

43000 Series Size 17, 0.9° High Resolution Motor

The Size 17 High Resolution Actuator features a production-proven, patented rotor drive nut that delivers trouble-free, long-term performance.

Size 17: 43 mm (1.7-in) Hybrid Linear Actuator (0.9° Step Angle)									
Part No.	Captive	43K4	-	-	†	43K6	-	-	†
	Non-Captive	43J4	-	-	†	43J4	-	-	†
	External Linear	E43K4	-	-	†	E43K6	-	-	†
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	2.6 mH	12 mH	70 mH	6 mH	35 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 MΩ								

†Part numbering information on page 111. **Unipolar drive gives approximately 30% less thrust than bipolar drive.

Linear Travel / Step		Order Code I.D.
Screw Ø .218" (5.54 mm)		
inches	mm	
.00006	.0015*	U
.00012	.0030*	N
.00024	.0060*	K
.00048	.0121*	J
.00096	.0243*	Q

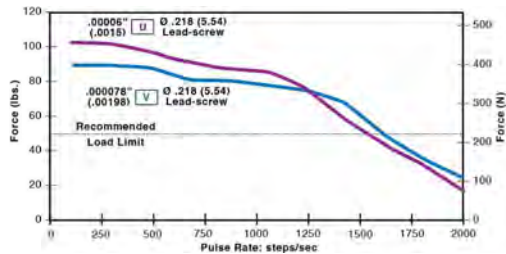
Linear Travel / Step		Order Code I.D.
Screw Ø .250" (6.35 mm)		
inches	mm	
.000078*	.00198*	V
.00015625	.0039*	P
.0003125	.0079*	A
.000625	.0158*	B

*Values truncated.

Standard motors are Class B rated for maximum temperature of 130°C.
NOTE: Refer to performance curves on previous page for codes N, K, J, Q, P, A, B

Special drive considerations may be necessary when leaving shaft fully extended or fully retracted.

FORCE vs. PULSE RATE – Chopper – Bipolar – 100% Duty Cycle
– 18:1 Motor Coil to Drive Supply Voltage
with two available lead screw diameters

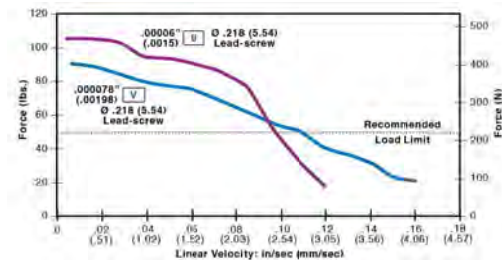


NOTE: All chopper drive curves were created with a 5 volt motor and a 40 volt power supply.

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.

FORCE vs. LINEAR VELOCITY – Chopper – Bipolar – 100% Duty Cycle
– 18:1 Motor Coil to Drive Supply Voltage
with two available lead screw diameters



43000 Series Size 17 Hybrid Linear Actuators with integrated IDEA™ Drive

High performance in a compact package

The 43000 Series Single Stack actuator is available in a wide variety of resolutions – from 0.00006-in (.001524 mm) per step to 0.00192-in (.048768mm) per step. Delivers output force of up to 50 lbs (220N), or speeds exceeding 3 inches (7.62 cm) per second.

43000 Series with IDEA™ Drive features:

- 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

3 Available Designs

- Captive – Non-Captive – External Linear



NOTE: For more information see the Haydon Kerk IDEA™ Drive Data Sheet.

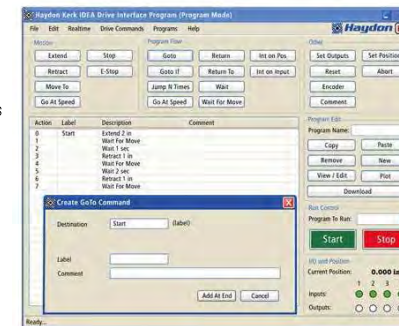
Size 17 Single Stack: 43 mm (1.7-in) Hybrid Linear Actuator (1.8° Step Angle)				
Part No.	RS-485*		USB**	
	Captive	43HJ	43HG	43HG
	Non-Captive	43FJ	43FG	43FG
External Linear	E43HJ		E43HG	
Wiring		Bipolar		
Winding Voltage		2.33 VDC***		

†Part numbering information on page 113.

*Complementary RS-485 based drive ** USB-based IDEA drive ***Contact Haydon Kerk if a higher voltage motor is desired. Special drive considerations may be necessary when leaving shaft fully extended or fully retracted.

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

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



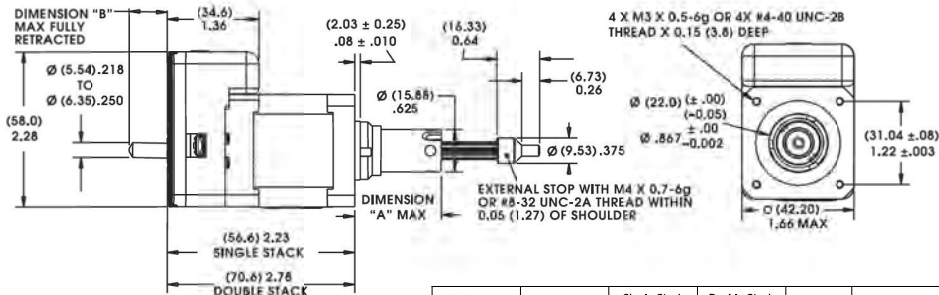
Linear Travel / Step		Order Code I.D.
Screw Ø .218" (5.54 mm)		
inches	mm	
.00012	.0030*	N
.00024	.0060*	K
.00048	.0121*	J
.00096	.0243*	Q
.00192	.0487*	R

Linear Travel / Step		Order Code I.D.
Screw Ø .250" (6.35 mm)		
inches	mm	
.00015625	.0039*	P
.0003125	.0079*	A
.000625	.0158*	B
.00125	.0317*	C

*Values truncated.

