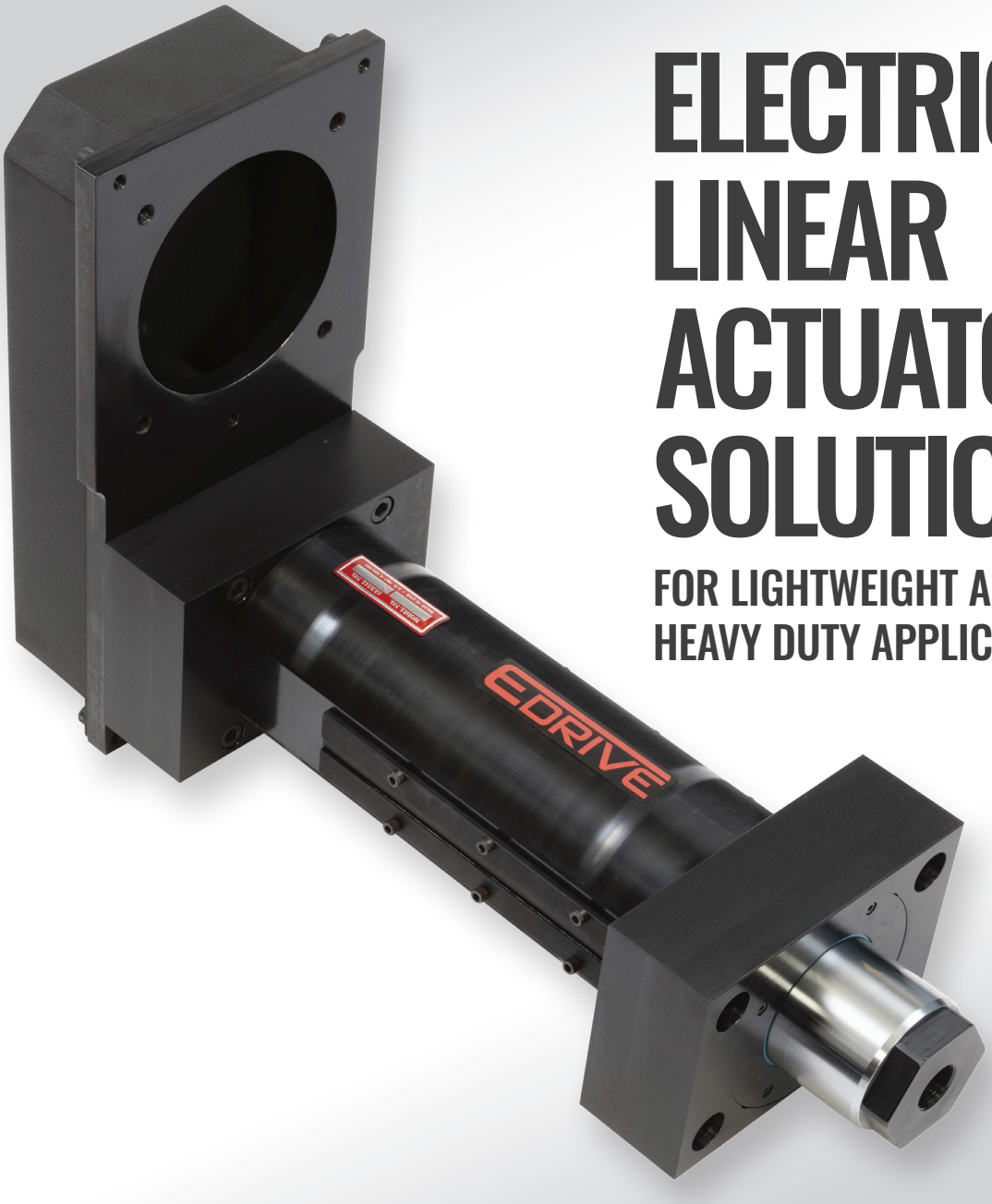
EDRIVE®
ACTUATORS
A JOYCE/DAYTON BRAND

ELECTRIC LINEAR ACTUATOR SOLUTIONS

FOR LIGHTWEIGHT AND HEAVY DUTY APPLICATIONS



SERIES	UA	LS					VT / VP					SS454	HD / SP										SD			
	UA2	LS204	LS209	LS305	LS310	LS320	VT204 VP204	VT209 VP209	VT305 VP305	VT310 VP310	VT320 VP320	SS454	HD201 SP201	HD302 SP302	HD304 SP304	HD404 SP404	HD406 SP406	HD508 SP508	HD516 SP516	HD618 SP618	HD625 SP625	HD740	SD930	SD948	SD966	SD999
VELOCITY																										
63 in/sec max	50											•														
40 in/sec max				•					•																	
20 in/sec max					•					•				•	•											
18 in/sec max																•	•									
16 in/sec max	•	•					•																			
14 in/sec max																		•	•		•	•				
12 in/sec max																							•	•	•	•
10 in/sec max			8			•		9			•									•						
8 in/sec max													•													
STROKE																										
60 in				•	•	•																				
54 in				•	•	•																				
48 in				•	•	•						•						•	•	•	•	•	•	•	•	•
42 in				•	•	•						•				•	•	•	•	•	•	•	•	•	•	•
36 in		•	•	•	•	•						•		•	•	•	•	•	•	•	•	•	•	•	•	•
30 in		•	•	•	•	•						•		•	•	•	•	•	•	•	•	•	•	•	•	•
24 in	•	•	•				•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•
18 in	•						•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•
12 in	•						•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
6 in	•						•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•
THRUST																										
100,000 lbs max																										•
66,000 lbs max																									•	
48,000 lbs max																								•		
40,000 lbs max																						•				
30,000 lbs max																							•			
25,000 lbs max																					•					
18,000 lbs max																				•						
16,000 lbs max																			•							
8,000 lbs max																		•								
6,000 lbs max																	•									
4,000 lbs max															•	•										
2,000 lbs max						•					•	•		•												
1,000 lbs max			900		•			900		•			•													
500 lbs max	•	400		•			400		•																	

NOTE: Stroke length may affect maximum velocity. Contact EDrive Actuators for details.

TABLE OF CONTENTS

Electric Linear Actuators

FOR TOUGH, INDUSTRIAL AUTOMATION APPLICATIONS

EDrive Actuators, an exclusive brand of Joyce/Dayton, manufactures electric linear actuators for tough, industrial automation applications. Our products are used in a wide variety of industry applications where conservative design, rugged construction, long life, and high precision are required and valued, more specifically, as replacement for older power solutions like hydraulic and pneumatic linear actuators. The demand for electric linear actuators is growing among machine builders who want to improve their performance, reliability, and sustainability. Electric linear actuators provide faster speeds, longer life, and cleaner operation when compared to other types of linear motion systems.

Benefits of Electric Actuation:

- Cleaner, quieter, and more energy efficient
- Improved performance
- Less maintenance required
- More accuracy and repeatability
- More flexibility and scalability
- Higher speed and force
- Higher system stiffness
- Lower operating costs

EDrive Actuators, an industry pioneer since 1980 and now exclusive to Joyce/Dayton Corp., delivers precision electromechanical motion. Our customers benefit from both standard products and customized designs, backed by Joyce/Dayton's unparalleled expertise since 1873. Get tailored, high-quality electric actuator solutions with U.S. based support.

Industries Served:

- Agriculture
- Automotive & Transportation
- Defense
- Food & Beverage
- Forestry & Lumber
- Material Handling & Packaging
- Motion Simulators & Entertainment
- And More

PRODUCTS

Our products are used in a wide variety of industry applications where conservative design, rugged construction, long life, and high precision are required and valued.

UA Series Actuators

The compact EDrive UA actuators feature an aluminum extrusion cylinder and chrome pistons. They are designed to be easily incorporated into automation applications.

Tac Series Actuators

EDrive Tac Series actuators provide high quality rugged and durable linear motion for both low and high force applications. Using aluminum bodies with steel components, these more compact sized actuators are a good fit in most linear motion industrial applications.

Eliminator Series Actuators

EDrive Eliminator Series actuators provide strong, durable, and precise linear motion for industrial automation. They were designed to replace hydraulic actuators and thus “eliminate” many associated concerns, such as noise and fluid leakage.

IP69K STAINLESS STEEL

EDrive IP69K actuators are strong, durable, and precise linear actuators for high-end applications in areas requiring frequent exposure to high-pressure, high-temperature washdown. Exterior surfaces are constructed of 316 Stainless Steel and are ideally suited for severe environments and caustic wash-down conditions.

INTERNAL LOAD CELLS

EDrive offers Heavy-Duty linear actuators with Integrated Load Cells which feature bi-directional force feedback. These actuators provide continuous, accurate measurement of applied loads and forces and offer an economical solution for precise applications. Internal Load Cells are available on Eliminator Series actuators.

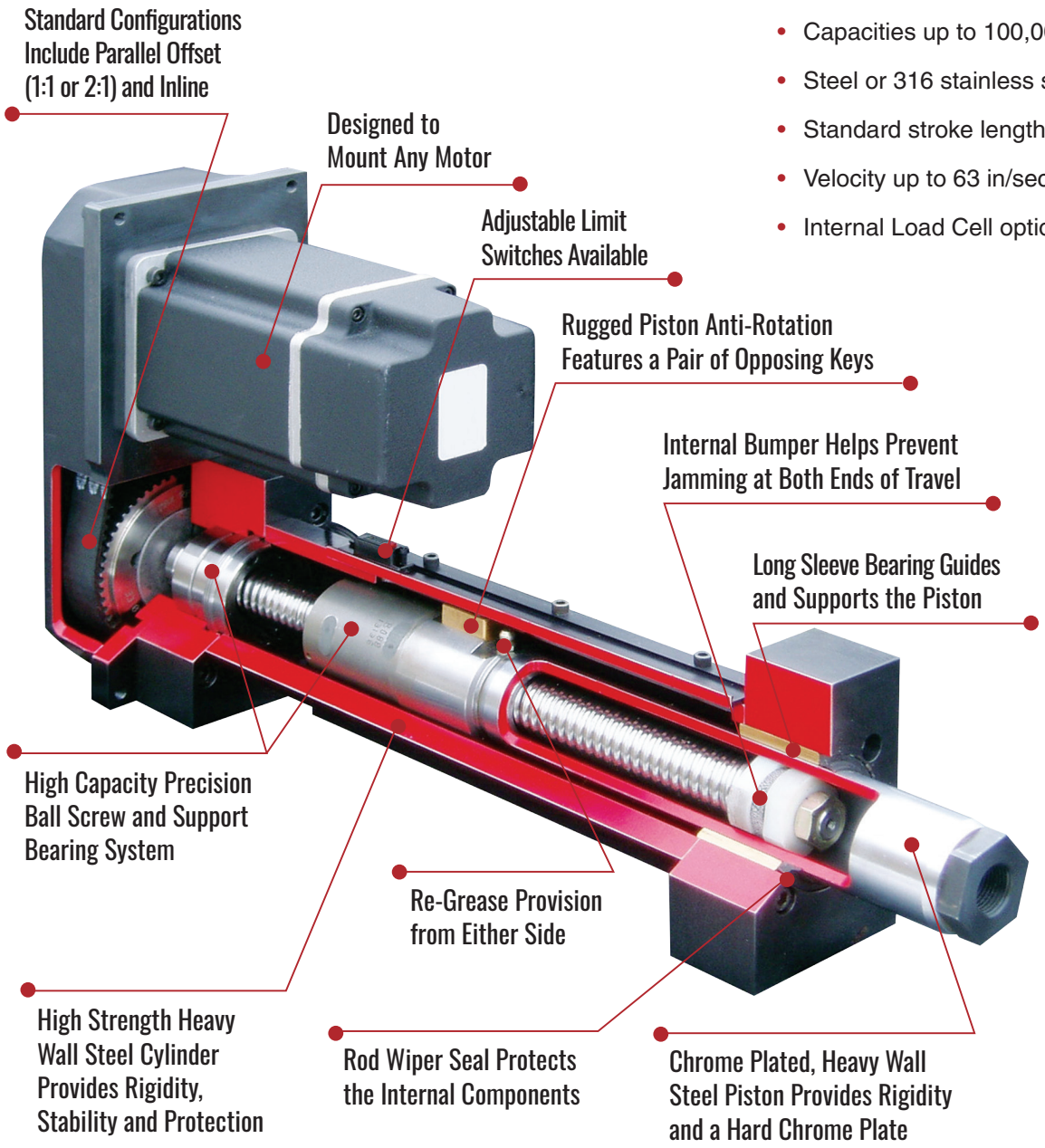
Consistent Success IN THE TOUGHEST APPLICATIONS

EDrive linear actuators have shown consistent success in the toughest applications, e.g., high loads, high speeds, high precision, and extreme durability. Precision ball screw systems, tailored for maximum life, load and speed, provide the motion while fully enclosed, thus eliminating contamination-related failures. A long bronze nose bearing provides support for the extended piston. Rugged bronze keys in opposing steel slots provide anti-rotation and counter the tangential forces created during high speed, high frequency, and high load operation.

Eliminator Series Actuator

EDrive's Eliminator Series Features:

- Capacities up to 100,000 lbs
- Steel or 316 stainless steel
- Standard stroke lengths up to 48"
- Velocity up to 63 in/sec
- Internal Load Cell option



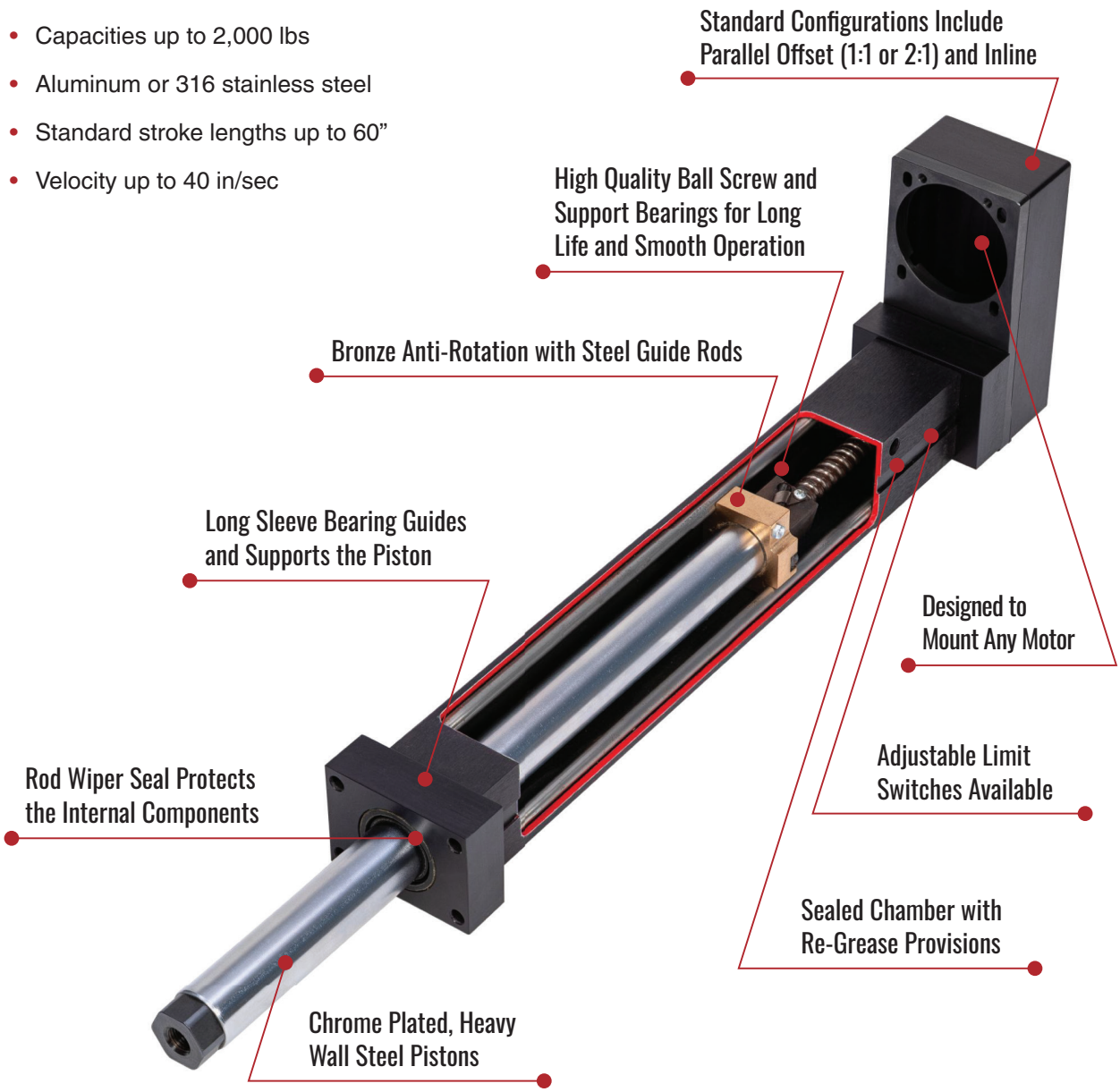
While other actuator designs force a particular motor decision, EDrive's linear actuators are designed to suit virtually any motor, gear box, or gearhead the customer chooses to use. Inline as well as parallel offset configurations are standard with 1:1 and 2:1 synchronous gearbelt ratios available.

Products available in Parallel Offset and Inline configurations.

Tac Series Actuator

EDrive's Tac Series Features:

- Capacities up to 2,000 lbs
- Aluminum or 316 stainless steel
- Standard stroke lengths up to 60"
- Velocity up to 40 in/sec



APPLICATION GUIDE WORKSHEET

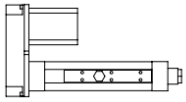
Name_____Position_____

Company_____Industry_____

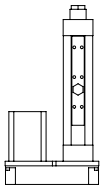
Address_____

Phone_____Email_____

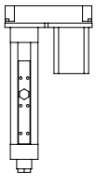
ACTUATOR ORIENTATION



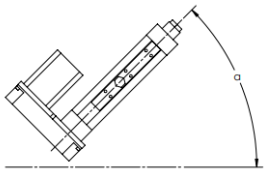
☐ Horizontal



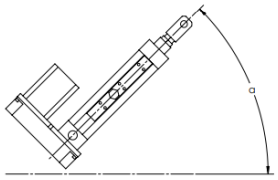
☐ Vertical UP



☐ Vertical DOWN



☐ Incline angle, α _____



☐ Pivoting angle, α _____ - _____

ACTUATOR REQUIREMENTS

Stroke Length
_____☐ in ☐ mm

Repeatability
_____☐ in ☐ mm

Run Time
_____Cycles per Min
_____Hours per Day
_____Days per Week

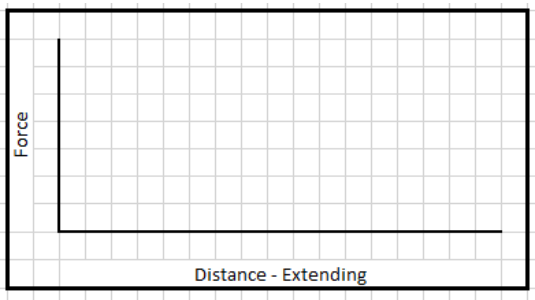
MOTOR REQUIREMENTS

Motor Brake ☐
Motor Code _____

MOTON PROFILE

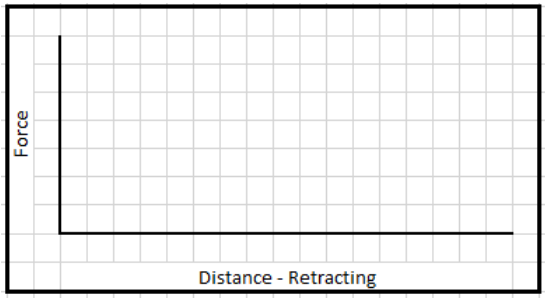
Extend

Move Distance_____☐ in ☐ mm
Move Time_____ seconds
Max. Speed_____ ☐ in/sec ☐ mm/sec
Dwell Time after Move____ seconds
Max Force_____☐ lbf ☐ N



Retract

Move Distance_____☐ in ☐ mm
Move Time_____ seconds
Max. Speed_____ ☐ in/sec ☐ mm/sec
Dwell Time after Move____ seconds
Max Force_____☐ lbf ☐ N



ENVIRONMENTAL CONDITIONS

Temperature Range _____ to _____☐°F ☐°C

☐ Dust
☐ Sand
☐ Oil
☐ Water
☐ Outdoor
☐ Washdown
☐ Other _____
☐ Caustic (specify)_____

OTHER ACTUATOR OPTIONS

☐ Parallel Offset Motor Mounting
☐ In-Line Motor Mounting
☐ Integrated Load Cell
☐ Internal Anti-Rotation
☐ Food Grade Grease
☐ Limit Switches
☐ Protective Boot
☐ Zero Backlash
☐ Stainless Steel

ADDITIONAL INFORMATION

_____

_____

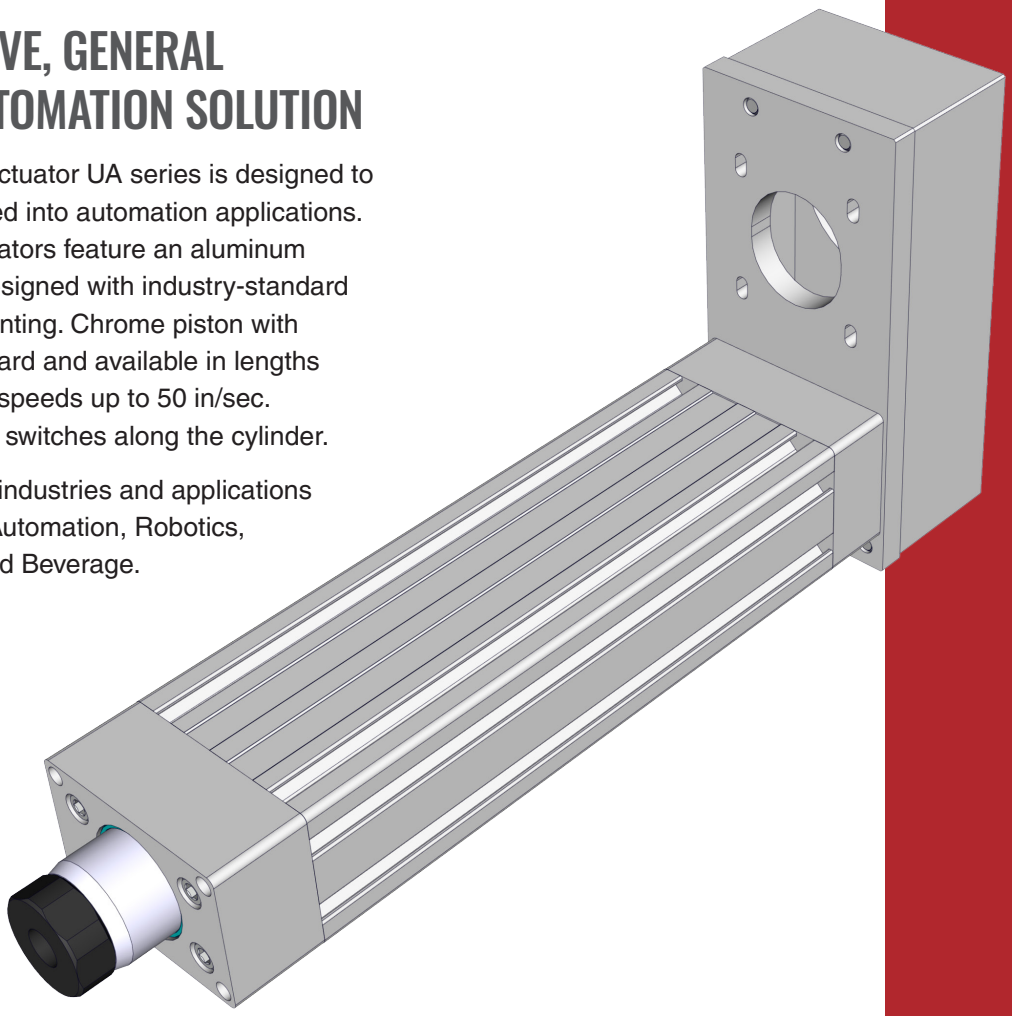
_____

Universal Actuator UA™

COST EFFECTIVE, GENERAL PURPOSE AUTOMATION SOLUTION

EDrive's Universal Actuator UA series is designed to be easily incorporated into automation applications. These compact actuators feature an aluminum extrusion cylinder designed with industry-standard T-slots for quick mounting. Chrome piston with anti-rotation is standard and available in lengths up to 24 inches and speeds up to 50 in/sec. Quickly position limit switches along the cylinder.

Ideal for a variety of industries and applications including Industrial Automation, Robotics, Packaging, Food, and Beverage.



Key Features:

- Rated thrust up to 750 lbf
- Velocity up to 50 in/sec
- Designed with T-slot bracketing for quick mounting
- Sealed from contamination (IP54)
- Adjustable limit switches available
- Piston with internal anti-rotation
- Aluminum Belt Covers
- Small Motor Plate option for compact footprint

Ideal for a Variety of Applications Including:

- Gating/Sorting/Diverting
- Assembly, Pick & Place
- Aligning, Product Changeover
- Conveyors, Fillers
- Pneumatic Replacement
- And More

SPECIFICATION CHART FOR THE UNIVERSAL ACTUATOR UA

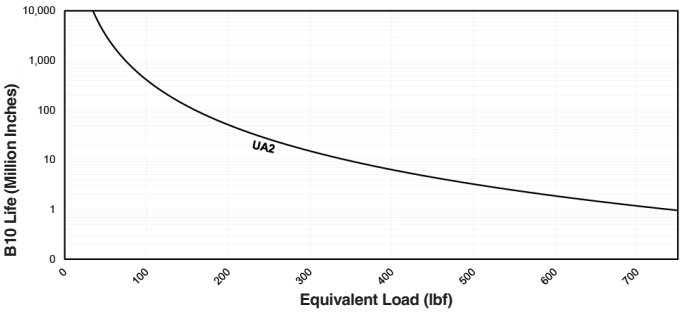
Model Number	Screw Code	Rated Thrust	Max. Velocity	Max. Stroke	Frame Size	Screw Lead	Backlash Max.	Max. Screw Speed	Max. Torque At Screw	Dynamic Capacity Per Million Revs	Dynamic Capacity Per Million Inches
		lbf	in/s	in	in	in	in	RPM	in-lb	lbf	lbf
UA2	AB2	750	50	24	2	0.5	0.010	6,000	66	1,070	850
UA2	AB5	750	16	24	2	0.2	0.010	4,800	27	1,410	825

Model Number	Max. Motor Or Gearhead Pilot Supported	Inertia 1:1 Zero Stroke	Inertia 1:1 Per Inch Of Stroke	Inertia 1:5:1 Zero Stroke	Inertia 1:5:1 Per Inch Of Stroke	Inertia 2:1 Zero Stroke	Inertia 2:1 Per Inch Of Stroke	Inertia Inline Zero Stroke	Inertia Inline Per Inch Of Stroke
	in	lb-in²	lb-in²	lb-in²	lb-in²	lb-in²	lb-in²	lb-in²	lb-in²
UA2	3.74	0.40	0.0016	0.10	0.0007	0.21	0.0004	0.13	0.0016
UA2	3.74	0.41	0.0031	0.10	0.0008	0.21	0.0008	0.13	0.0031

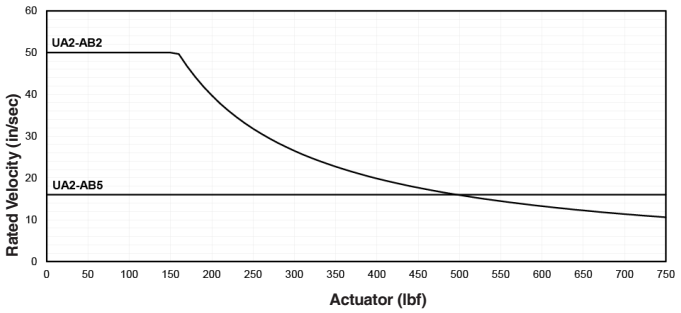
Model Number	Weight "SP" Zero Stroke	Weight "BP" Zero Stroke	Weight "L0" Zero Stroke	Weight Per Inch Of Stroke
	lb	lb	lb	lb
UA2	6.5	9.5	5.5	0.5
UA2	6.5	9.5	5.5	0.5

DATA CURVES FOR THE UNIVERSAL ACTUATOR UA

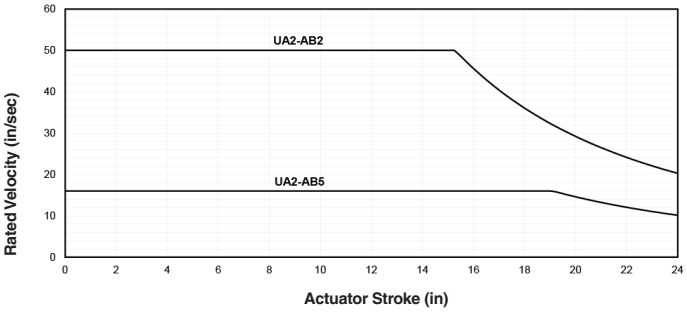
Dynamic Capacity: Life Vs. Load



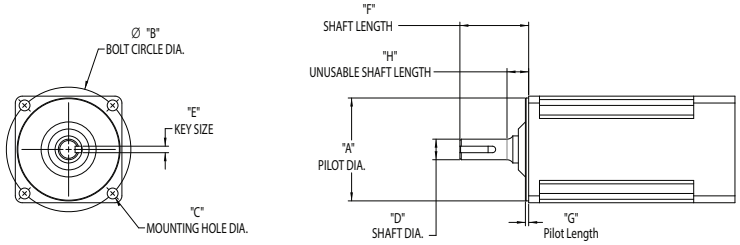
Force Vs. Speed



Speed Vs. Stroke



ORDERING GUIDE
FOR THE UNIVERSAL ACTUATOR UA



Ordering Information

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UA Size
UA2

Screw Code	Dia.	Lead	Type	Lead Accuracy
AB2	1/2"	0.5"	Ball Screw	0.003 in/ft
AB5	5/8"	0.2"	Ball Screw	0.003 in/ft

