

# ELECTRIC CYLINDERS ORDERING INFORMATION


Instructions: Select a model number from this chart.

2.5-Ton ACME Screw	2.5-Ton Ball Screw	3-Ton ACME Screw	3-Ton Ball Screw	5-Ton ACME Screw	5-Ton Ball Screw	10-Ton ACME Screw	10-Ton Ball Screw	20-Ton ACME Screw	20-Ton Ball Screw
ECAL242.5	ECBL62.5 ECBL122.5 ECBL242.5	ECAL63 ECAL123 ECAL243	ECBL63 ECBL123 ECBL243	ECAL65 ECAL245	ECBL65 ECBL125 ECBL245	ECAL810 ECAL2410	ECBL810 ECBL2410	ECAL820 ECAL2420	ECBL820 ECBL2420
ECAH62.5 ECAH122.5 ECAH242.5	ECBM62.5  ECBH62.5		ECBH63 ECBH123 ECBH243	ECAM65 ECAM125 ECAM245	ECBM65 ECBM125 ECBM245	ECAM810 ECAM2410	ECBM810 ECBM2410	ECAM820 ECAM2420	
				ECAH65 ECAH125 ECAH245	ECBH65 ECBH125 ECBH245	ECAH810 ECAH2410	ECBH810 ECBH2410	ECAH820 ECAH2420	


**Important Note:** Electric Cylinders that are  $\geq 30\%$  efficient may lower under load. Brake motors or external locking systems are required. Detailed information about each electric cylinder model is available on pages 125-134.

Sample Part Number: **ECAL654C-18.5-STDX-STDX-X**


### Tube End Conditions




**3**  
(threaded end)



**4**  
(male clevis)



**5**  
(female clevis)



**6**  
(female clevis with pin)

### Cylinder Rise


Rise is travel expressed in inches and not the actual tube length.

The allowable travel for each unit is listed in the Quick Reference section.

Allowable lengths differ for vertical and horizontal mounting.

### Left Side Shaft Code

(see below)




**XXXX**=Remove  
**STDX**=Standard  
**CUST**=Custom

For optional shaft codes, see page 121.

### Right Side Shaft Code

(see below)



**XXXX**=Remove  
**STDX**=Standard  
**CUST**=Custom

For optional shaft codes, see page 121.

### Additional Options\*

**X**=Standard, no additional options

**S**=Additional Specification Required (comment as necessary)


**Finishes p. 182**  
**F1**=Do Not Paint  
**F2**=Epoxy Paint  
**F3**=Outdoor Paint Process

**Motor Options**  
**M1**=Less Motor  
**M2**=Brake Motor  
**M3**=Single Phase Motor (120VAC)  
**M4**=50Hz Motor  
**M5**=Special Motor


**Grease/Seals**  
**H1**=High Temperature Operation  
**H2**=Food Grade Grease

\* Specify as many options as needed

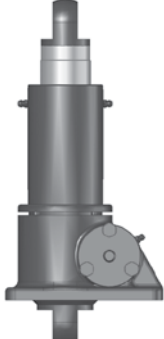
### Base Designs



**F**=Flange Base



**C**=Clevis Base



**R**=Rotated Clevis Base

# ELECTRIC CYLINDERS SHAFT CODES

**Instructions:** Select the appropriate shaft codes for both right and left hand shafts. One shaft code must be specified for each side of the electric cylinder.

## Mechanical Counters (p. 180)

**CNT0**=0.001" Increments

Note: Contact Joyce for availability and options.



## Hand Wheels (p. 180)

- HW04**=4" dia
- HW06**=6" dia
- HW08**=8" dia
- HW10**=10" dia
- HW12**=12" dia



Not recommended for electric cylinders that are ≥ 30% efficient.

