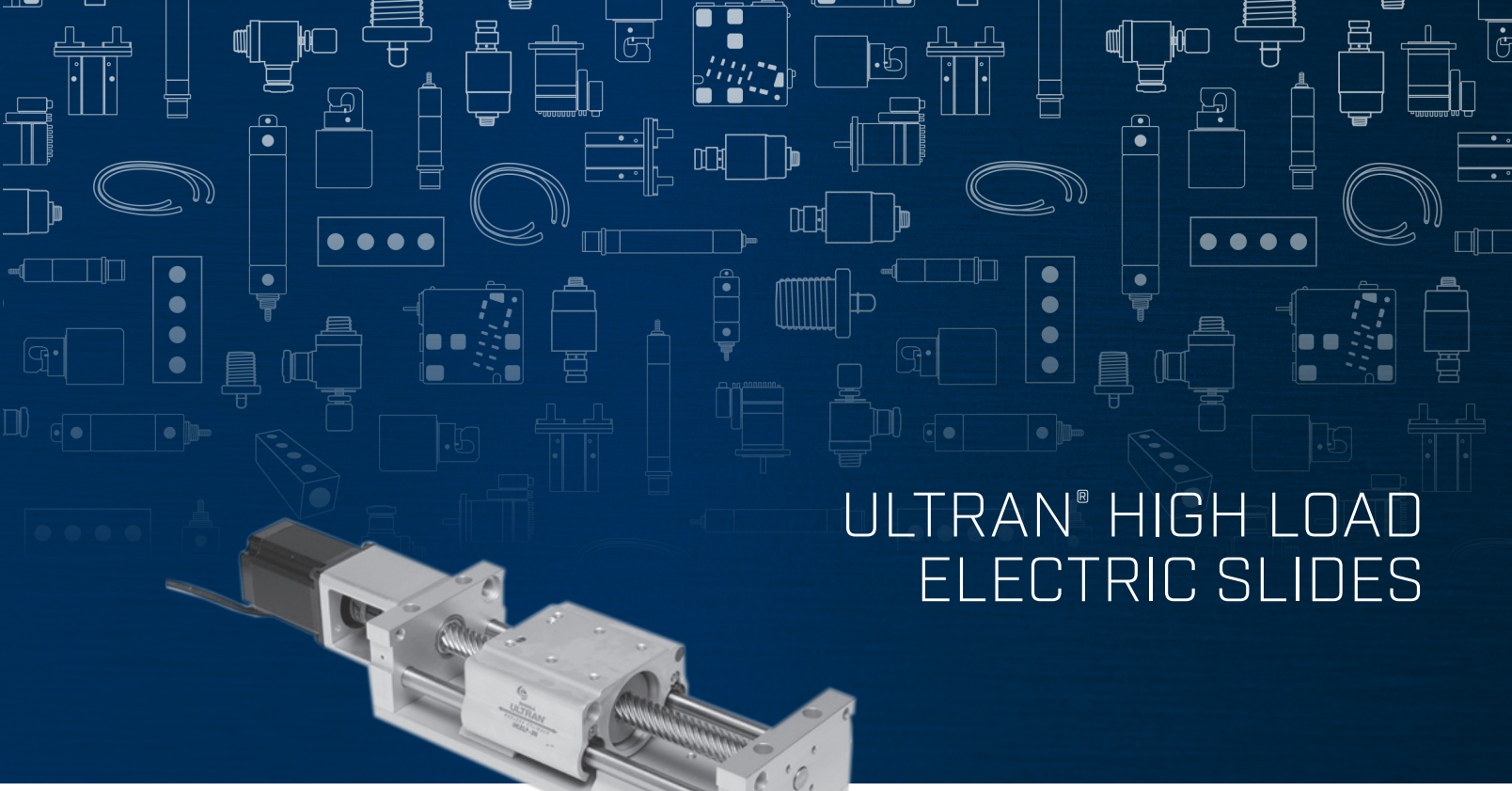
ULTRAN® HIGH LOAD ELECTRIC SLIDES

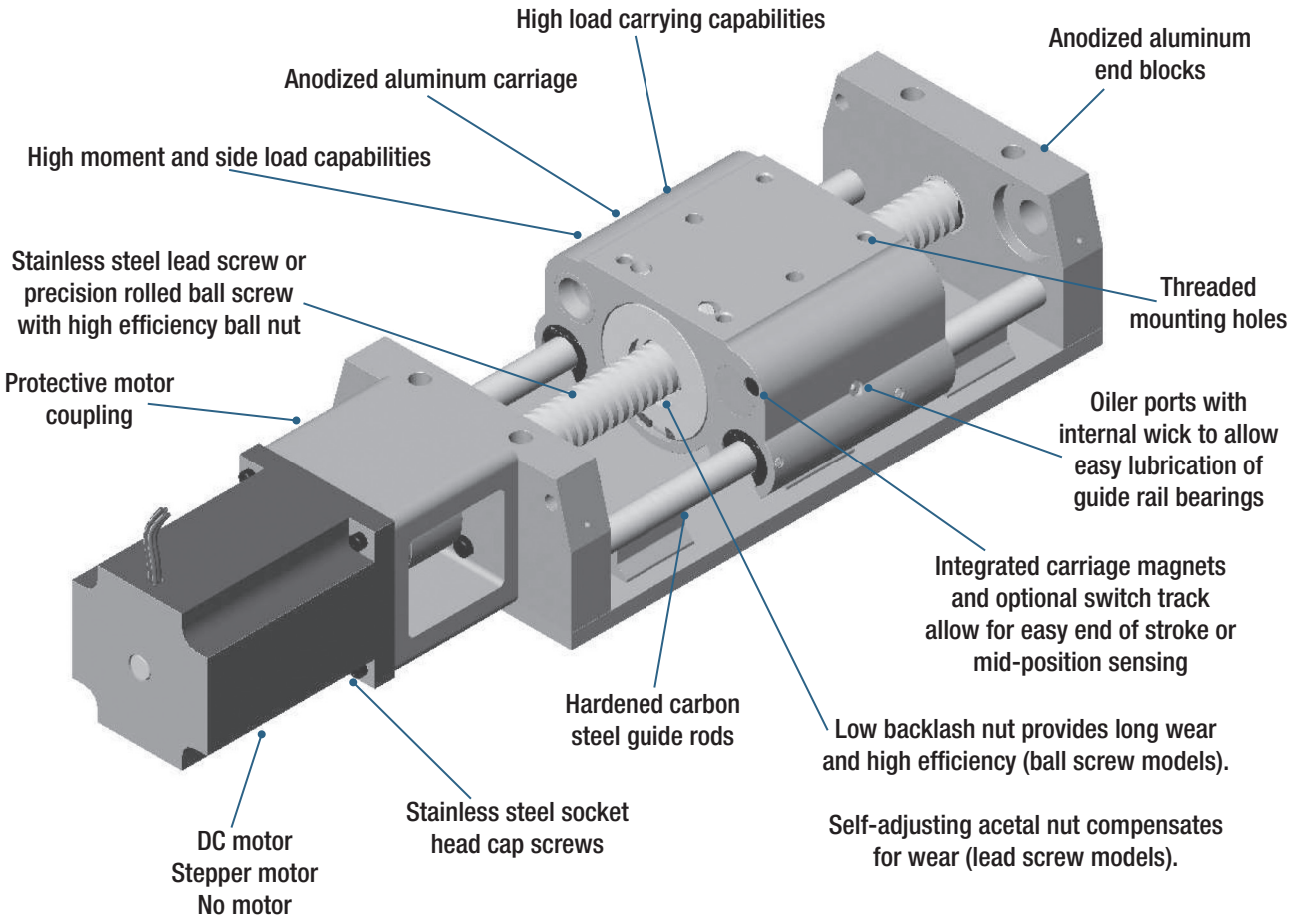


ULTRAN® HIGH LOAD ELECTRIC SLIDES

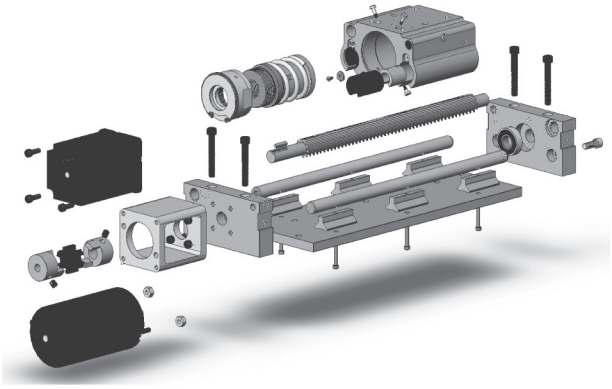
The Ultran® High Load Electric (UHLE) Rodless actuator is a practical solution for positioning applications. They are available without motors, or with DC, stepper, or servo motors. The DC motor option provides thrust and speed suitable for a wide variety of applications.

The Bimba UHLE is the electric version of the Bimba Ultran® High Load Pneumatic Slide. It employs the same robust anodized aluminum high-strength carriage, hardened carbon steel guide rods, and heavy-duty end blocks and enclosure base that matches and exceeds the low-backlash, long wear and high efficiency of the large diameter ballscrew to provide rodless motion control with outstanding accuracy and repeatability.

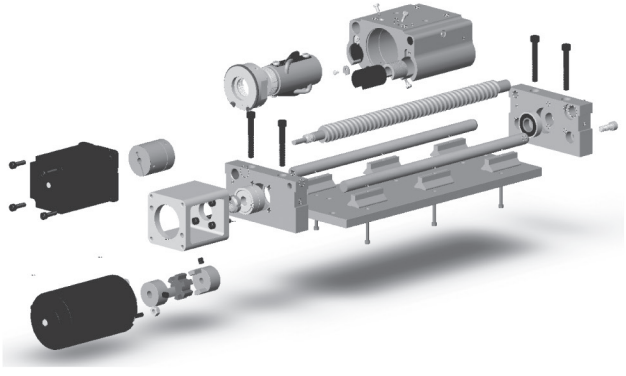
PRODUCT FEATURES



Lead Screw and Coarse Frame



Ball Screw and Fine Frame



Select "Coarse Position Accuracy" if you require no more than 0.100 inch mid-stroke position control. Select "Fine Positioning Accuracy" if you require better than 0.010 inch mid-stroke position control.

The Bimba UHLE open frame rodless actuator uses an external DC stepper or servo motor. This motor drives an external high efficiency ball drive screw, which spins a drive ball nut assembly attached to the high load carriage. As the ball nut turns, it transfers linear motion to the carriage. At the same time, the guide rails, guide rail bearings, and heavy duty carriage provide maximum load support and side load capability found in the Bimba pneumatic version of this model. The high efficiency of the ballscrew allows high thrust forces with a relatively small motor due to the maximum mechanical advantage garnered from the ballscrew.

