

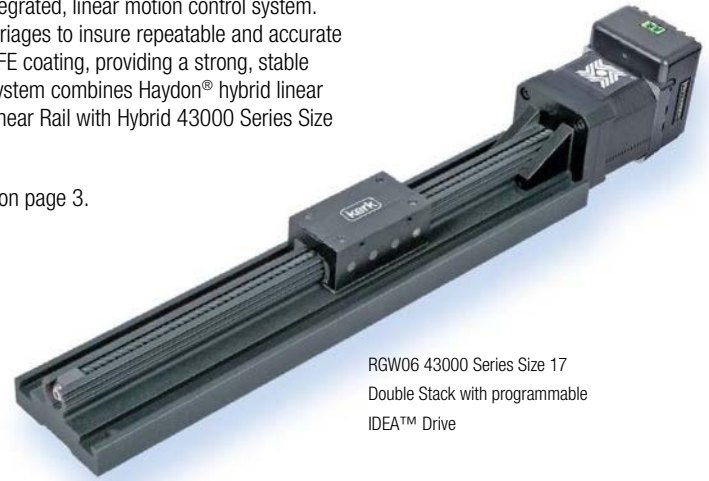
RGS06 and RGW06 Wide Linear Rails with 43000 Series Hybrid Motor

*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 Kerkite® engineered polymers running on Kerkote® 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](#).



RGW06 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 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 G = Motorized + IDEA™ integrated programmable drive – USB communications J = Motorized + IDEA™ integrated programmable drive – RS485 communications	0050 = .050-in (1.27) 0079 = .079-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 (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.

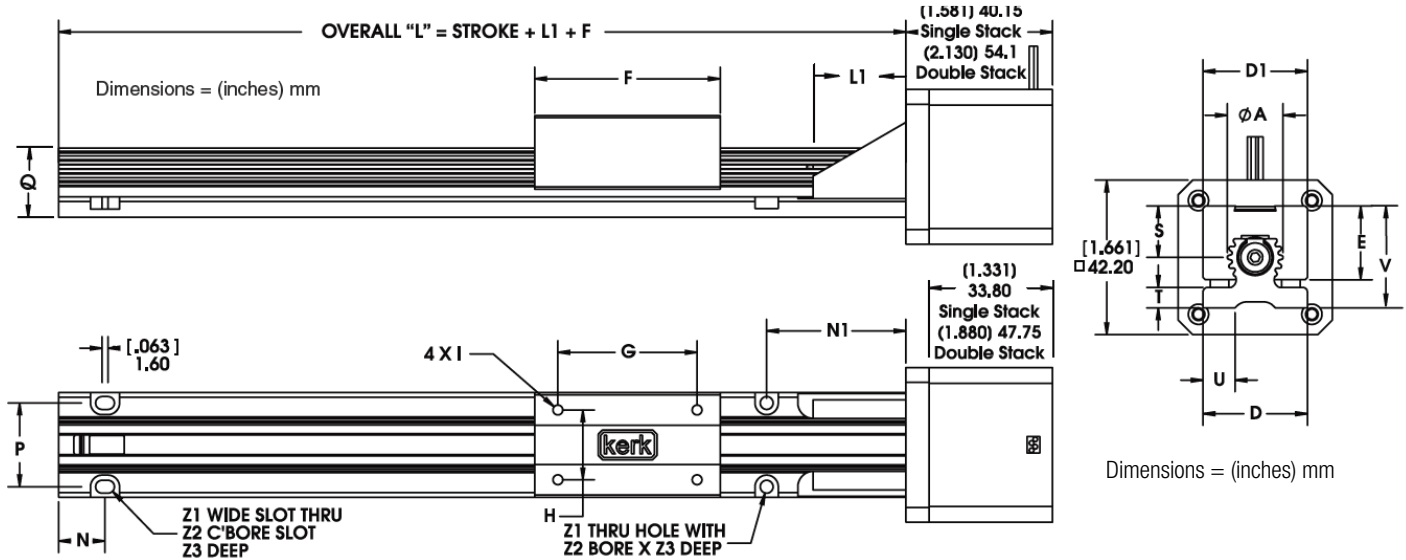
Carriage holes available in Metric sizes
M2, M4, M5, M6

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

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.