Stroke
06 inch
12 inch
18 inch
24 inch

Motor Configuration
SP10 Small Plate 1:1
SP15 Small Plate 1.5:1
BP10 Big Plate 1:1
BP20 Big Plate 2:1
LL00 Inline Direct Coupled

Motor Code
See Motor Codes Below

MOTOR CODES

Motor Code	"A" Pilot Diameter	"B" Bolt Circle Diameter	"C" Mounting Hole Diameter		"D" Shaft Diameter (1)	"E" Key Size	"F" Shaft Length		"G" Pilot Length	"H" Unusable Shaft Length	Available Motor Configurations				
			Min	Max			Min	Max	Max	Max	SP10	SP15	BP10	BP20	LL00
GDH	1.500 in	2.625 in	0.169 in	0.228 in	1/4 in	N/A	0.781 in	0.844 in	0.20 in	0.20 in	☑	☑		☑	☑
PTD	1.500 in	2.625 in	0.169 in	0.228 in	1/2 in	1/8 in	1.25 in	1.625 in	0.20 in	0.20 in	☑	☑		☑	☑
DBC	2.875 in	3.875 in	0.209 in	0.248 in	1/2 in	1/8 in	1.188 in	1.575 in	0.20 in	0.375 in			☑	☑	☑
PBD	2.875 in	3.875 in	0.209 in	0.248 in	1/2 in	5 mm	1.188 in	1.575 in	0.20 in	0.375 in			☑	☑	☑
DCB	2.875 in	3.875 in	0.209 in	0.248 in	14 mm	5 mm	1.188 in	1.575 in	0.20 in	0.375 in			☑	☑	☑
AGP	2.875 in	3.875 in	0.209 in	0.248 in	5/8 in	3/16 in	1.188 in	1.575 in	0.20 in	0.375 in			☑	☑	☑
MPC	40 mm	63 mm	5.3 mm	6.3 mm	9 mm	3 mm	19 mm	31 mm	4 mm	4 mm	☑	☑		☑	☑
HCM	40 mm	63 mm	4.3 mm	5.3 mm	9 mm	3 mm	19 mm	31 mm	4 mm	4 mm	☑	☑		☑	☑
AMH	50 mm	70 mm	4.3 mm	6 mm	11 mm	4 mm	25 mm	31 mm	5 mm	5 mm	☑	☑		☑	☑
PCA	50 mm	70 mm	4.3 mm	6 mm	12 mm	4 mm	25 mm	31 mm	5 mm	5 mm	☑	☑		☑	☑
MCB	50 mm	70 mm	4.3 mm	6 mm	14 mm	5 mm	25 mm	31 mm	5 mm	5 mm	☑	☑		☑	☑
CAH	50 mm	70 mm	4.3 mm	6 mm	14 mm	5 mm	35 mm	41 mm	5 mm	5 mm	☑	☑		☑	☑
CMD	50 mm	70 mm	4.3 mm	6 mm	16 mm	5 mm	35 mm	41 mm	5 mm	5 mm	☑	☑		☑	☑
BDG	50 mm	95 mm	6.3 mm	7.3 mm	14 mm	5 mm	25 mm	31 mm	5 mm	5 mm			☑	☑	☑
AHB	60 mm	75 mm	5.3 mm	6.5 mm	11 mm	4 mm	22 mm	31 mm	4 mm	4 mm	☑	☑		☑	☑
MBG	60 mm	75 mm	5.3 mm	6.5 mm	14 mm	5 mm	22 mm	31 mm	4 mm	4 mm	☑	☑		☑	☑
GCT	60 mm	68 mm	5.3 mm	6.5 mm	16 mm	5 mm	43 mm	49 mm	19 mm	21 mm					☑
HPM	70 mm	90 mm	6.3 mm	7.2 mm	19 mm	6 mm	34 mm	41 mm	4 mm	4 mm	☑				☑
CGM	80 mm	100 mm	6.3 mm	7.3 mm	16 mm	5 mm	35 mm	41 mm	9 mm	15 mm			☑	☑	☑
PBT	80 mm	100 mm	6.3 mm	7.3 mm	14 mm	5 mm	30 mm	37 mm	9 mm	15 mm			☑	☑	☑
TMD	80 mm	100 mm	6.3 mm	7.3 mm	19 mm	6 mm	40 mm	46 mm	9 mm	10 mm			☑		☑
PGH	80 mm	100 mm	6.3 mm	7.3 mm	22 mm	6 mm	42 mm	48 mm	9 mm	15 mm			☑		☑
HGM	95 mm	115 mm	8.3 mm	10.3 mm	19 mm	6 mm	35 mm	41 mm	9 mm	15 mm			☑		☑
PTB	95 mm	115 mm	8.3 mm	10.3 mm	19 mm	6 mm	52 mm	58 mm	9 mm	15 mm					☑
HPD	95 mm	115 mm	8.3 mm	10.3 mm	22mm	8 mm	39 mm	45 mm	9 mm	15 mm			☑		☑

(1) Max. Shaft for 2:1 & 1.5:1 is 16 mm (0.63 in) (2) Max. Shaft Length for SP & BP Mounting is 52 mm (2 in) (3) Max. Pilot Length for SP & BP Mounting is 9.5 mm (0.38 in)

ACCESSORIES

Part Number	Description	Part Number	Description	Part Number	Description
D06-UAS	Reed Switch NO	FM-UA2	Foot Mount Brackets (Pair)	SRE-UA2	Spherical Rod Eye
T06-UAS	Reed Switch NC	FF-UA2	Front Flange Plate	MTE-UA2	Male Thread End
G06-UAS	Sinking Switch NO (NPN)	TB-UA2	Trunnion Brackets (Pair)	FRE-UA2	Female Eye
J06-UAS	Sinking Switch NC (NPN)	CB-UA2	Clevis Bracket	SAC-UA2	Self Aligning Coupler
K06-UAS	Sourcing Switch NO (PNP)	EB-UA2	Eye Bracket	CRE-UA2	Clevis Rod End
Q06-UAS	Sourcing Switch NC (PNP)	CP-UA2	Clevis Pin	1/4-UAN	1/4-20 T-Nut

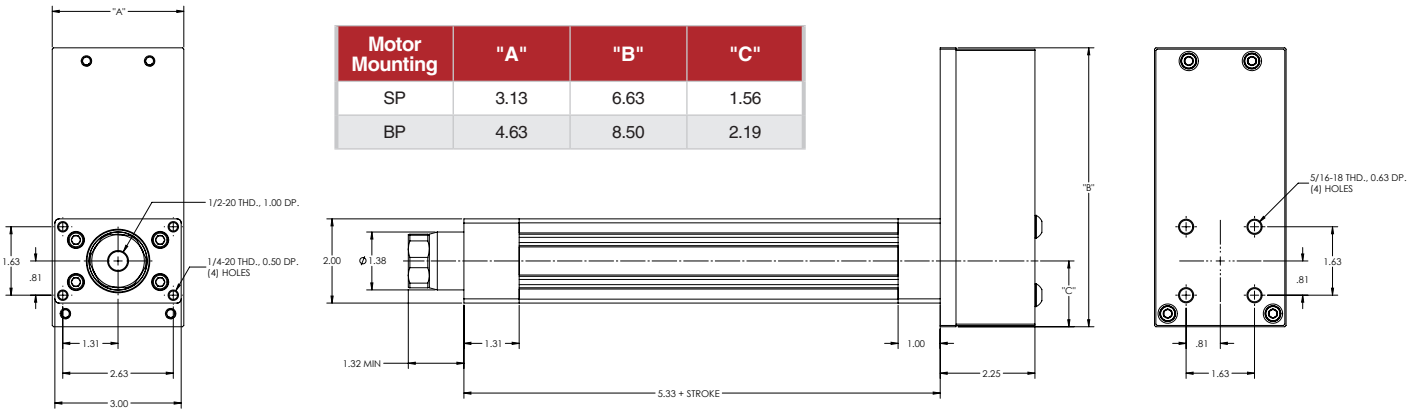
Accessories sold separately

DIMENSIONED DRAWINGS FOR THE UNIVERSAL ACTUATOR UA

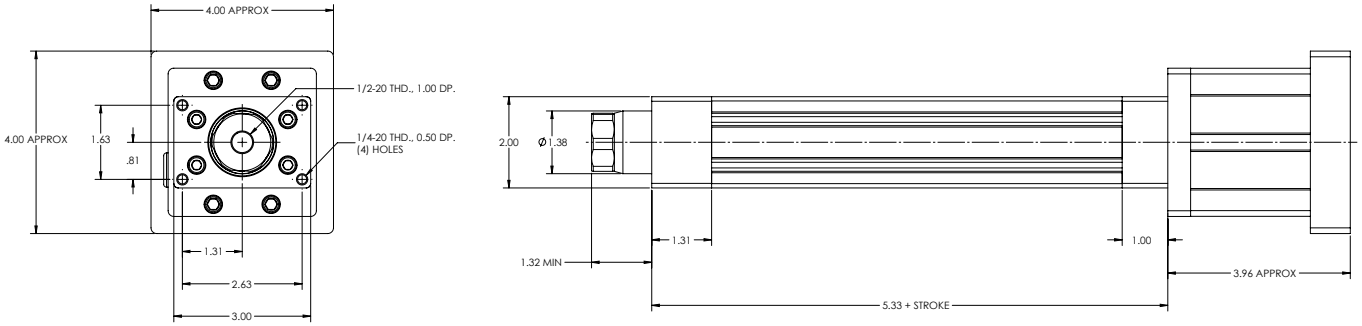
Dimensions are in inches and are subject to change without notice.

Parallel Offset Configuration

Motor Mounting	"A"	"B"	"C"
SP	3.13	6.63	1.56
BP	4.63	8.50	2.19

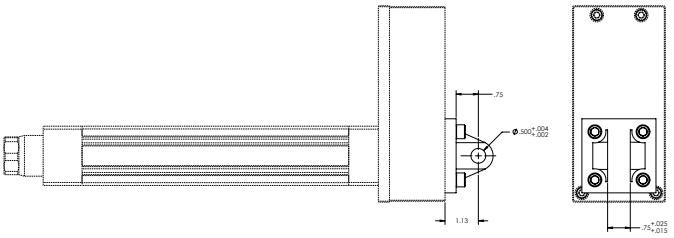


Inline Configuration

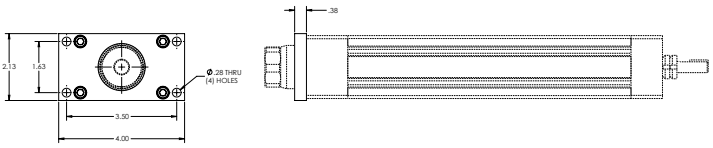


UA Mounting Accessories

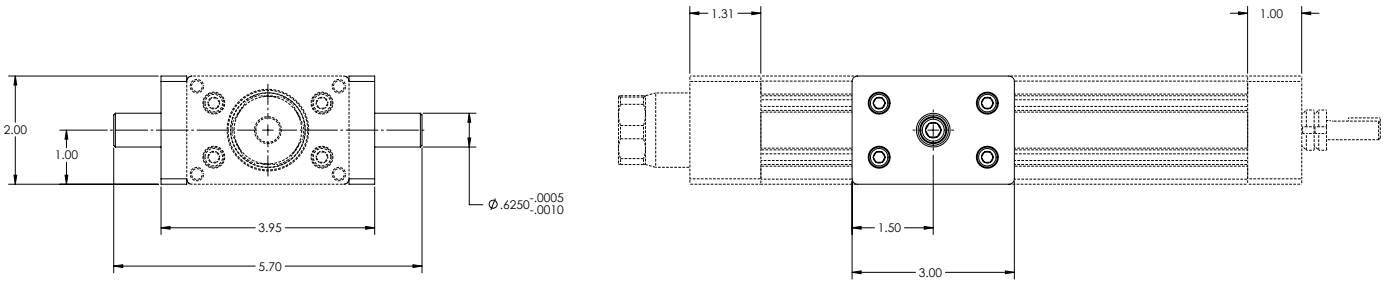
Rear Clevis



Front Flange



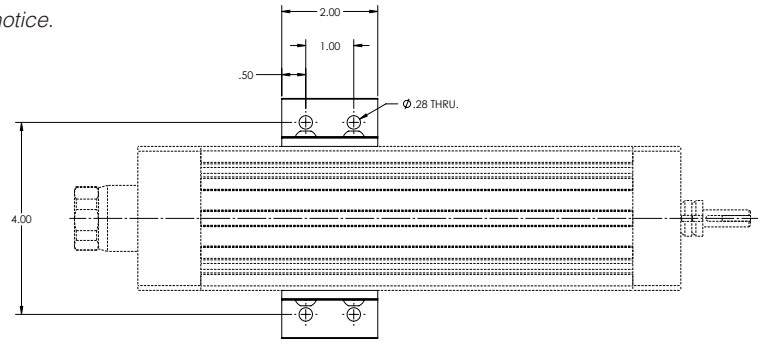
Trunnion Brackets

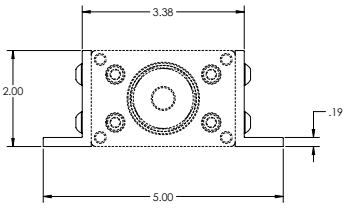


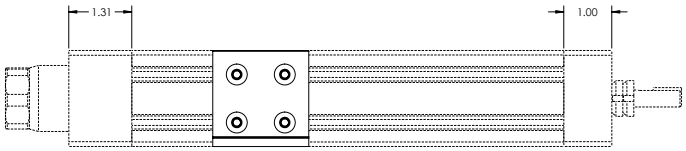
DIMENSIONED DRAWINGS FOR THE UNIVERSAL ACTUATOR UA

Dimensions are in inches and are subject to change without notice.

Foot Mount

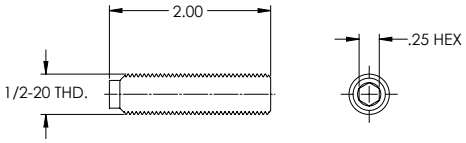




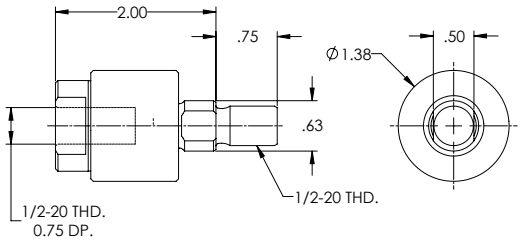


Rod End Accessories

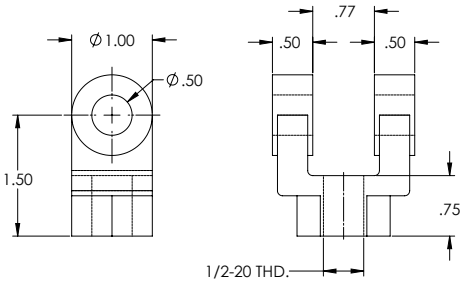
Male Thread



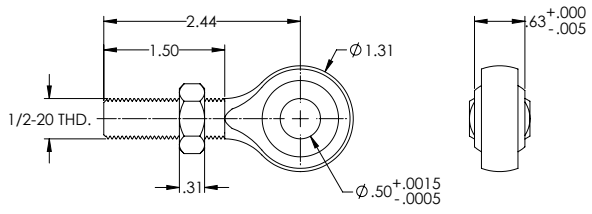
Self-Aligning Coupler *Includes Male Thread*



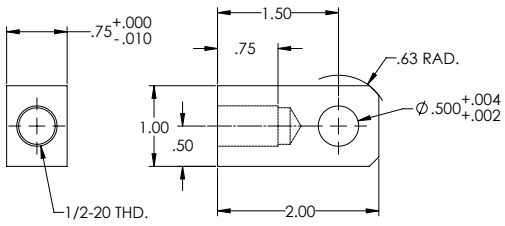
Clevis Rod End *Includes Male Thread and Jam Nut*



Spherical Rod Eye



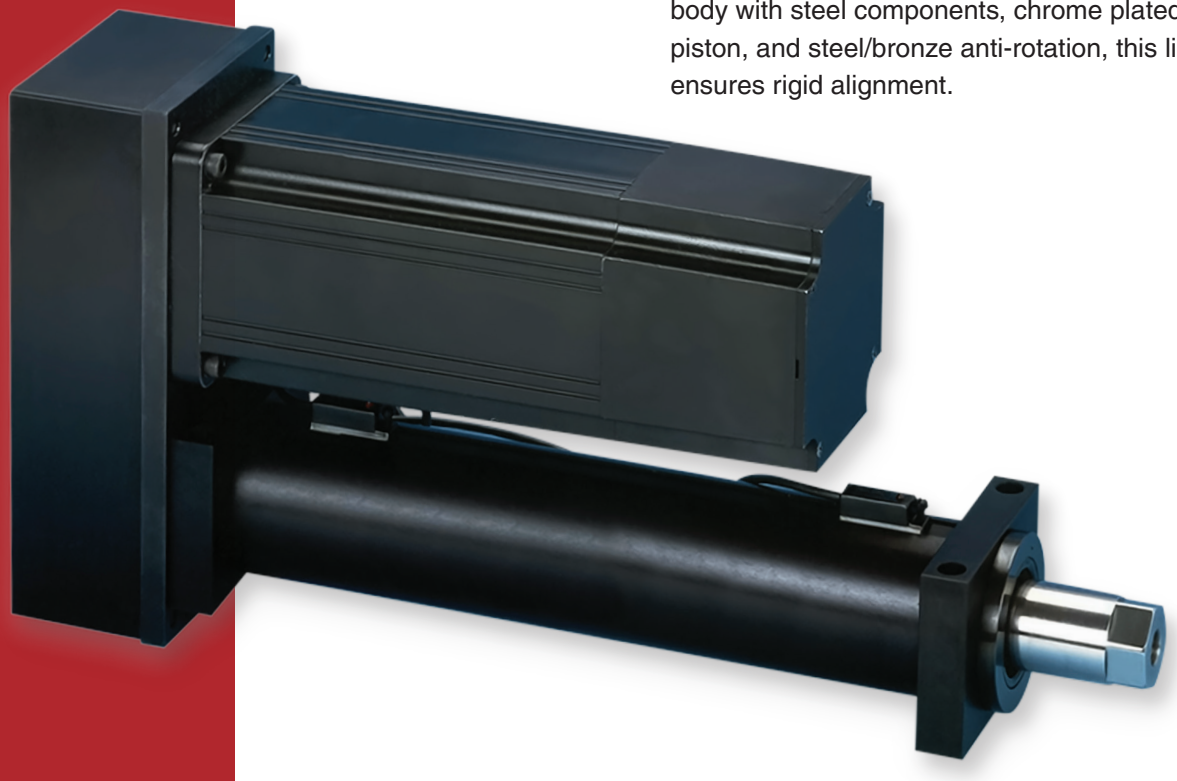
Female Eye *Includes Male Thread and Jam Nut*



Tac VT™ Actuator

COST EFFECTIVE, HIGH QUALITY, HIGH SPEED, HIGH FORCE

The Tac VT ball screw linear actuator series was developed to meet higher thrust load requirements at faster velocities with high quality and rugged durability. Using an aluminum body with steel components, chrome plated heavy wall steel piston, and steel/bronze anti-rotation, this linear actuator ensures rigid alignment.



Ideal for a Variety of Applications Including:

- Damper Valve Control
- Motion Simulators
- Conveying / Diverting
- Material Handling
- Pneumatic Replacement
- And More

Key Features:

- Developed for higher thrust load requirements and faster velocities
- Compact actuator with thrust up to 2,000 lbf
- Velocity up to 40 in/sec, stroke up to 24 inches
- Sealed chamber design with purge provisions to meet IP54
- 0.003 in/ft standard lead accuracy
- Standard backlash is 0.004 in maximum

SPECIFICATION CHART FOR THE TAC VT ACTUATOR

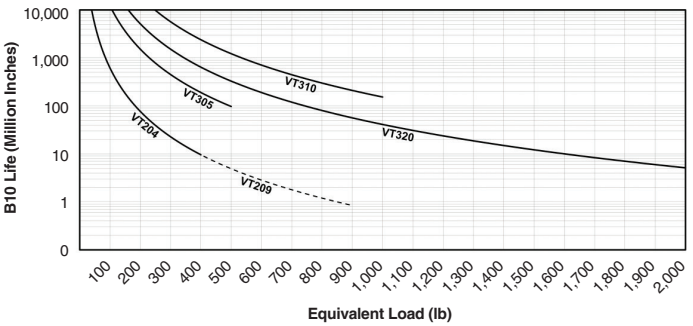
Model Number	Thrust Load Rated	Linear Velocity Max.[1]	Travel Length Max.[2]	Frame Size	Lead	Ball Screw Diameter	Ball Screw Max.[1]	Torque @ Ball Screw Max.	Dynamic Capacity Per Million Revs	Dynamic Capacity Per Million Inches	Motor Gearhead Frame Supported Max.[2]
	lbf	in/s	in	in	in	in	RPM	in-lb	lbf	lbf	in
VT204	400	16	24	2.25	0.50	0.50	1,920	35	1,070	850	3.5
VT209	900	9	24	2.25	0.20	0.63	2,700	32	1,410	825	3.5
VT305	500	40	24	3.25	1.00	1.00	2,400	88	2,300	2,300	4.5
VT310	1,000	20	24	3.25	0.50	1.00	2,400	88	5,350	4,250	4.5
VT320	2,000	10	24	3.25	0.25	1.00	2,400	88	5,475	3,450	4.5

Model Number	Inertia 1:1 Zero Stroke[3]	Inertia 1:1 Per Inch of Stroke[3]	Inertia 2:1 Zero Stroke[3]	Inertia 2:1 Per Inch of Stroke[3]	Inertia Inline Zero Stroke[3]	Inertia Inline Per Inch of Stroke[3]	Unit Weight "U" Motor Mount[4]	Unit Weight "L" Motor Mount[4]	Weight Per Inch of Stroke[4]
	lb-in^2	lb-in^2	lb-in^2	lb-in^2	lb-in^2	lb-in^2	lb	lb	lb
VT204	1.61	0.0023	0.17	0.0006	0.16	0.0023	6.0	4.0	0.50
VT209	1.61	0.0031	0.17	0.0008	0.15	0.0031	6.0	4.0	0.50
VT305	4.34	0.0281	2.30	0.0070	0.37	0.0281	20	15.0	0.73
VT310	4.27	0.0234	2.28	0.0059	0.31	0.0234	20	15.0	0.73
VT320	4.25	0.0200	2.27	0.0050	0.28	0.0200	20	15.0	0.73

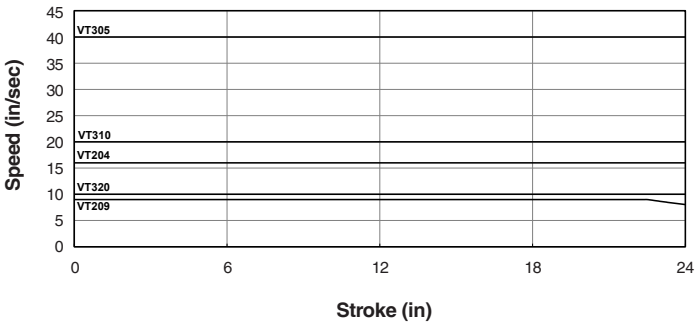
[1] Maximum velocity and maximum screw speed may not be achieveable at maximum stroke.
[2] Larger Motor or Gearhead Frames and longer stroke lengths are available upon request.
[3] All inertia values are at the input shaft and are representative of typical pulleys, bushings, couplers, etc. Actual values may vary due to motor selection.
[4] Weight values are for reference only and vary depending on configuration.
"U" Parallel offset configuration
"L" Inline configuration

DATA CURVES FOR THE TAC VT ACTUATOR

Dynamic Capacity: Life Vs. Load



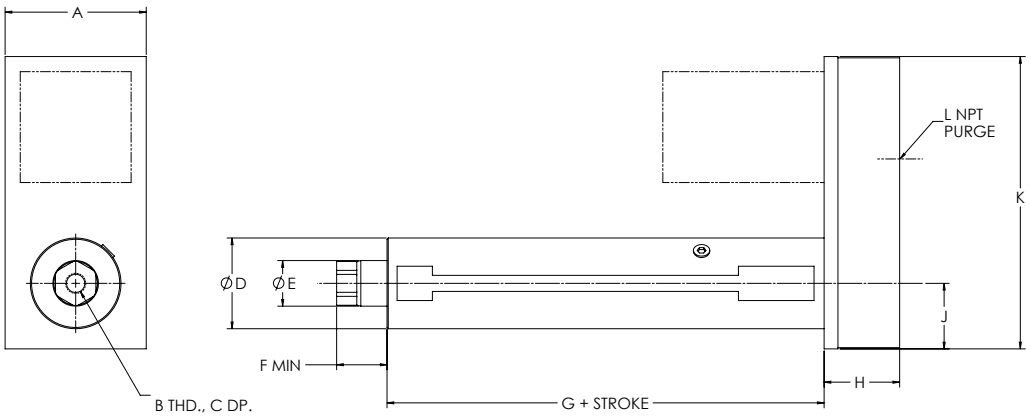
Speed Vs. Stroke



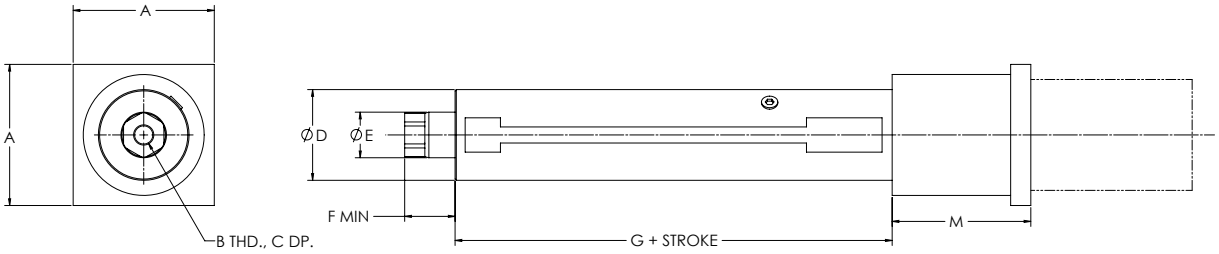
DIMENSIONED DRAWINGS FOR THE TAC VT ACTUATOR

Dimensions are in inches and are subject to change without notice.

U-Parallel Offset Motor Configuration

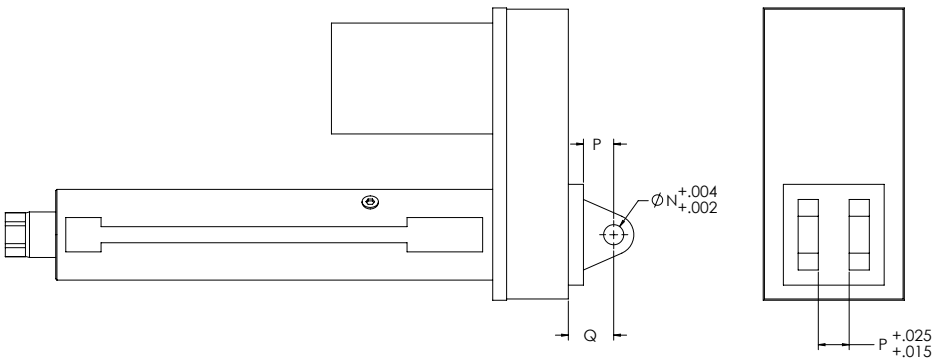


L-Inline Motor Configuration



"M" length may vary depending on motor or gearbox.