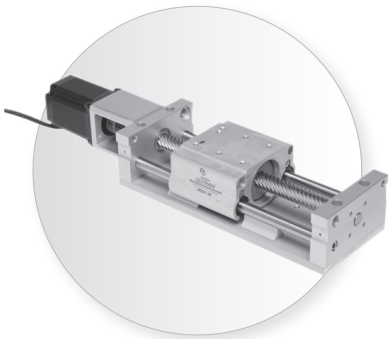
MATERIALS OF CONSTRUCTION

Carriage:	Anodized Aluminum
Guide Rods:	Hardened Carbon Steel
End Blocks:	Anodized Aluminum
Lead Screw:	Stainless Steel
Bearings:	Polymer
Base:	Anodized Aluminum

HOW IT'S USED

APPLICATION IDEAS

- Pick & Place
- Sorting
- Loading
- Lifting
- Pressing
- Stacking
- Insertion
- Clamping
- Parts Transfer
- Diverting



TARGET APPLICATIONS

The UHLE is intended for medium-duty industrial applications that require flexibility, high thrust, and extreme precision with robust load and moment loading capacity in relatively clean environments. When your application calls for precision with up to 208 lbs of thrust load and speed capability in the 40 inches/second range, the UHLE offers you a canned solution with outstanding performance and value.

For applications that call for an alternative solution to a traditional pneumatic application or a more precise positioning solution to the Bimba Ultran High Load pneumatic slide, the UHLE offers the best of both worlds: robustness and precision.

DRIVE OPTIONS

There are many Bimba stepper, servo, and direct-drive motors to choose from, so configuring an electric actuator that best meets the needs of even your most demanding application has never been easier. Gearboxes are also available.

ADVANTAGES

FEATURE	ADVANTAGE	BENEFIT
Anodized aluminum high-strength carriage	Supports more axial and moment loading	Move more load per unit size
Optional ballscrew or lead screw	Match the best technology to the application	Saves cost; improves ROI
DC stepper or servo motor	Match the best technology to the application	Saves cost; optimizes performance
Long screw leads available	Maximizes speed	Allows more throughput

SIZE/APPLICATION CONSIDERATIONS

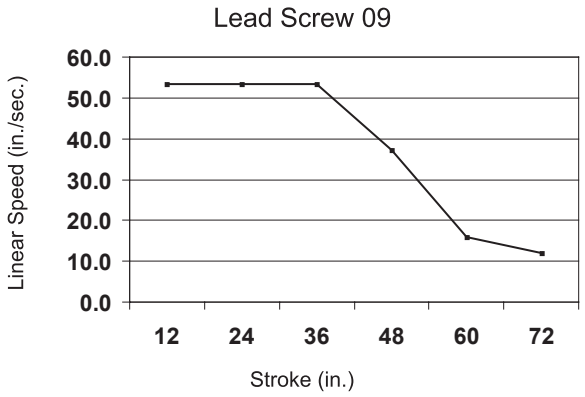
No Motor Provided

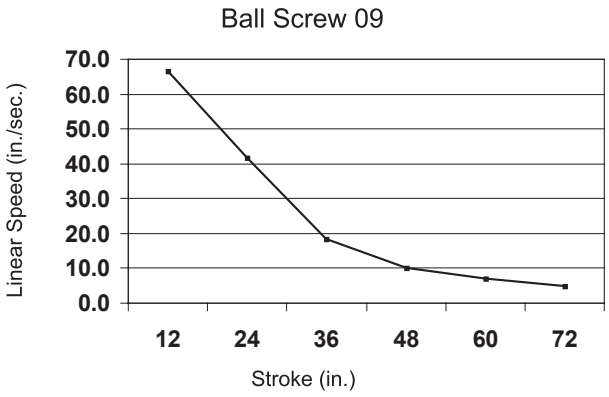
BASE PART NUMBER	SCREW DIAMETER (in)	SCREW TYPE	LEAD (in[1])	ACCURACY[2] (in)	REPEATABILITY[3] (in)	MAXIMUM THRUST (lbs)	INERTIA[4] PER INCH (oz-in^2)	CARRIAGE SUB-ASSEMBLY WEIGHTS (lbs)
09 Frame Slide, No Motor								
UHLECLN-09	0.75	Lead	2	0.015	0.008	175	0.11	2.1
UHLEFLN-09	0.75	Lead	2	0.015	0.008	175	0.11	2.1
UHLECBN-09	0.75	Ball	0.5	0.020	0.009	175	0.11	1.9
UHLEFBN-09	0.75	Ball	0.5	0.020	0.009	175	0.11	1.9
17 Frame Slide, No Motor								
UHLECLN-17	1	Lead	0.5	0.015	0.002	270	0.40	4.1
UHLEFLN-17	1	Lead	0.5	0.015	0.002	270	0.40	4.1
UHLECBN-17	1	Ball	1	0.020	0.002	270	0.40	4.8
UHLEFBN-17	1	Ball	1	0.020	0.002	270	0.40	4.8

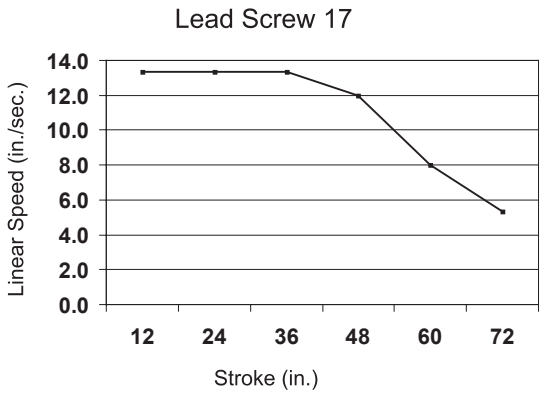
[1] *Inches per revolution of screw.*
[2] *Amount of end play on carriage when screw is fixed.*
[3] *Ability to return to a zero position. Determined with a motor and control combination.*
[4] *Inertia is given per inch of stroke of cylinder.*

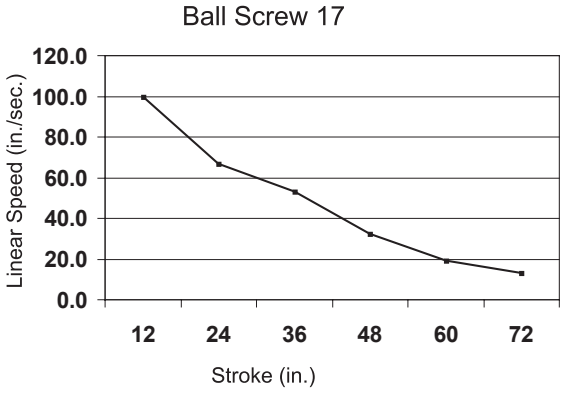
NOTE: Maximum allowable loads and moments, same as UHL, page 5.30 of the Bimba Full Line Catalog.