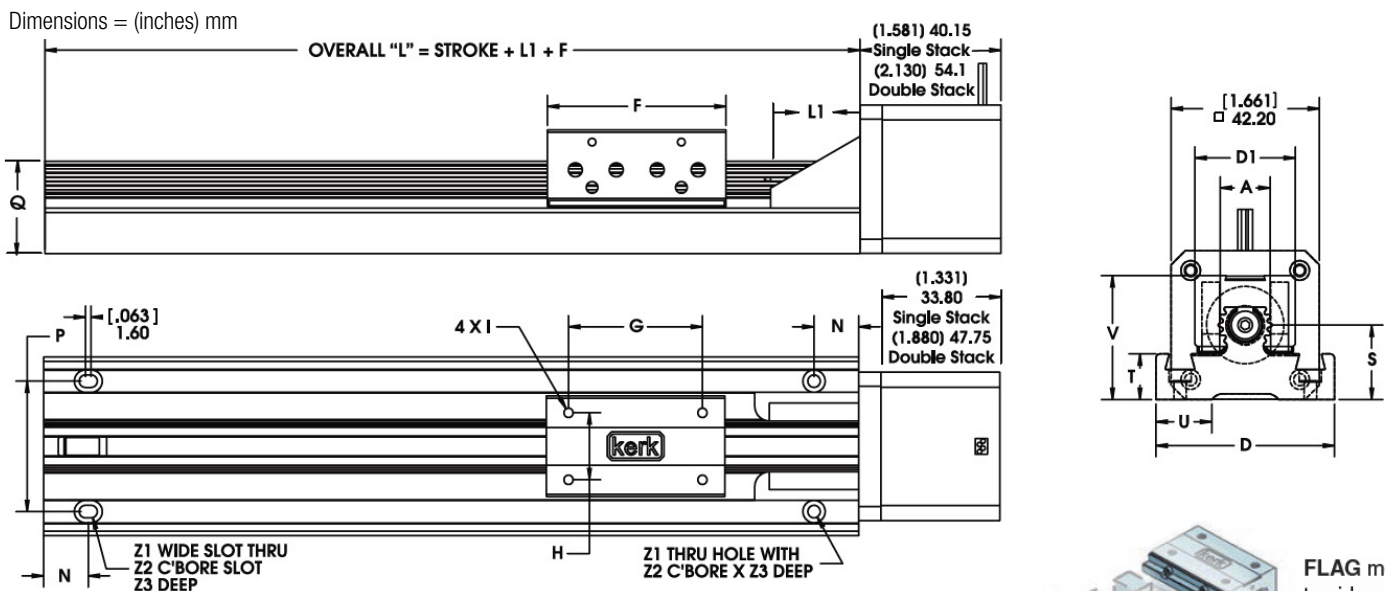


■ RGW06 Wide Linear Rail with 43000 Series Size 17 Single and Double Stack Linear Actuators

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

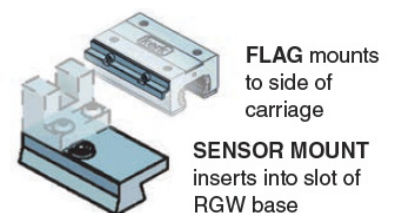
	A	D	D1	F	G	H	I*	L1	N	P	Q	S	T	U	V	Z1	Z2	Z3
(inch)	(0.6)	(2.0)	(1.13)	(2.0)	(1.5)	(0.75)	6-32	(1.0)	(0.5)	(1.46)	(1.04)	(0.83)	(0.51)	(0.63)	(1.39)	(0.14)	(0.25)	(0.14)
mm	15.2	50.8	28.7	50.8	38.1	19.0	UNC	25.4	12.7	22.9	26.4	21.1	13.0	16.0	35.3	3.6	6.3	3.6

* Metric threads also available for carriage.



RGW06 Sensor Mount Kit Part No. RGW06SK

Sensor 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

■ 43000 Series Size 17

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

Wiring	Bipolar			Unipolar**	
Winding Voltage	2.33 VDC	5 VDC	12 VDC	5 VDC	12 VDC
Current (RMS)/phase	1.5 A	700 mA	290 mA	700 mA	290 mA
Resistance/phase	1.56 Ω	7.2 Ω	41.5 Ω	7.2 Ω	41.5 Ω
Inductance/phase	1.9 mH	8.7 mH	54.0 mH	4.4 mH	27.0 mH
Power Consumption	7 W				
Rotor Inertia	37 gcm ²				
Insulation Class	Class B (Class F available)				
Weight	8.5 oz (241 g)				
Insulation Resistance	20 M Ω				