Rear Clevis



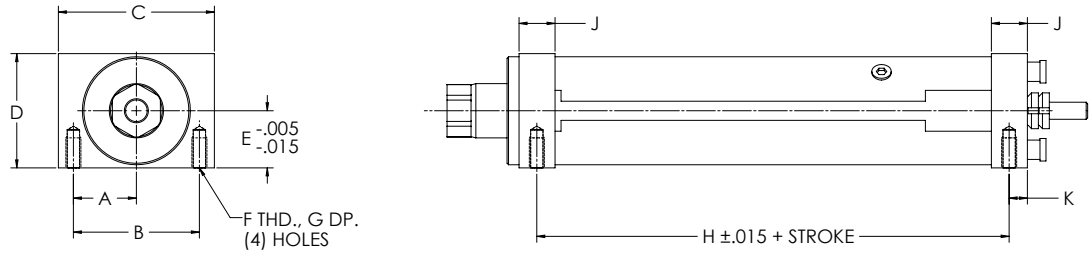
VT U-Parallel Offset, L-Inline and Rear Clevis Dimensions

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
VT204	3.50	1/2-20	0.63	2.25	1.13	1.25	4.84	1.88	1.63	7.25	1/8	3.44	0.50	0.75	1.13
VT209	3.50	1/2-20	0.63	2.25	1.13	1.25	4.84	1.88	1.63	7.25	1/8	3.44	0.50	0.75	1.13
VT305	4.50	3/4-16	0.88	3.25	1.75	1.50	7.03	2.47	2.38	9.63	1/8	3.97	0.75	1.25	1.88
VT310	4.50	3/4-16	0.88	3.25	1.75	1.50	7.03	2.47	2.38	9.63	1/8	3.97	0.75	1.25	1.88
VT320	4.50	3/4-16	0.88	3.25	1.75	1.50	7.03	2.47	2.38	9.63	1/8	3.97	0.75	1.25	1.88

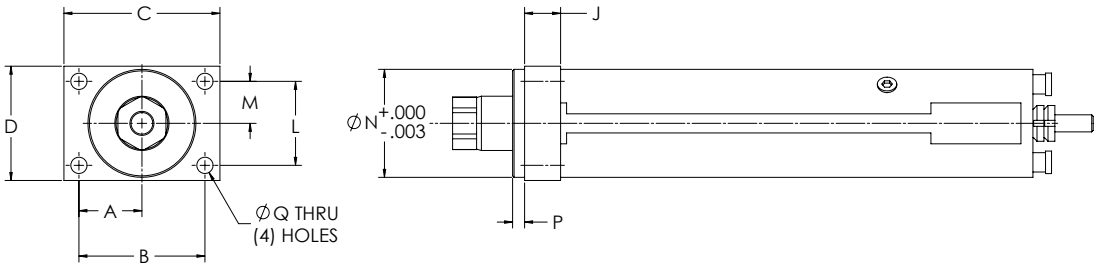
DIMENSIONED DRAWINGS FOR THE TAC VT ACTUATOR

Dimensions are in inches and are subject to change without notice.

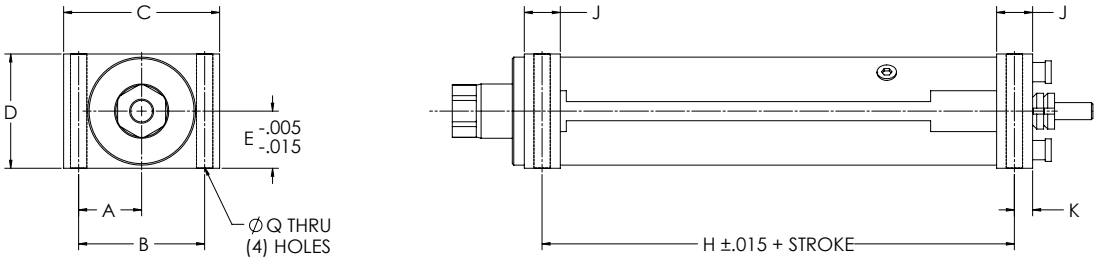
Bottom Mount Dimensions



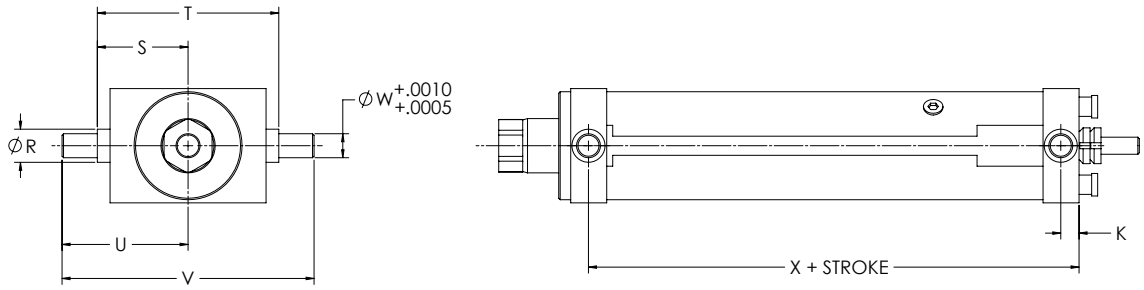
Front Flange Dimensions



Foot Mount Dimensions



Trunnion Mount Dimensions



VT Unit Mounting Dimensions

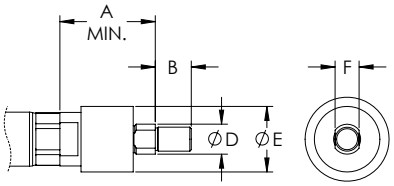
Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X
VT2	1.31	2.63	3.25	2.38	1.19	5/16-18	0.63	3.84	0.75	0.38	1.75	0.88	2.25	0.25	0.34	0.69	1.89	3.78	2.63	5.25	0.50	4.22
VT3	1.88	3.75	4.50	3.38	1.69	3/8-16	0.75	5.78	1.00	0.50	2.63	1.31	3.25	0.25	0.41	0.94	2.52	5.03	3.50	7.00	0.75	6.28

DIMENSIONED DRAWINGS FOR THE TAC VT ACTUATOR

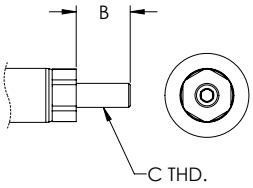
Dimensions are in inches and are subject to change without notice.

Rod End Options

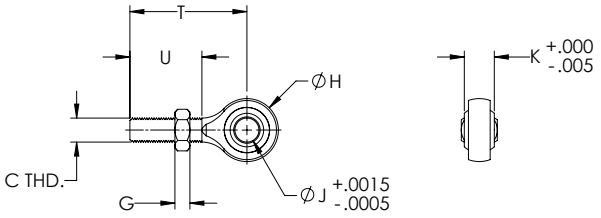
Self-Aligning Coupler



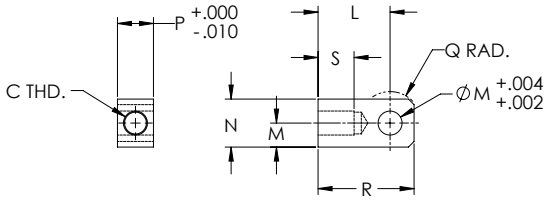
Male Thread



Spherical Rod Eye



Female Eye



VT Rod End Dimensions

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
VT2	2.00	0.75	1/2-20	0.63	1.37	0.50	0.31	1.31	0.50	0.63	1.50	0.50	1.00	0.75	0.50	2.00	0.75	2.44	1.50
VT3	2.31	1.13	3/4-16	0.97	2.00	0.75	0.42	1.75	0.75	0.88	2.06	0.75	1.50	1.25	0.75	2.81	1.13	2.88	1.75

ORDERING GUIDE FOR THE TAC VT ACTUATOR

Ordering Information

V T □ □ □ - □ □ - □ □ - □ - □ □ - □ □ - □ □ □

Base No. (Capacity)

VT204 (400 lbf)
VT209 (900 lbf)
VT305 (500 lbf)
VT310 (1,000 lbf)
VT320 (2,000 lbf)

Std. Stroke Length

06: 6 in.
12: 12 in.
18: 18 in.
24: 24 in.

Unit Mounting Option

MB: Bottom Mount
FF: Front Flange
MF: Foot Mount
TF: Front Trunnion
TR: Rear Trunnion
CR: Rear Clevis

Rod End Option

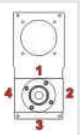
E: Female Eye
F: Female Thread
A: Self-Aligning Coupler
M: Male Thread
S: Spherical Rod Eye

Configuration

L: In-Line
U: Parallel Offset

Motor Position

1, 2, 3, 4
0 = In-Line



Gearbelt Reduction

00: In-Line/Direct Coupled
10: 1:1
20: 2:1

Switch Type

A: Hall Sourcing PNP
B: Hall Sinking NPN
C: Reed
X: No Switches

N.C. Switch Qty

0, 1, 2, 3, etc.

N.O. Switch Qty

0, 1, 2, 3, etc.

For custom stroke lengths, contact Joyce/Dayton.

Tac VP™ Actuator

IP69K STAINLESS STEEL, HIGH QUALITY, HIGH SPEED, HIGH FORCE

Tac VP series stainless steel linear actuators deliver all the performance advantages of our VT actuators with the added benefit of an IP69K rating and a contoured 316 stainless steel housing. Ideally suited for food-grade applications, severe environments and caustic washdown conditions.

Ideal for a Variety of Applications Including:

- Food and Beverage Conveying / Diverting
- Volumetric Filling / Pumping
- Packaging
- Pneumatic Replacement
- And More

Key Features:

IP69K

- IP69K rated for high-pressure, high-temperature washdown
- 316 stainless steel contoured exterior
- Compact actuator with thrust up to 2,000 lbf
- Velocity up to 40 in/sec, stroke up to 24 inches
- Multiple motor/actuator mounting configurations available
- Piston with anti-rotation, sealed chamber design
- 0.003 in/ft standard lead accuracy
- Standard backlash is 0.004 in maximum

SPECIFICATION CHART FOR THE TAC VP ACTUATOR

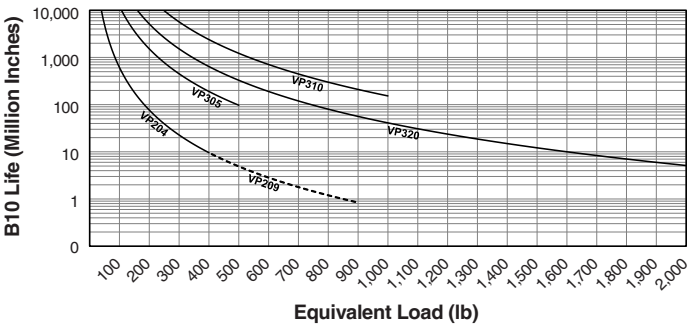
Model Number	Thrust Load Rated	Linear Velocity Max.[1]	Travel Length Max.[2]	Frame Size	Lead	Ball Screw Diameter	Ball Screw Max.[1]	Torque @ Ball Screw Max.	Dynamic Capacity Per Million Revs	Dynamic Capacity Per Million Inches	Motor Gearhead Frame Supported Max.[2]
	lbf	in/s	in	in	in	in	RPM	in-lb	lbf	lbf	in
VP204	400	16	24	2.25	0.50	0.50	1,920	35	1,070	850	3.5
VP209	900	9	24	2.25	0.20	0.63	2,700	32	1,410	825	3.5
VP305	500	40	24	3.25	1.00	1.00	2,400	88	2,300	2,300	4.5
VP310	1,000	20	24	3.25	0.50	1.00	2,400	88	5,350	4,250	4.5
VP320	2,000	10	24	3.25	0.25	1.00	2,400	88	5,475	3,450	4.5

Model Number	Inertia 1:1 Zero Stroke[3]	Inertia 1:1 Per Inch of Stroke[3]	Inertia 2:1 Zero Stroke[3]	Inertia 2:1 Per Inch of Stroke[3]	Inertia Inline Zero Stroke[3]	Inertia Inline Per Inch of Stroke[3]	Unit Weight "U" Motor Mount[4]	Unit Weight "L" Motor Mount[4]	Weight Per Inch of Stroke[4]
	lb-in^2	lb-in^2	lb-in^2	lb-in^2	lb-in^2	lb-in^2	lb	lb	lb
VP204	1.61	0.0023	0.17	0.0006	0.16	0.0023	18.0	9.0	0.38
VP209	1.61	0.0031	0.17	0.0008	0.15	0.0031	18.0	9.0	0.38
VP305	4.34	0.0281	2.30	0.0070	0.37	0.0281	33	26.0	0.81
VP310	4.27	0.0234	2.28	0.0059	0.31	0.0234	33	26.0	0.81
VP320	4.25	0.0200	2.27	0.0050	0.28	0.0200	33	26.0	0.81

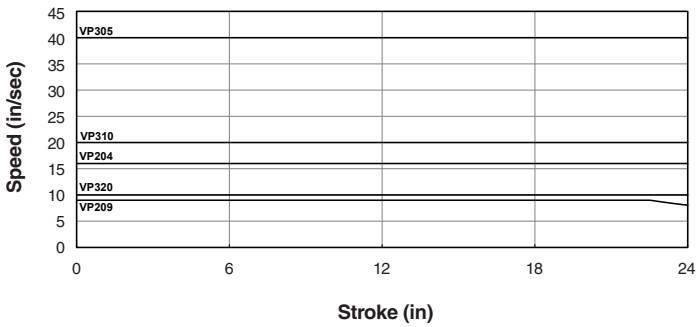
[1] Maximum velocity and maximum screw speed may not be achieveable at maximum stroke.
[2] Larger Motor or Gearhead Frames and longer stroke lengths are available upon request.
[3] All inertia values are at the input shaft and are representative of typical pulleys, bushings, couplers, etc. Actual values may vary due to motor selection.
[4] Weight values are for reference only and vary depending on configuration.
"U" Parallel offset configuration
"L" Inline configuration
**IP69K rating for static only.*

DATA CURVES FOR THE TAC VP ACTUATOR

Dynamic Capacity: Life Vs. Load



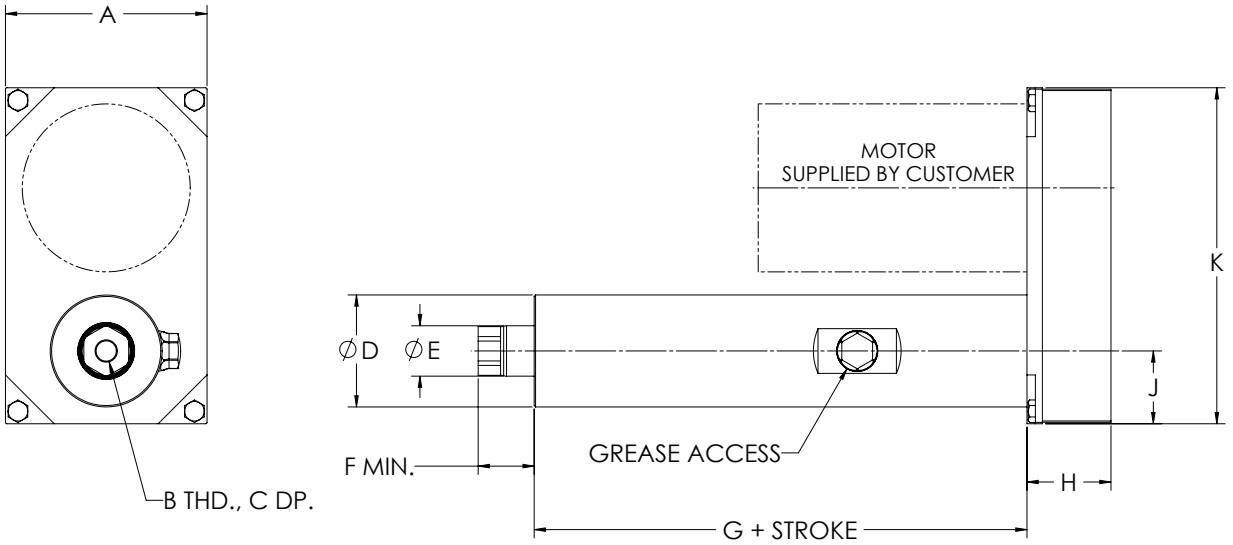
Speed Vs. Stroke



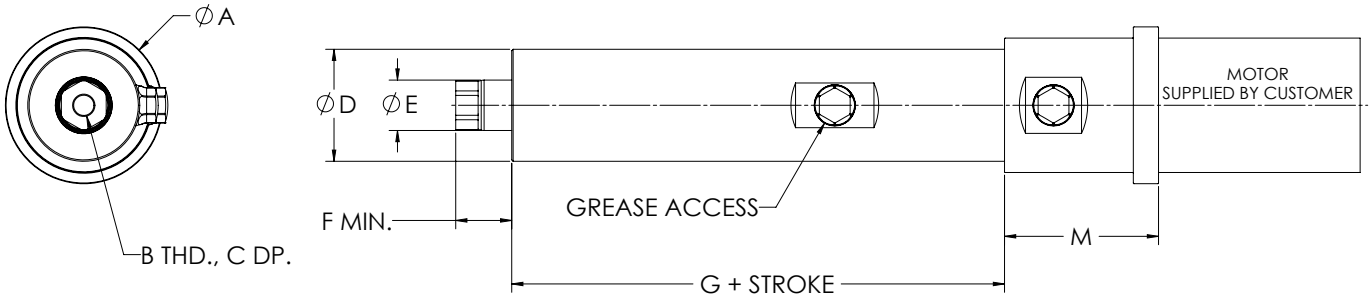
DIMENSIONED DRAWINGS FOR THE TAC VP ACTUATOR

Dimensions are in inches and are subject to change without notice.

U-Parallel Offset Motor Configuration



L-Inline Motor Configuration



"M" length may vary depending on motor or gearbox.

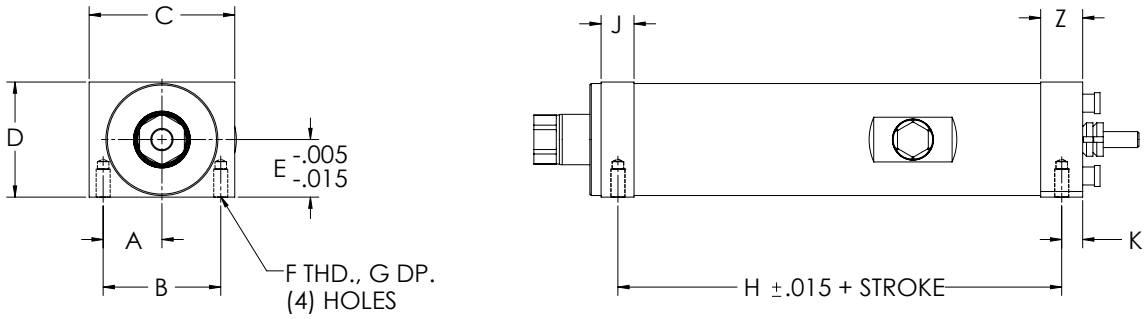
VP U-Parallel Offset, L-Inline and Rear Clevis Dimensions

Model	A	B	C	D	E	F	G	H	J	K	L	M
VP204	4.50	1/2-20	0.63	2.50	1.13	1.25	5.03	2.03	1.63	7.50	3.44	3.44
VP209	4.50	1/2-20	0.63	2.50	1.13	1.25	5.03	2.03	1.63	7.50	3.44	3.44
VP305	5.50	3/4-16	0.88	3.50	1.75	1.50	7.28	2.47	2.44	10.13	3.72	3.72
VP310	5.50	3/4-16	0.88	3.50	1.75	1.50	7.28	2.47	2.44	10.13	3.72	3.72
VP320	5.50	3/4-16	0.88	3.50	1.75	1.50	7.28	2.47	2.44	10.13	3.72	3.72

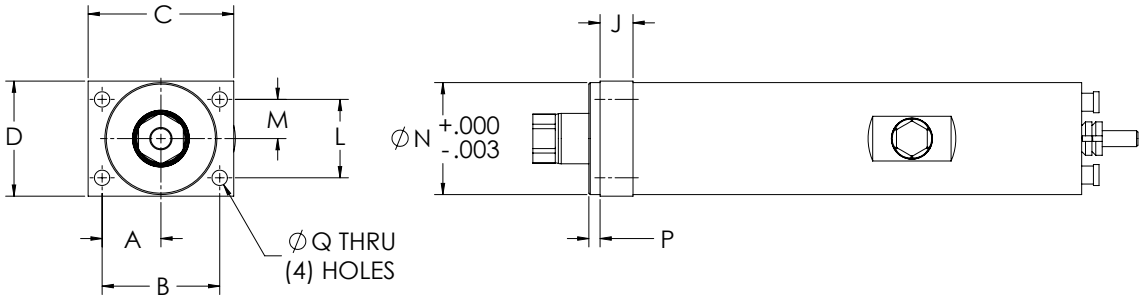
DIMENSIONED DRAWINGS FOR THE TAC VP ACTUATOR

Dimensions are in inches and are subject to change without notice.

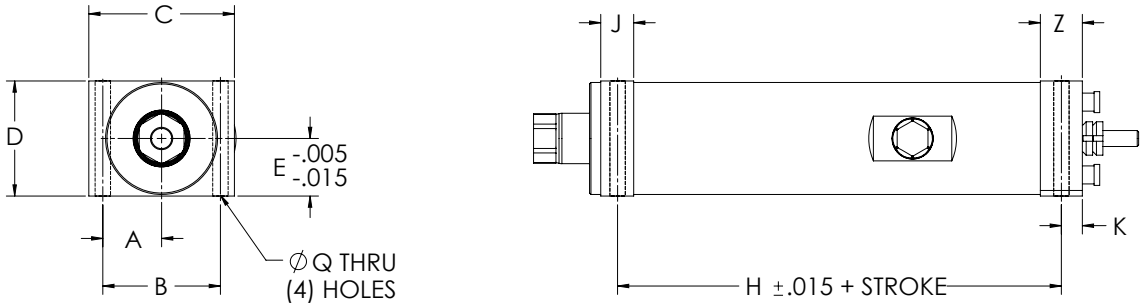
Bottom Mount Dimensions



Front Flange Dimensions



Foot Mount Dimensions



VP Unit Mounting Dimensions

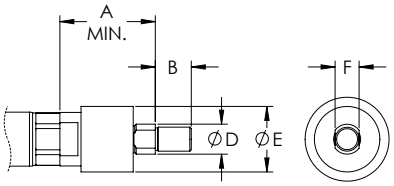
Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	Z
VP2	1.31	2.63	3.25	2.57	1.29	5/16-18	0.63	3.84	0.74	0.56	1.75	0.88	2.50	0.25	0.34	0.92
VP3	1.88	3.75	4.50	3.63	1.81	3/8-16	0.75	5.78	1.00	0.75	2.63	1.31	3.50	0.25	0.41	1.25

DIMENSIONED DRAWINGS FOR THE TAC VP ACTUATOR

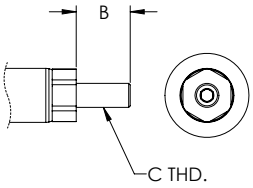
Dimensions are in inches and are subject to change without notice.

Rod End Options

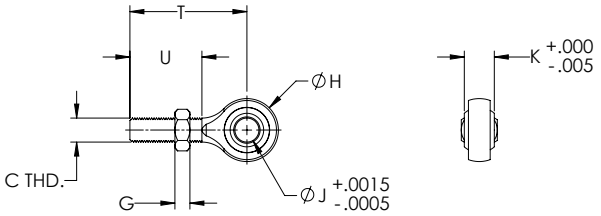
Self-Aligning Coupler



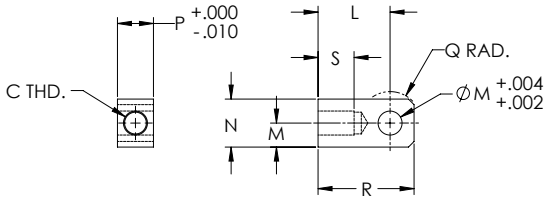
Male Thread



Spherical Rod Eye



Female Eye



VP Rod End Dimensions

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
VP2	2.00	0.75	1/2-20	0.63	1.37	0.50	0.31	1.31	0.50	0.63	1.50	0.50	1.00	0.75	0.63	2.00	0.75	2.44	1.50
VP3	2.38	1.13	3/4-16	0.97	1.75	0.88	0.42	1.75	0.75	0.88	2.06	0.75	1.50	1.25	0.88	2.81	1.13	2.88	1.75

ORDERING GUIDE FOR THE TAC VP ACTUATOR

Ordering Information

V P □ □ □ - □ □ - □ □ - □ - □ □ - □ □ - □ □ □

Base No. (Capacity)

- **VP204** (400 lbf)
- **VP209** (900 lbf)
- **VP305** (500 lbf)
- **VP310** (1,000 lbf)
- **VP320** (2,000 lbf)

Std. Stroke Length

- **6:** 6 in.
- **12:** 12 in.
- **18:** 18 in.
- **24:** 24 in.

Unit Mounting Option

- **MB:** Bottom Mount
- **MF:** Foot Mount
- **FF:** Front Flange

Rod End Option*

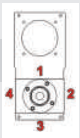
- **E:** Female Eye
- **F:** Female Thread
- **A:** Self-Aligning Coupler
- **M:** Male Thread
- **S:** Spherical Rod Eye

Configuration

- **L:** In-Line
- **U:** Parallel Offset

Motor Position

- 1, 2, 3, 4
- 0 = In-Line



Gearbelt Reduction

- **00:** In-Line/Direct Coupled
- **10:** 1:1
- **20:** 2:1

Switch Type

- **A:** Hall Sourcing PNP
- **B:** Hall Sinking NPN
- **C:** Reed
- **X:** No Switches

N.C. Switch Qty*

- 0, 1, 2, 3, etc.

N.O. Switch Qty*

- 0, 1, 2, 3, etc.

For custom stroke lengths, contact Joyce/Dayton.

* *IP69K Exceptions*
Self-Aligning Coupler and Spherical Rod Ends not rated
Sealed Limit Switches, IP65 rated

Tac LS™ Actuator

LONG STROKE, HIGH SPEED, HIGH FORCE

The Tac LS ball screw linear actuator series was developed for long stroke applications. This high quality, durable linear actuator is constructed using rugged aluminum alloy cylinders and chrome plated heavy wall steel pistons. Its small size, as well as the ease of adapting it to any standard unit mounting style, makes the Tac LS electric linear actuators a good fit in most linear motion industrial applications.

Ideal for a Variety of Applications Including:

- Damper Valve Control
- Motion Simulators
- Conveying / Diverting
- Material Handling
- Pneumatic Replacement
- And More

Key Features:

- Developed for long stroke applications
- Small size easily adapts to any standard unit mounting style
- Long stroke actuator with thrust up to 2,000 lbf
- Velocity up to 40 in/sec, stroke from 24 to 60 inches
- 0.003 in/ft standard lead accuracy
- Standard backlash is 0.004 in maximum

SPECIFICATION CHART FOR THE TAC LS ACTUATOR

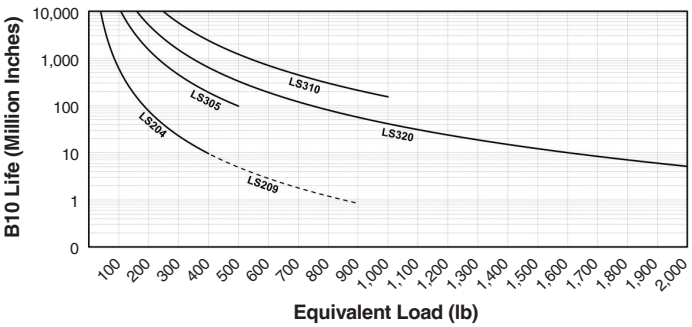
Model Number	Thrust Load Rated	Linear Velocity Max.[1]	Travel Length Max.[2]	Frame Size	Lead	Ball Screw Diameter	Ball Screw Max.[1]	Torque @ Ball Screw Max.	Dynamic Capacity Per Million Revs	Dynamic Capacity Per Million Inches	Motor Gearhead Frame Supported Max.[2]
	lbf	in/s	in	in	in	in	RPM	in-lb	lbf	lbf	in
LS204	400	16	36	2.25	0.500	0.50	1,920	35	1,070	850	3.5
LS209	900	8	36	2.25	0.200	0.63	2,400	32	1,410	825	3.5
LS305	500	40	60	3.25	1.000	1.00	2,400	88	2,300	2,300	4.5
LS310	1,000	20	60	3.25	0.500	1.00	2,400	88	5,350	4,250	4.5
LS320	2,000	10	54	3.25	0.250	1.00	2,400	88	5,475	3,450	4.5

Model Number	Inertia 1:1 Zero Stroke[3]	Inertia 1:1 Per Inch of Stroke[3]	Inertia 2:1 Zero Stroke[3]	Inertia 2:1 Per Inch of Stroke[3]	Inertia Inline Zero Stroke[3]	Inertia Inline Per Inch of Stroke[3]	Unit Weight "U" Motor Mount[4]	Unit Weight "L" Motor Mount[4]	Weight Per Inch of Stroke[4]
	lb-in^2	lb-in^2	lb-in^2	lb-in^2	lb-in^2	lb-in^2	lb	lb	lb
LS204	1.61	0.0023	0.17	0.0006	0.16	0.0023	3.0	2.0	0.50
LS209	1.61	0.0031	0.17	0.0008	0.15	0.0031	3.0	2.0	0.50
LS305	4.37	0.0535	2.30	0.0134	0.41	0.0535	10	7.0	0.83
LS310	4.28	0.0298	2.28	0.0074	0.32	0.0298	10	7.0	0.83
LS320	4.25	0.0216	2.27	0.0054	0.29	0.0216	10	7.0	0.83

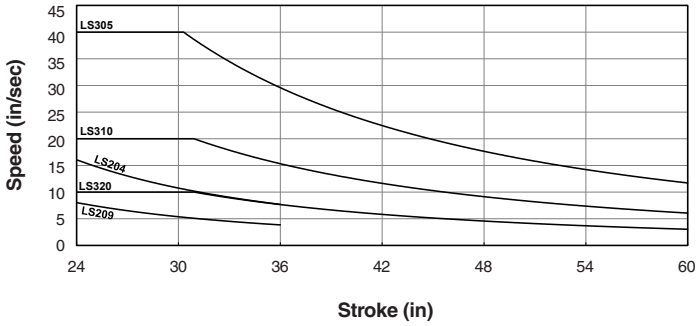
[1] Maximum velocity and maximum screw speed may not be achieveable at maximum stroke.
[2] Larger Motor or Gearhead Frames and longer stroke lengths are available upon request.
[3] All inertia values are at the input shaft and are representative of typical pulleys, bushings, couplers, etc. Actual values may vary due to motor selection.
[4] Weight values are for reference only and vary depending on configuration.
"U" Parallel offset configuration
"L" Inline configuration

DATA CURVES FOR THE TAC LS ACTUATOR

Dynamic Capacity: Life Vs. Load



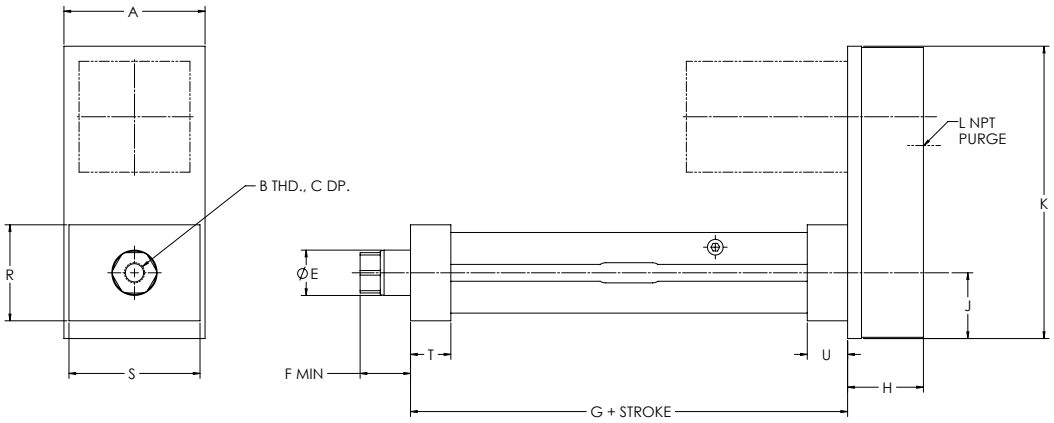
Speed Vs. Stroke



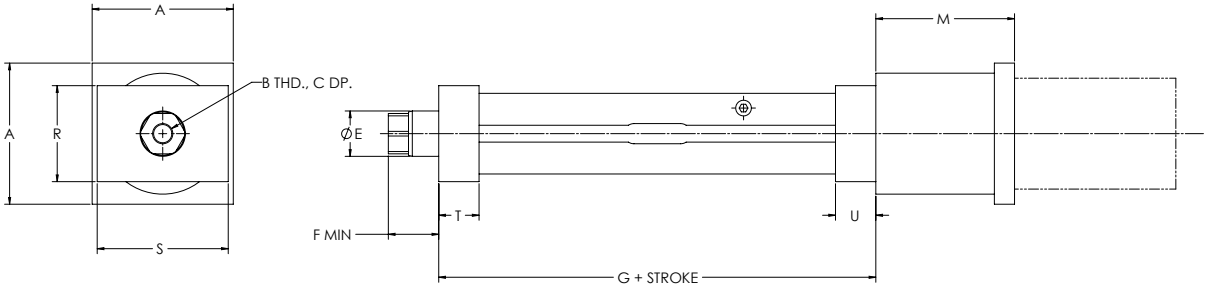
DIMENSIONED DRAWINGS FOR THE TAC LS ACTUATOR

Dimensions are in inches and are subject to change without notice.