Captive Lead Screw

Dimensions = (mm) inches

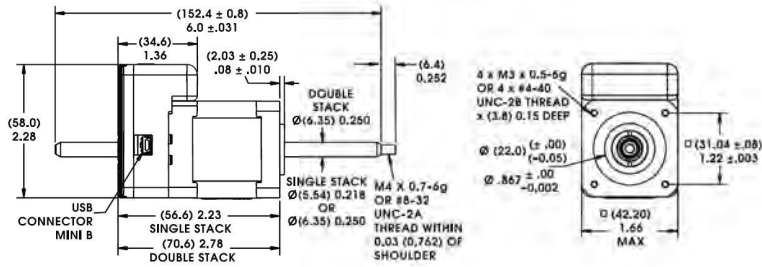


Stroke	Dim. "A"	Single Stack Dim. "B"	Double Stack Dim. "B"	Suffix #	M4x0.7 Thread
0.500 (12.7)	0.78 (19.8)	0	0	-905	-805
0.750 (19.05)	1.03 (26.2)	0	0	-907	-807
1.000 (25.4)	1.28 (32.5)	0	0	-910	-810
1.250 (31.8)	1.53 (38.9)	0	0	-912	-812
1.500 (38.1)	1.78 (45.2)	0.232 (5.9)	0.091 (2.5)	-915	-815
2.00 (50.8)	2.28 (57.9)	0.732 (18.6)	0.591 (15.0)	-920	-820
2.500 (63.5)	2.78 (70.6)	1.232 (31.3)	1.091 (27.7)	-925	-825

Non-Captive Lead Screw

Dimensions = (mm) inches

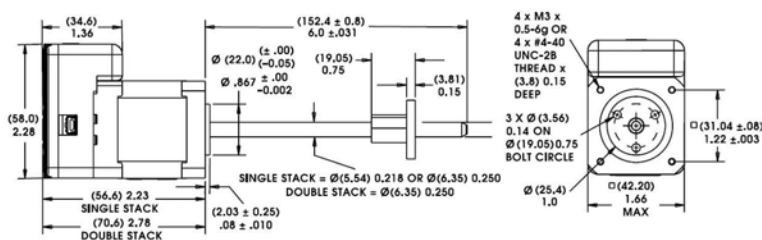
Up to 10-in (254 mm) standard screw lengths. Longer screw lengths are available.



External Linear

Dimensions = (mm) inches

Up to 10-in (254 mm) standard screw lengths. Longer screw lengths are available.

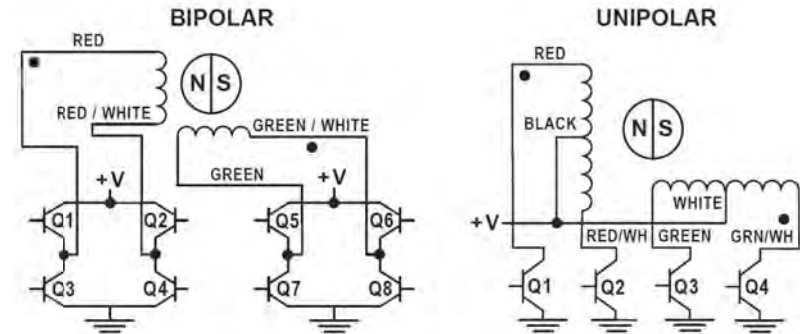


Identifying the Hybrid Part Number Codes when Ordering

E	43	H	6	N	2.33	910
Prefix (include only when using the following) A = A Coil (See AC Synchronous Data Sheet) E = External K = External with 40° thread form P = Proximity Sensor S = Home Position Switch	Series Number Designation 43 = 43000 (Series numbers represent approximate width of motor body)	Style F = 1.8° Non-captive H = 1.8° Captive or External (use "E" or "K" Prefix for External version) J = 0.9° Non-captive K = 0.9° Captive or External (use "E" or "K" Prefix for External version)	Coils 4 = Bipolar (4 wire) 6 = Unipolar (6 wire) G = IDEA Drive (Size 17, 43000 Series, Bipolar only)	Code ID Resolution Travel/Step N = .00012-in (.0030) K = .00024-in (.0060) J = .00048-in (.0121) Q = .00096-in (.0243) P = .00015625-in (.0039) A = .0003125-in (.0079) B = .000625-in (.0158) C = .00125-in (.0317) R = .00192-in (.0478) High Resolution U = .00006-in (.0015) V = .000078-in (.00198)	Voltage 2.33 = 2.33 VDC 05 = 5 VDC 12 = 12 VDC Custom V available	Suffix Stroke Example: -910 = 1-in (Refer to Stroke chart on Captive motor series product page.) Suffix also represents: -800 = Metric -900 = External Linear with grease and flanged nut -XXX = 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 203 756 7441.

Hybrids: Wiring



Hybrids: Stepping Sequence

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

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