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

43000 Series Size 17
Double Stack External Linear43000 Series Size 17
Single Stack External Linear

Double Stack

■ 43000 Series Size 17

Size 17 Double Stack: 43 mm (1.7-in) Hybrid Linear Actuator (1.8° Step Angle)

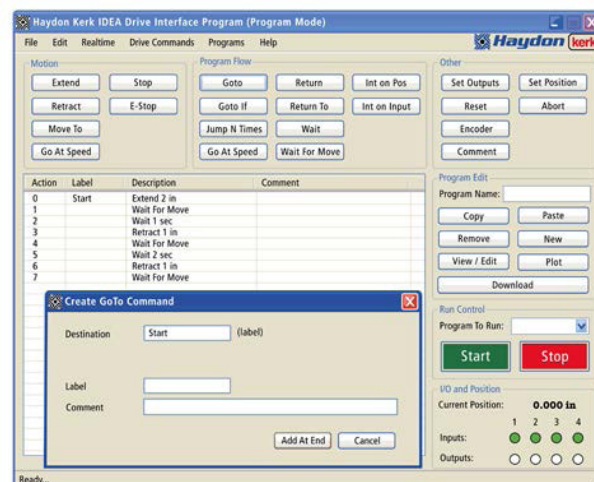
Wiring	Bipolar		
Winding Voltage	2.33 VDC	5 VDC	12 VDC
Current (RMS)/phase	2.6 A	1.3 A	550 mA
Resistance/phase	0.9 Ω	3.8 Ω	21.9 Ω
Inductance/phase	1.33 mH	8.21 mH	45.1 mH
Power Consumption	13.2 W		
Rotor Inertia	78 gcm ²		
Insulation Class	Class B (Class F available)		
Weight	12.5 oz (352 g)		
Insulation Resistance	20 M Ω		

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

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

- Fully Programmable
- RoHS Compliant
- 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](#)

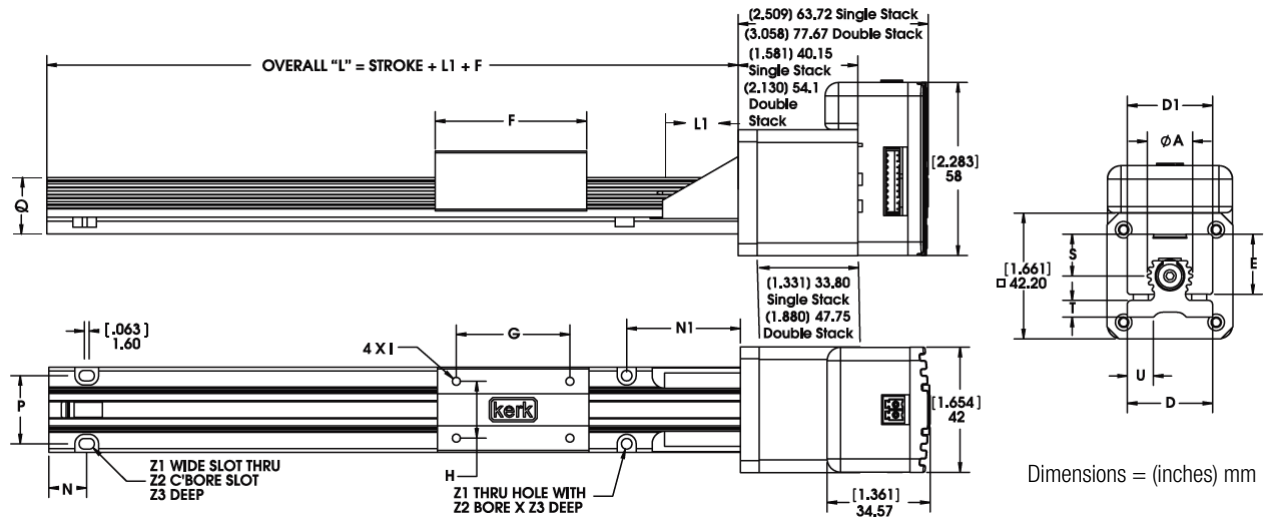
Size 17 External Linear
with programmable IDEA Drive

■ RGS06 with 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.