U-Parallel Offset Motor Configuration

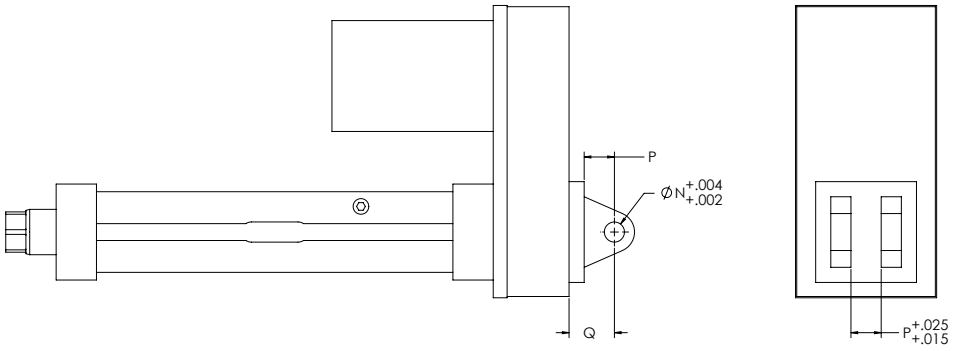


L-Inline Motor Configuration



"M" length may vary depending on motor or gearbox.

Rear Clevis



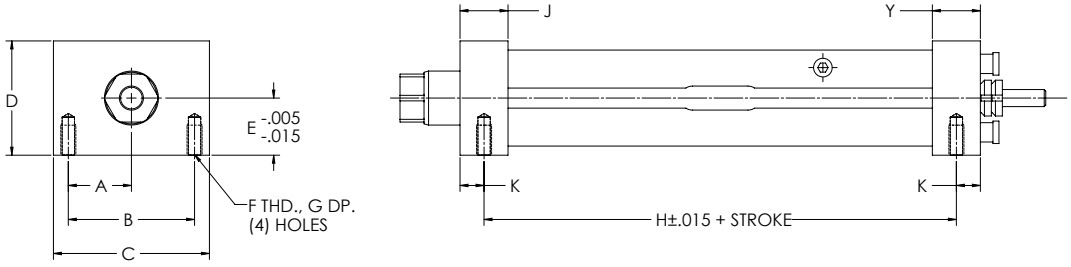
LS U-Parallel Offset, L-Inline and Rear Clevis Dimensions

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
LS204	3.50	1/2-20	0.63	2.25	1.13	1.25	7.84	1.88	1.63	7.25	1/8	3.44	0.50	0.75	1.13	2.38	3.25	1.00	1.00
LS209	3.50	1/2-20	0.63	2.25	1.13	1.25	7.84	1.88	1.63	7.25	1/8	3.44	0.50	0.75	1.13	2.38	3.25	1.00	1.00
LS305	4.50	3/4-16	0.88	3.25	1.75	1.50	10.16	2.47	2.38	9.63	1/8	3.97	0.75	1.25	1.88	3.38	4.50	1.25	1.38
LS310	4.50	3/4-16	0.88	3.25	1.75	1.50	10.16	2.47	2.38	9.63	1/8	3.97	0.75	1.25	1.88	3.38	4.50	1.25	1.38
LS320	4.50	3/4-16	0.88	3.25	1.75	1.50	10.16	2.47	2.38	9.63	1/8	3.97	0.75	1.25	1.88	3.38	4.50	1.25	1.38

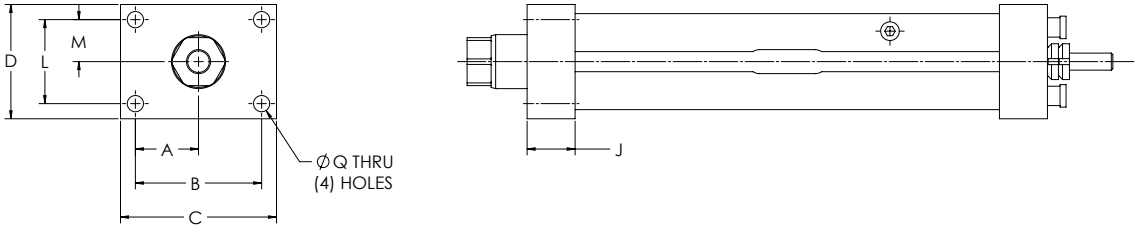
DIMENSIONED DRAWINGS FOR THE TAC LS ACTUATOR

Dimensions are in inches and are subject to change without notice.

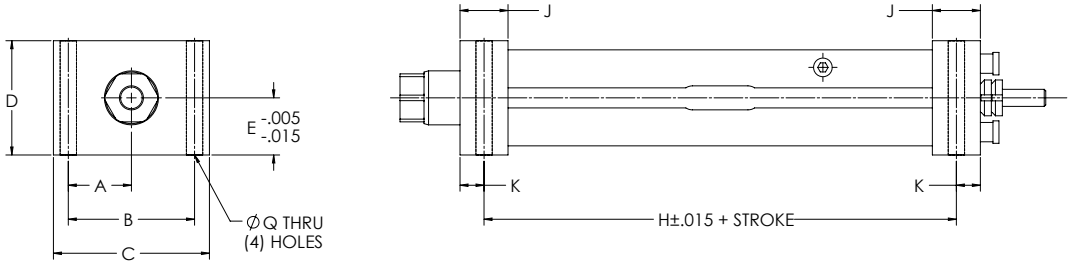
Bottom Mount Dimensions



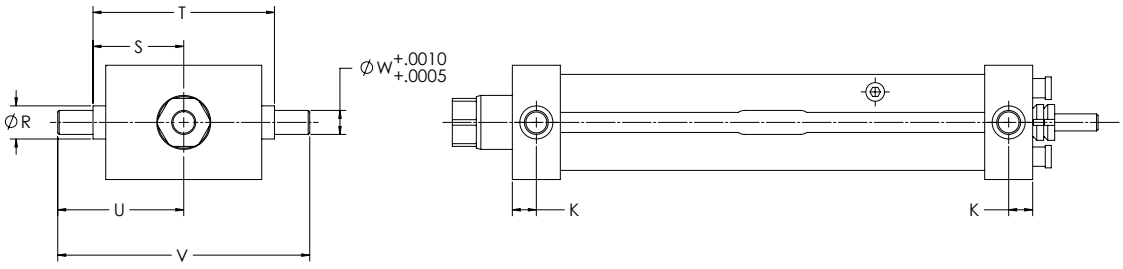
Front Flange Dimensions



Foot Mount Dimensions



Trunnion Mount Dimensions



LS Unit Mounting Dimensions

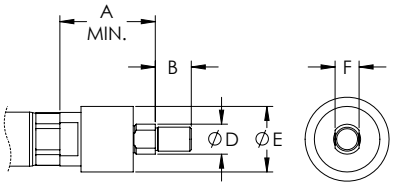
Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y
LS2	1.31	2.63	3.25	2.38	1.19	5/16-18	0.63	6.84	1.00	0.50	1.75	0.88	2.25	0.25	0.34	0.69	1.89	3.78	2.63	5.25	0.50	4.22	1.00
LS3	1.88	3.75	4.50	3.38	1.69	3/8-16	0.75	9.16	1.25	0.50	2.63	1.31	3.25	0.25	0.41	0.94	2.52	5.03	3.50	7.00	0.75	6.28	1.38

DIMENSIONED DRAWINGS FOR THE TAC LS ACTUATOR

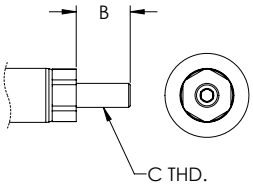
Dimensions are in inches and are subject to change without notice.

Rod End Options

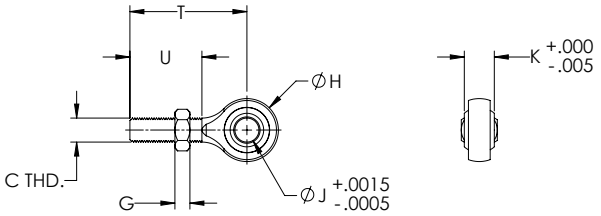
Self-Aligning Coupler



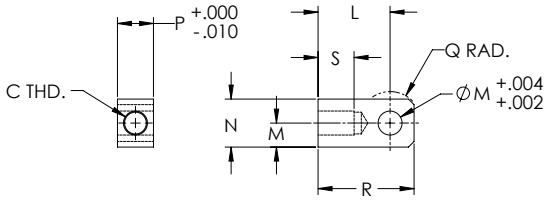
Male Thread



Spherical Rod Eye



Female Eye



LS Rod End Dimensions

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
LS2	2.00	0.75	1/2-20	0.63	1.37	0.50	0.31	1.31	0.50	0.63	1.50	0.50	1.00	0.75	0.50	2.00	0.75	2.44	1.50
LS3	2.31	1.13	3/4-16	0.97	2.00	0.75	0.42	1.75	0.75	0.88	2.06	0.75	1.50	1.25	0.75	2.81	1.13	2.88	1.75

ORDERING GUIDE FOR THE TAC LS ACTUATOR

Ordering Information

L S □ □ □ - □ □ - □ □ - □ - □ □ - □ □ - □ □ □

Base No. (Capacity)

- **LS204** (400 lbf)
- **LS209** (900 lbf)
- **LS305** (500 lbf)
- **LS310** (1,000 lbf)
- **LS320** (2,000 lbf)

Std. Stroke Length*

- **24:** 24 in.
- **30:** 30 in.
- **36:** 36 in.
- **42:** 42 in.
- **48:** 48 in.
- **54:** 54 in.
- **60:** 60 in.

Unit Mounting Option

- **MB:** Bottom Mount
- **MF:** Foot Mount
- **CR:** Rear Clevis**
- **FF:** Front Flange**
- **TF:** Front Trunnion**
- **TR:** Rear Trunnion**

Rod End Option

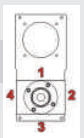
- **E:** Female Eye
- **F:** Female Thread
- **A:** Self-Aligning Coupler
- **M:** Male Thread
- **S:** Spherical Rod Eye

Configuration

- **L:** In-Line
- **U:** Parallel Offset

Motor Position

- 1, 2, 3, 4
- 0 = In-Line



Gearbelt Reduction

- **00:** In-Line/Direct Coupled
- **10:** 1:1
- **20:** 2:1

Switch Type

- **A:** Hall Sourcing PNP
- **B:** Hall Sinking NPN
- **C:** Reed
- **X:** No Switches

N.C. Switch Qty

- 0, 1, 2, 3, etc.

N.O. Switch Qty

- 0, 1, 2, 3, etc.

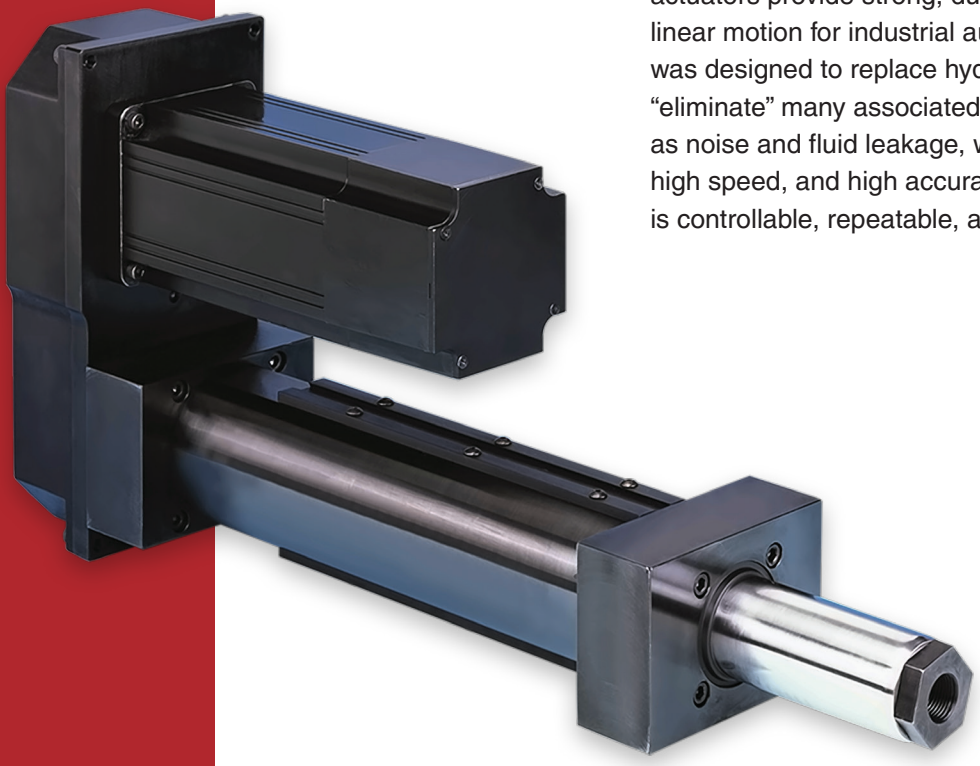
For custom stroke lengths, contact Joyce/Dayton.

* *LS204 – LS209 are available with stroke lengths up to 36 in.*
LS305 – LS310 are available with stroke lengths from 30 in. to 60 in.
LS320 are available with stroke lengths from 30 in. to 54 in.
** *Vertical Mounting Only*

Eliminator HD™ Actuator

HEAVY DUTY, HIGH SPEED, HIGH FORCE, HIGH PRECISION

The Eliminator HD and HDL series Heavy Duty linear actuators provide strong, durable, and precise linear motion for industrial automation. The HD was designed to replace hydraulic actuators and thus "eliminate" many associated concerns, such as noise and fluid leakage, while providing high load, high speed, and high accuracy linear motion that is controllable, repeatable, and easy to adjust.



Ideal for a Variety of Applications Including:

- Pressing / Punching
- Material Handling
- Metal Forming
- Parts Clamping
- Assembly
- Heat Staking
- Hydraulic Replacement
- And More

Key Features:

- Rugged steel construction with durable anti-rotation feature
- Rated thrust up to 40,000 lbf
- High velocity up to 20 in/sec, stroke up to 48 inches
- Integrated load cell option provides continuous bi-directional measurement of applied loads (HDL model)
- 0.002 in/ft standard lead accuracy, 0.0005 in/ft optional lead accuracy
- Standard backlash is 0.003 in maximum; optional zero backlash is also available

SPECIFICATION CHART FOR THE ELIMINATOR HD ACTUATOR

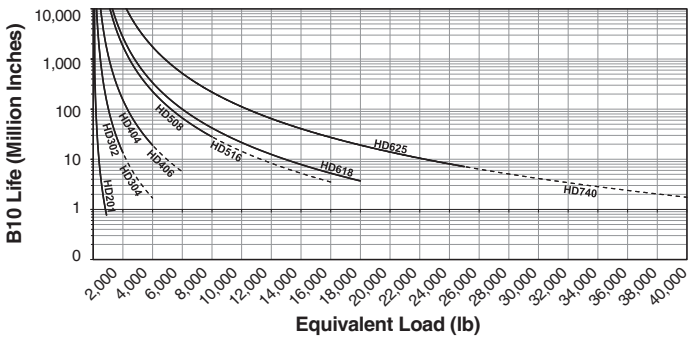
Model Number	Thrust Load Rated	Linear Velocity Max.[1]	Travel Length Max.[2]	Frame Size	Lead	Ball Screw Diameter	Ball Screw Max.[1]	Torque @ Ball Screw Max.	Dynamic Capacity Per Million Revs	Dynamic Capacity Per Million Inches	Motor Gearhead Frame Supported Max.[2]
	lbf	in/s	in	in	mm	mm	RPM	in-lb	lbf	lbf	in
HD201	1,000	8.0	12	2.00	4	16	3,048	28	1,529	825	2.75
HD302	2,000	20.0	36	3.00	10	25	3,048	139	6,490	4,760	4.25
HD304	4,000	20.0	36	3.00	10	25	3,048	278	6,490	4,760	4.25
HD404	4,000	18.0	42	4.00	10	32	2,743	278	14,580	10,690	5.75
HD406	6,000	18.0	42	4.00	10	32	2,743	418	14,580	10,690	5.75
HD508	8,000	14.0	48	5.00	12	50	1,778	668	31,250	24,340	8.00
HD516	16,000	14.0	48	5.00	12	50	1,778	1,337	31,250	24,340	8.00
HD618	18,000	9.8	48	6.00	12	63	1,245	1,504	35,750	27,840	8.00
HD625	25,000	14.4	48	6.00	20	80	1,097	3,481	52,150	48,160	8.00
HD740	40,000	14.1	48	7.00	20	80	1,097	5,575	52,150	48,160	10.88

Model Number	Inertia 1:1 Zero Stroke[3]	Inertia 1:1 Per Inch of Stroke[3]	Inertia 2:1 Zero Stroke[3]	Inertia 2:1 Per Inch of Stroke[3]	Inertia Inline Zero Stroke[3]	Inertia Inline Per Inch of Stroke[3]	Unit Weight "U" Motor Mount[4]	Unit Weight "L" Motor Mount[4]	Weight Per Inch of Stroke[4]
	lb-in^2	lb-in^2	lb-in^2	lb-in^2	lb-in^2	lb-in^2	lb	lb	lb
HD201	0.51	0.0031	0.27	0.0008	0.04	0.0031	8	6	0.87
HD302	4.31	0.0212	1.64	0.0053	0.34	0.0212	29	22	1.33
HD304	4.87	0.0212	1.46	0.0053	0.38	0.0212	29	22	1.33
HD404	23.24	0.0457	4.11	0.0114	1.99	0.0457	63	49	2.25
HD406	23.24	0.0457	4.11	0.0114	1.99	0.0457	63	49	2.25
HD508	139.27	0.2688	22.66	0.0672	5.92	0.2688	155	105	3.40
HD516	139.36	0.2688	22.68	0.0672	6.00	0.2688	155	105	3.40
HD618	281.96	0.7361	43.91	0.1840	12.31	0.7361	207	152	5.50
HD625	295.02	1.8713	47.17	0.4678	25.37	1.8713	214	158	5.50
HD740	401.85	1.8707	64.87	0.4677	96.29	1.8707	373	318	7.41

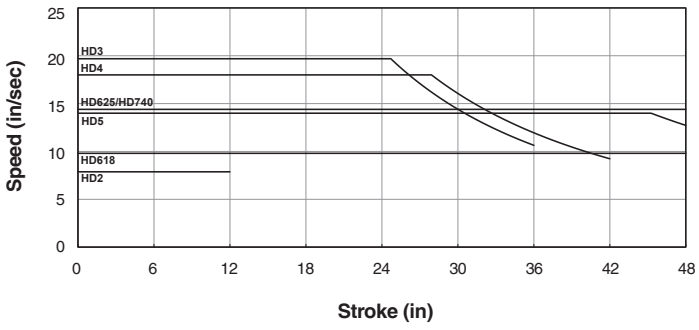
[1] Maximum velocity and maximum screw speed may not be achieveable at maximum stroke.
[2] Larger Motor or Gearhead Frames and longer stroke lengths are available upon request.
[3] All inertia values are at the input shaft and are representative of typical pulleys, bushings, couplers, etc. Actual values may vary due to motor selection.
[4] Weight values are for reference only and vary depending on configuration.
"U" Parallel offset configuration
"L" Inline configuration

DATA CURVES FOR THE ELIMINATOR HD ACTUATOR

Dynamic Capacity: Life Vs. Load



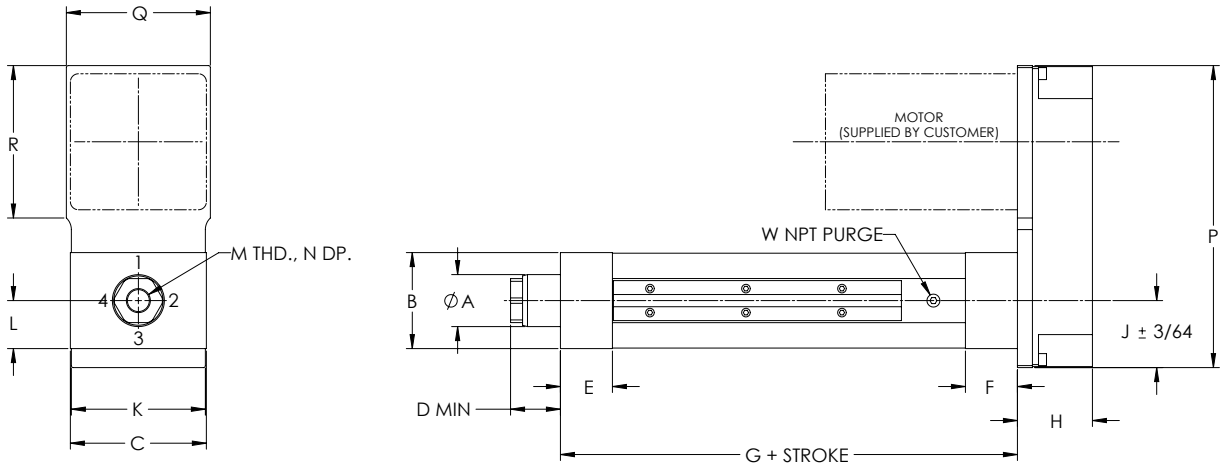
Speed Vs. Stroke



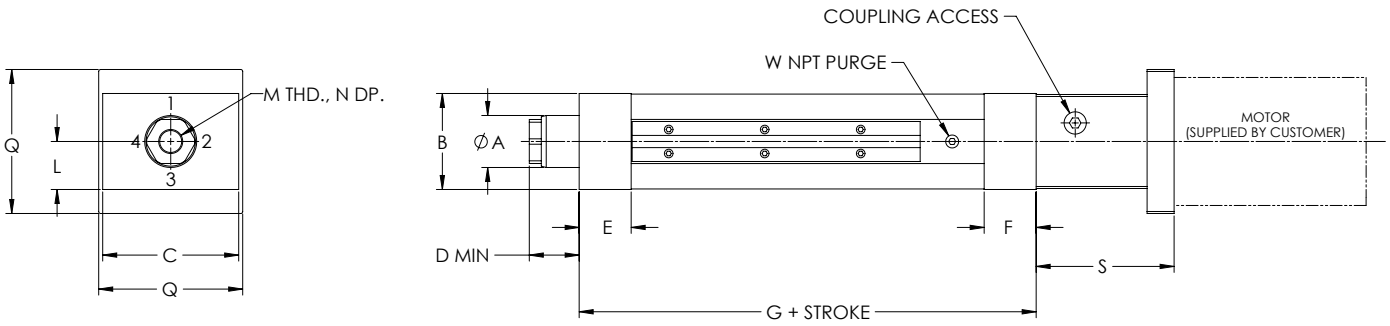
DIMENSIONED DRAWINGS FOR THE ELIMINATOR HD ACTUATOR

Dimensions are in inches and are subject to change without notice.

U-Parallel Offset Motor Configuration



L-Inline Motor Configuration



"S" length may vary depending on motor or gearbox.

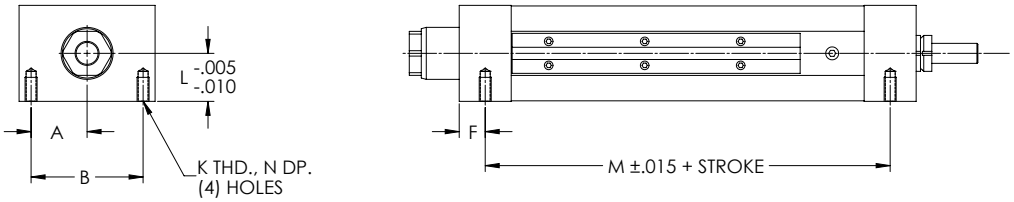
HD U-Parallel Offset and L-Inline Motor Configuration

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	W
HD201	1.13	2.00	3.00	1.04	1.00	1.00	5.59	1.63	1.48	2.97	1.00	1/2-20	1.00	6.30	2.97	N/A	2.66	1/8
HD302	1.63	3.00	4.25	1.41	1.63	1.63	8.28	2.34	2.09	4.19	1.50	3/4-16	1.00	9.44	4.50	4.75	4.31	1/8
HD304	1.63	3.00	4.25	1.56	1.63	1.63	8.28	2.34	2.09	4.19	1.50	3/4-16	1.00	9.44	4.50	4.75	4.31	1/8
HD404	2.25	4.00	5.50	1.88	2.00	2.00	9.59	2.63	2.69	5.38	2.00	3/4-16	1.00	13.00	6.00	6.94	5.00	1/4
HD406	2.25	4.00	5.50	1.79	2.00	2.00	9.59	2.63	2.69	5.38	2.00	3/4-16	1.00	13.00	6.00	6.94	5.00	1/4
HD508	3.00	5.00	7.75	2.56	2.50	3.00	13.38	4.03	3.81	7.63	2.50	1 1/4-12	1.63	17.19	8.38	9.19	6.75	3/8
HD516	3.00	5.00	7.75	2.56	2.50	3.00	13.38	4.03	3.81	7.63	2.50	1 1/4-12	1.63	17.19	8.38	9.19	6.75	3/8
HD618	3.50	6.00	8.50	2.75	3.00	3.00	14.00	4.13	4.13	8.38	3.00	1 1/4-12	1.63	17.88	9.00	9.19	7.25	1/2
HD625	4.00	6.00	8.50	2.75	3.00	3.00	16.75	4.13	4.13	8.38	3.00	1 1/4-12	1.63	17.88	9.00	9.19	7.25	1/2
HD625	4.25	7.00	10.00	3.77	3.50	4.50	18.96	5.44	4.94	9.88	3.50	2-12	3.00	19.88	10.94	10.05	10.17	1/2

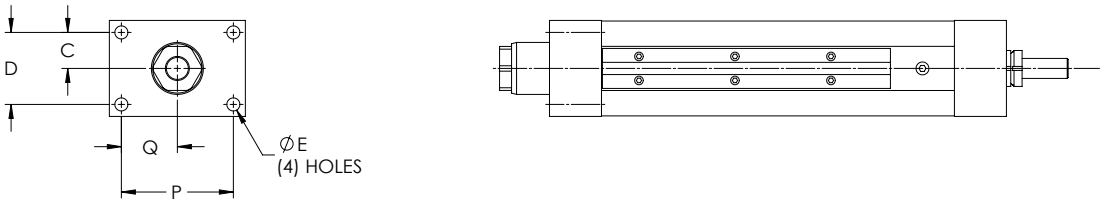
DIMENSIONED DRAWINGS FOR THE ELIMINATOR HD ACTUATOR

Dimensions are in inches and are subject to change without notice.