## G geared Potentiometers (p. 175)

- POTA**=0-10V
- POTB**=4-20mA
- POTC**=0-10V w/2 switches
- POTD**=4-20mA w/2 switches
- IP65 rated enclosures



## Encoders (pp. 176-177)

- ENCA**=Absolute Encoder 0-10 VDC, programmable
- ENCB**=Absolute Encoder 4-20mA, programmable
- ENCC**=Absolute Encoder CAN Open
- ENCD**=Absolute Encoder SSI
- ENCS**=Stainless Steel Incremental Encoder 1024 PPR
- ENCX**=Incremental Encoder 200 PPR
- ENCY**=Incremental Encoder 1024 PPR



## ComDRIVE Reducers (pp. 125-134)

Ordering Example: **P2AC** — Motor code from chart at right

### Mounting Positions

Code	P1	P2	P3	P4	Ratio
Left Side Shaft Positions					5:1 Code A
					7.5:1 Code B
					10:1 Code C
Right Side Shaft Positions					15:1 Code D
					Special Ratio Code X

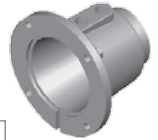
## Motors

Size	Code
1/4 HP	K
1/3 HP	A
1/2 HP	B
3/4 HP	C
1 HP	D
1-1/2 HP	E
2 HP	F
3 HP	L
5 HP	G

## Motor Mounts (pp. 178-179)

Ordering Example:

**MMA A**



- MMA**=56C
  - MMB**=140TC
  - MMC**=180TC
  - MMD**=210TC
- Motor code from chart at left  
For servo motor mounts see p. 178

Standard motor adapters are aluminum.

All standard motors are 3-phase, 208-230/460 VAC or 230/460 VAC. Specify the appropriate motor size from the chart above. Refer to the "Additional Options" chart on the preceding page as needed. Brake motors are required for electric cylinders that are more than 30% efficient. Contact Joyce for options that are not listed.

## Mechanical Limit Switches (p. 174)

Ordering Example: **LA13**

Models		Number of DPDT Switches (see p. 174)	Available Positions			
Model	Code		1	3	5	
LS7-402	LI	NOTE: Will always be 0 for LS7 models				
LS8-402	LA		Left Side Shaft Options			
LS8-404	LB			Right Side Shaft Options		

• 2.5, 3, 5, 10, and 20 Ton Electric Cylinders are available with positions #1, #3, and #5

To order additional options, use these part numbers (p. 124)

- Female Clevis Bracket
- FCB-30
- FCB-100
- FCB-200

- Clevis Pin w/ retaining rings
- CP-30
- CP-100
- CP-200

- Female Rod Clevis
- FRC-30
- FRC-100
- FRC-200

# ELECTRIC CYLINDERS MODELS



## Standard

The Joyce standard electric cylinder is intended for applications where the customer provides their own drive mechanism. To determine capacity, input torque, and turns-per-inch use the specification chart on page 123. This design can also be used where one or more electric cylinders are being driven by one common drive motor or in combination with the motor mount (direct drive) or ComDRIVE® models listed below.

### Example part number:

**ECAL635C-15.00-STDX-HW08-X**

Acme screw (ECA), low lead (L), 6:1 gear ratio (6), 3-ton capacity (3), female clevis (5), clevis base (C), 15 inches rise (15), standard input shaft left hand side of jack (STDX), 8" diameter hand wheel right side of jack (HW08), no additional options (X).



## Motor Mount (direct drive)

Joyce motor mount electric cylinders are intended for higher speed applications. Motor mount models can be used in conjunction with one or more of the standard electric cylinders shown above. To determine lifting speed and capacity, view "direct drive" models shown on the quick reference charts (pages 125-129). Standard motors are 3-phase, 230/460 VAC, 60 Hz, and 1750 RPM. For additional motor information, see page 179.

### Example part number:

**ECAM24104R-9.50-STDX-MMBE-F2**

Acme screw (ECA), medium lead (M), 24:1 gear ratio (24), 10-ton capacity (10), male clevis (4), rotated clevis base (R), 9 1/2 inches rise (9.50), standard input shaft left hand side of jack (STDX), 145TC motor mount (MMB) with 1 1/2 HP motor (E) on right hand side, epoxy paint (F2).