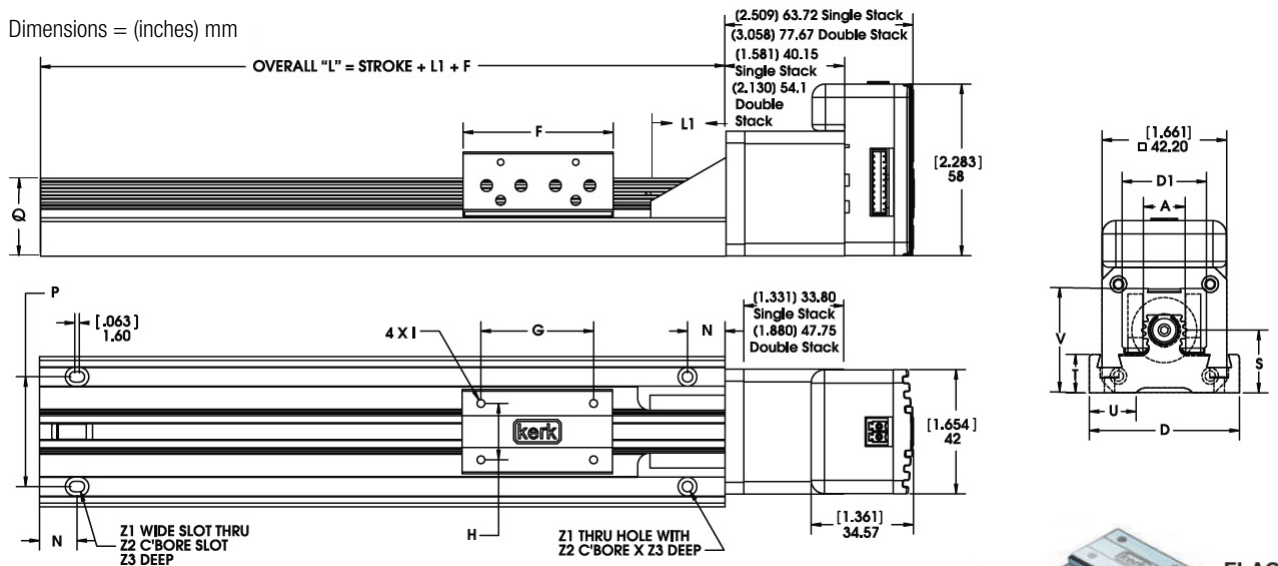


■ **RGW06 Wide Rail with 43000 Series Size 17 Single Stack and Double Stack linear motors with IDEA Drive**

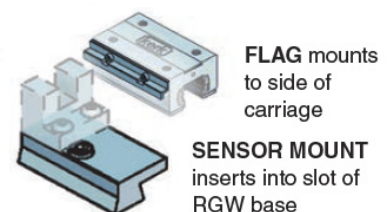
Recommended for horizontal loads up to 35 lbs (156 N)

	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 UNC	(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		25.4	12.7	22.9	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

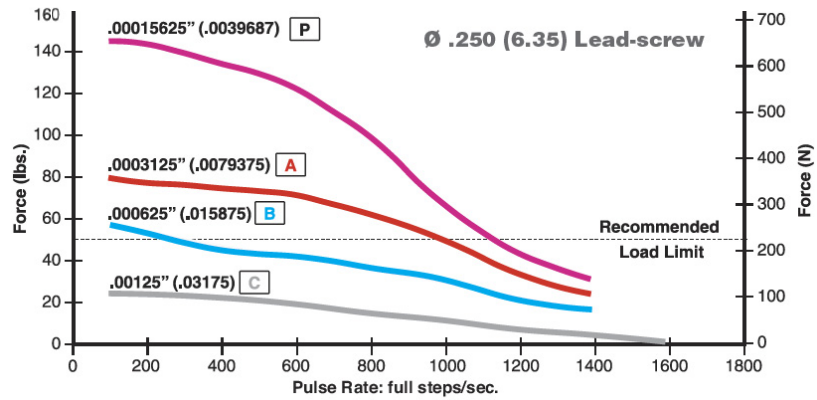
Sensor mount kits, based on a U-channel optical sensor, are available for the RGW Series. Each kit includes one flag, three sensor mounts, and all mounting hardware. Sensors are not included in the kit and must be ordered separately from the sensor manufacturer.