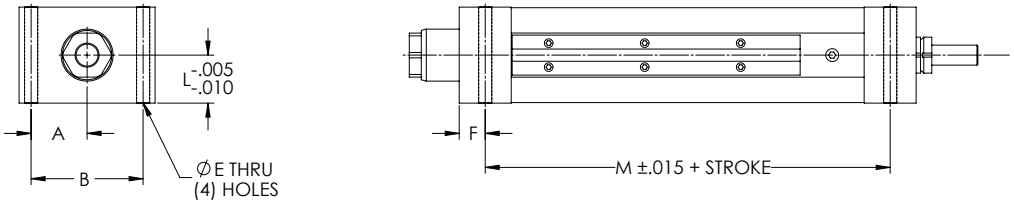
Bottom Mount Dimensions



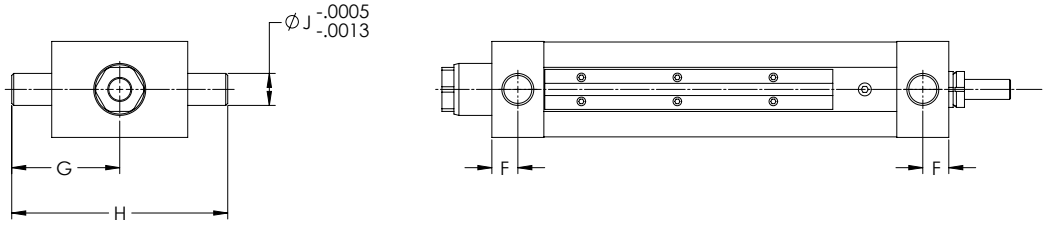
Front Flange Dimensions



Foot Mount Dimensions



Trunnion Mount Dimensions



HD Mounting Dimensions (Bottom Mount, Front Flange, Foot Mount, Trunnion Mount)

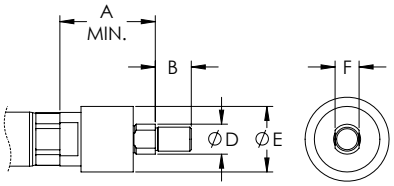
Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
HD201	1.13	2.25	0.69	1.38	0.34	0.49	2.24	4.48	0.50	5/16-18	0.99	4.63	0.63	2.38	1.19
HD302	1.75	3.50	1.13	2.25	0.41	0.81	3.38	6.75	1.00	3/8-16	1.50	6.66	0.75	3.50	1.75
HD304	1.75	3.50	1.13	2.25	0.41	0.81	3.38	6.75	1.00	3/8-16	1.50	6.66	0.75	3.50	1.75
HD404	2.19	4.38	1.44	2.88	0.69	1.00	4.50	9.00	1.25	5/8-11	2.00	7.59	1.00	4.38	2.19
HD406	2.19	4.38	1.44	2.88	0.69	1.00	4.50	9.00	1.25	5/8-11	2.00	7.59	1.00	4.38	2.19
HD508	3.13	6.25	1.75	3.50	0.81	1.25	6.25	12.50	1.50	3/4-10	2.50	10.63	1.25	6.25	3.13
HD516	3.13	6.25	1.75	3.50	0.81	1.25	6.25	12.50	1.50	3/4-10	2.50	10.63	1.25	6.25	3.13
HD618	3.31	6.63	2.00	4.00	1.06	1.50	7.13	14.25	2.00	1-8	3.00	11.00	1.63	6.63	3.31
HD625	3.31	6.63	2.00	4.00	1.06	1.50	7.13	14.25	2.00	1-8	3.00	13.75	1.63	6.63	3.31
HD740	4.00	8.00	2.50	5.00	1.06	1.75	7.88	15.75	2.00	1-8	3.50	14.96	2.00	8.00	4.00

DIMENSIONED DRAWINGS FOR THE ELIMINATOR HD ACTUATOR

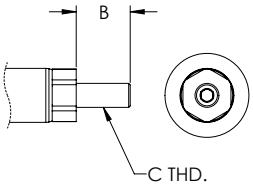
Dimensions are in inches and are subject to change without notice.

Rod End Options

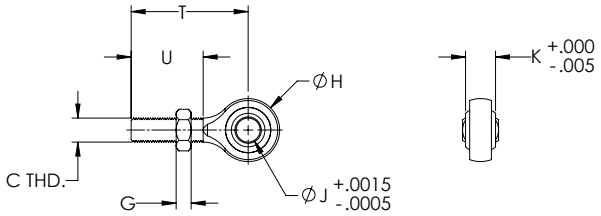
Self-Aligning Coupler



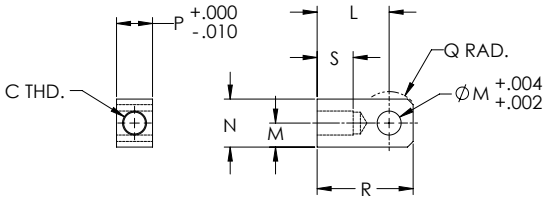
Male Thread



Spherical Rod Eye



Female Eye



HD Rod End Dimensions

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
HD201	2.00	0.75	1/2-20	0.63	1.37	0.50	0.31	1.31	0.50	0.63	1.50	0.50	1.00	0.75	0.50	2.00	0.75	2.44	1.50
HD302	2.31	1.13	3/4-16	0.97	2.00	0.75	0.42	1.75	0.75	0.88	2.06	0.75	1.50	1.25	0.75	2.81	1.13	2.88	1.75
HD304	2.31	1.13	3/4-16	0.97	2.00	0.75	0.42	1.75	0.75	0.88	2.06	0.75	1.50	1.25	0.75	2.81	1.13	2.88	1.75
HD404	2.31	1.13	3/4-16	0.97	2.00	0.75	0.42	1.75	0.75	0.88	2.06	0.75	1.50	1.25	0.75	2.81	1.13	2.88	1.75
HD406	2.31	1.13	3/4-16	0.97	2.00	0.75	0.42	1.75	0.75	0.88	2.06	0.75	1.50	1.25	0.75	2.81	1.13	2.88	1.75
HD508	2.94	1.63	1 1/4-12	1.45	3.13	1.25	0.72	2.75	1.00	1.38	3.44	1.38	2.75	2.00	1.38	4.81	2.00	4.13	2.13
HD516	2.94	1.63	1 1/4-12	1.45	3.13	1.25	0.72	2.75	1.00	1.38	3.44	1.38	2.75	2.00	1.38	4.81	2.00	4.13	2.13
HD618	2.94	1.63	1 1/4-12	1.45	3.13	1.25	0.72	2.75	1.00	1.38	3.44	1.38	2.75	2.00	1.38	4.81	2.00	4.13	2.13
HD625	2.94	1.63	1 1/4-12	1.45	3.13	1.25	0.72	2.75	1.00	1.38	3.44	1.38	2.75	2.00	1.38	4.81	2.00	4.13	2.13
HD740	5.63	3.00	2-12	2.25	5.00	2.00	1.09	5.00	2.00	1.75	5.00	4	2.00	2.50	2.50	7.00	3.00	8.00	4.5

ORDERING GUIDE FOR THE ELIMINATOR HD ACTUATOR

Ordering Information

H D □□□ - □□ - □□ - □ - □□ - □□ - □□□ - □

Base No. (Capacity)

- **HD201** (1,000 lbf)
- **HD302** (2,000 lbf)
- **HD304** (4,000 lbf)
- **HD404** (4,000 lbf)
- **HD406** (6,000 lbf)
- **HD508** (8,000 lbf)
- **HD516** (16,000 lbf)
- **HD618** (18,000 lbf)
- **HD625** (25,000 lbf)
- **HD740** (40,000 lbf)

Std. Stroke Length*

- **06:** 6 in.
- **12:** 12 in.
- **18:** 18 in.
- **24:** 24 in.
- **30:** 30 in.
- **36:** 36 in.
- **42:** 42 in.
- **48:** 48 in.

Unit Mounting Option

- **MB:** Bottom Mount
- **FF:** Front Flange
- **MF:** Foot Mount
- **TF:** Front Trunnion
- **TR:** Rear Trunnion

Rod End Option

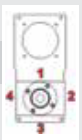
- **E:** Female Eye
- **F:** Female Thread
- **A:** Self-Aligning Coupler
- **M:** Male Thread
- **S:** Spherical Rod Eye

Configuration

- **L:** In-Line
- **U:** Parallel Offset

Motor Position

- 1, 2, 3, 4
- 0 = In-Line



Gearbelt Reduction

- **00:** In-Line/Direct Coupled
- **10:** 1:1
- **20:** 2:1

Switch Type

- **A:** Hall Sourcing PNP
- **B:** Hall Sinking NPN
- **C:** Reed
- **D:** Switch Track / No Switches
- **X:** Solid Cover / No Switches

Precision/Lead Accuracy**

- **A:** .002 in/ft Zero Backlash
- **B:** .0005 in/ft Zero Backlash
- **X:** Standard

N.C. Switch Qty

- 0, 1, 2, 3, etc.

N.O. Switch Qty

- 0, 1, 2, 3, etc.

For custom stroke lengths, contact Joyce/Dayton.

** HD201 is available with stroke lengths up to 12 in.*
HD302 – HD304 are available with stroke lengths up to 36 in.
HD404 – HD406 are available with stroke lengths up to 42 in.
HD508 – HD740 are available with stroke lengths up to 48 in.
*** HD201 – Std. Precision/Lead Accuracy is 0.0005 in/ft, Zero Backlash*
*** HD302, HD404 – Zero Backlash not available*

Eliminator HDL™ Actuator

ELIMINATOR HD + INTEGRATED LOAD CELL

The Eliminator HDL combines all the precision features of the HD series with the additional benefit of an integrated load cell, providing continuous and accurate measurement of applied loads and force. This heavy-duty, rugged linear actuator provides a clean, simple, and economical solution for your high-speed precision thrust applications.

Ideal for a Variety of Applications Including:

- Process Monitoring
- Prototyping
- Force Control
- Hydraulic Replacement
- And More

Key Features:

- "Measure while you press" integrated load cell design
- Conforms to latest standard ASTM E4 for testing machines
- Rated forces up to 40,000 lbf
- High velocity up to 20 in/sec, stroke up to 48 inches
- Accurate to within 0.5% of rated force
- 0.002 in/ft standard lead accuracy, 0.0005 in/ft optional lead accuracy
- Standard backlash is 0.003 in maximum

SPECIFICATION CHART FOR THE ELIMINATOR HDL ACTUATOR

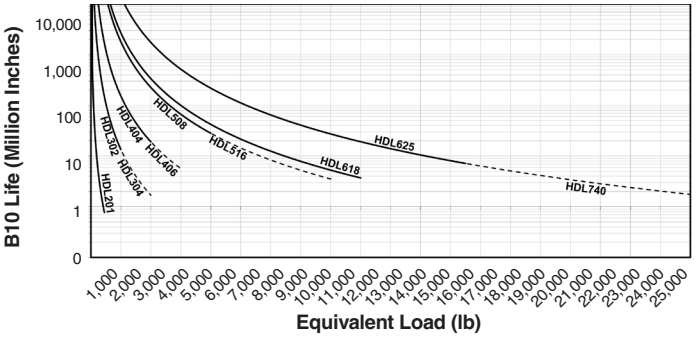
Model Number	Thrust Load Rated	Linear Velocity Max.[1]	Travel Length Max.[2]	Frame Size	Lead	Ball Screw Diameter	Ball Screw Max.[1]	Torque @ Ball Screw Max.	Dynamic Capacity Per Million Revs	Dynamic Capacity Per Million Inches	Motor Gearhead Frame Supported Max.[2]
	lbf	in/s	in	in	mm	mm	RPM	in-lb	lbf	lbf	in
HDL201	1,000	8.0	12	2.00	4	16	3,048	28	1,529	825	2.75
HDL302	2,000	20.0	36	3.00	10	25	3,048	139	6,490	4,760	4.25
HDL304	4,000	20.0	36	3.00	10	25	3,048	278	6,490	4,760	4.25
HDL404	4,000	18.0	42	4.00	10	32	2,743	278	14,580	10,690	5.75
HDL406	6,000	18.0	42	4.00	10	32	2,743	418	14,580	10,690	5.75
HDL508	8,000	14.0	48	5.00	12	50	1,778	668	31,250	24,340	8.00
HDL516	16,000	14.0	48	5.00	12	50	1,778	1,337	31,250	24,340	8.00
HDL618	18,000	9.8	48	6.00	12	63	1,245	1,504	35,750	27,840	8.00
HDL625	25,000	14.4	48	6.00	20	80	1,097	3,481	52,150	48,160	8.00
HDL740	40,000	14.4	48	7.00	20	80	1,097	5,575	52,150	48,160	10.85

Model Number	Inertia 1:1 Zero Stroke[3]	Inertia 1:1 Per Inch of Stroke[3]	Inertia 2:1 Zero Stroke[3]	Inertia 2:1 Per Inch of Stroke[3]	Inertia Inline Zero Stroke[3]	Inertia Inline Per Inch of Stroke[3]	Unit Weight "U" Motor Mount[4]	Unit Weight "L" Motor Mount[4]	Weight Per Inch of Stroke[4]
	lb-in²	lb-in²	lb-in²	lb-in²	lb-in²	lb-in²	lb	lb	lb
HDL201	0.51	0.0031	0.27	0.0008	0.04	0.0031	8	6	1
HDL302	4.31	0.0212	1.64	0.0053	0.34	0.0212	29	22	1
HDL304	4.87	0.0212	1.46	0.0053	0.38	0.0212	29	22	1
HDL404	23.24	0.0457	4.11	0.0114	1.99	0.0457	63	49	2
HDL406	23.24	0.0457	4.11	0.0114	1.99	0.0457	63	49	2
HDL508	139.27	0.2688	22.66	0.0672	5.92	0.2688	155	105	3
HDL516	139.36	0.2688	22.68	0.0672	6.00	0.2688	155	105	3
HDL618	281.96	0.7361	43.91	0.1840	12.31	0.7361	207	152	6
HDL625	295.02	1.8713	47.17	0.4678	25.37	1.8713	214	158	6
HDL740	401.85	1.8707	64.87	0.4677	96.29	1.8707	373	318	7.41

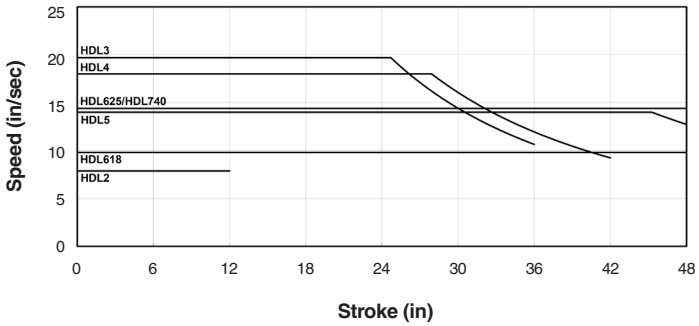
[1] Maximum velocity and maximum screw speed may not be achieveable at maximum stroke.
[2] Larger Motor or Gearhead Frames and longer stroke lengths are available upon request.
[3] All inertia values are at the input shaft and are representative of typical pulleys, bushings, couplers, etc. Actual values may vary due to motor selection.
[4] Weight values are for reference only and vary depending on configuration.
"U" Parallel offset configuration
"L" Inline configuration

DATA CURVES FOR THE ELIMINATOR HDL ACTUATOR

Dynamic Capacity: Life Vs. Load



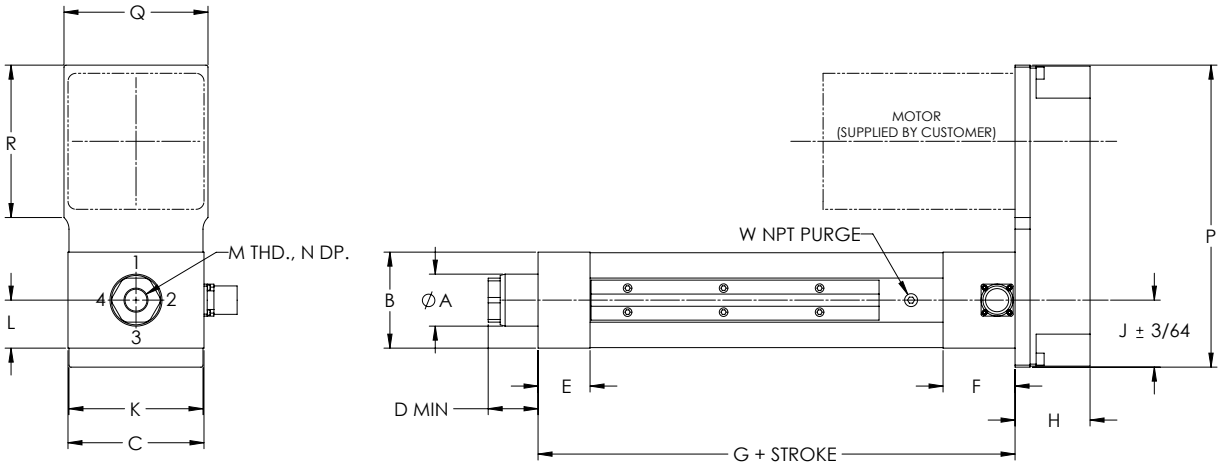
Speed Vs. Stroke



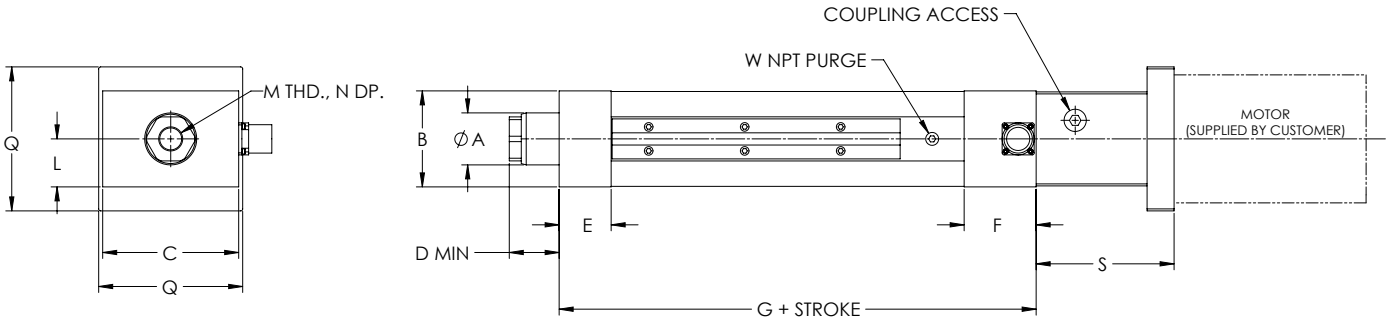
DIMENSIONED DRAWINGS FOR THE ELIMINATOR HDL ACTUATOR

Dimensions are in inches and are subject to change without notice.

U-Parallel Offset Motor Configuration



L-Inline Motor Configuration



"S" length may vary depending on motor or gearbox.

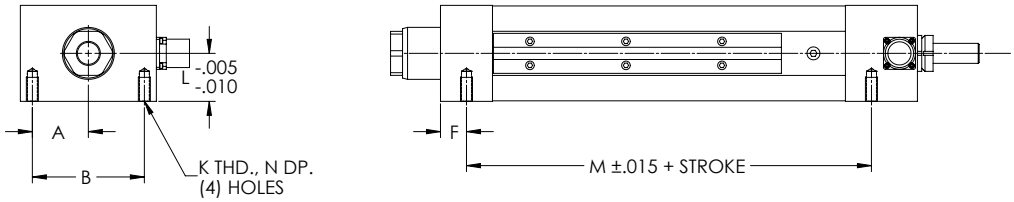
HDL U-Parallel Offset and L-Inline Motor Configuration

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	W
HDL201	1.13	2.00	3.00	1.04	1.00	1.75	6.34	1.63	1.48	2.97	1.00	1/2-20	1.00	6.30	2.97	N/A	2.66	1/8
HDL302	1.63	3.00	4.25	1.41	1.63	2.25	8.91	2.34	2.09	4.19	1.50	3/4-16	1.00	9.44	4.50	4.75	4.31	1/8
HDL304	1.63	3.00	4.25	1.56	1.63	2.25	8.91	2.34	2.09	4.19	1.50	3/4-16	1.00	9.44	4.50	4.75	4.31	1/8
HDL404	2.25	4.00	5.50	1.88	2.00	2.63	10.22	2.63	2.69	5.38	2.00	3/4-16	1.00	13.00	6.00	6.94	5.00	1/4
HDL406	2.25	4.00	5.50	1.79	2.00	2.63	10.22	2.63	2.69	5.38	2.00	3/4-16	1.00	13.00	6.00	6.94	5.00	1/4
HDL508	3.00	5.00	7.75	2.56	2.50	3.00	13.38	4.03	3.81	7.63	2.50	1 1/4-12	1.63	17.19	8.38	9.19	6.75	3/8
HDL516	3.00	5.00	7.75	2.56	2.50	3.00	14.38	4.03	3.81	7.63	2.50	1 1/4-12	1.63	17.19	8.38	9.19	6.75	3/8
HDL618	3.50	6.00	8.50	2.75	3.00	4.00	15.00	4.13	4.13	8.38	3.00	1 1/4-12	1.63	17.88	9.00	9.19	7.25	1/2
HDL625	4.00	6.00	8.50	2.75	3.00	4.00	17.75	4.13	4.13	8.38	3.00	1 1/4-12	1.63	17.88	9.00	9.19	7.25	1/2
HDL740	4.25	7.00	10.00	3.77	3.50	5.56	20.02	5.44	4.94	9.88	3.50	2-12	3.00	19.88	10.94	10.05	10.17	1/2

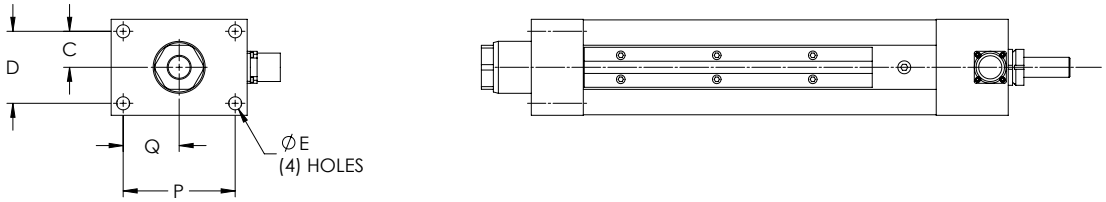
DIMENSIONED DRAWINGS FOR THE ELIMINATOR HDL ACTUATOR

Dimensions are in inches and are subject to change without notice.

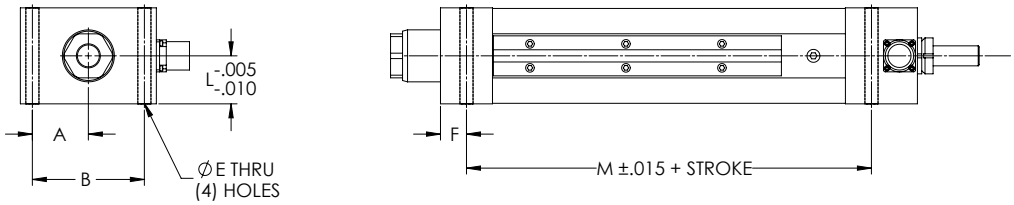
Bottom Mount Dimensions



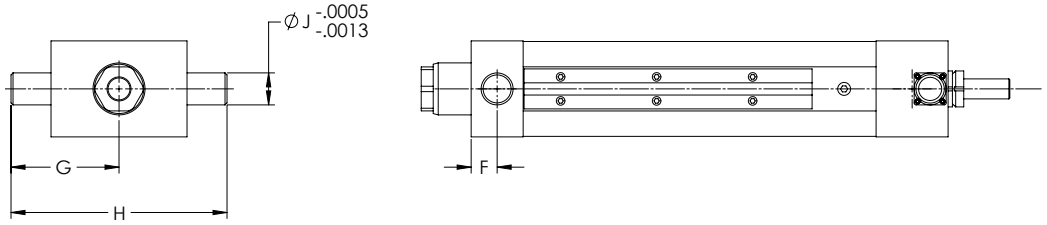
Front Flange Dimensions



Foot Mount Dimensions



Trunnion Mount Dimensions



HDL Mounting Dimensions (Bottom Mount, Front Flange, Foot Mount, Trunnion Mount)

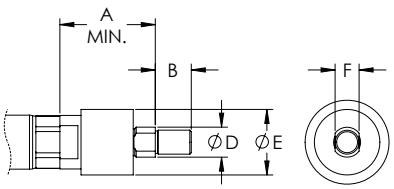
Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
HDL201	1.13	2.25	0.69	1.38	0.34	0.49	2.24	4.48	0.50	5/16-18	0.99	4.63	0.63	2.38	1.19
HDL302	1.75	3.50	1.13	2.25	0.41	0.81	3.38	6.75	1.00	3/8-16	1.50	6.66	0.75	3.50	1.75
HDL304	1.75	3.50	1.13	2.25	0.41	0.81	3.38	6.75	1.00	3/8-16	1.50	6.66	0.75	3.50	1.75
HDL404	2.19	4.38	1.44	2.88	0.69	1.00	4.50	9.00	1.25	5/8-11	2.00	7.59	1.00	4.38	2.19
HDL406	2.19	4.38	1.44	2.88	0.69	1.00	4.50	9.00	1.25	5/8-11	2.00	7.59	1.00	4.38	2.19
HDL508	3.13	6.25	1.75	3.50	0.81	1.25	6.25	12.50	1.50	3/4-10	2.50	10.63	1.25	6.25	3.13
HDL516	3.13	6.25	1.75	3.50	0.81	1.25	6.25	12.50	1.50	3/4-10	2.50	10.63	1.25	6.25	3.13
HDL618	3.31	6.63	2.00	4.00	1.06	1.50	7.13	14.25	2.00	1-8	3.00	11.00	1.63	6.63	3.31
HDL625	3.31	6.63	2.00	4.00	1.06	1.50	7.13	14.25	2.00	1-8	3.00	13.75	1.63	6.63	3.31
HDL740	4.00	8.00	2.50	5.00	1.06	1.75	7.88	15.75	2.00	1-8	3.50	14.96	2.00	8.00	4.00

DIMENSIONED DRAWINGS FOR THE ELIMINATOR HDL ACTUATOR

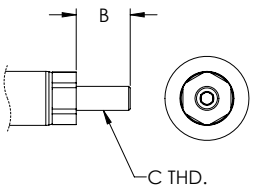
Dimensions are in inches and are subject to change without notice.

Rod End Options

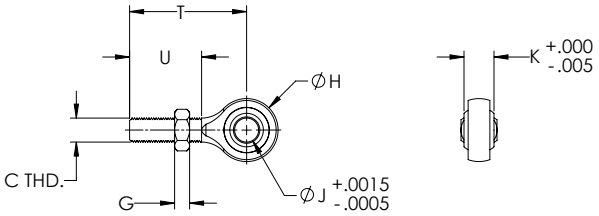
Self-Aligning Coupler



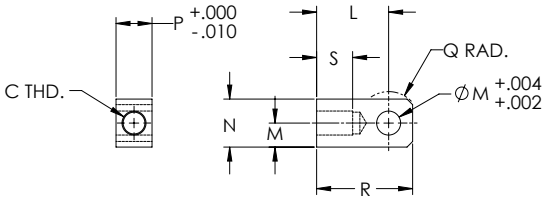
Male Thread



Spherical Rod Eye



Female Eye



HDL Rod End Dimensions

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
HDL201	2.00	0.75	1/2-20	0.63	1.37	0.50	0.31	1.31	0.50	0.63	1.50	0.50	1.00	0.75	0.50	2.00	0.75	2.44	1.50
HDL302	2.31	1.13	3/4-16	0.97	2.00	0.75	0.42	1.75	0.75	0.88	2.06	0.75	1.50	1.25	0.75	2.81	1.13	2.88	1.75
HDL304	2.31	1.13	3/4-16	0.97	2.00	0.75	0.42	1.75	0.75	0.88	2.06	0.75	1.50	1.25	0.75	2.81	1.13	2.88	1.75
HDL404	2.31	1.13	3/4-16	0.97	2.00	0.75	0.42	1.75	0.75	0.88	2.06	0.75	1.50	1.25	0.75	2.81	1.13	2.88	1.75
HDL406	2.31	1.13	3/4-16	0.97	2.00	0.75	0.42	1.75	0.75	0.88	2.06	0.75	1.50	1.25	0.75	2.81	1.13	2.88	1.75
HDL508	2.94	1.63	1 1/4-12	1.45	3.13	1.25	0.72	2.75	1.00	1.38	3.44	1.38	2.75	2.00	1.38	4.81	2.00	4.13	2.13
HDL516	2.94	1.63	1 1/4-12	1.45	3.13	1.25	0.72	2.75	1.00	1.38	3.44	1.38	2.75	2.00	1.38	4.81	2.00	4.13	2.13
HDL618	2.94	1.63	1 1/4-12	1.45	3.13	1.25	0.72	2.75	1.00	1.38	3.44	1.38	2.75	2.00	1.38	4.81	2.00	4.13	2.13
HDL625	2.94	1.63	1 1/4-12	1.45	3.13	1.25	0.72	2.75	1.00	1.38	3.44	1.38	2.75	2.00	1.38	4.81	2.00	4.13	2.13

ORDERING GUIDE FOR THE ELIMINATOR HDL ACTUATOR

Ordering Information

H D L [ ][ ][ ] - [ ][ ] - [ ][ ] - [ ] - [ ][ ] - [ ][ ] - [ ][ ][ ] - [ ]

Base No. (Capacity)
HDL201 (1,000 lbf)
HDL302 (2,000 lbf)
HDL304 (4,000 lbf)
HDL404 (4,000 lbf)
HDL406 (6,000 lbf)
HDL508 (8,000 lbf)
HDL516 (16,000 lbf)
HDL618 (18,000 lbf)
HDL625 (25,000 lbf)
HDL740 (40,000 lbf)

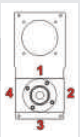
Std. Stroke Length*
06: 6 in.
12: 12 in.
18: 18 in.
24: 24 in.
30: 30 in.
36: 36 in.
42: 42 in.
48: 48 in.

