Series, Non-Motorized, Screw Driven

A	B	C	D	DI	F	G	H	I*	K	L1	L2	N	P	Q	S	T	U	V	X	Y	Z1	Z2	Z3	
inch	1.0	1.75	3.12	2.0	3.3	2.25	1.25	1/4-20	1.9	1.3	1.3	1.3	1.5	1.2	.69	1.5	1.2	.69	1.4	.88	.28	.14	.40	.43
mm	25.4	44.5	79.3	50.8	83	57.1	31.7	UNC	48	33	33	33	38.1	30.6	31	17.5	33.8	54.6	22.4	7.11	6.6	10.2	10.9	

\*Metric carriage hole sizes available M3, M4, M5, M6.

**Motor Mount for Non-Motorized with Lead Screw Dimensional Drawings**

- Motor Mount
- Screw Driven
- Wide Frame



RGS10 Motor Mount, Wide Series, Non-Motorized, Screw Driven

A	B	C	D	DI	F	G	H	I*	K	L1	L2	N	P	Q	R	SI	T	U	V	X	Y	Z1	Z2	Z3
inch	0.60	1.25	1.875	2.0	1.3	2.0	1.50	0.750	6-32	1.2	.80	.80	.50	1.46	1.04	.83	.51	.63	1.4	.50	.170	.14	.25	.14
mm	15.2	31.8	47.62	50.8	28.6	50.8	38.1	19.1	UNC	30	20.3	20.3	12.7	37.0	26.4	20.3	12.7	13.0	16.0	36	12.7	4.32	3.6	3.6

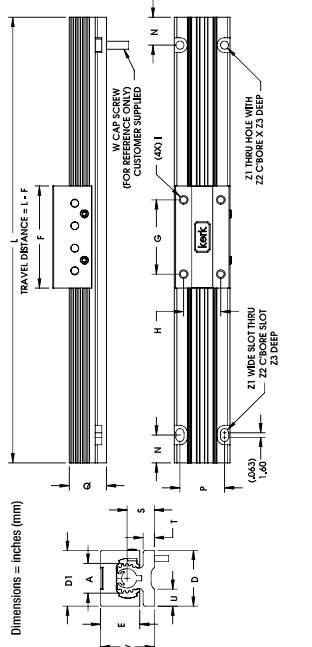
\*Metric carriage hole sizes available M3, M4, M5, M6.

**RGW10 Sensor Mount Kits**

Sensor mounting kits based on U-channel optical sensor. 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 sensor manufacturer. Part # RGW10SK

**Non-Motorized without Lead Screw Dimensional Drawings**

- Without Guide Screw
- Standard Frame



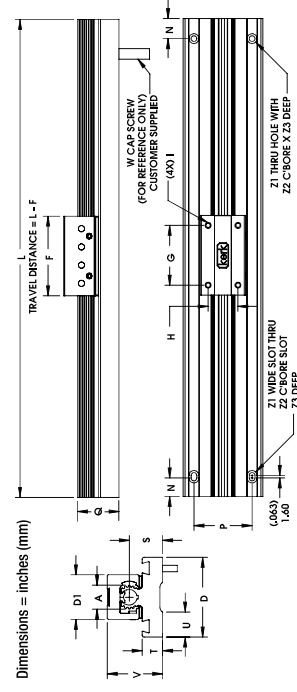
RGS10 Non-Motorized, Without Screw Driven

A	D	D1	E	F	G	H	I*	N	P	Q	S	T	U	V	Z1	Z2	Z3
inch	1.0	2.0	2.0	1.32	3.3	2.25	1/4-20	.75	1.5	1.25	.92	.375	.64	1.83	.26	.50	.22
mm	25.4	50.8	50.8	33.5	83	57.1	UNC	19	38.1	31.8	14	9.5	16.3	46.5	6.6	12.7	5.6

\*Metric carriage hole sizes available M3, M4, M5, M6.

**Non-Motorized without Lead Screw Dimensional Drawings**

- Without Guide Screw
- Wide Frame



RGW10 Wide Series, Non-Motorized, Without Screw Driven

A	D	DI	F	G	H	I*	N	P	Q	S	T	U	V	Z1	Z2	Z3
inch	1.0	3.38	2.0	3.3	2.25	1/4-20	.75	2.6	1.5	1.2	.69	1.3	2.15	.26	.40	.43
mm	25.4	85.7	50.8	83	57.1	UNC	19	66	39.6	31	17.5	33.8	54.6	6.6	10.2	10.9

\*Metric carriage hole sizes available M3, M4, M5, M6.

**Kerkite® Polymers**

Compounded with lubricants, reinforcements and thermoplastic polymers, Kerkite Polymers are formulated to provide optimum performance in its target conditions and applications.

- Injection molded
- High performance
- Exceptional wear properties

**Kerkite® TFE Coating**

A dry lubricant, Kerkote will not become dry and paste-like, and does not attract dirt or debris. Kerkote differs from conventional plating and coating because it is soft, more evenly distributed than other lubricants, and decreases erratic drag torques and unpredictable wear.

- Reduces friction
- Cost effective
- Long term and maintenance free

Kerkote provides the maximum level of self-lubrication, requiring no additional external lubrication or maintenance.