Single Stack

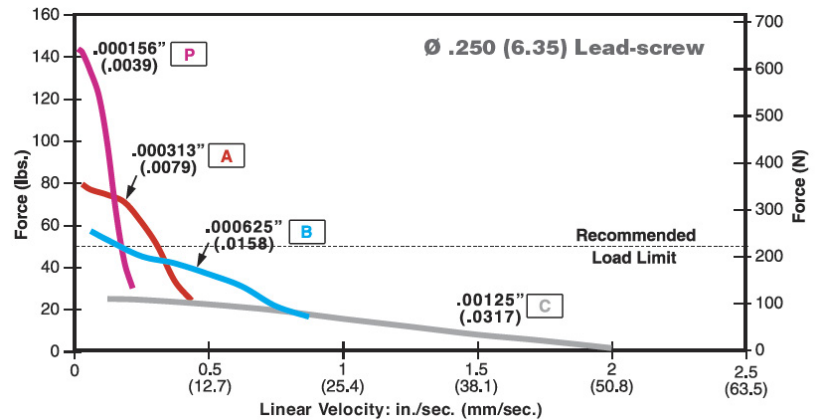
FORCE vs. PULSE RATE

- Chopper
- Bipolar
- 100% Duty Cycle



FORCE vs. LINEAR VELOCITY

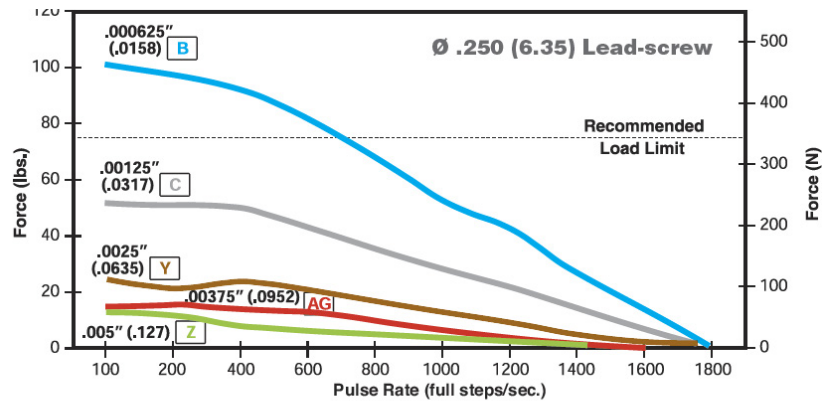
- Chopper
- Bipolar
- 100% Duty Cycle



Double Stack

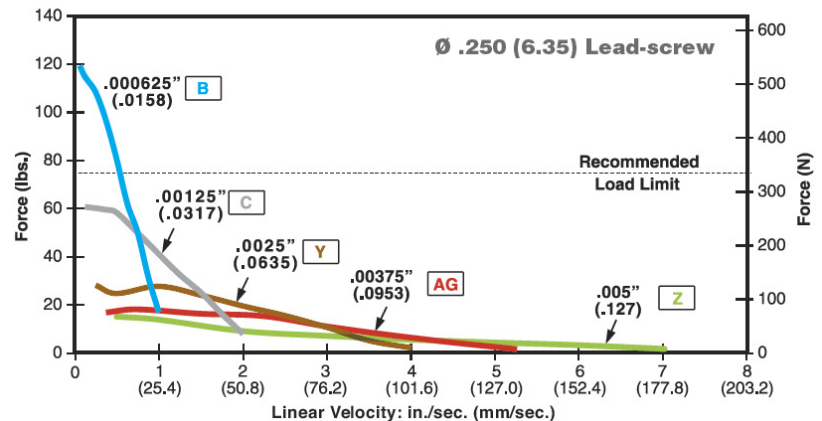
FORCE vs. PULSE RATE

- 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.

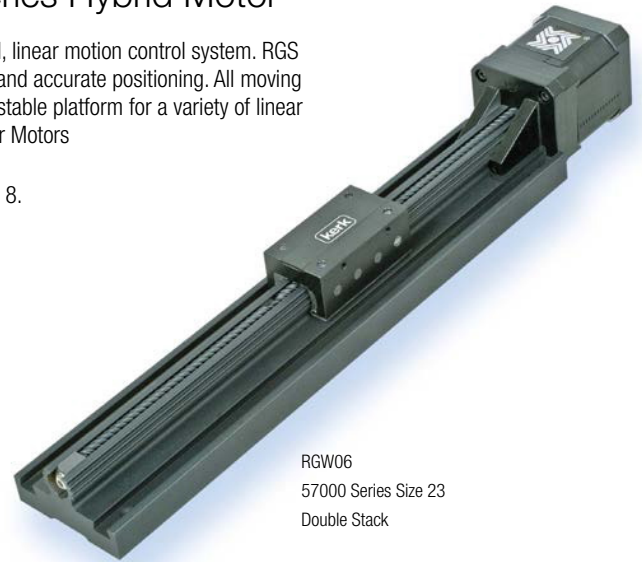
With L/R drives peak force and speeds are reduced, using a unipolar drive will yield a further 30% force reduction

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](#).