MAXIMUM SPEED CURVES (TO AVOID SCREW RESONANT FREQUENCY)









SIZE/APPLICATION CONSIDERATIONS

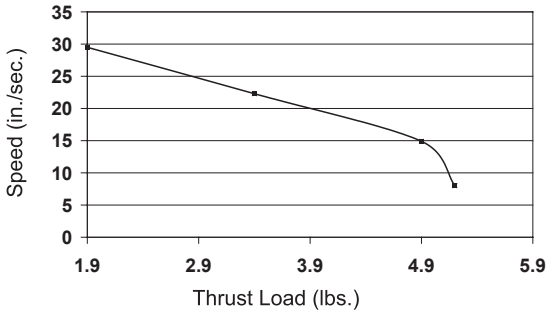
DC Motor Driven

BASE PART NUMBER	MAXIMUM THRUST (lbs)	MAXIMUM SPEED AT NO LOAD (in/s)	LEAD[1] (in)
24VDC 4200 RPM 60 oz.-in. DC Motor			
UHLECLD-09	5.2	40	2
UHLEFLD-09	5.2	40	2
UHLECBD-09	23.5	33	0.5
UHLEFBD-09	23.5	33	0.5
90VDC 6000 RPM 234 oz.-in. DC Motor			
UHLECLD-17	168	16.6	0.5
UHLEFLD-17	168	16.6	0.5
UHLECBD-17	168	33	1
UHLEFBD-17	168	33	1

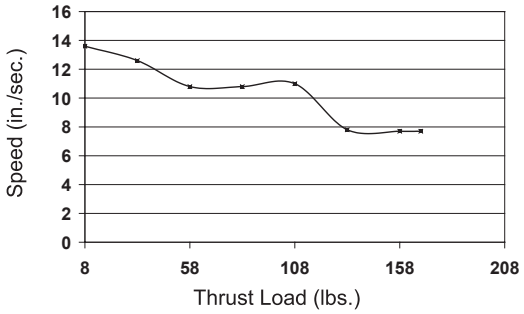
[1] *Inches per revolution of screw*

Lead Screw Speed/Load Curves

UHLE_LD-09

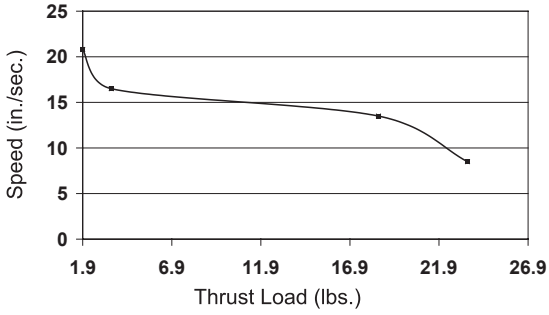


UHLE_LD-17

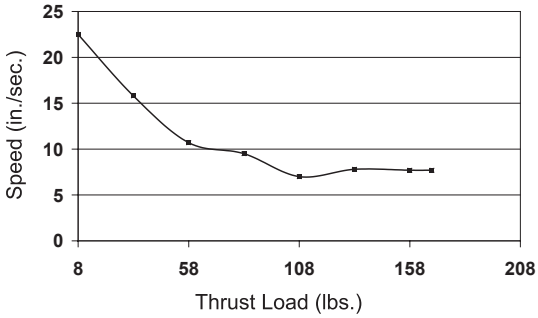


Ball Screw Speed/Load Curves

UHLE_BD-09



UHLE_BD-17



To use with Bimba position sensors, order Options T or U. Sensor selection is provided in the Switches chapter of this catalog.

Thrust refers to the available force to move a load. Use the speed/load curves to choose the right product for your application. The graphs define the maximum speed at which the given thrust load can be moved (averaged over 6 inches of travel).

Select "Coarse Position Accuracy" if you require no more than 0.100 inch mid-stroke position control. Select "Fine Positioning Accuracy" if you require better than 0.010 inch mid-stroke position control.

DC Motor Specifications

	09 SERIES	17 SERIES
RPM (no load)	4200	3200
Voltage	24V DC	90V DC
Torque	60 oz.-in.	234 oz.-in.
Amps (full load)	9A DC	7.8A DC
Resistance	N/A	0.86 Ohms
Inductance	N/A	2.76 mH
Inertia	N/A	0.00394 lb.-in.-s^2

