

BGS Linear Rails



BGS Linear Rails

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Summary

The BGS Linear Rail combines many technologies into a single integrated linear motion platform. The system provides excellent load capability and is engineered for both normal and overhanging loads. High roll, pitch, and yaw moment loading capability allows the system to maintain tight accuracy and repeatability, even in applications requiring significant cantilevered loading.

At the heart of the BGS Linear Rail system is a Haydon hybrid linear actuator with a precision 303 stainless steel lead screw. The lead screw drives a machined aluminum carriage mounted to a precision stainless steel ball rail resulting in a rigid, smooth-operating motion system. The BGS Linear Rail platform also features a wear-compensating anti-backlash driven carriage. The screw is coated with Black Ice® TFE coating providing a permanent wear-resistant dry lubrication.

When integrated with an IDEA Drive, the system combines Haydon hybrid linear actuator technology with a fully programmable, integrated stepper motor drive. By combining technologies into a single preassembled unit, Haydon Kerk Motion Solutions is able to improve system integration for the equipment OEM or end user. The overall cost for the customer is also lowered by offering a complete solution as it eliminates the need for rotary-to-linear conversion, and simplified product development.

BGS Linear Rail Available

			BGS04 Linear Rail	BGS06 Linear Rail	BGS08 Linear Rail
Nominal Thread Lead	Lead Code	Max Load	22lb (100N)	135lb (600N)	225lb (1000N)
		Roll	5.72 lb-ft (7.75Nm)	11.62 lb-ft (15.75Nm)	22.50 lb-ft (30.5Nm)
		Pitch	4.88 lb-ft (6.60Nm)	7.93 lb-ft (10.75Nm)	19.36 lb-ft (26.25Nm)
		Yaw	5.68 lb-ft (7.70Nm)	9.15 lb-ft (12.40Nm)	22.27 lb-ft (30.20Nm)
inch	mm				
0.025	0.635	0025	.		
0.039	1.00	0039	.		
0.050	1.27	0050	.	.	
0.0625	1.59	0063	.		
0.079	2.00	0079	.	.	
0.098	2.50	0098			.
0.100	2.54	0100	.	.	.
0.118	3.00	0118	.		
0.125	3.18	0125			
0.157	4.00	0157		.	
0.197	5.00	0197		.	.
0.200	5.08	0200	.	.	.
0.250	6.35	0250	.	.	
0.315	8.00	0315			
0.375	9.53	0375		.	
0.394	10.00	0394	.		
0.400	10.16	0400		.	
0.472	12.00	0472		.	
0.500	12.70	0500	.	.	.
0.630	16.00	0630			.
0.750	19.05	0750	.	.	
0.984	25.00	0984		.	
1.000	25.40	1000	.	.	.
1.200	30.48	1200		.	
1.500	38.10	1500			
2.000	50.80	2000			

BGS04 Linear Rail



Characteristics	Units	Value
Maximum Stroke Length	in (mm)	18 (460)
Maximum Load (Vertical)	lb (N)	See Motor Specs
Maximum Load (Horizontal)	lb (N)	22 (100)
Roll Moment	lb-ft (Nm)	5.72 (7.75)
Pitch Moment	lb-ft (Nm)	4.88 (6.60)
Yaw Moment	lb-ft (Nm)	5.68 (7.70)
Available Motors	Frame Size	Size 11 DS Size 17 SS
Integrated Drive Capability	Frame Size	Size 17 DS

SALIENT CHARACTERISTICS - SERIES 28000 SIZE 11 STEPPER MOTOR LINEAR ACTUATOR

SIZE 11: 28mm (1.1") DOUBLE STACK HYBRID LINEAR ACTUATOR (1.8 degree step angle)					
Part No.	Captive	28M4(X)-V			NA
	Non-Captive	28L4(X)-V			NA
	External Lin.	E28M4(X)-V			NA
Wiring		Bipolar			Unipolar**
Operating voltage	2.1 VDC	5 VDC	12 VDC	NA	NA
Current/phase	1.9 A	740 mA	350 mA	NA	NA
Resistance/phase	1.1 Ω	6.7 Ω	34.8 Ω	NA	NA
Inductance/phase	1.1 mH	5.8 mH	35.6 mH	NA	NA
Power consumption	7.5 W				
Temperature rise	135°F (75°C) Rise				
Weight	5.8 oz (180 g)				
Insulation resistance	20 M Ω				