RGW06
57000 Series Size 23
Double Stack

■ Identifying the BGS Part Number Codes when Ordering

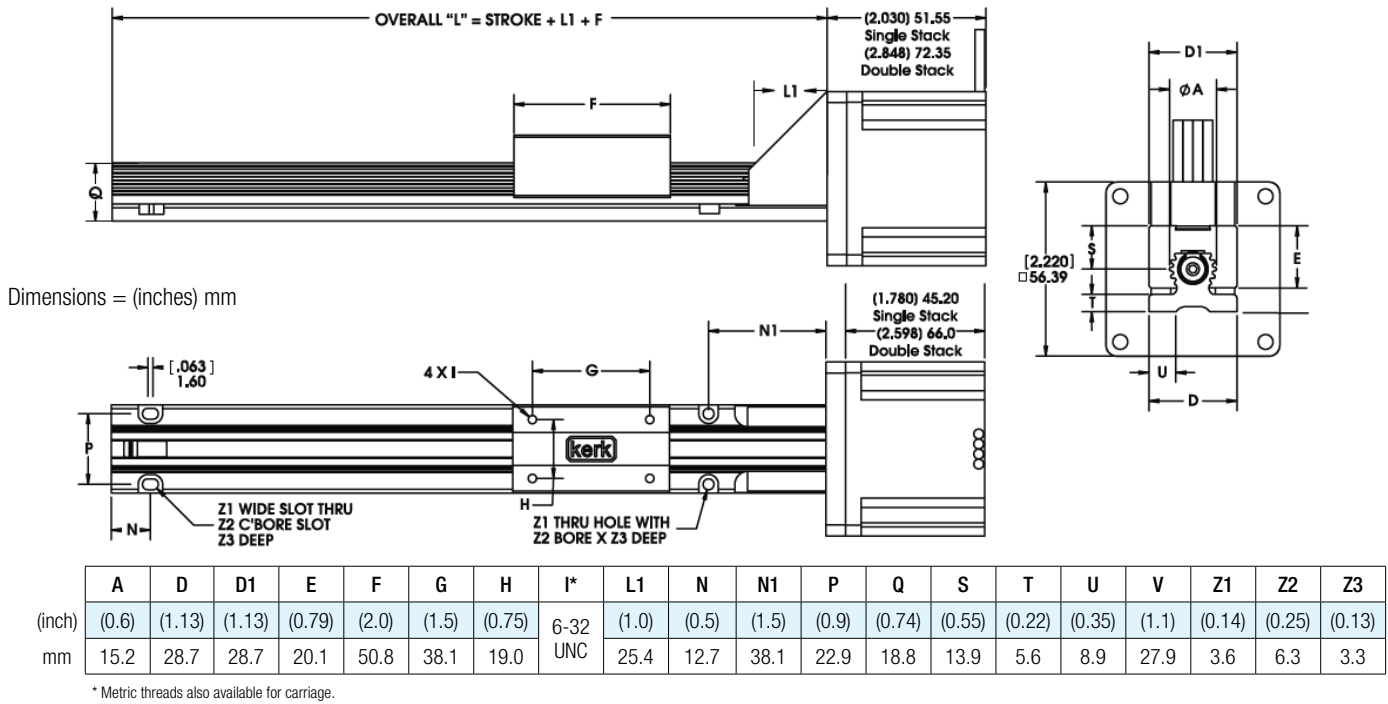
RG	S	06	K	M	0100	XXX
Prefix	Frame Style	Frame Size Load*	Lubrication	Drive / Mounting	Nominal Thread Lead Code	Unique Identifier
RG = Rapid Guide Screw	S = Standard W = Wide sensor mount capability	06 = 35 lbs (156 N) (Maximum static load)	K = TFE Kerkote®	M = Motorized	0050 = .050-in (1.27) 0079 = .079-in (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 (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