## ComDRIVE®

Joyce ComDRIVE® models include a right angle gearmotor mounted to the right or left side of the standard model. ComDRIVES are intended for applications requiring heavy lifting capacities at speeds up to 34 inches per minute (acme screw) and 104 inches per minute (ball screw). ComDRIVE models can be used in conjunction with one or more of the standard electric cylinders shown above. To determine lifting speeds and capacity, refer to the charts on pages 125-129.

### Example part number:

**ECAH8206F-52.25-P1CL-ENCX-M3**

Acme screw (ECA), high lead (H), 8:1 gear ratio (8), 20-ton capacity (20), female clevis with pin (6), flange base (F), 52 1/4 inches rise (52.25), 10:1 reducer with a 3 horsepower motor mounted to left hand side of jack (P1CL), encoder on right side of jack (ENCX), single phase motor (M3).

# ELECTRIC CYLINDERS SPECIFICATIONS

Model	Static Capacity	Screw Diameter	Thread Pitch/Lead	Wormgear Ratio	Worm Shaft Turns for 1" Travel	Tare Torque (Inch Lbs.)	Starting Torque (Inch Lbs.)	Operating Torque (Inch Lbs.)	Translating Tube Torque (Inch Lbs.)	Base Weight	Weight per Inch Travel						
ECAL242.5	2.5 ton	1	.25 pitch ACME 2C	24:1	96	6	.018W*	.010W* @500 RPM	.098W*	24	1.5						
ECAH62.5				6:1	12	8	.056W*	.040W* @500 RPM									
ECAH122.5			.25 pitch .5 lead ACME 2C	12:1	24	7	.035W*	.023W* @500 RPM	.140W*								
ECAH242.5				24:1	48	6	.025W*	.014W* @500 RPM									
ECBL62.5			0.25 lead ball	6:1	24	8	.017W*	.013W* @500 RPM	.045W*	30	1.5						
ECBL122.5				12:1	48	7	.010W*	.008W* @500 RPM									
ECBL242.5				24:1	96	6	.008W*	.005W* @500 RPM									
ECBM62.5				.5 lead ball	6:1	12	8	.033W*				.026W* @500 RPM	.089W*				
ECBH62.5					1.0 lead ball	6:1	6	8				.065W*		.051W* @500 RPM	.177W*		
ECAL63				3 ton	1 1/4	.25 pitch ACME 2C	6:1	24				9	.048W*	.033W* @500 RPM	.114W*	26	1.9
ECAL123	12:1	48	8				.030W*	.018W* @500 RPM									
ECAL243	24:1	96	7				.021W*	.011W* @500 RPM									
ECBL63	1 3/20	.2 lead ball	6:1				30	9	.013W*	.011W* @500 RPM	.036W*	32	1.9				
ECBL123			12:1				60	8	.008W*	.006W* @500 RPM							
ECBL243			24:1		120	7	.006W*	.004W* @500 RPM									
ECBH63	1 1/16	.625 lead ball	6:1		9.6	9	.041W*	.032W* @500 RPM	.111W*	1.8							
ECBH123			12:1		19.2	8	.025W*	.018W* @500 RPM									
ECBH243			24:1		38.4	7	.018W*	.011W* @500 RPM									
ECAL65			5 ton		1 1/2	.25 pitch ACME 2C	6:1	24			15	.057W*	.039W* @300 RPM	.130W*	50	2.3	