SALIENT CHARACTERISTICS - SERIES 43000 HYBRID STEPPER MOTOR LINER ACTUATOR

SERIES 43000 HYBRID LINEAR ACTUATOR (SIZE 17: 43mm (1.7") HYBRID LINEAR ACTUATOR 1.8 degree step angle)						
Part No.	Captive	43H4(X)-V		43H6(X)-V		
	Non-Captive	43F4(X)-V		43F6(X)-V		
	External Lin.	E43H4(X)-V		E43H6(X)-V		
Wiring		Bipolar			Unipolar**	
Operating voltage		2.33 VDC	5 VDC	12 VDC	5 VDC	12 VDC
Current/phase		1.5 A	700 mA	290 mA	700 mA	290 mA
Resistance/phase		1.56Ω	7.2 Ω	41.5 Ω	7.2 Ω	41.5 Ω
Inductance/phase		1.9 mH	8.7 mH	54 mH	4.4 mH	27 mH
Power consumption		7 W				
Rotor inertia		37 gcm ²				
Temperature rise		135°F (75°C) Rise				
Weight		8.5 oz (241 g)				
Insulation resistance		20 M Ω				

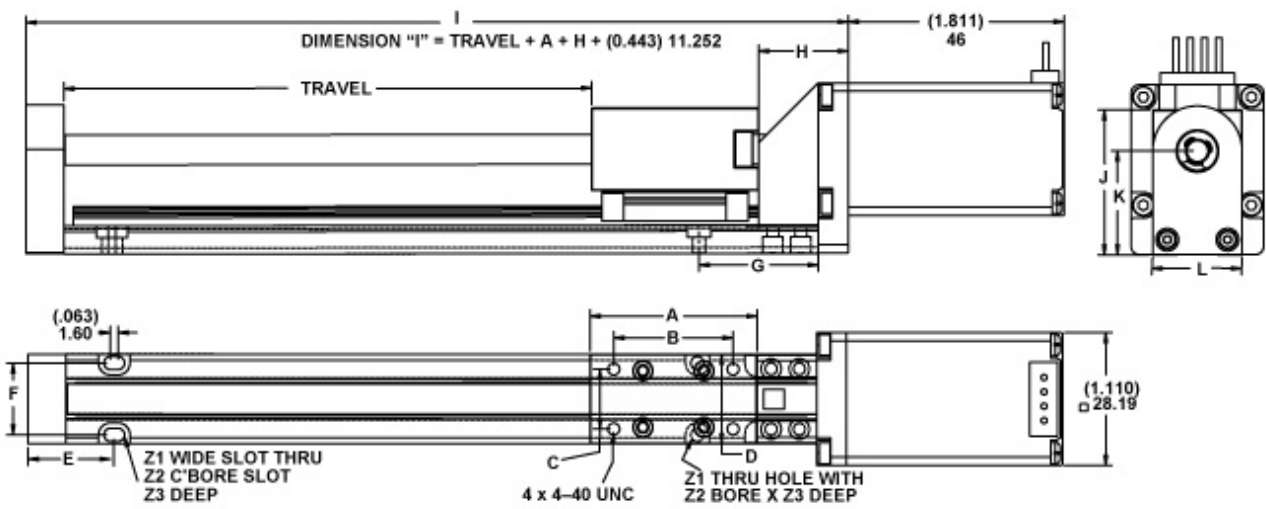
SALIENT CHARACTERISTICS - SERIES 43000 SIZE 17 HYBRID STEPPER MOTOR LINEAR ACTUATOR: HIGH RESOLUTION

SERIES 43000 HYBRID LINEAR ACTUATOR (SIZE 17: 43mm (1.7") HYBRID LINEAR ACTUATOR 0.9 degree step angle)						
Part No.	Captive	43K4(X)-V		43K6(X)-V		
	Non-Captive	43J4(X)-V		43J6(X)-V		
	External Lin.	E43K4(X)-V		E43K6(X)-V		
Wiring		Bipolar			Unipolar**	
Operating voltage		2.33 VDC	5 VDC	12 VDC	5 VDC	12 VDC
Current/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		2.6 mH	12 mH	70 mH	6 mH	35 mH
Power consumption		7 W				
Rotor inertia		37 gcm ²				
Temperature rise		135°F (75°C) Rise				
Weight		8.5 oz (241 g)				
Insulation resistance		20 M Ω				