■ RGS06 with 57000 Series Size 23 Single and Double Stack linear motors

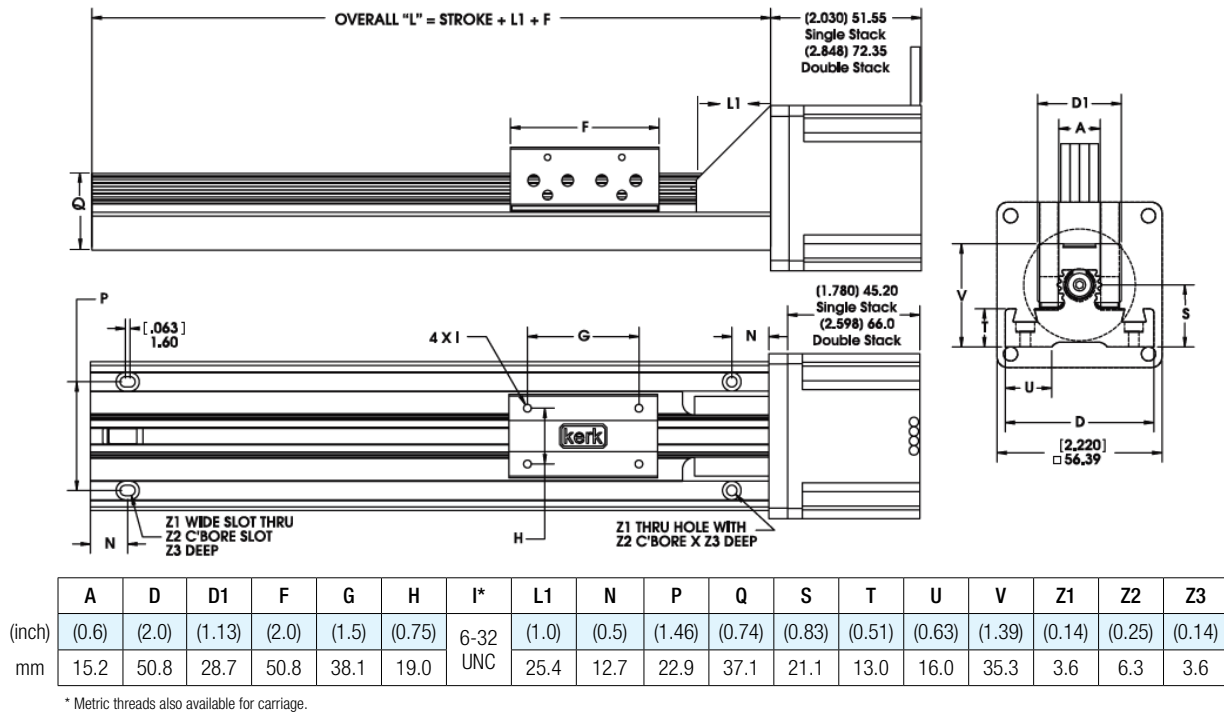
Recommended for horizontal loads up to 35 lbs (156 N)



■ RGW06 Wide 57000 Series Size 23 Single Stack and Double Stack linear motors

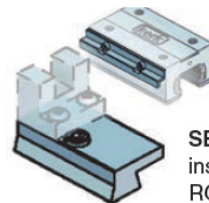
Dimensions = (inches) mm

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



RGW06 Sensor Mount Kit Part No. RGW06SK

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.