ECAL245				24:1			96	12			.026W*	.014W* @300 RPM					
ECAM65	.375 pitch STUB ACME	6:1		16			15	.065W*	.045W* @300 RPM	.151W*							
ECAM125		12:1		32			13	.041W*	.025W* @300 RPM								
ECAM245		24:1		64		12	.030W*	.016W* @300 RPM									
ECAH65		.25 pitch .5 lead ACME 2C		6:1		12	15	.073W*	.051W* @300 RPM		.171W*						
ECAH125	12:1			24		13	.046W*	.029W* @300 RPM									
ECAH245	24:1			48		12	.033W*	.018W* @300 RPM									
ECBL65	.474 lead ball			6:1		12.66	15	.032W*	.025W* @300 RPM	.084W*							
ECBL125		12:1		25.33		13	.020W*	.014W* @300 RPM									
ECBL245		24:1		50.66		12	.015W*	.009W* @300 RPM									
ECBM65		1.0 lead ball		6:1		6	15	.067W*	.052W* @300 RPM		.177W*						
ECBM125	12:1			12		13	.042W*	.030W* @300 RPM									
ECBM245	24:1			24		12	.031W*	.018W* @300 RPM									
ECBH65	1.875 lead ball			6:1		3.2	15	.125W*	.098W* @300 RPM	.332W*							
ECBH125		12:1		6.4		13	.079W*	.055W* @300 RPM									
ECBH245		24:1		12.8		12	.057W*	.034W* @300 RPM									
ECAL810		10 ton		2		.25 pitch ACME 2C	8:1	32	30		.052W*	.036W* @200 RPM	.162W*	64	2.8		
ECAL2410	24:1						96	25	.026W*	.016W* @200 RPM							
ECAM810	.5 pitch ACME 2C					8:1	16	30	.061W*	.044W* @200 RPM	.195W*						
ECAM2410			24:1		48	25	.031W*	.019W* @200 RPM									
ECAH810			.333 pitch .666 lead ACME 2C		8:1	12	30	.070W*	.051W* @200 RPM	.228W*							
ECAH2410	24:1				36	25	.035W*	.022W* @200 RPM									
ECBL810	.474 lead ball				8:1	16.88	30	.023W*	.019W* @200 RPM		.084W*						
ECBL2410				24:1	50.66	25	.012W*	.008W* @200 RPM									
ECBM810	1 1/2		1.0 lead ball	8:1	8	30	.049W*	.040W* @200 RPM	.172W*	81	2.3						
ECBM2410				24:1	24	25	.024W*	.017W* @200 RPM									
ECBH810				1.875 lead ball	8:1	4.27	30	.091W*				.074W* @200 RPM	.332W*				
ECBH2410					24:1	12.8	25	.045W*				.031W* @200 RPM					
ECAL820				20 ton	2 1/2	.25 pitch ACME 2C	8:1	32				60	.066W*	.044W* @200 RPM	.194W*	124	4.9
ECAL2420							24:1	96				40	.035W*	.019W* @200 RPM			
ECAM820		.5 pitch ACME 2C				8:1	16	60				.075W*	.052W* @200 RPM	.227W*			
ECAM2420	24:1		48			40	.039W*	.022W* @200 RPM									
ECAH820	.375 pitch .75 lead ACME 2C		8:1			10.67	60	.088W*	.062W* @200 RPM	.273W*							
ECAH2420		24:1	32		40	.046W*	.027W* @200 RPM										
ECBL820	2 1/4	.5 lead ball	8:1		16	60	.026W*	.020W* @200 RPM	.089W*	164	4.5						
ECBL2420			24:1		48	40	.014W*	.009W* @200 RPM									