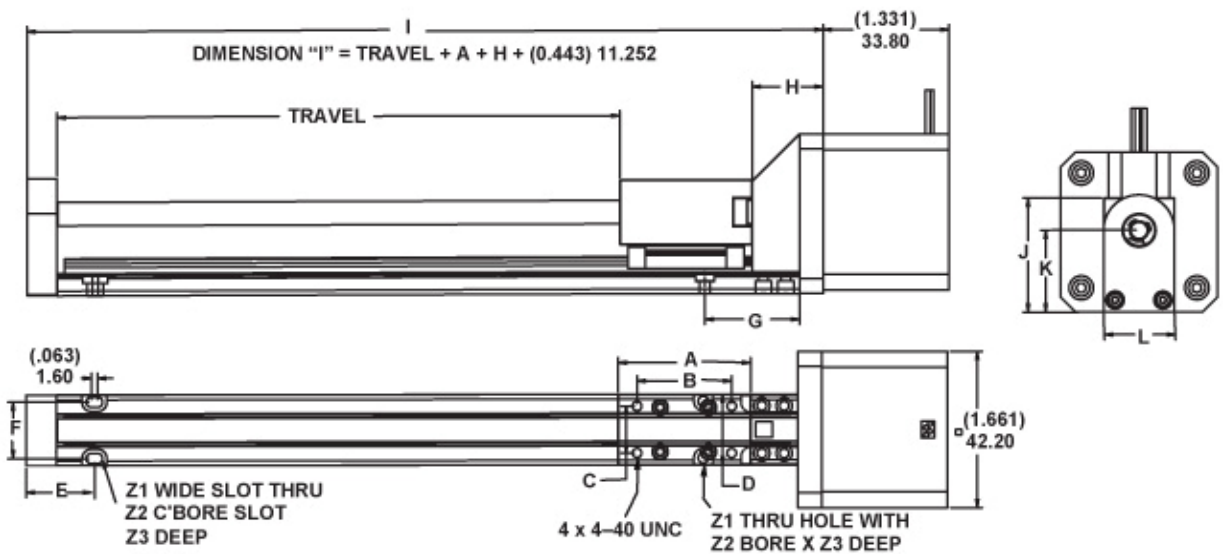
Unit of Measure	A	B	C	D	E	F	G	H	I	J	K	L	Z1	Z2	Z3
in.	1.40	1.00	0.50	0.75	0.693	0.60	1.00	0.75	*	1.22	0.87	0.75	0.11	0.20	0.09
(mm)	(35.6)	(25.4)	(12.7)	(19.1)	(17.6)	(15.2)	(25.4)	(19.1)	(*)	(30.9)	(22.1)	(19.1)	(2.8)	(5.1)	(2.3)

* "I" Dimension is a function of required travel distance

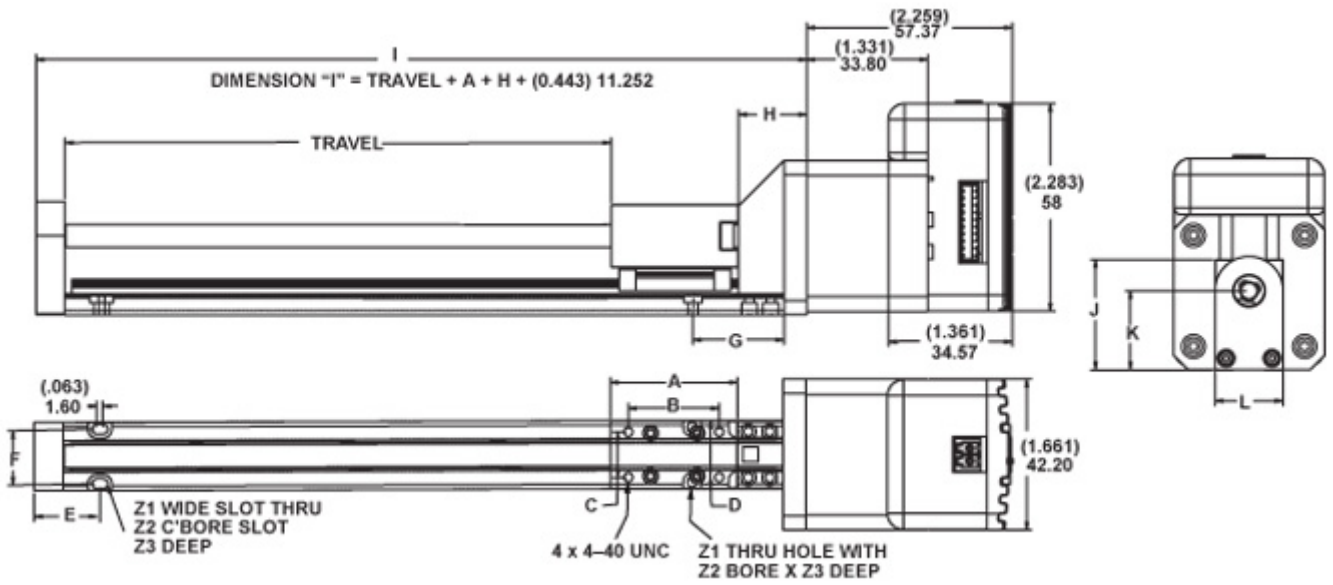
BGS04 Linear Rail with Size 11 Double Stack Stepper Motor (BGS04BR-M28)