SIZE/APPLICATION CONSIDERATIONS

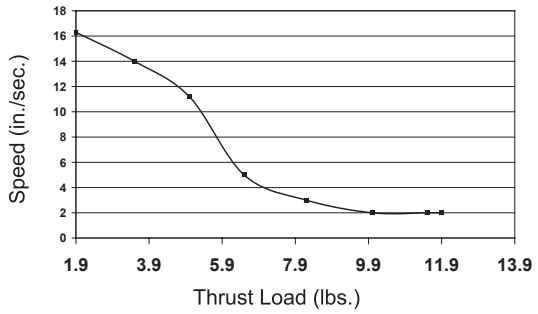
Stepper Motor Driven

BASE PART NUMBER	MAXIMUM THRUST (lbs)	MAXIMUM SPEED AT NO LOAD (in/s)	LEAD[1] (in)
NEMA 23 1.8° 24V 6.5A Stepper Motor			
UHLECLP-09	12	20	2
UHLEFLP-09	12	20	2
UHLECBP-09	71	19	0.5
UHLEFBP-09	71	19	0.5
NEMA 34 1.8° 48V 7.7A Stepper Motor			
UHLECLP-17	183	15	0.5
UHLEFLP-17	183	15	0.5
UHLECBP-17	200	25	1
UHLEFBP-17	200	25	1

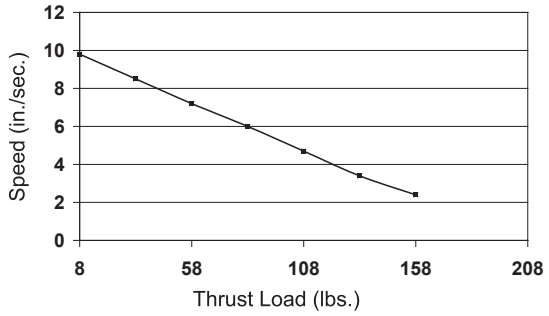
[1] *Inches per revolution of screw*

Lead Screw Speed/Load Curves

UHLE_LP-09

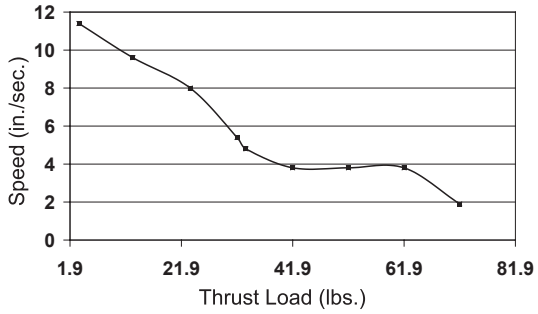


UHLE_LP-17

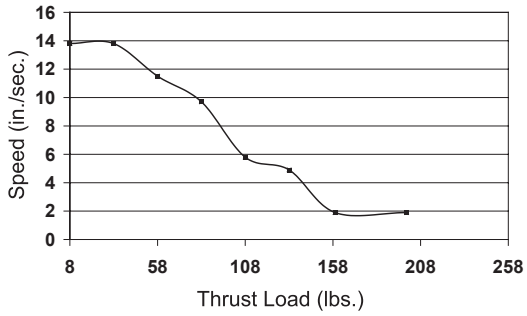


Ball Screw Speed/Load Curves

UHLE_BP-09



UHLE_BP-17



To use with Bimba position sensors, order Options T or U. Sensor selection is provided in the Switches chapter of this catalog.

Thrust refers to the available force to move a load. Use the speed/load curves to choose the right product for your application. Each point on the graph shows the maximum average speed to move a corresponding thrust load six inches. The graphs define the maximum speed at which the given thrust load can be moved (averaged over 6 inches of travel).

Select "Coarse Position Accuracy" if you require no more than 0.100 inch mid-stroke position control. Select "Fine Positioning Accuracy" if you require better than 0.010 inch mid-stroke position control.

Stepper Motor Specifications

	09 SERIES	17 SERIES
Amps/Phase	6.50 A	7.70 A
Torque	294 oz.-in.	1288 oz.-in.
Resistance/phase	0.3 Ohms	0.3 Ohms
Inductance/phase	1.3 mH	2.7 mH
Inertia	2.60 oz.-in.	21.90 oz.-in.
Number of leads	4	4

DIMENSIONS (INCHES)

For No Motor Option, motor mount for 09 Frame accepts 23 Frame motors, and motor mount for 17 Frame accepts 34 Frame motors. For complete data, see page _____. Other than where noted, dimensions are identical to UHL pneumatic slides.

Dowel Pin Hole Accuracy
09 Frame .2520/.2530 x .42 Dp and 0.10 on position
17 Frame .3145/.3155 x .57 Dp and 0.10 on position

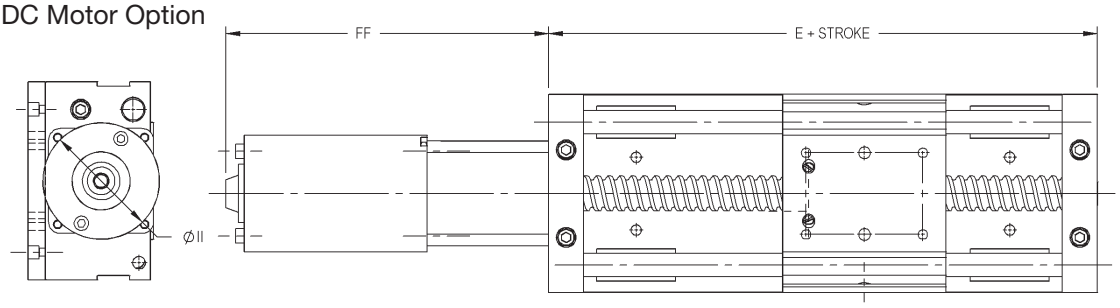
Fine Frame Dimensions

FRAME SIZE	E	FF	GG	HH	II	JJ	KK	LL	MM	NN	OO
09	5.00	6.91	5.68	2.60	2.49	2.24	1.86	2.25	0.25	#10.-24	1.60
17	6.50	11.55	7.72	3.07	3.25	3.38	2.74	3.38	0.50	#10-24	1.91