Unit Mounting Option
MB: Bottom Mount
FF: Front Flange
MF: Foot Mount
TF: Front Trunnion

Rod End Option
E: Female Eye
F: Female Thread
A: Self-Aligning Coupler
M: Male Thread
S: Spherical Rod Eye

Configuration
L: In-Line
U: Parallel Offset

Motor Position
1, 2, 3, 4
0 = In-Line



Gearbelt Reduction
00: In-Line/Direct Coupled
10: 1:1
20: 2:1

Switch Type
A: Hall Sourcing PNP
B: Hall Sinking NPN
C: Reed
D: Switch Tracks / No Switches
X: Solid Cover / No Switches

Precision/Lead Accuracy**
C: .0005 in/ft .003 in. Backlash
X: Standard

N.C. Switch Qty
0, 1, 2, 3, etc.

N.O. Switch Qty
0, 1, 2, 3, etc.

For custom stroke lengths, contact Joyce/Dayton.

** HDL201 is available with stroke lengths up to 12 in.*
HDL302 – HDL304 are available with stroke lengths up to 36 in.
HDL404 – HDL406 are available with stroke lengths up to 42 in.
HDL508 – HDL740 are available with stroke lengths up to 48 in.
*** HDL201 – Std. Precision/Lead Accuracy is 0.0005 in/ft, 0.003 in. Backlash*

Eliminator SP™ Actuator

IP69K STAINLESS STEEL, HEAVY DUTY, HIGH SPEED, HIGH FORCE

The Eliminator SP and SPL series Heavy Duty linear actuators offer all the performance advantages of our HD actuator, now with IP69K rating. Ideal for food and medical grade applications, this 316 stainless steel actuator is designed for high-pressure and high-temperature washdown conditions.

Ideal for a Variety of Applications Including:

- Food Processing
- Volumetric Filling / Pumping
- Medical Equipment
- Pressing / Punching
- Hydraulic Replacement
- And More

Key Features:

IP69K

- IP69K rated for high-pressure, high-temperature washdown
- Contoured 316 stainless steel construction with hard chrome plated piston rod
- Durable anti-rotation feature
- Rated thrust up to 25,000 lbf
- Velocity to 20 in/sec, stroke up to 48 inches
- Integrated load cell option provides continuous bi-directional measurement of applied loads (SPL model)
- 0.002 in/ft standard lead accuracy, with 0.0005 in/ft option
- Standard backlash is 0.003 in maximum; optional zero backlash is also available

SPECIFICATION CHART FOR THE ELIMINATOR SP ACTUATOR

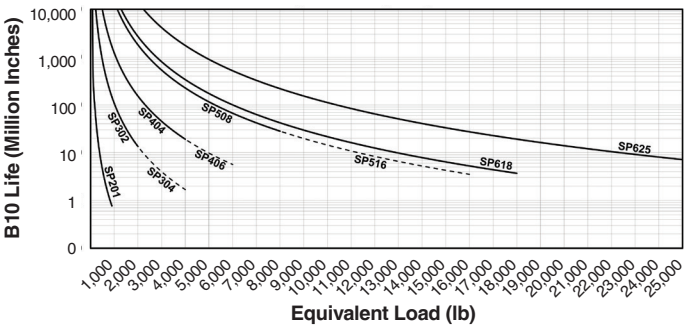
Model Number	Thrust Load Rated	Linear Velocity Max.[1]	Travel Length Max.[2]	Frame Size	Lead	Ball Screw Diameter	Ball Screw Max.[1]	Torque @ Ball Screw Max.	Dynamic Capacity Per Million Revs	Dynamic Capacity Per Million Inches	Motor Gearhead Frame Supported Max.[2]
	lbf	in/s	in	in	mm	mm	RPM	in-lb	lbf	lbf	in
SP201	1,000	8.0	12	2	4	16	3,048	28	1,529	825	2.75
SP302	2,000	20.0	36	3	10	25	3,048	139	6,490	4,760	4.25
SP304	4,000	20.0	36	3	10	25	3,048	278	6,490	4,760	4.25
SP404	4,000	18.0	42	4	10	32	2,743	278	14,580	10,690	5.75
SP406	6,000	18.0	42	4	10	32	2,743	418	14,580	10,690	5.75
SP508	8,000	14.0	48	5	12	50	1,778	668	31,250	24,340	8
SP516	16,000	14.0	48	5	12	50	1,778	1,337	31,250	24,340	8
SP618	18,000	9.8	48	6	12	63	1,245	1,504	35,750	27,840	8
SP625	25,000	14.4	48	6	20	80	1,097	3,481	52,150	48,160	8

Model Number	Inertia 1:1 Zero Stroke[3]	Inertia 1:1 Per Inch of Stroke[3]	Inertia 2:1 Zero Stroke[3]	Inertia 2:1 Per Inch of Stroke[3]	Inertia Inline Zero Stroke[3]	Inertia Inline Per Inch of Stroke[3]	Unit Weight "U" Motor Mount[4]	Unit Weight "L" Motor Mount[4]	Weight Per Inch of Stroke[4]
	lb-in²	lb-in²	lb-in²	lb-in²	lb-in²	lb-in²	lb	lb	lb
SP201	0.51	0.0031	0.27	0.0008	0.04	0.0031	9	7	0.96
SP302	4.31	0.0212	1.64	0.0053	0.34	0.0212	43	70	2.13
SP304	4.87	0.0212	1.46	0.0053	0.38	0.0212	43	70	2.13
SP404	23.24	0.0457	4.11	0.0114	1.99	0.0457	76	70	2.73
SP406	23.24	0.0457	4.11	0.0114	1.99	0.0457	76	70	2.73
SP508	139.27	0.2688	22.66	0.0672	5.92	0.2688	179	145	4.99
SP516	139.36	0.2688	22.68	0.0672	6.00	0.2688	179	145	4.99
SP618	281.96	0.7361	43.91	0.1840	12.31	0.7361	216	181	6.21
SP625	295.02	1.8713	47.17	0.4678	25.37	1.8713	282	248	6.62

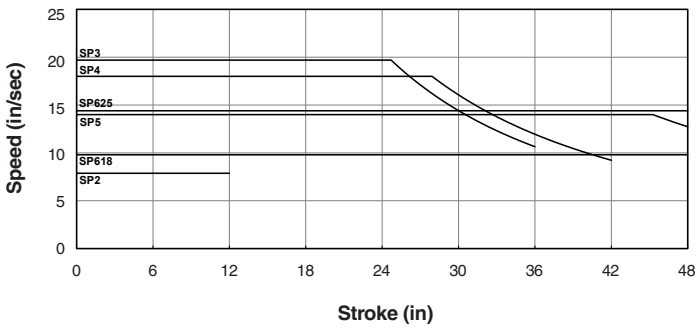
[1] Maximum velocity and maximum screw speed may not be achieveable at maximum stroke.
[2] Larger Motor or Gearhead Frames and longer stroke lengths are available upon request.
[3] All inertia values are at the input shaft and are representative of typical pulleys, bushings, couplers, etc. Actual values may vary due to motor selection.
[4] Weight values are for reference only and vary depending on configuration.
**IP69K rating for static only.*

DATA CURVES FOR THE ELIMINATOR SP ACTUATOR

Dynamic Capacity: Life Vs. Load



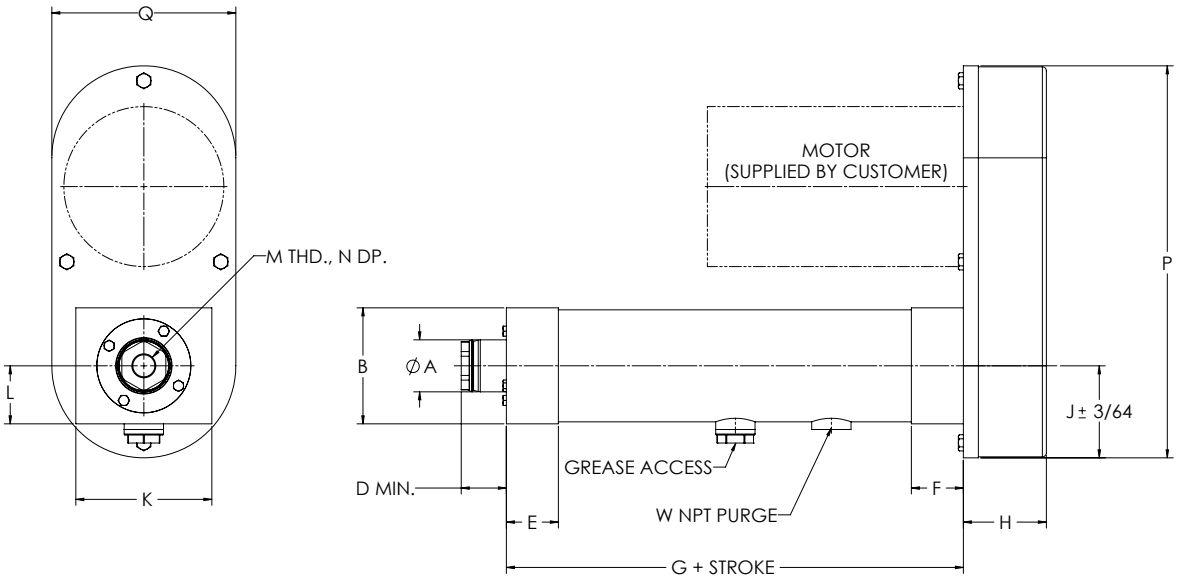
Speed Vs. Stroke



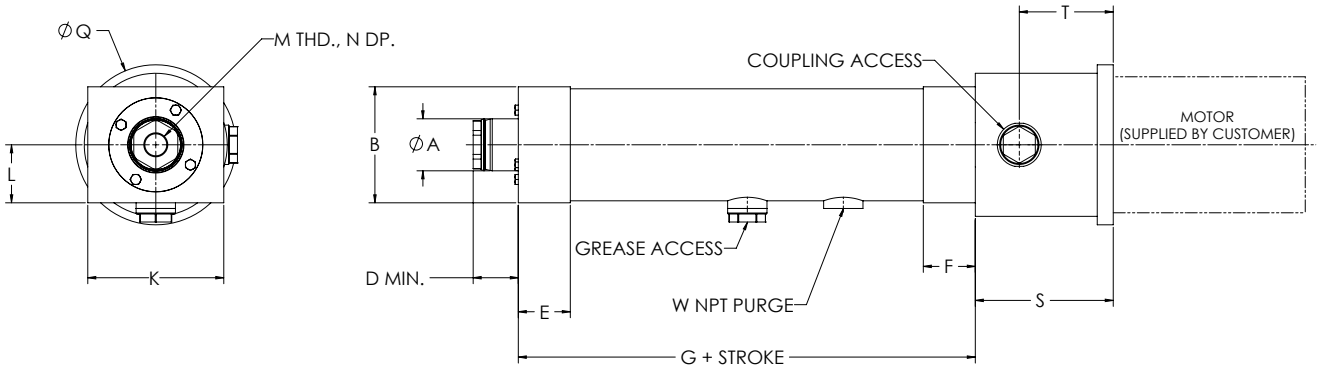
DIMENSIONED DRAWINGS FOR THE ELIMINATOR SP ACTUATOR

Dimensions are in inches and are subject to change without notice.

U-Parallel Offset Motor Configuration



L-Inline Motor Configuration



"S" length may vary depending on motor or gearbox.

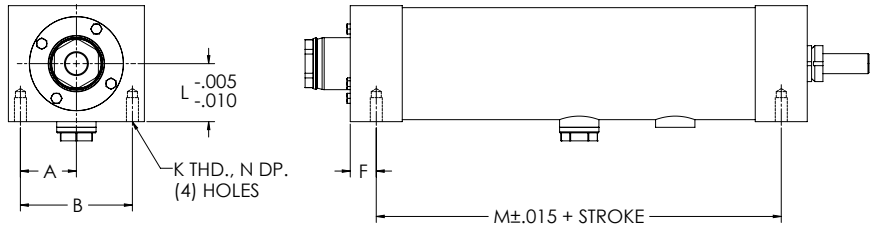
SP U-Parallel Offset and L-Inline Motor Configuration

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	S	W
SP201	1.13	2.28	3.00	1.04	1.00	1.00	5.63	1.88	2.25	4.50	1.14	1/2-20	1.00	8.50	4.50	2.94	1/8
SP302	1.63	3.63	4.25	1.41	1.63	1.63	8.28	2.59	3.20	5.75	1.81	3/4-16	1.00	12.25	5.75	4.31	1/8
SP304	1.63	3.63	4.25	1.56	1.63	1.63	8.28	2.59	3.20	5.75	1.81	3/4-16	1.00	12.25	5.75	4.31	1/8
SP404	2.25	4.38	5.50	1.88	2.00	2.00	9.59	2.72	3.50	7.19	2.19	3/4-16	1.00	10.96	7.19	5.25	1/4
SP406	2.25	4.38	5.50	1.79	2.00	2.00	9.59	2.72	3.50	7.19	2.19	3/4-16	1.00	10.96	7.19	5.25	1/4
SP508	3.00	5.63	7.75	2.56	2.50	3.00	13.38	4.50	4.61	9.00	3.88	1 1/4-12	1.63	17.25	9.00	6.75	3/8
SP516	3.00	5.63	7.75	2.56	2.50	3.00	13.38	4.50	4.61	9.00	3.88	1 1/4-12	1.63	17.25	9.00	6.75	3/8
SP618	3.50	6.13	8.50	2.75	3.00	3.00	14.00	4.68	5.84	11.00	3.06	1 1/4-12	1.63	19.50	11.00	7.25	1/2
SP625	Contact Joyce/Dayton																

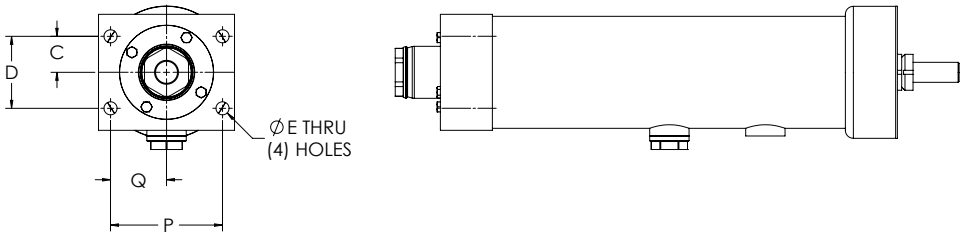
DIMENSIONED DRAWINGS FOR THE ELIMINATOR SP ACTUATOR

Dimensions are in inches and are subject to change without notice.

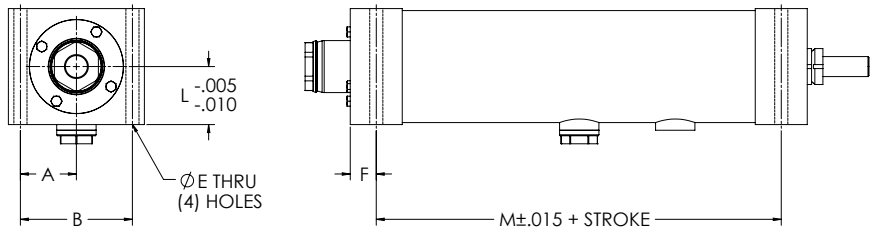
Bottom Mount Dimensions



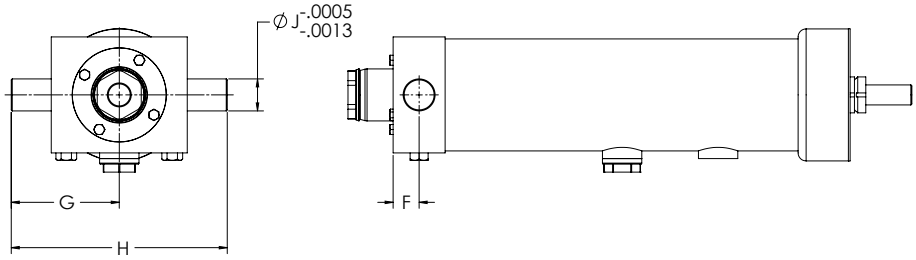
Front Flange Dimensions



Foot Mount Dimensions



Trunnion Mount Dimensions



SP Mounting Dimensions (Bottom Mount, Front Flange, Foot Mount, Trunnion Mount)

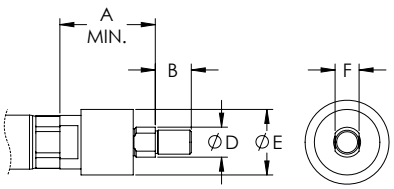
Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
SP201	1.13	2.25	0.69	1.38	0.34	0.49	2.25	4.50	0.50	5/16-18	1.14	4.63	0.63	2.38	1.19
SP302	1.75	3.50	1.13	2.25	0.41	0.81	3.38	6.75	1.00	3/8-16	1.81	6.66	0.75	3.50	1.75
SP304	1.75	3.50	1.13	2.25	0.41	0.81	3.38	6.75	1.00	3/8-16	1.81	6.66	0.75	3.50	1.75
SP404	2.19	4.38	1.44	2.88	0.69	1.00	4.50	9.00	1.25	5/8-11	2.19	7.59	1.00	4.38	2.19
SP406	2.19	4.38	1.44	2.88	0.69	1.00	4.50	9.00	1.25	5/8-11	2.19	7.59	1.00	4.38	2.19
SP508	3.13	6.25	1.75	3.50	0.81	1.25	6.25	12.50	1.50	3/4-10	3.88	10.63	1.25	6.25	3.13
SP516	3.13	6.25	1.75	3.50	0.81	1.25	6.25	12.50	1.50	3/4-10	3.88	10.63	1.25	6.25	3.13
SP618	3.31	6.63	2.00	4.00	1.06	1.50	7.13	14.25	2.00	1-8	3.06	11.00	1.63	6.63	3.31
SP625	Contact Joyce/Dayton														

DIMENSIONED DRAWINGS FOR THE ELIMINATOR SP ACTUATOR

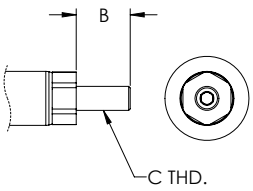
Dimensions are in inches and are subject to change without notice.

Rod End Options

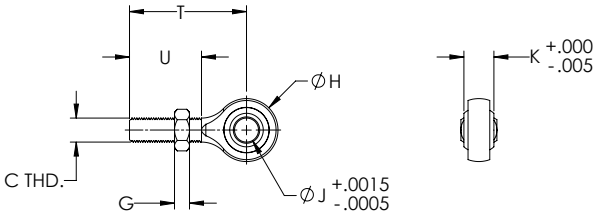
Self-Aligning Coupler



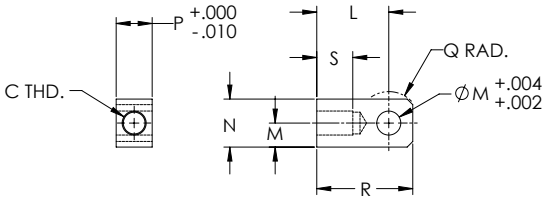
Male Thread



Spherical Rod Eye



Female Eye



SP Rod End Dimensions

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
SP201	2.00	0.75	1/2-20	0.63	1.37	0.50	0.31	1.31	0.50	0.63	1.50	0.50	1.00	0.75	0.63	2.00	0.75	2.44	1.50
SP302	2.38	1.13	3/4-16	0.97	1.75	0.88	0.42	1.75	0.75	0.88	2.06	0.75	1.50	1.25	0.88	2.81	1.13	2.88	1.75
SP304	2.38	1.13	3/4-16	0.97	1.75	0.88	0.42	1.75	0.75	0.88	2.06	0.75	1.50	1.25	0.88	2.81	1.13	2.88	1.75
SP404	2.38	1.13	3/4-16	0.97	1.75	0.88	0.42	1.75	0.75	0.88	2.06	0.75	1.50	1.25	0.88	2.81	1.13	2.88	1.75
SP406	2.38	1.13	3/4-16	0.97	1.75	0.88	0.42	1.75	0.75	0.88	2.06	0.75	1.50	1.25	0.88	2.81	1.13	2.88	1.75
SP508	2.94	1.63	1 1/4-12	1.38	2.50	1.25	0.72	2.75	1.00	1.38	3.44	1.38	2.75	2.00	1.56	4.81	2.00	4.13	2.13
SP516	2.94	1.63	1 1/4-12	1.38	2.50	1.25	0.72	2.75	1.00	1.38	3.44	1.38	2.75	2.00	1.56	4.81	2.00	4.13	2.13
SP618	2.94	1.63	1 1/4-12	1.38	2.50	1.25	0.72	2.75	1.00	1.38	3.44	1.38	2.75	2.00	1.56	4.81	2.00	4.13	2.13
SP625	Contact Joyce/Dayton																		

ORDERING GUIDE FOR THE ELIMINATOR SP ACTUATOR

Ordering Information

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Base No. (Capacity)
SP201 (1,000 lbf)
SP302 (2,000 lbf)
SP304 (4,000 lbf)
SP404 (4,000 lbf)
SP406 (6,000 lbf)
SP508 (8,000 lbf)
SP516 (16,000 lbf)
SP618 (18,000 lbf)
SP625 (25,000 lbf)

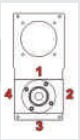
Std. Stroke Length*
06: 6 in.
12: 12 in.
18: 18 in.
24: 24 in.
30: 30 in.
36: 36 in.
42: 42 in.
48: 48 in.

Unit Mounting Option
MB: Bottom Mount
FF: Front Flange
MF: Foot Mount
TF: Front Trunnion

Rod End Option ****
E: Female Eye
F: Female Thread
A: Self-Aligning Coupler**
M: Male Thread
S: Spherical Rod Eye

Configuration
L: In-Line
U: Parallel Offset

Motor Position
1, 2, 3, 4
0 = In-Line



Gearbelt Reduction
00: In-Line/Direct Coupled
10: 1:1
20: 2:1

Switch Type
A: Hall Sourcing PNP
B: Hall Sinking NPN
C: Reed
X: No Switches

Precision/Lead Accuracy***
A: .002 in/ft Zero Backlash
B: .0005 in/ft Zero Backlash
X: Standard

N.C. Switch Qty ****
0, 1, 2, 3, etc.

N.O. Switch Qty ****
0, 1, 2, 3, etc.

For custom stroke lengths, contact Joyce/Dayton.

* *Standard Stroke Lengths*
SP201 stroke lengths up to 12 in.
SP302 – SP304 stroke lengths up to 36 in.
SP404 – SP406 stroke lengths up to 42 in.
SP508 – SP740 stroke lengths up to 48 in.

** *Self-Aligning Coupler*
Not available for SP625

*** *Precision/Lead Accuracy*
SP201 – 0.0005 in/ft, Zero Backlash is standard
SP302, SP404 – Zero Backlash not available

**** *IP69K Exceptions*
Self-Aligning Coupler and Spherical Rod Ends not rated
Sealed Limit Switches, IP65 rated

Eliminator SPL™ Actuator

IP69K STAINLESS STEEL ACTUATOR + INTEGRATED LOAD CELL

The Eliminator SPL offers all of the performance advantages of our SP actuator, including an IP69K rating. Ideal for food and medical-grade high-pressure, high-temperature washdown applications. These actuators include an integrated load cell, providing continuous and accurate measurement of applied loads and force.

Ideal for a Variety of Applications Including:

- Process Monitoring
- Prototyping
- Force Control
- Hydraulic Replacement
- And More

Key Features:

IP69K

- IP69K rated for high-pressure, high-temperature washdown
- “Measure while you Press” integrated load cell design
- Countoured 316 stainless steel construction with hard chrome plated piston rod
- Durable anti-rotation feature
- Loads and forces up to 25,000 lbf, High-velocity to 20 in/sec, stroke to 48 inches
- Accurate to within 0.5% of rated force
- 0.002 in/ft standard lead accuracy, 0.0005 in/ft optional lead accuracy
- Standard backlash is 0.003 in maximum

SPECIFICATION CHART FOR THE ELIMINATOR SPL ACTUATOR

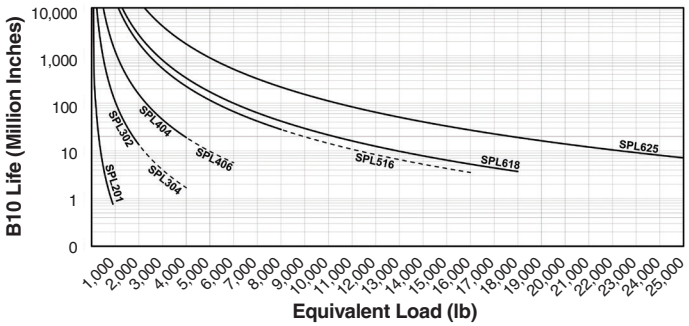
Model Number	Thrust Load Rated	Linear Velocity Max.[1]	Travel Length Max.[2]	Frame Size	Lead	Ball Screw Diameter	Ball Screw Max.[1]	Torque @ Ball Screw Max.	Dynamic Capacity Per Million Revs	Dynamic Capacity Per Million Inches	Motor Gearhead Frame Supported Max.[2]
	lbf	in/s	in	in	mm	mm	RPM	in-lb	lbf	lbf	in
SPL201	1,000	8.0	12	2	4	16	3,048	28	1,529	825	2.75
SPL302	2,000	20.0	36	3	10	25	3,048	139	6,490	4,760	4.25
SPL304	4,000	20.0	36	3	10	25	3,048	278	6,490	4,760	4.25
SPL404	4,000	18.0	42	4	10	32	2,743	278	14,580	10,690	5.75
SPL406	6,000	18.0	42	4	10	32	2,743	418	14,580	10,690	5.75
SPL508	8,000	14.0	48	5	12	50	1,778	668	31,250	24,340	8
SPL516	16,000	14.0	48	5	12	50	1,778	1,337	31,250	24,340	8
SPL618	18,000	9.8	48	6	12	63	1,245	1,504	35,750	27,840	8
SPL625	25,000	14.4	48	6	20	80	1,097	3,481	52,150	48,160	8

Model Number	Inertia 1:1 Zero Stroke[3]	Inertia 1:1 Per Inch of Stroke[3]	Inertia 2:1 Zero Stroke[3]	Inertia 2:1 Per Inch of Stroke[3]	Inertia Inline Zero Stroke[3]	Inertia Inline Per Inch of Stroke[3]	Unit Weight "U" Motor Mount[4]	Unit Weight "L" Motor Mount[4]	Weight Per Inch of Stroke[4]
	lb-in²	lb-in²	lb-in²	lb-in²	lb-in²	lb-in²	lb	lb	lb
SPL201	0.51	0.0031	0.27	0.0008	0.04	0.0031	9	7	0.96
SPL302	4.31	0.0212	1.64	0.0053	0.34	0.0212	43	70	2.13
SPL304	4.87	0.0212	1.46	0.0053	0.38	0.0212	43	70	2.13
SPL404	23.24	0.0457	4.11	0.0114	1.99	0.0457	76	70	2.73
SPL406	23.24	0.0457	4.11	0.0114	1.99	0.0457	76	70	2.73
SPL508	139.27	0.2688	22.66	0.0672	5.92	0.2688	179	145	4.99
SPL516	139.36	0.2688	22.68	0.0672	6.00	0.2688	179	145	4.99
SPL618	281.96	0.7361	43.91	0.1840	12.31	0.7361	216	181	6.21
SPL625	295.02	1.8713	47.17	0.4678	25.37	1.8713	282	248	6.62

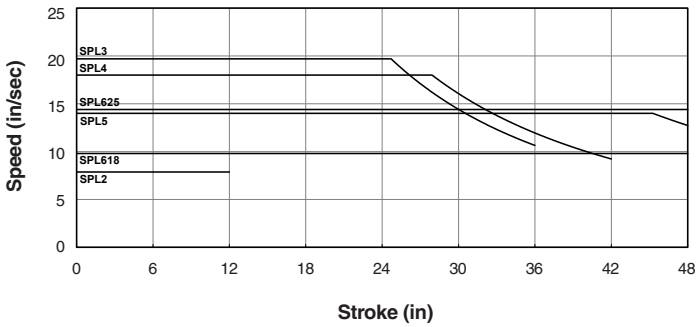
[1] Maximum velocity and maximum screw speed may not be achieveable at maximum stroke.
[2] Larger Motor or Gearhead Frames and longer stroke lengths are available upon request.
[3] All inertia values are at the input shaft and are representative of typical pulleys, bushings, couplers, etc. Actual values may vary due to motor selection.
[4] Weight values are for reference only and vary depending on configuration.
**IP69K rating for static only.*
"U" Parallel offset configuration
"L" Inline configuration

DATA CURVES FOR THE ELIMINATOR SPL ACTUATOR

Dynamic Capacity: Life Vs. Load



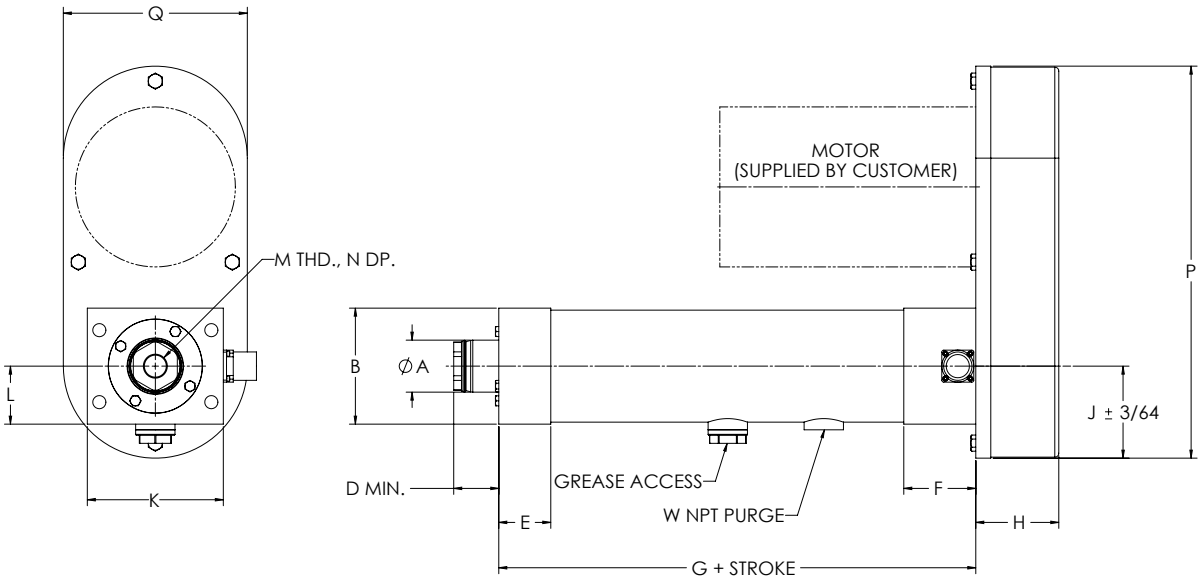
Speed Vs. Stroke



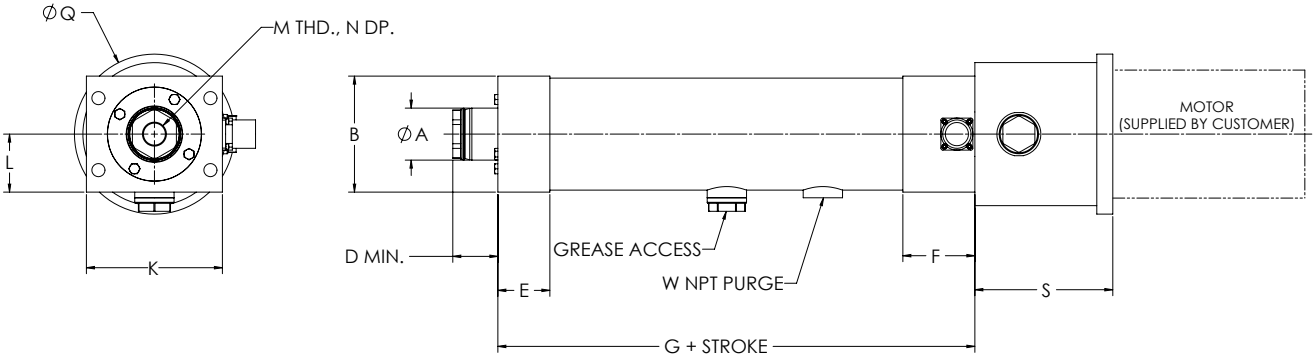
DIMENSIONED DRAWINGS FOR THE ELIMINATOR SPL ACTUATOR

Dimensions are in inches and are subject to change without notice.