FLAG mounts to side of carriage

SENSOR MOUNT inserts into slot of RGW base

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

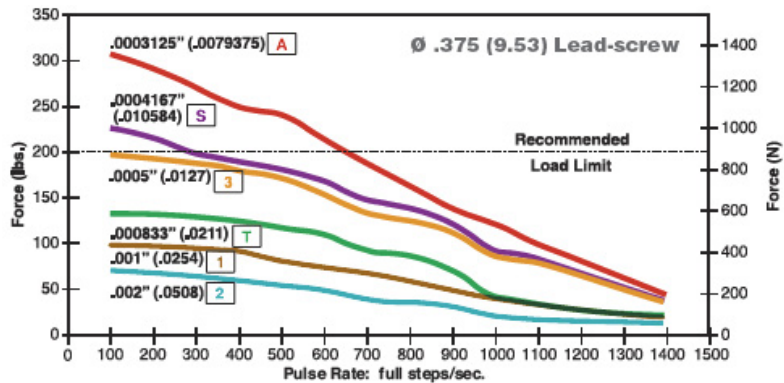


57000 Series
Size 23
Double Stack
External Linear

Single Stack

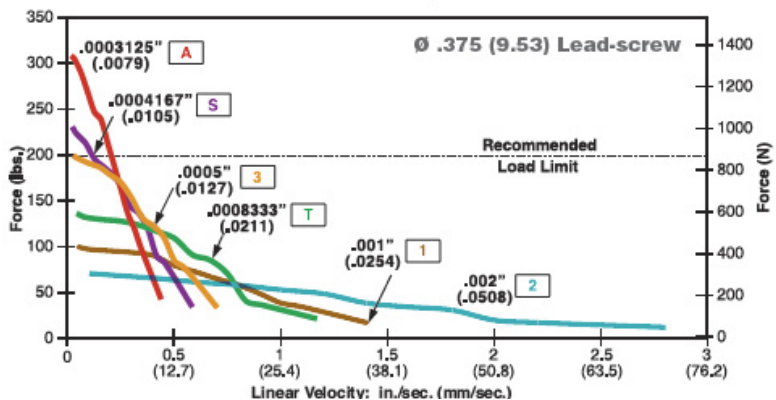
FORCE vs. PULSE RATE

- Chopper
- Bipolar
- 100% Duty Cycle



FORCE vs. LINEAR VELOCITY

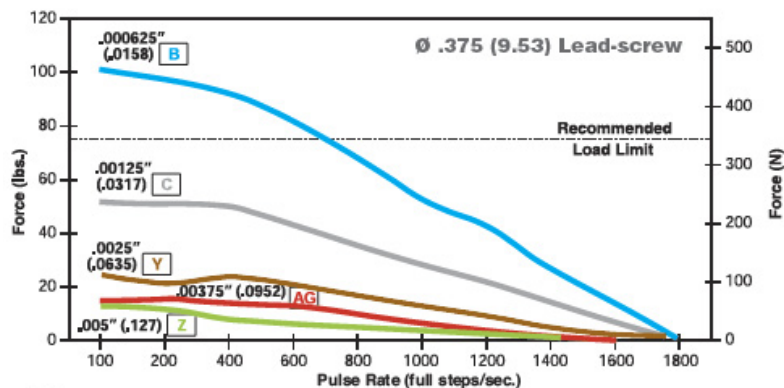
- Chopper
- Bipolar
- 100% Duty Cycle



Double Stack

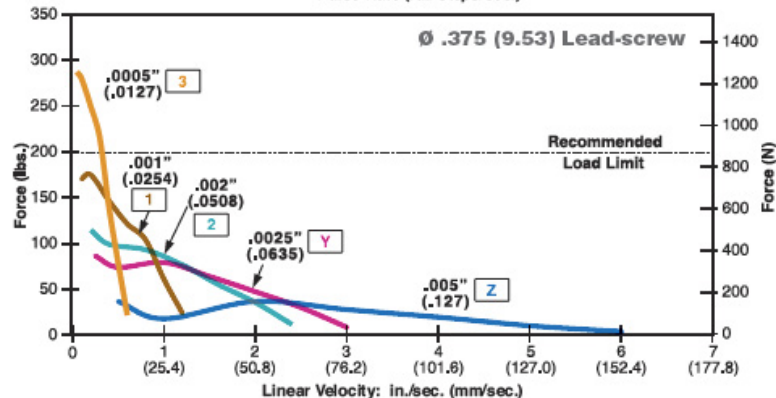
FORCE vs. PULSE RATE

- 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

43000 Series Size 17 and 57000 Series Size 23

Hybrids: Stepping Sequence

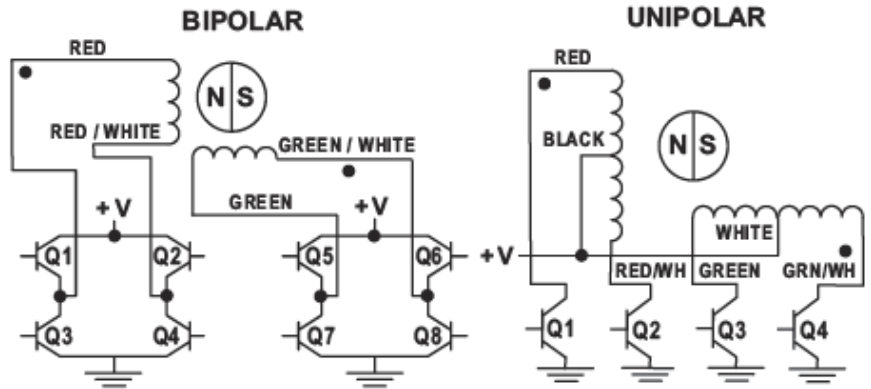
Hybrids: Wiring

	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	
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.



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.



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 number 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

Dimensional Drawings

Integrated Connector with 43000 Series Size 17

Dimensions = (mm) inches