BGS04 Linear Rail with Size 17 Single Stack Stepper Motor (BGS04BR-M43)



BGS04 Linear Rail with Size 17 Single Stack Stepper Motor/Integrated Drive (BGS04BR-G43)



BGS06 Linear Rail



Characteristics	Units	Value
Maximum Stroke Length	in (mm)	24 (610)
Maximum Load (Vertical)	lb (N)	See Motor Specs
Maximum Load (Horizontal)	lb (N)	135 (600)
Roll Moment	lb-ft (Nm)	11.62 (15.75)
Pitch Moment	lb-ft (Nm)	7.93 (10.75)
Yaw Moment	lb-ft (Nm)	9.15 (12.40)
Available Motors	Frame Size	Size 17 SS Size 17 DS
Integrated Drive Capability	Frame Size	Size 17 SS Size 17 DS

SALIENT CHARACTERISTICS - SERIES 43000 HYBRID STEPPER MOTOR LINER ACTUATOR 1.8 DEGREE

SERIES 43000 HYBRID LINEAR ACTUATOR (SIZE 17: 43mm (1.7") HYBRID LINEAR ACTUATOR 1.8 degree step angle)						
Part No.	Captive	43H4(X)-V		43H6(X)-V		
	Non-Captive	43F4(X)-V		43F6(X)-V		
	External Lin.	E43H4(X)-V		E43H6(X)-V		
Wiring		Bipolar			Unipolar**	
Operating voltage	2.33 VDC	5 VDC	12 VDC	5 VDC	12 VDC	
Current/phase	1.5 A	700 mA	2.90 mA	700 mA	2.90 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 mH	4.4 mH	27 mH	
Power consumption	7 W					
Rotor inertia	37 gcm ²					
Temperature rise	135°F (75°C) Rise					
Weight	8.5 oz (241 g)					

SALIENT CHARACTERISTICS - SERIES 43000 HYBRID STEPPER MOTOR LINER ACTUATOR 0.9 DEGREE

SERIES 43000 HYBRID LINEAR ACTUATOR (SIZE 17: 43mm (1.7") HYBRID LINEAR ACTUATOR 0.9 degree step angle)						
Part No.	Captive	43K4(X)-V		43K6(X)-V		
	Non-Captive	43J4(X)-V		43J6(X)-V		
	External Lin.	E43K4(X)-V		E43K6(X)-V		
Wiring		Bipolar		Unipolar**		
Operating voltage		2.33 VDC	5 VDC	12 VDC	5 VDC	12 VDC
Current/phase		1.5 A	700 mA	290 mA	700 mA	290 mA
Resistance/phase		1.56Ω	7.2 Ω	41.5 Ω	7.2 Ω	41.5 Ω
Inductance/phase		2.6 mH	12 mH	70 mH	6 mH	35 mH
Power consumption		7 W				
Rotor inertia		37 gcm ²				
Temperature rise		135°F (75°C) Rise				
Weight		8.5 oz (241 g)				
Insulation resistance		20 M Ω				