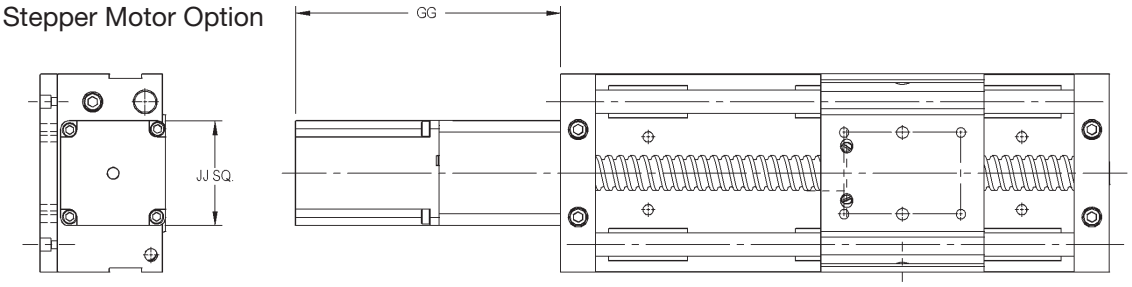
Coarse Frame Dimensions

FRAME SIZE	E	FF	GG	HH	II	JJ	KK	LL	MM	NN	OO
09	5.00	6.91	5.68	2.60	2.49	2.24	1.86	2.25	0.50	#10.-24	1.60
17	6.50	11.55	7.72	3.07	3.25	3.38	2.74	3.38	0.50	#10-24	2.00

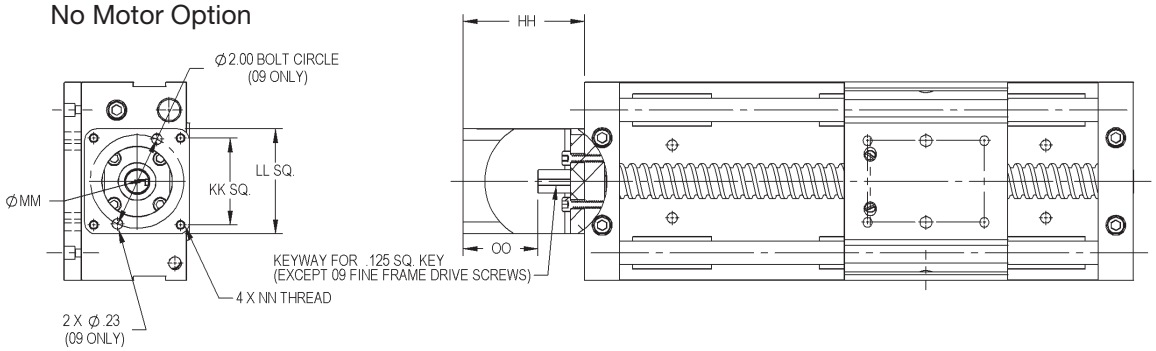
DC Motor Option



Stepper Motor Option



No Motor Option



DC MOTOR LEAD CONFIGURATION

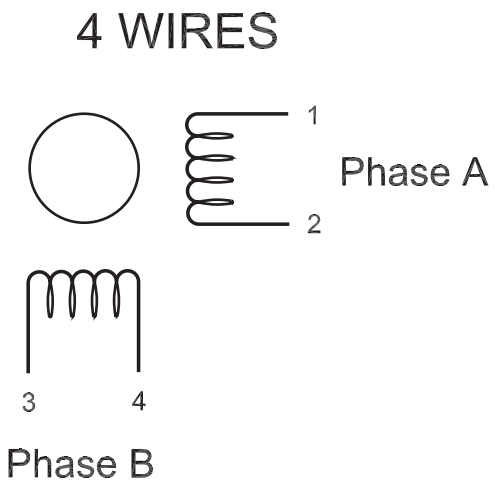
DC MOTORS, 2 LEAD WIRES				
	MOTOR +	MOTOR -	CASE GROUND	LEAD TYPE
09 Frame	Gray	Black	None	Flying leads, #14 AWG, 10" nominal length, UL style 1230 wire with PVC insulation
17 Frame	Red	Black	White	Corded flying leads, #16 AWG, 18" minimum length

Use the chart above to determine how to interface your DC motor to the DC motor control of your choice.

STEPPER MOTOR LEAD CONFIGURATION

BIPOLAR MOTORS, 4 LEAD WIRES						
	1	2		3	4	
09 Frame	Red	Blue		Green	Black	
17 Frame	Red	Red	White	Green	Green	White
Bipolar Drive	A	A		B	B	

Use the chart above and the schematic to the right to determine which wires correspond to which windings. Connect to your controller accordingly. Bipolar drive terminals will be labeled A, A-, B, B-.