U-Parallel Offset Motor Configuration



L-Inline Motor Configuration



"S" length may vary depending on motor or gearbox.

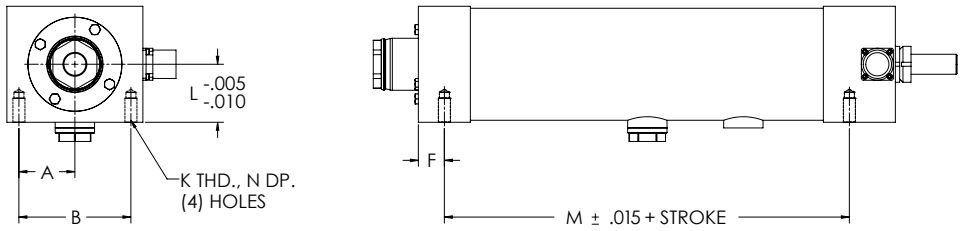
SPL U-Parallel Offset and L-Inline Motor Configuration

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	S	W
SPL201	1.13	2.28	3.00	1.04	1.00	1.00	6.38	1.88	2.25	4.50	1.14	1/2-20	1.00	8.50	4.50	2.94	1/8
SPL302	1.63	3.63	4.25	1.41	1.63	1.63	8.91	2.59	3.20	5.75	1.81	3/4-16	1.00	12.25	5.75	4.31	1/8
SPL304	1.63	3.63	4.25	1.56	1.63	1.63	8.91	2.59	3.20	5.75	1.81	3/4-16	1.00	12.25	5.75	4.31	1/8
SPL404	2.25	4.38	5.50	1.88	2.00	2.00	10.22	2.72	3.50	7.19	2.19	3/4-16	1.00	10.96	7.19	5.25	1/4
SPL406	2.25	4.38	5.50	1.79	2.00	2.00	10.22	2.72	3.50	7.19	2.19	3/4-16	1.00	10.96	7.19	5.25	1/4
SPL508	3.00	5.63	7.75	2.56	2.50	3.00	14.38	4.50	4.61	9.00	3.88	1 1/4-12	1.63	17.25	9.00	6.75	3/8
SPL516	3.00	5.63	7.75	2.56	2.50	3.00	14.38	4.50	4.61	9.00	3.88	1 1/4-12	1.63	17.25	9.00	6.75	3/8
SPL618	3.50	6.13	8.50	2.75	3.00	3.00	15.00	4.68	5.84	11.00	3.06	1 1/4-12	1.63	19.50	11.00	7.25	1/2
SPL625	Contact Joyce/Dayton																

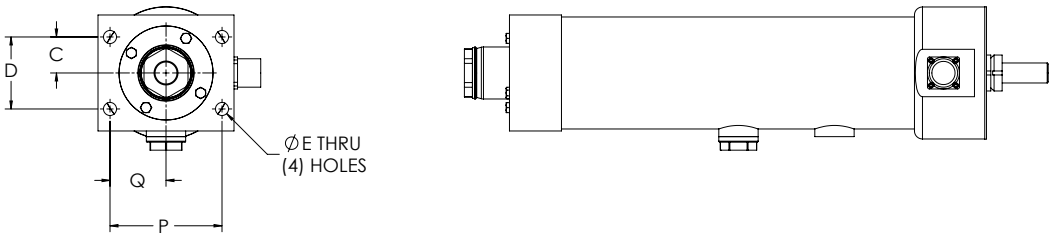
DIMENSIONED DRAWINGS FOR THE ELIMINATOR SPL ACTUATOR

Dimensions are in inches and are subject to change without notice.

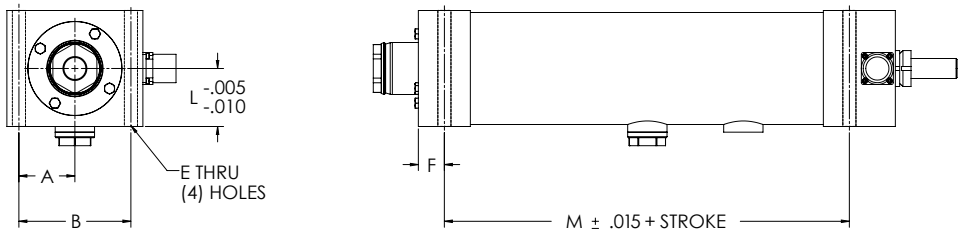
Bottom Mount Dimensions



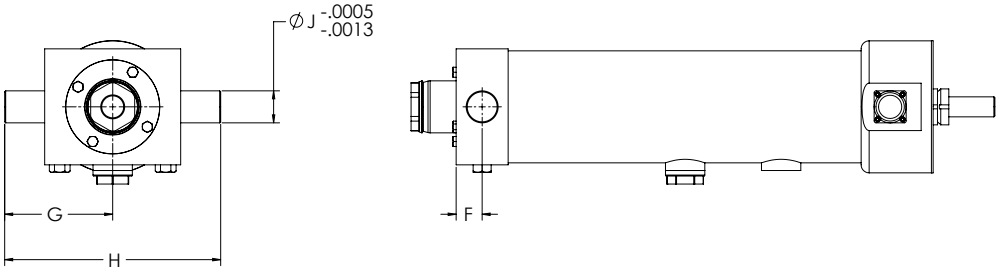
Front Flange Dimensions



Foot Mount Dimensions



Trunnion Mount Dimensions



SPL Mounting Dimensions (Bottom Mount, Front Flange, Foot Mount, Trunnion Mount)

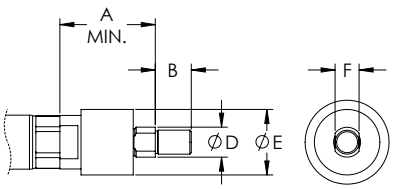
Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
SPL201	1.13	2.25	0.69	1.38	0.34	0.49	2.25	4.50	0.50	5/16-18	1.14	4.63	0.63	2.38	1.19
SPL302	1.75	3.50	1.13	2.25	0.41	0.81	3.38	6.75	1.00	3/8-16	1.81	6.66	0.75	3.50	1.75
SPL304	1.75	3.50	1.13	2.25	0.41	0.81	3.38	6.75	1.00	3/8-16	1.81	6.66	0.75	3.50	1.75
SPL404	2.19	4.38	1.44	2.88	0.69	1.00	4.50	9.00	1.25	5/8-11	2.19	7.59	1.00	4.38	2.19
SPL406	2.19	4.38	1.44	2.88	0.69	1.00	4.50	9.00	1.25	5/8-11	2.19	7.59	1.00	4.38	2.19
SPL508	3.13	6.25	1.75	3.50	0.81	1.25	6.25	12.50	1.50	3/4-10	3.88	10.63	1.25	6.25	3.13
SPL516	3.13	6.25	1.75	3.50	0.81	1.25	6.25	12.50	1.50	3/4-10	3.88	10.63	1.25	6.25	3.13
SPL618	3.31	6.63	2.00	4.00	1.06	1.50	7.13	14.25	2.00	1-8	3.06	11.00	1.63	6.63	3.31
SPL625	Contact Joyce/Dayton														

DIMENSIONED DRAWINGS FOR THE ELIMINATOR SPL ACTUATOR

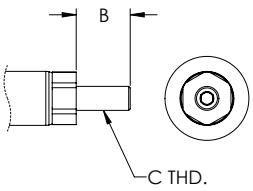
Dimensions are in inches and are subject to change without notice.

Rod End Options

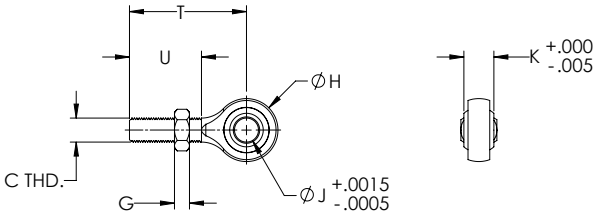
Self-Aligning Coupler



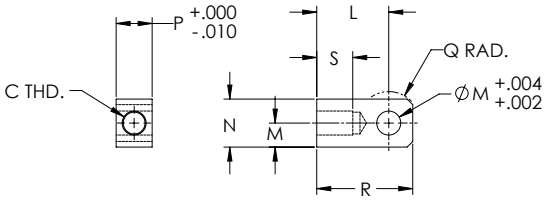
Male Thread



Spherical Rod Eye



Female Eye



SPL Rod End Dimensions

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
SPL201	2.00	0.75	1/2-20	0.63	1.37	0.50	0.31	1.31	0.50	0.63	1.50	0.50	1.00	0.75	0.63	2.00	0.75	2.44	1.50
SPL302	2.38	1.13	3/4-16	0.97	1.75	0.88	0.42	1.75	0.75	0.88	2.06	0.75	1.50	1.25	0.88	2.81	1.13	2.88	1.75
SPL304	2.38	1.13	3/4-16	0.97	1.75	0.88	0.42	1.75	0.75	0.88	2.06	0.75	1.50	1.25	0.88	2.81	1.13	2.88	1.75
SPL404	2.38	1.13	3/4-16	0.97	1.75	0.88	0.42	1.75	0.75	0.88	2.06	0.75	1.50	1.25	0.88	2.81	1.13	2.88	1.75
SPL406	2.38	1.13	3/4-16	0.97	1.75	0.88	0.42	1.75	0.75	0.88	2.06	0.75	1.50	1.25	0.88	2.81	1.13	2.88	1.75
SPL508	2.94	1.63	1 1/4-12	1.38	2.50	1.25	0.72	2.75	1.00	1.38	3.44	1.38	2.75	2.00	1.56	4.81	2.00	4.13	2.13
SPL516	2.94	1.63	1 1/4-12	1.38	2.50	1.25	0.72	2.75	1.00	1.38	3.44	1.38	2.75	2.00	1.56	4.81	2.00	4.13	2.13
SPL618	2.94	1.63	1 1/4-12	1.38	2.50	1.25	0.72	2.75	1.00	1.38	3.44	1.38	2.75	2.00	1.56	4.81	2.00	4.13	2.13
SPL625	Contact Joyce/Dayton																		

ORDERING GUIDE FOR THE ELIMINATOR SPL ACTUATOR

Ordering Information

S P L ☐☐☐ - ☐☐ - ☐☐ - ☐ - ☐☐ - ☐☐ - ☐☐ - ☐☐☐ - ☐

Base No. (Capacity)
SPL201 (1,000 lbf)
SPL302 (2,000 lbf)
SPL304 (4,000 lbf)
SPL404 (4,000 lbf)
SPL406 (6,000 lbf)
SPL508 (8,000 lbf)
SPL516 (16,000 lbf)
SPL618 (18,000 lbf)
SPL625 (25,000 lbf)

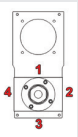
Std. Stroke Length*
06: 6 in.
12: 12 in.
18: 18 in.
24: 24 in.
30: 30 in.
36: 36 in.
42: 42 in.
48: 48 in.

Unit Mounting Option
MB: Bottom Mount
FF: Front Flange
MF: Foot Mount
TF: Front Trunnion

Rod End Option ****
E: Female Eye
F: Female Thread
A: Self-Aligning Coupler**
M: Male Thread
S: Spherical Rod Eye

Configuration
L: In-Line
U: Parallel Offset

Motor Position
1, 3, 4
0 = In-Line



Gearbelt Reduction
00: In-Line/Direct Coupled
10: 1:1
20: 2:1

Switch Type
A: Hall Sourcing PNP
B: Hall Sinking NPN
C: Reed
X: No Switches

Precision/Lead Accuracy**
C: .0005 in/ft .003 in. Backlash
X: Standard

N.C. Switch Qty ****
0, 1, 2, 3, etc.

N.O. Switch Qty ****
0, 1, 2, 3, etc.

For custom stroke lengths, contact Joyce/Dayton.

** Standard Stroke Lengths*
SPL201 - 0.0005 in/ft, 0.003 in. Backlash
SPL302 – SPL304 stroke lengths up to 36 in.
SPL404 – SPL406 stroke lengths up to 42 in.
SPL508 – SPL625 stroke lengths up to 48 in.
*** Self-Aligning Coupler*
Not available for SPL625
**** Precision/Lead Accuracy*
SPL201-0.0005 in/ft, 0.003 in. Backlash
***** IP69K Exceptions*
Self-Aligning Coupler and Spherical Rod Ends not rated
Sealed Limit Switches, IP65 rated

Eliminator SS™ Actuator

EXTREME SPEED CAPABILITY IN AN ELIMINATOR PLATFORM

The Eliminator SS Super Speed actuator is the linear solution for those automation applications demanding extremely high-speed motion. This combination of high thrust capacity, fast actuation, and precision motion are all provided in a strong, durable, actuator built on the Eliminator HD platform and adaptable to your servomotor.

Ideal for a Variety of Applications Including:

- Timber Processing
- Cut-Off Applications
- Packaging
- Hydraulic / Pneumatic Replacement
- And More

Key Features:

- Rugged steel construction with durable anti-rotation feature
- Rated thrust up to 2,000 lbf
- Extreme speed capability up to 63 in/sec, stroke up to 48 inches
- Sealed chamber design with purge provisions to meet IP54
- 0.005 in/ft standard lead accuracy
- Standard backlash is 0.005 in maximum; optional zero backlash is also available

SPECIFICATION CHART FOR THE ELIMINATOR SS ACTUATOR

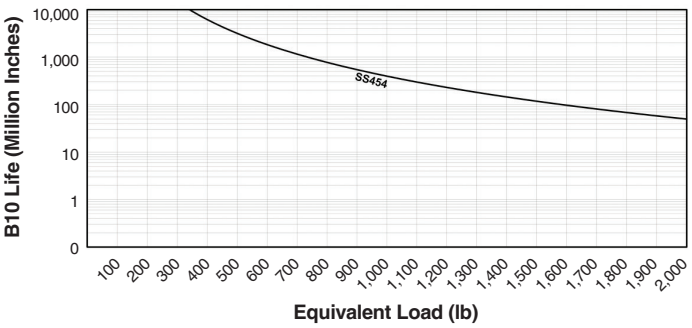
Model Number	Thrust Load Rated	Linear Velocity Max.[1]	Travel Length Max.[2]	Frame Size	Lead	Ball Screw Diameter	Ball Screw Max.[1]	Torque @ Ball Screw Max.	Dynamic Capacity Per Million Revs	Dynamic Capacity Per Million Inches	Motor Gearhead Frame Supported Max.[2]
	lbf	in/s	in	in	in	in	RPM	in-lb	lbf	lbf	in
SS454	2,000	63	48	4.5	1.875	1.5	2,016	663	5,960	7,350	7

Model Number	Inertia 1:1 Zero Stroke[3]	Inertia 1:1 Per Inch of Stroke[3]	Inertia 2:1 Zero Stroke[3]	Inertia 2:1 Per Inch of Stroke[3]	Inertia Inline Zero Stroke[3]	Inertia Inline Per Inch of Stroke[3]	Unit Weight "U" Motor Mount[4]	Unit Weight "L" Motor Mount[4]	Weight Per Inch of Stroke[4]
	lb-in^2	lb-in^2	lb-in^2	lb-in^2	lb-in^2	lb-in^2	lb	lb	lb
SS454	18.43	0.1550	6.19	0.0388	3.24	0.1550	87	62	2.14

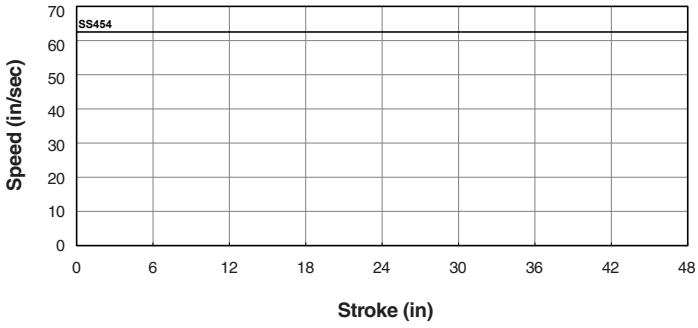
[1] Maximum velocity and maximum screw speed may not be achieveable at maximum stroke.
[2] Larger Motor or Gearhead Frames and longer stroke lengths are available upon request.
[3] All inertia values are at the input shaft and are representative of typical pulleys, bushings, couplers, etc. Actual values may vary due to motor selection.
[4] Weight values are for reference only and vary depending on configuration.
"U" Parallel offset configuration
"L" Inline configuration

DATA CURVES FOR THE ELIMINATOR SS ACTUATOR

Dynamic Capacity: Life Vs. Load



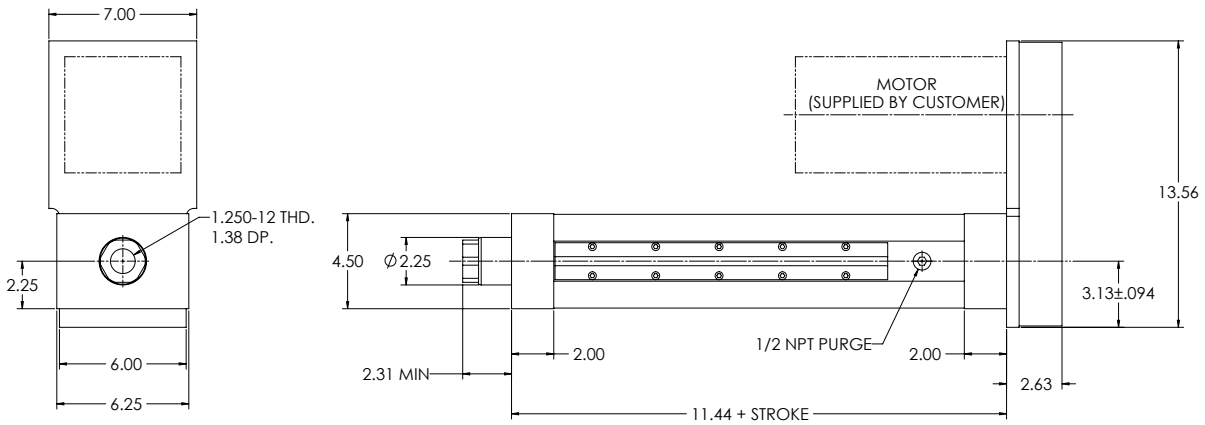
Speed Vs. Stroke



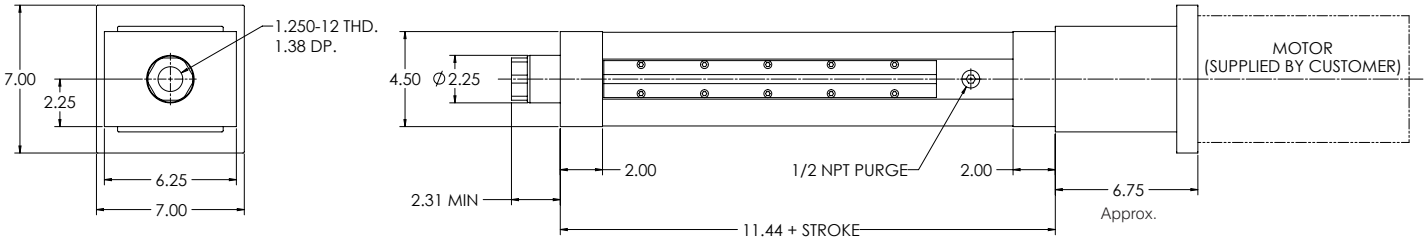
DIMENSIONED DRAWINGS FOR THE ELIMINATOR SS ACTUATOR

Dimensions are in inches and are subject to change without notice.

U-Parallel Offset Motor Configuration



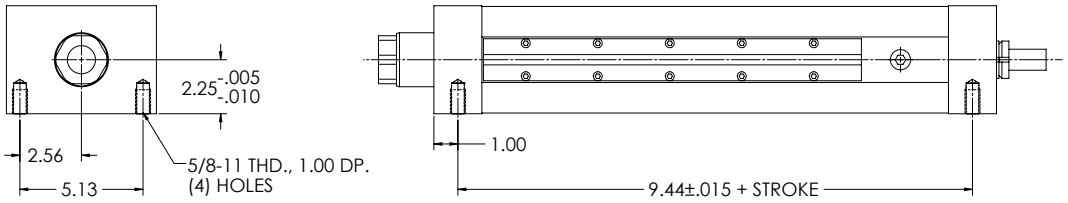
L-Inline Motor Configuration



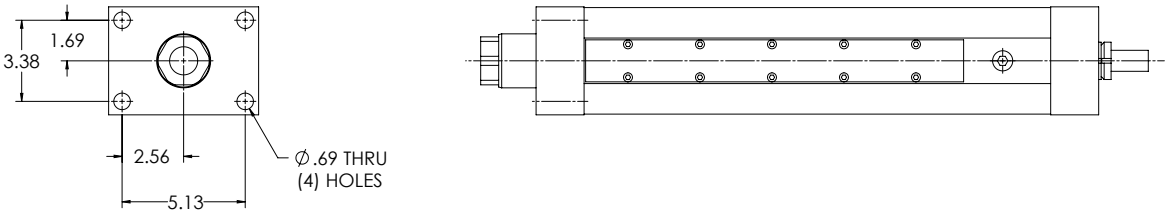
DIMENSIONED DRAWINGS FOR THE ELIMINATOR SS ACTUATOR

Dimensions are in inches and are subject to change without notice.

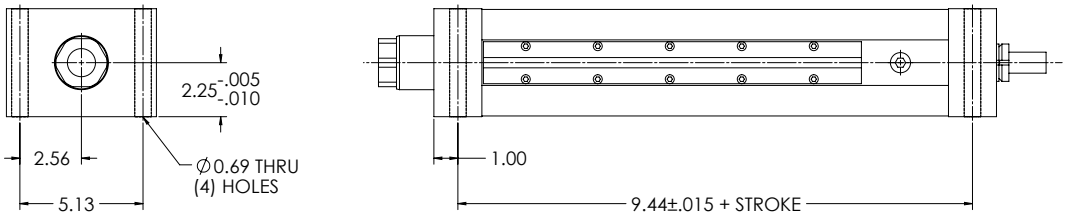
Bottom Mount Dimensions



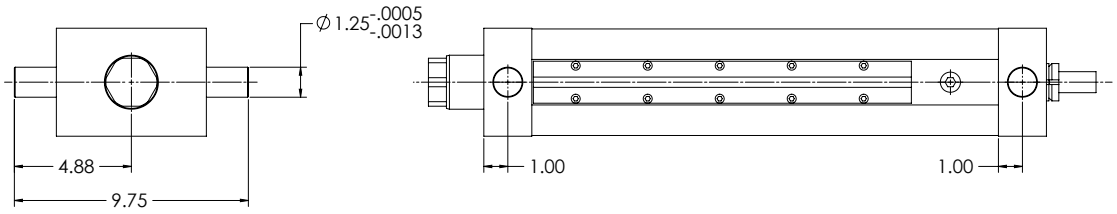
Front Flange Dimensions



Foot Mount Dimensions



Trunnion Mount Dimensions

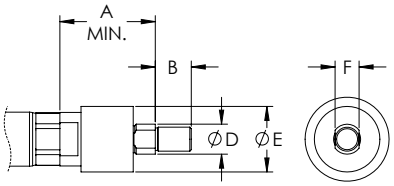


DIMENSIONED DRAWINGS FOR THE ELIMINATOR SS ACTUATOR

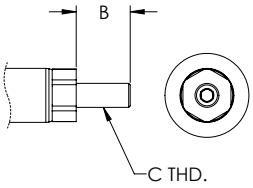
Dimensions are in inches and are subject to change without notice.

Rod End Options

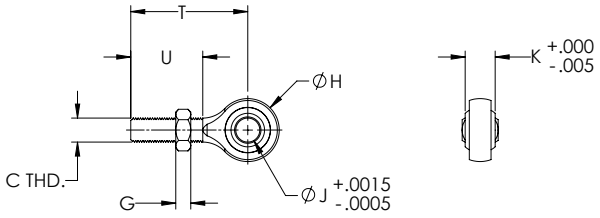
Self-Aligning Coupler



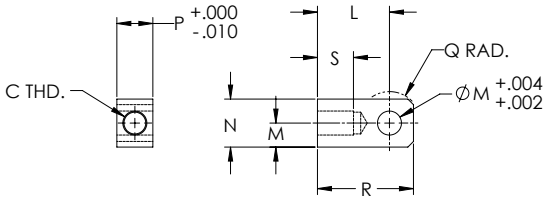
Male Thread



Spherical Rod Eye



Female Eye



SS Rod End Dimensions

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
SS454	2.94	1.63	1 1/4-12	1.45	3.13	1.25	0.72	2.75	1.00	1.38	3.44	1.38	2.75	2.00	1.38	4.81	2.00	4.13	2.13

ORDERING GUIDE FOR THE ELIMINATOR SS ACTUATOR

Ordering Information

S S 4 5 4 – □ □ – □ □ – □ – □ □ – □ □ – □ □ □

Base No. (Capacity)

SS454 (2,000 lbf)

Std. Stroke Length

12: 12 in.
18: 18 in.
24: 24 in.
30: 30 in.
36: 36 in.
42: 42 in.
48: 48 in.

Unit Mounting Option

MB: Bottom Mount
FF: Front Flange
MF: Foot Mount
TF: Front Trunnion
TR: Rear Trunnion

Rod End Option

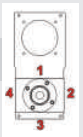
E: Female Eye
F: Female Thread
A: Self-Aligning Coupler
M: Male Thread
S: Spherical Rod Eye

Configuration

L: In-Line
U: Parallel Offset

Motor Position

1, 2, 3, 4
0 = In-Line



Gearbelt Reduction

00: In-Line/Direct Coupled
10: 1:1
20: 2:1

Switch Type

A: Hall Sourcing PNP
B: Hall Sinking NPN
C: Reed
D: Switch Tracks / No Switches
X: Solid Cover / No Switches

N.C. Switch Qty

0, 1, 2, 3, etc.

N.O. Switch Qty

0, 1, 2, 3, etc.

For custom stroke lengths, contact Joyce/Dayton.