**Important Note:** Electric cylinders that are ≥ 30% are not self-locking. Brake motors or external locking systems are required.

\*W: Load in pounds.

**Tare Torque:** Initial torque to overcome seal and normal assembly drag. This value must be added to starting torque or operating torque values.

**Starting Torque:** Torque value required to start moving a given load (dissipates to operating torque values once the load begins moving).

**Operating Torque:** Torque required to continuously raise a given load at the input RPM listed.

**Translating Tube Torque:** Torque required to resist tube rotation.

**Lead:** The distance traveled axially in one rotation of the lifting screw.

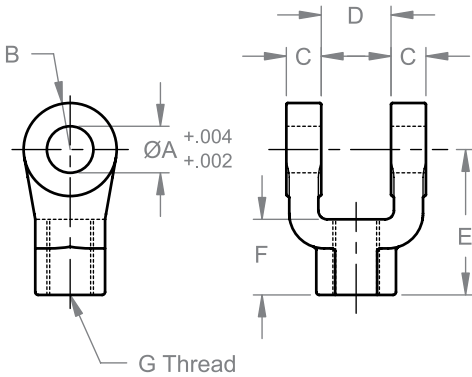
**Pitch:** The distance from a point on a screw thread to a corresponding point on the next thread, measured axially.

**Note:** This chart is provided for reference only. For specific information such as allowable continuous travel or ball nut life and other performance factors refer to JAX® Online software or contact Joyce.

# ELECTRIC CYLINDERS CLEVIS AND BRACKET

## Female Rod Clevis

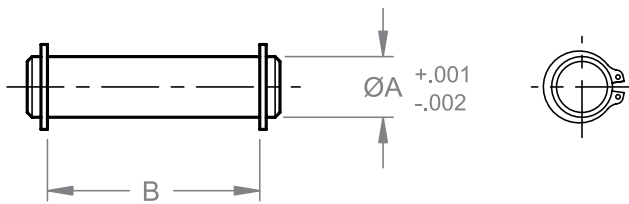
A female rod clevis end is included for type 5 and type 6 end conditions. They are also available as options.



Cylinder Capacity	Part Number	Dimensions (Inches)							Load Capacity (Lbs.)
		ØA	B	C	D	E	F	G	
2.5 & 3	FRC-30	3/4	3/4	5/8	1 1/4	2 3/8	1 1/8	3/4-16	11,200
5 & 10	FRC-100	1	1	3/4	1 1/2	3 1/8	1 5/8	1-14	19,500
20	FRC-200	1 3/8	1 3/8	1	2	4 1/8	2	1 1/4-12	33,500

## Clevis Pin with Retaining Rings

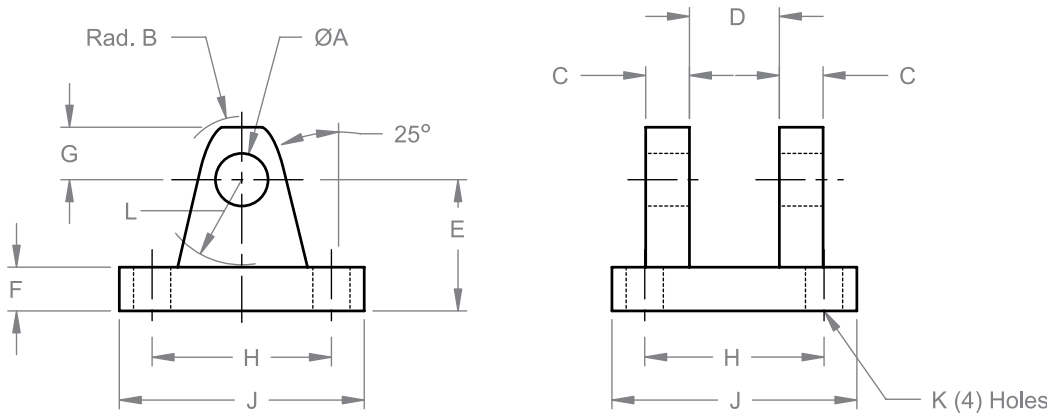
A clevis pin with retaining rings is included on type 6 end conditions. They are also available as options.



Cylinder Capacity	Part Number	Dimensions (Inches)		Load Capacity (Lbs.)
		ØA	B	
2.5 & 3	CP-30	3/4	2 5/8	19,300
5 & 10	CP-100	1	3 1/8	34,300
20	CP-200	1 3/8	4 1/8	65,000

## Female Clevis Bracket

Female clevis brackets are available as options.



Cylinder Capacity	Part Number	Dimensions (Inches)											Load Capacity (Lbs.)
		ØA	B	C	D	E	F	G	H	J	K	L	
2.5 & 3	FCB-30	3/4	29/32	5/8	1 1/4	1 7/8	5/8	3/4	3.82	5	17/32	1 3/16	14,000
5 & 10	FCB-100	1	1 1/4	3/4	1 1/2	2 1/4	3/4	1	4.95	6 1/2	21/32	1 1/2	19,200
20	FCB-200	1 3/8	1 21/32	1	2	3	7/8	1 3/8	5.73	7 1/2	21/32	2	33,500

Note: Drawings are artist's conception — not for certification; dimensions are subject to change without notice.