SWITCH SPECIFICATIONS

BASE PART NUMBER	GENERAL DESCRIPTION	SENSOR TYPE	OUTPUT TYPE	OPERATING VOLTAGE (V)	ACTUATING TIME	MAXIMUM LOAD CURRENT	REVERSE POLARITY PROTECTION	OVER-VOLTAGE PROTECTION	TRANSIENT PROTECTION	TEMP. RATING	ENCLOSURE
Track Mounted Switches, Option T											
HC	PNP, LED	GMR	Sourcing, PNP	4.5 to 30 VDC	0.001 mS	150 mA	Yes	Yes	Yes	-25°C to 85°C	IP67
HK	NPN, LED	GMR	Sinking, NPN	4.5 to 30 VDC	0.001 mS	150 mA	Yes	Yes	Yes	-25°C to 85°C	IP67
Track Mounted Switches, Option U											
MR	Reed, 4mm round, LED	Reed	Normally Open Contact	3 to 120 VAC, 3 to 24 VAC	1.0 mS	25 mA	No	No	No	-25°C to 85°C	IP67
MS	PNP or NPN, 4mm round, LED	GMR	Auto Configure, Sinking or Sourcing	5 to 24 VDC	1.0 mS	50 mA	Yes	Yes	Yes	-20°C to 85°C	IP67
MSC	PNP, 4mm round, LED	GMR	Sourcing, PNP	5 to 24 VDC	0.1 mS	50 mA	Yes	Yes	Yes	-25°C to 85°C	IP67
MSK	NPN, 4mm round, LED	GMR	Sinking, NPN	5 to 24 VDC	0.1 mS	50 mA	Yes	Yes	Yes	-25°C to 85°C	IP67
End of Stroke Switches											
RSU-1	Reed, 2 wire, no LED, 10 watts	Reed	Normally Open Contact	200 VDC	1.0 mS	500 mA	No	No	No	-25°C to 85°C	IP65
PCQ	PNP, Proximity, LED	Inductive	Sourcing, PNP	10 to 30 VDC	0.33 mS	100 mA	Yes	Yes	Yes	-25°C to 70°C	IP67
PKQ	NPN, Proximity, LED	Inductive	Sinking, NPN	10 to 30 VDC	0.33 mS	100 mA	Yes	Yes	Yes	-25°C to 70°C	IP67

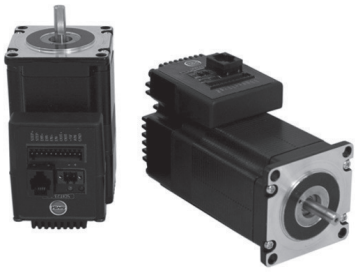
MOTORS AND DRIVES

Bimba motors are available to use as the rotary drive mechanism of the UHLE Series. With a complete array of stepper and servo motors available in stock, Bimba has a motor*-drive solution that meets many demanding applications.

Configuring your motor and creating your first motion profile program is easier than ever with Bimba's intuitive and icon based IQ® suite of motion software. With our complete software suite available for free download from the Bimba website, there is no additional cost to your motion project. All Bimba stepper and servo programming software uses the same IQ® programming software, greatly reducing the learning curve. Existing programs can be easily shared or adapted among the two motor technologies.

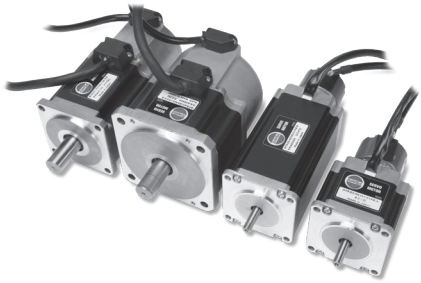
See the Motors and Drives section for Bimba's wide selection of available motors and motor drives.

**Contact Bimba's Customer Service team for help in crossing your motor to a Bimba motor.*



IntelliMotor®
ITM-23Q-2-EIP-E-M12

AC Stepper Motor
MTR-AC23T-753-S



AC Servo Motor

SWITCHES

Switches add versatility to your electric motion application. They can be used to provide end of stroke limits, count strokes, or communicate positioning to an outside source. Switches can provide safety to applications as well, preventing undesirable situations like runaways to prevent damage.

To learn more about Bimba's available switch selection, refer to the Switches section in this catalog.

HOW TO ORDER

Bimba Electric Ultran® High Load Slides are practical solutions for positioning applications. They are available without motors, with DC motors, or with stepper motors. The DC motor option provides thrust and speed suitable for a wide variety of applications. The stepper motor option provides similar capabilities but allows for more precise positioning. Contact Bimba for your custom requirements.

To select a motorized product, first determine the maximum thrust required for your application. Refer to the graphs on pages **BLANK**. Next determine the speed required. Higher speeds may require a more powerful motor and frame. After the motor and frame are selected, determine position accuracy. Select coarse if 0.100 inch mid-stroke position control is needed. Fine provides better than 0.010 inch control. Finally, select a ballscrew for highest efficiency and greatest load capacity, or select a lead screw for quietest operation and least end play.

The model number of all Ultran® High Load Electric slides consists of four alphanumeric clusters. Please refer to the table below for an example of a UHLECLN-098-ATW. This is a 09 frame UHLE slide with a coarse screw bearing, lead screw, no motor, 8-inch stroke length, stroke adjustment at both ends, switch track, and screw wiper.