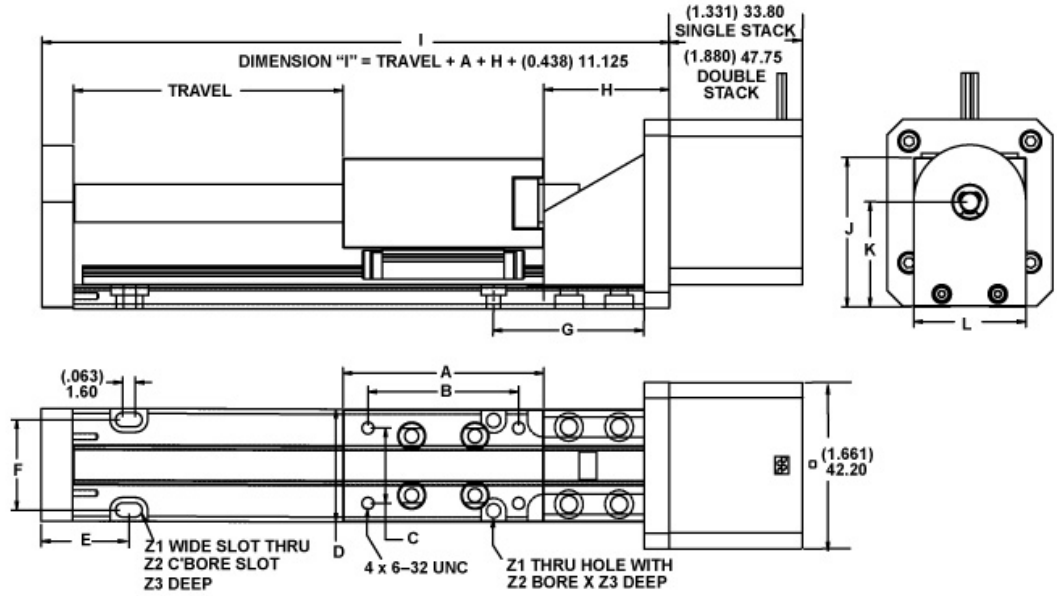
SALIENT CHARACTERISTICS - SERIES 43000 SIZE 17 DOUBLE STACK HYBRID STEPPER MOTOR LINEAR ACTUATOR

SERIES 43000 DOUBLE STACK LINEAR ACTUATOR (SIZE 17: 43mm (1.7") DOUBLE STACK LINEAR ACTUATOR 1.8 degree step angle)				
Part No.	Captive	43M4(X)-V		
	Non-Captive	43L4(X)-V		
	External Lin.	E43M4(X)-V		
Wiring		Bipolar		
Operating voltage		2.33 VDC	5 VDC	12 VDC
Current/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		14 W		
Max Load Limit		75 lbs (337 N)		
Temperature rise		135°F (75°C) Rise		
Weight		12.5 oz (352 g)		
Insulation resistance		20 M Ω		

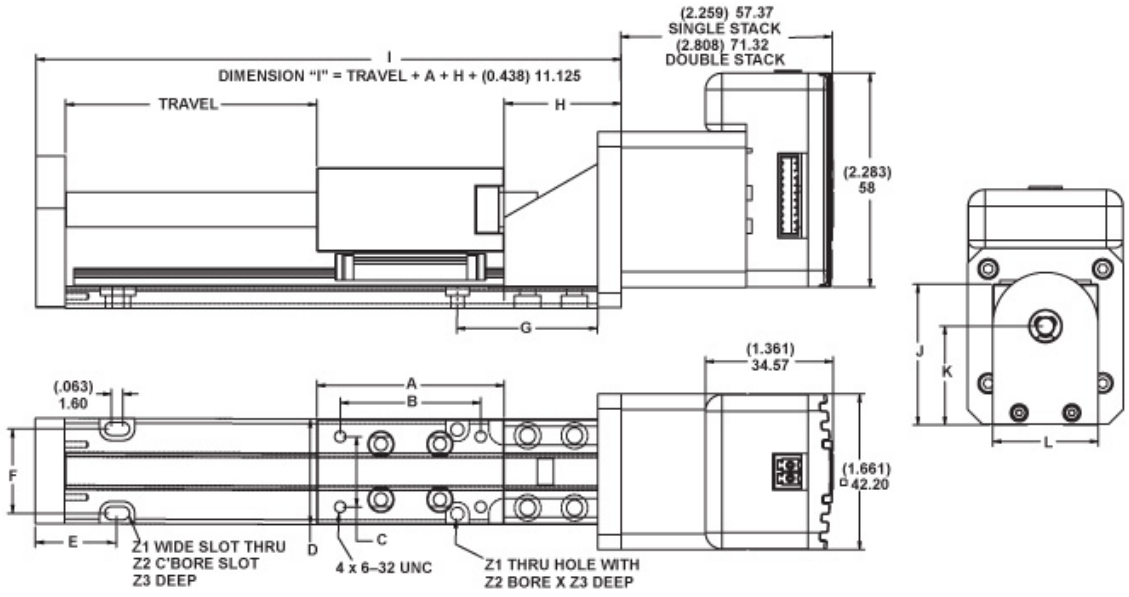
Unit of Measure	A	B	C	D	E	F	G	H	I	J	K	L	Z1	Z2	Z3
in.	2.00	1.50	0.75	1.13	0.813	0.90	1.50	1.25	*	1.50	1.05	1.13	0.14	0.25	0.13
(mm)	(50.8)	(38.1)	(19.1)	(28.6)	(20.6)	(22.9)	(38.1)	(31.8)	(*)	(38.2)	(26.8)	(28.6)	(3.6)	(6.4)	(3.3)