Eliminator SD™ Actuator

EXTREME THRUST CAPABILITY IN ELIMINATOR HD PLATFORM

The Eliminator SD super duty linear actuator provides extreme thrust capacity for your high thrust industrial applications. Achieve the perfect high precision/high load capacity solution when you combine your servomotor with this heavy-duty steel actuator.

Ideal for a Variety of Applications Including:

- Heavy Pressing / Punching / Staking
- Heavy Lifting
- Riveting / Fastening
- Cycle Testing
- Clamping / Stamping
- Hydraulic Replacement
- And More

Key Features:

- Rugged steel construction with durable anti-rotation feature
- Extreme thrust capacity up to 100,000 lbf
- Velocity up to 12 in/sec, stroke up to 48 inches
- Combines with your servomotor to achieve the perfect high-precision/high-load capacity
- 0.002 in/ft standard lead accuracy
- Standard backlash is 0.003 in maximum

SPECIFICATION CHART FOR THE ELIMINATOR SD ACTUATOR

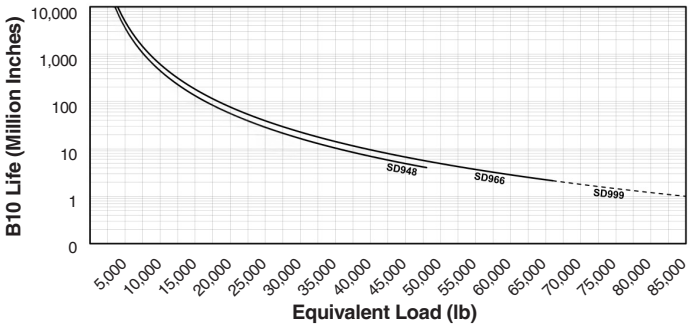
Model Number	Thrust Load Rated	Linear Velocity Max.[1]	Travel Length Max.[2]	Frame Size	Lead	Ball Screw Diameter	Ball Screw Max.[1]	Torque @ Ball Screw Max.	Dynamic Capacity Per Million Revs	Dynamic Capacity Per Million Inches	Motor Gearhead Frame Supported Max.[2]
	lbf	in/s	in	in	in	in	RPM	in-lb	lbf	lbf	in
SD948	48,000	12.0	48	9.00	1.000	4.00	720	8,490	76,390	76,390	12
SD966	66,000	12.0	48	9.00	1.000	4.00	720	11,670	84,900	84,900	12
SD999	100,000	12.0	42	9.00	1.000	4.00	720	17,684	84,900	84,900	12

Model Number	Inertia 1:1 Zero Stroke[3]	Inertia 1:1 Per Inch of Stroke[3]	Inertia 2:1 Zero Stroke[3]	Inertia 2:1 Per Inch of Stroke[3]	Inertia Inline Zero Stroke[3]	Inertia Inline Per Inch of Stroke[3]	Unit Weight "U" Motor Mount[4]	Unit Weight "L" Motor Mount[4]	Weight Per Inch of Stroke[4]
	lb-in^2	lb-in^2	lb-in^2	lb-in^2	lb-in^2	lb-in^2	lb	lb	lb
SD948	1,099.84	4.7929	216.68	1.1982	211.02	4.7929	595	614	12.07
SD966	1,285.36	4.7929	279.53	1.1982	334.71	4.7929	609	628	12.07
SD999	1,564.22	4.9089	331.93	1.2272	116.89	4.9089	629	648	12.07

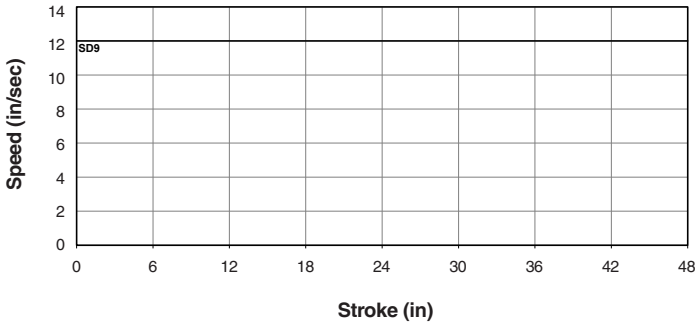
[1] Maximum velocity and maximum screw speed may not be achieveable at maximum stroke.
[2] Larger Motor or Gearhead Frames and longer stroke lengths are available upon request.
[3] All inertia values are at the input shaft and are representative of typical pulleys, bushings, couplers, etc. Actual values may vary due to motor selection.
[4] Weight values are for reference only and vary depending on configuration.
"U" Parallel offset configuration
"L" Inline configuration

DATA CURVES FOR THE ELIMINATOR SD ACTUATOR

Dynamic Capacity: Life Vs. Load



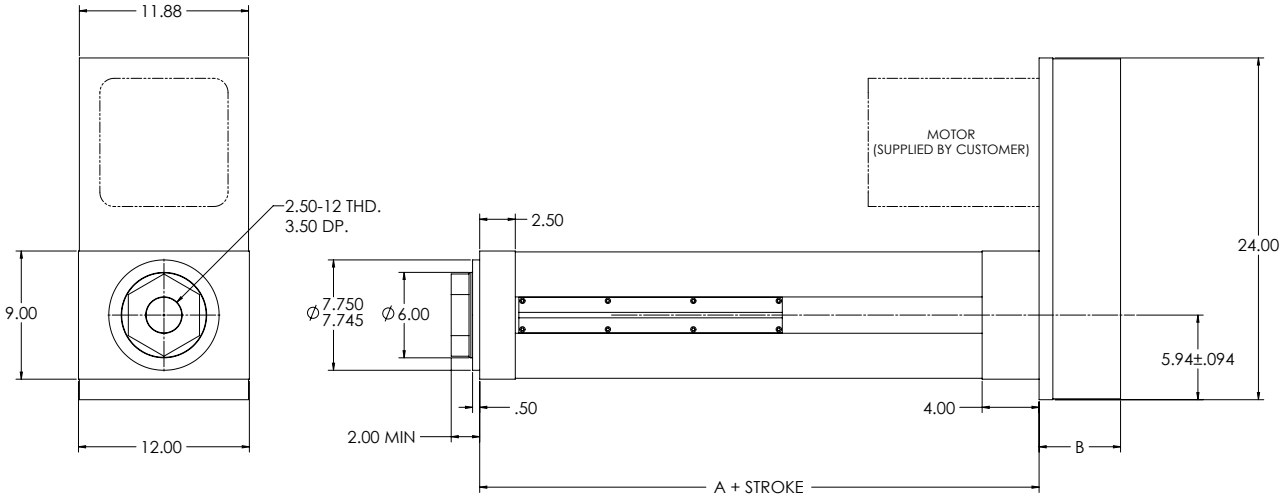
Speed Vs. Stroke



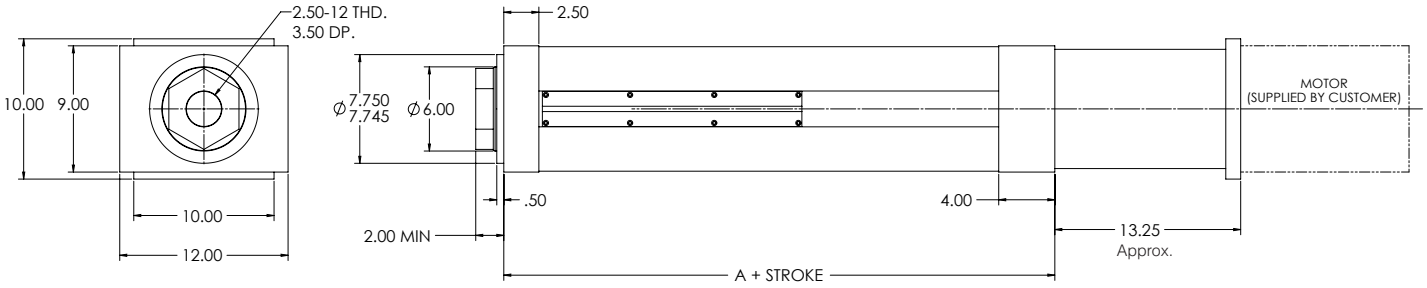
DIMENSIONED DRAWINGS FOR THE ELIMINATOR SD ACTUATOR

Dimensions are in inches and are subject to change without notice.

U-Parallel Offset Motor Configuration



L-Inline Motor Configuration



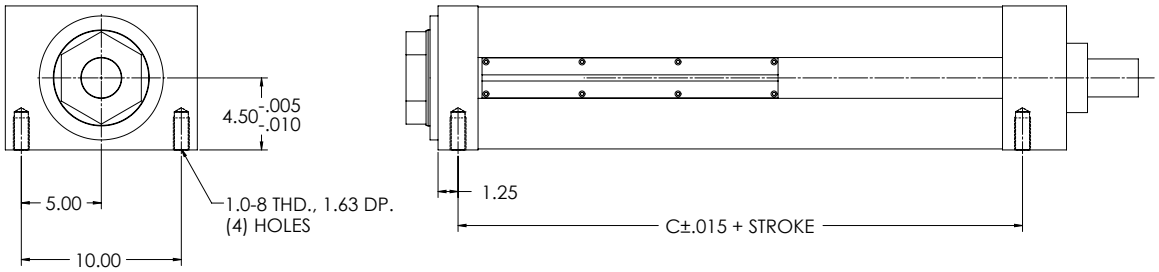
SD U-Parallel Offset and L-Inline Motor Configuration

Model	A	B
SD948	27.28	5.72
SD966	27.28	5.72
SD999	29.88	6.22

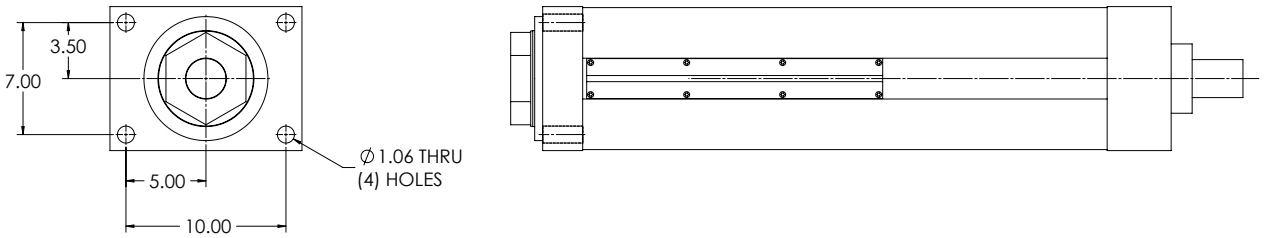
DIMENSIONED DRAWINGS FOR THE ELIMINATOR SD ACTUATOR

Dimensions are in inches and are subject to change without notice.

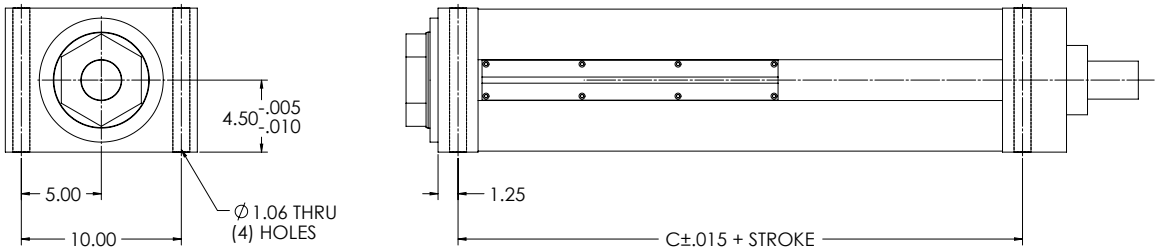
Bottom Mount Dimensions



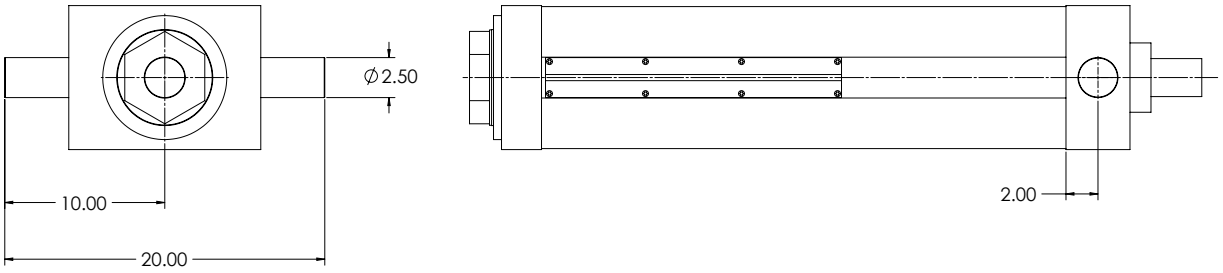
Front Flange Dimensions



Foot Mount Dimensions



Trunnion Mount Dimensions



SD Mounting Dimensions (Bottom Mount, Front Flange, Foot Mount, Trunnion Mount)

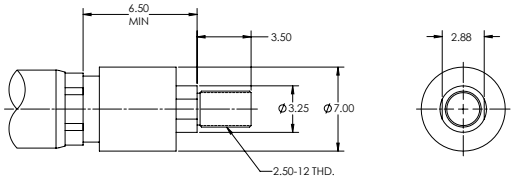
Model	C
SD948	23.28
SD966	23.28
SD999	25.88

DIMENSIONED DRAWINGS FOR THE ELIMINATOR SD ACTUATOR

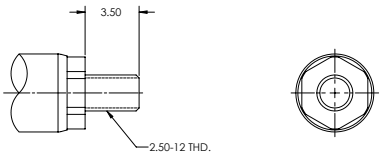
Dimensions are in inches and are subject to change without notice.

Rod End Options

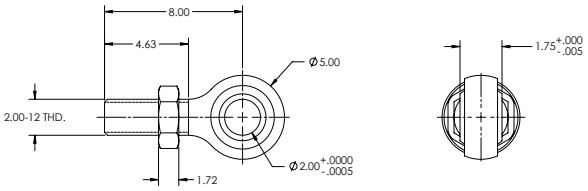
Self-Aligning Coupler



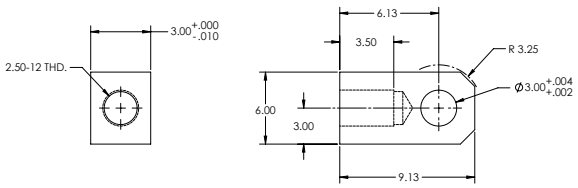
Male Thread



Spherical Rod Eye



Female Eye



ORDERING GUIDE FOR THE ELIMINATOR SD ACTUATOR

Ordering Information

S D □□□ - □□ - □□ - □ - □□ - □□ - □□ - □□□

Base No. (Capacity)

- **SD948** (48,000 lbf)
- **SD966** (66,000 lbf)
- **SD999** (100,000 lbf)

Std. Stroke Length

- **06:** 6 in.
- **12:** 12 in.
- **18:** 18 in.
- **24:** 24 in.
- **30:** 30 in.
- **36:** 36 in.
- **42:** 42 in.
- **48:** 48 in.

Unit Mounting Option

- **MB:** Bottom Mount
- **FF:** Front Flange
- **MF:** Foot Mount
- **TR:** Rear Trunnion*

Rod End Option

- **E:** Female Eye
- **F:** Female Thread
- **A:** Self-Aligning Coupler
- **M:** Male Thread
- **S:** Spherical Rod Eye

Configuration

- **L:** In-Line
- **U:** Parallel Offset

Motor Position

- 1, 2, 3, 4
- 0 = In-Line

Gearbelt Reduction

- **00:** In-Line/Direct Coupled
- **10:** 1:1
- **20:** 2:1

Switch Type

- **A:** Hall Sourcing PNP
- **B:** Hall Sinking NPN
- **C:** Reed
- **D:** Switch Tracks / No Switches
- **X:** Solid Cover / No Switches

N.C. Switch Qty

- 0, 1, 2, 3, etc.

N.O. Switch Qty

- 0, 1, 2, 3, etc.

For custom stroke lengths, contact Joyce/Dayton.

** Rear Trunnion not available for SD999*

Glossary

Alignment

Alignment of the actuator, parallel to the line of motion, is critical. Also, the end effector connection must be designed to prevent any transfer of bending moments back to the actuator.

B10 Life

B10 Life is expressed in total revolutions or inches of travel a properly maintained ball screw will operate under a rated load. 90% of all systems operated at this rated load will meet or exceed this rating. Although 10% may not reach a million inches, 50% could exceed 5 million inches.

Life under load (B10 life) is predictable; severe load applications can generally be compensated for by providing additional capacity.

Contamination

Contamination of the ball screw system is the leading cause of premature failure. Providing a continuous, low pressure, air purge to the system is a good way to ensure clean operation.

Force

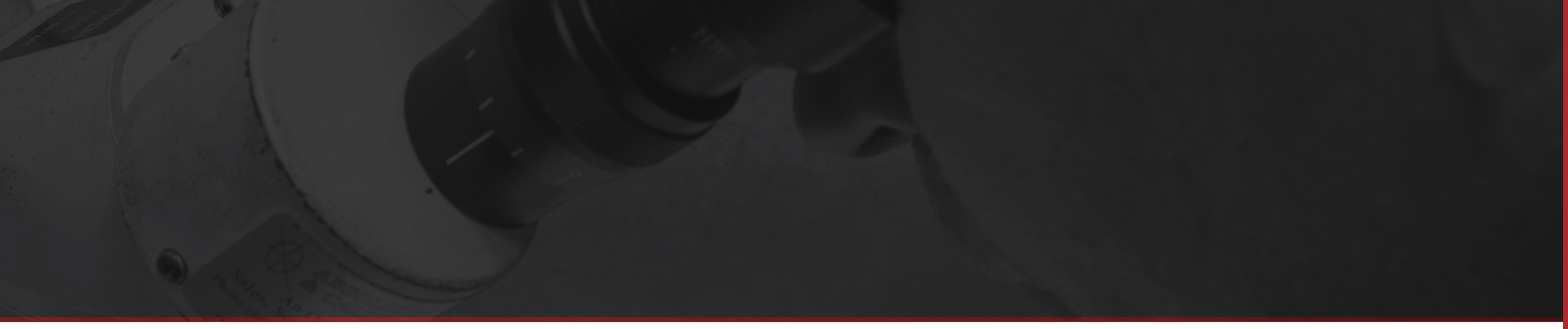
Force, when calculating the required force, consider the force to accelerate the mass as well as the force to overcome the friction and the applied force. For sizing the system, consider the maximum force and duration. For evaluating life under varying loads, calculate the root mean cube equivalent load which weights the different load levels by the typical length traveled under that load.

Impact

Impact is unacceptable to ball screws as well as anti-friction bearings. Severely shortened life and/or catastrophic failure are the results. Avoid impact or provide a mechanical system to buffer the ball screw assembly from shock loads.

IP69K Rating

IP69K is the highest rating available on the internationally recognized scale for ingress protection (IP) against solids and liquids. EDrive SP, SPL and VP actuators have undergone rigorous testing to satisfy these IP69K standards making them ideal for food processing and medical applications requiring high-pressure and high-temperature washdown.



Linear Velocity

Linear velocity is limited by (1): the maximum ball screw rpm without “whipping” of the ball screw shaft; (2) critical speeds for the ball nut assembly (beyond which the motion of the balls becomes erratic and performance life suffers).

Lubrication

Good lubrication is essential. Do not mix lubricants. Refer to the Service Manual to determine the correct lubricant. Important: Oil systems are shipped dry. Lubrication lines must be connected, and the reservoir and all connections filled prior to operating the actuator. Grease systems come pre-lubricated but should be periodically inspected (if applicable) to ensure adequate lubricant to critical areas of the ball screw.

Maximum Acceleration

Maximum acceleration of ball screw assembly is approximately 32 ft/s^2, above this level, unit life becomes shorter and less predictable.

Side Loads

Side loads are undesirable. Almost any force not coaxial to the actuator compromises potential life.

Stiffness

System stiffness is an essential attribute of high accuracy positioning systems. Specifying 0.0005 inch positioning accuracy and repeatability without considering spring rate may result in disappointing performance. For precision light duty applications a spring constant of 1×10^6 lbs/in is acceptable and a range of 3×10^6 to 6×10^6 lbs/in may be necessary for higher load applications.

Technical FAQ

How do I install/tension the gearbelt and how tight should it be?

Belt tensioning procedures vary from product to product. Please refer to the Service Information section of the website for more specific information.

How do I lubricate my actuator?

Lubrication methods and the choice of lubricant may vary from product to product. Please refer to the Service Information section of our website for this information.

What is the rated operating temperature range?

The normal rated operating temperature range for most EDrive actuators is -20°F to 175°F. For help specifying actuators which require operation outside of this temperature range contact sales@joycedayton.com or speak with our customer service team at (937) 294-6261.

What does B10 Life mean?

B10 life is expressed in total revolutions or inches of travel a properly maintained ball screw will operate under a rated load. 90% of all systems operated at this rated load will meet or exceed this rating. Although 10% may not reach a million inches, 50% could exceed 5 million inches. Life under load (B10 life) is predictable; severe load applications can generally be compensated for by providing additional capacity.

Does EDrive offer an integrated load cell option for actuators?

Yes. EDrive offers an Integrated Load Cell option for many of our products. This option combines force measurement with heavy-duty and precise linear motion. It provides a clean, simple, rugged, and economical capability to directly and continuously monitor axial force while simultaneously applying that force. Examples of products with the Load Cell option include HDL and SPL actuators.

IP69K Rating - What does it mean and why is it preferred?

IP69K indicates the highest rating available on the internationally recognized scale for classifying ingress protection against dust and high-temperature, high-pressure liquids. Products with IP69K protection are ideal for use in industries such as Food Processing and Medical Equipment applications where equipment must routinely withstand rigorous washdown procedures.

How to Select an Actuator

Selection Guidelines

1. Define the Motion Profile

Gather all the necessary application details including application stroke length, loads and forces, total cycle time, and duty cycle to define the required velocities in forces in each of the motion profile segments. The EDrive application worksheet can be used to gather this necessary information.

2. Calculate Equivalent Load

Using the segment stroke lengths and forces, calculate the equivalent load of the application using the formula found in the “How to Calculate Equivalent Load” section.

3. Select Actuator Size

Select an actuator size capable of the required stroke, peak linear velocity, and peak force from the application requirements. Verify that the applications peak linear velocity as well as peak force do not exceed the max values of the size actuator selected. Standard stroke lengths are available in increments of 6 inches, but in-between lengths are available upon request.

4. Calculate B10 Life

Using the calculated equivalent load, determine the estimated B10 life of the selected actuator size from the Life Vs. Load charts. It is possible the actuator selection may need to be adjusted to achieve a desirable B10 life.

5. Environmental Considerations

Determine the environmental requirements of the application. If ingress protection against dust and/or water is needed, select a series actuator with a higher IP rating. If the ambient temperature of the application is not within the operating range of the selected actuator, contact Joyce/Dayton.

6. Select a Motor Configuration

Select a parallel offset or inline motor mounting configuration. If parallel offset, select between a standard 1:1 or 2:1 reduction ratio.

7. Establish Total Torque Requirements

Total system inertia values can be found in the product spec charts. Calculate the peak and the RMS torque and speeds required from the motor for the motion profile.

8. Select a Motor

Use the calculated torque and speed values to select a motor and reduction ratio (if applicable) to select an appropriate motor for the application. The motor part number is to be included at the end of the EDrive part number string.

9. Select Actuator Mounting and Rod End Options

Actuator mounting and rod end options can be found in the dimensioned drawings section for each product line. When selecting a trunnion mounted actuator, select either front trunnion or rear trunnion as the actuator will not come equipped with both. For custom mounting options contact Joyce/Dayton.

10. Select Optional Position Sensors

The 6 standard sensor options to choose from include reed, PNP, and NPN switch types all offered as normally open or normally closed with 6 foot flying leads.

11. Configure Part Number

Ordering guides are found with each product. Based upon all of the selections made in the previous steps, configure the complete actuator part number to send to EDrive for quoting.

Calculations

Equivalent Load

The equivalent load is the average force over the working stroke, weighted proportionately to the distance traveled. For constant force loads, the equivalent load is the same as the typical or average load. Where forces vary due to gravity, angle of actuator, acceleration and deceleration, friction, and changing dynamic loads at different positions, it is best to determine the equivalent load in order to most accurately predict the B10 life of the actuator.

$$Fe = \sqrt[3]{\frac{L_1(F_1)^3 + L_2(F_2)^3 + L_3(F_3)^3 + L_4(F_4)^3 + \ldots L_n(F_n)^3}{L}}$$

Fe = Equivalent Load (lbf)
F_n = Calculated force for segment “n” (lbf)
L_n = Travel distance for segment “n” (in)
L = The total travel of all segments (in)

Drive Torque

Edrive considers its ball screw actuators to be 90% efficient. When a 2:1 belt ratio is used, the required input torque is halved. Due to variations in actuator efficiency, it is recommended when sizing a motor to have some excess torque.

$$T_d = \frac{F \times L}{2\,\pi\,\varepsilon}$$

T_d = Drive Torque at Ball Screw (in-lb)
F = Output Force (lbf)
L = Ball Screw Lead (in)
ε = Efficiency

Holding Torque

Due to the high efficiency of the ball screw, torque is required to hold a stationary load. Otherwise the actuator will freely backdrive. If holding position without power to the motor is required, a motor break is recommended. When a 2:1 belt ratio is used, the required holding torque is halved. Due to variations in actuator efficiency, it is recommended when sizing a motor to have some excess torque.

$$T_h = \frac{F \times L \times \varepsilon}{2\,\pi}$$

T_h = Holding Torque at Ball Screw (in-lb)
F = Output Force (lbf)
L = Ball Screw Lead (in)
ε = Efficiency

Drive RPM

When a 2:1 belt ratio is used, the required input RPM is doubled.

$$RPM = \frac{V \times 60}{L}$$

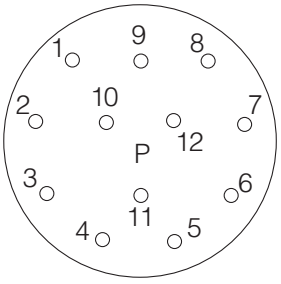
RPM = Rotations Per Minute
V = Linear Velocity of Actuator (in/sec)
L = Screw Lead (in)

Wiring Diagrams

FB6402 HD Load Cell Wiring Diagram

Rated Output, Typical	2 mV/V
Combined error	0.25% F.S.
Non-Repeatability	0.05% F.S.
Zero Balance	1% R.O.
Temperature Range Compensated	50°F to 120°F
Temperature Effect, Output	0.0008% of load / °F
Temperature Effects, Zero Balance	0.02% / R.O. / °F
Bridge Impedance, Typical	700 ohms
Excitation Voltage, Typical	10 VDC or VAC rms
Excitation Voltage, Maximum	15 VDC or VAC rms
Insulation resistance	>5,000 megohms at 50 VDC
Overload, Safe	150% over Capacity
Overload, Ultimate	200% over Capacity
Deflection at Rated Capacity, Approx.	0.0015 inch
Construction	Tool Steel

Cable Pin Configuration	Receptacle Type		Load Cell Cable	
1	Green	+ Excitation	Gray	+ Excitation
2	Black	- Excitation	Gray stripe	- Excitation
3	White	+ Signal	Orange	+ Output
4	Red	- Signal	Orange stripe	- Output

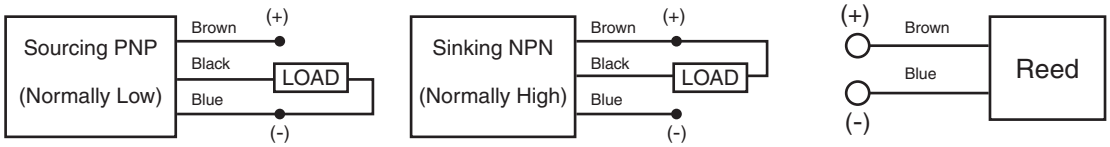


View of Receptacle

FB6422 Hall Effect Reed Limit Switches

Actuator Limit Switch

Supplied with Hall Effect or Reed type switches which are for “home” sensing and over-travel protection only. They should not be used to position the actuator.



	Configuration	State	Voltage (VDC Typ.)	Current (mA Max.)	Type	Part Number
A	Hall Effect, Sourcing	N.O.	5-24	500	PNP	MLE-K06
A	Hall Effect, Sourcing	N.C.	5-24	500	PNP	MLE-Q06
B	Hall Effect, Sinking	N.O.	5-24	500	NPN	MLE-G06
B	Hall Effect, Sinking	N.C.	5-24	500	NPN	MLE-J06

	Configuration	State	Contact Rating (VA)	Switching Voltage (Max.) V(AC/DC)	Switching Current (Max.) (mA)	Carry Current (Max.)	Part Number
C	Reed	N.O.	10	100	500	1 A	MLE-D06
C	Reed	N.C.	3	30	200	500 mA	MLE-T06

PVC Jacket	PVC Jacket, 24 AWG, 105 strand, (+) Brown, (-) Blue, (load) Black
Length	6 feet
Switch Response	0.01 mS
Operating Temperature	-10 to 60 degrees C
Shock Resistance	50 g. Hall, 10 g. Reed
Vibration Resistance	30 g.
Magnetic Field Required	40 gauss minimum, no upper limit

For standard, or fully customized, electric actuators, look to EDrive Actuators. As part of the Joyce/Dayton family, we deliver linear motion solutions you can trust. Contact our experienced staff today!

JOYCE®

EDRIVE® ACTUATORS
A JOYCE/DAYTON BRAND

Phone: **+1 (937) 294-6261**

sales@joycedayton.com

joycedayton.com/edrive

FB6025 – *Update 11/2025*