POSITIONING ACCURACY[1]	
C	Coarse
F	Fine

SCREW TYPE[2]	
B	Ball
L	Lead

MOTOR OPTION[1]	
D	DC Motor
N	No Motor
P	Stepper Motor

UHLE C L N - 09 8 - ATW

PRODUCT TYPE
UHLE

FRAME SIZE
09
17

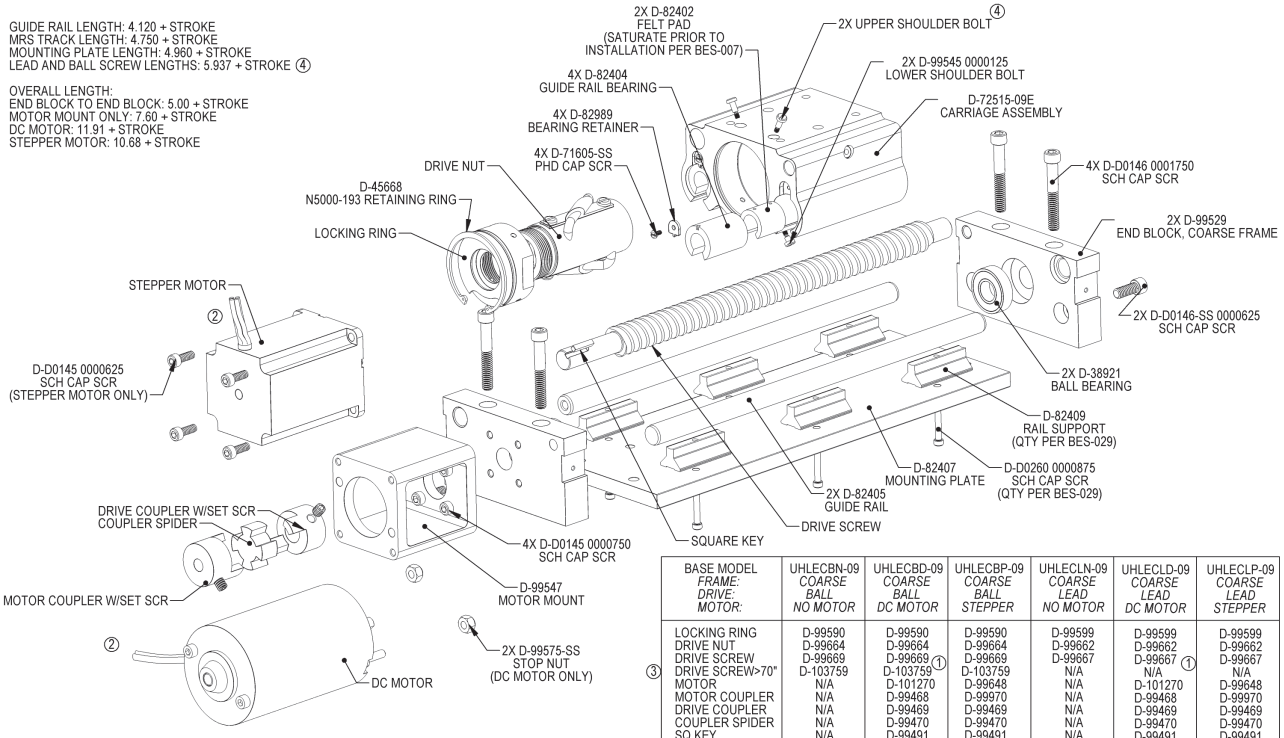
STROKE LENGTH
6" to 72" Available in 1/4" increments[1]

OPTIONS	
A	Stroke adjustment, both ends
A1	Stroke adjustment, end 1
A2	Stroke adjustment, end 2
B	Bumpers, both ends
B1	Bumper, end 1
B2	Bumper, end 2
T	Switch Track (HC and HK)[3]
U	Switch Track (MR, MSC, and MSK)[3]
W	Screw Wiper[5]

[1] Select Fine for most accurate positioning and least end play.
[2] Select Ball for highest efficiency and greatest load capacity. Select Lead for quietest operation and least end play.
[3] See page 10 for switch selection table.
[4] The DC motor option provides thrust and speed suitable for a wide variety of applications. The stepper motor option provides similar capabilities but allows for more precise positioning.
[5] Select screw wiper to keep contamination out of drive nut.

Bimba UHLE devices are repairable. However, UHLEs are not intended to be field-repairable. While they are designed for long-life, if a device is in need of repair and is able to be repaired, the unit must be returned to Bimba for the repair.

Should a repair be needed, please note the part number and serial number, and contact Bimba Customer Service at (800) 442-4622 (800.44.BIMBA) or e-mail cs@bimba.com.



	BASE MODEL *FRAME:* *DRIVE:* *MOTOR:*	UHLECBN-09 *COARSE* *BALL* *NO MOTOR*	UHLECBD-09 *COARSE* *BALL* *DC MOTOR*	UHLECBP-09 *COARSE* *BALL* *STEPPER*	UHLECLN-09 *COARSE* *LEAD* *NO MOTOR*	UHLECLD-09 *COARSE* *LEAD* *DC MOTOR*	UHLECLP-09 *COARSE* *LEAD* *STEPPER*
	LOCKING RING	D-99590	D-99590	D-99590	D-99599	D-99599	D-99599
	DRIVE NUT	D-99664	D-99664	D-99664	D-99662	D-99662	D-99662
	DRIVE SCREW	D-99669	D-99669 ①	D-99669	D-99667	D-99667 ①	D-99667
③	DRIVE SCREW>70"	D-103759	D-103759	D-103759	N/A	N/A	N/A
	MOTOR	N/A	D-101270	D-99648	N/A	D-101270	D-99648
	MOTOR COUPLER	N/A	D-99468	D-99970	N/A	D-99468	D-99970
	DRIVE COUPLER	N/A	D-99469	D-99469	N/A	D-99469	D-99469
	COUPLER SPIDER	N/A	D-99470	D-99470	N/A	D-99470	D-99470
	SQ KEY	N/A	D-99491	D-99491	N/A	D-99491	D-99491
④	UPPER SHOULDER BOLT	D-99545 0000250	D-99545 0000250	D-99545 0000250	D-99545 0000188	D-99545 0000188	D-99545 0000188

HOW TO CUSTOMIZE

Many popular standard features and options are available. If you need a special design feature or special adaptation, call on our custom solutions and specials design capabilities for the right product for your application. Bimba looks forward to serving your electric thruster actuator needs with the responsiveness and engineering expertise you have come to expect from Bimba.

Mounting options:
- Dowel holes
- Screw holes

Motor options:
- Offset reverse parallel motor mounts (to conserve space)
- No motor
- Motor and encoder
- Motor and drive
- Motor, encoder, and drive

Performance options:
- Brake option (with motor) – longer lead times may apply. Compatible brakes are specified.
- Self-locking threads (selected models)
- Switches – track or end of stroke
- General or heavy duty
- Standard, precision or harsh environment versions

Specials:
- Low backlash designs
- Special motors and controls
- Washdown motors