* "I" Dimension is a function of required travel distance

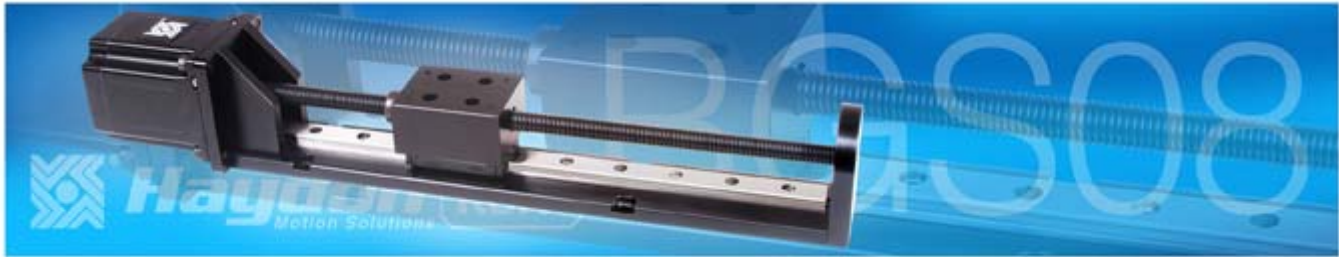
BGS06 Linear Rail with Size 17 Single Stack / Double Stack Stepper Motor (BGS06BR-M43)



BGS06 Linear Rail with Size 17 Stepper Motor / Integrated Drive (BGS06BR-G43)



BGS08 Linear Rail



Characteristics	Units	Value
Maximum Stroke Length	in (mm)	30 (760)
Maximum Load (Vertical)	lb (N)	See Motor Specs
Maximum Load (Horizontal)	lb (N)	225 (1000)
Roll Moment	lb-ft (Nm)	22.50 (30.50)
Pitch Moment	lb-ft (Nm)	19.36 (26.25)
Yaw Moment	lb-ft (Nm)	22.27 (30.20)
Available Motors	Frame Size	Size 23 SS Size 23 DS
Integrated Drive Capability	Frame Size	Size 23 SS Size 23 DS

SALIENT CHARACTERISTICS - SERIES 57000 HYBRID STEPPER MOTOR LINER ACTUATOR 1.8 DEGREE

SERIES 57000 HYBRID LINEAR ACTUATOR (SIZE 23: 57mm (2.3") HYBRID LINEAR ACTUATOR 1.8 degree step angle)						
Part No.	Captive	57H4(X)-V		57H6(X)-V		
	Non-Captive	57F4(X)-V		57F6(X)-V		
	External Lin.	E57H4(X)-V		E57H6(X)-V		
Wiring		Bipolar			Unipolar**	
Operating voltage		3.25 VDC	5 VDC	12 VDC	5 VDC	12 VDC
Current/phase		2.0 A	1.3 A	0.54 A	1.3 A	0.54 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				
Temperature rise		135°F (75°C) Rise				
Weight		18 oz (511 g)				
Insulation resistance		20 M Ω				

SALIENT CHARACTERISTICS - SERIES 57000 HYBRID STEPPER MOTOR LINER ACTUATOR 0.9 DEGREE

SERIES 57000 HYBRID LINEAR ACTUATOR (SIZE 23: 57mm (2.3") HYBRID LINEAR ACTUATOR 0.9 degree step angle)						
Part No.	Captive	57K4(X)-V		57K6(X)-V		
	Non-Captive	57J4(X)-V		57J6(X)-V		
	External Lin.	E57K4(X)-V		E57K6(X)-V		
Wiring		Bipolar			Unipolar**	
Operating voltage		3.25 VDC	5 VDC	12 VDC	5 VDC	12 VDC
Current/phase		2.0 A	1.3 A	0.54 A	1.3 A	0.54 A
Resistance/phase		1.63Ω	3.85 Ω	22.2 Ω	3.85 Ω	22.2 Ω
Inductance/phase		4.2 mH	13 mH	68 mH	6 mH	27 mH
Power consumption		13 W				
Rotor inertia		37 gcm ²				
Temperature rise		135°F (75°C) Rise				
Weight		18 oz (511 g)				
Insulation resistance		20 M Ω				

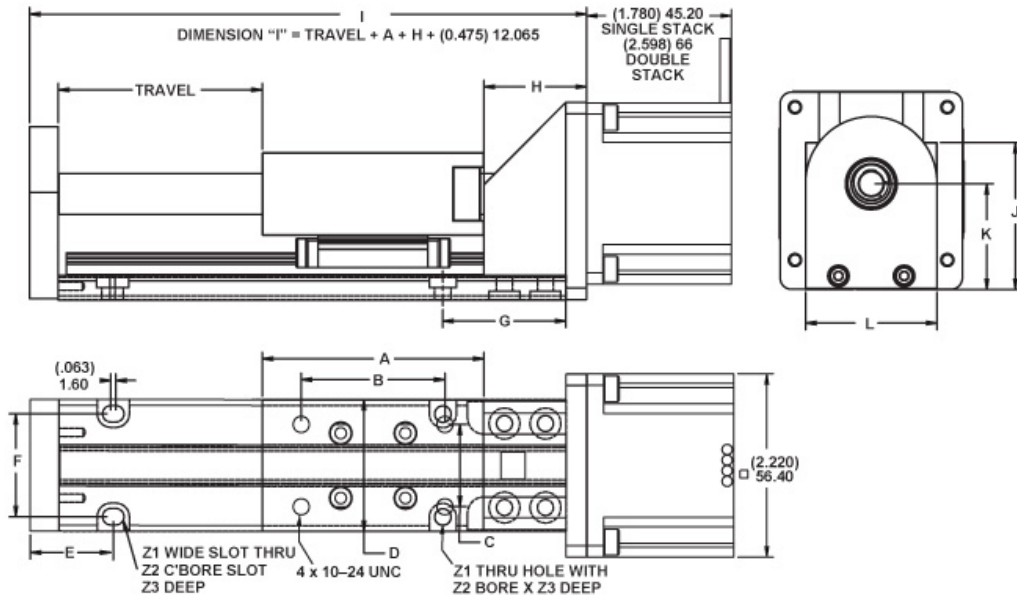
SALIENT CHARACTERISTICS - SERIES 57000 DOUBLE STACK HYBRID STEPPER MOTOR LINEAR ACTUATOR

SERIES 57000 DOUBLE STACK LINEAR ACTUATOR (SIZE 23: 57mm (2.3") DOUBLE STACK LINEAR ACTUATOR 1.8 degree step angle)				
Part No.	Captive	57M4(X)-V		
	Non-Captive	57L4(X)-V		
	External Lin.	E57M4(X)-V		
Wiring		Bipolar		
Operating voltage		3.25 VDC	5 VDC	12 VDC
Current/phase		3.85 A	2.5 A	1 A
Resistance/phase		0.8 Ω	2 Ω	12 Ω
Inductance/phase		2.3 mH	7.6 mH	35 mH
Power consumption		25 W		
Temperature rise		135°F (75°C) Rise		
Weight		32 oz (958 g)		
Insulation resistance		20 M Ω		

Unit of Measure	A	B	C	D	E	F	G	H	I	J	K	L	Z1	Z2	Z3
in.	2.70	1.75	1.00	1.60	0.975	1.25	1.50	1.25	*	1.79	1.30	1.60	0.20	0.33	0.19
(mm)	(68.6)	(44.5)	(25.4)	(40.6)	(24.8)	(31.8)	(38.1)	(31.8)	(*)	(45.4)	(33.0)	(40.6)	(5.1)	(8.4)	(4.8)

* "I" Dimension is a function of required travel distance

BGS08 Linear Rail with Size 23 Single Stack / Double Stack Stepper Motor (BGS08BR-M57)



BGS08 Linear Rail with Size 23 Stepper Motor / Integrated Drive (BGS08BR-G57)

