LAP/LA

Electric Linear Actuators

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2D/3D CAD

JACTON®



Descriptions

JACTON Electric Linear Actuators (also known as electric cylinders, motorized linear actuators, electric linear rod actuators, electro-mechanical linear actuators) are the right alternative to the use of pneumatic cylinders or hydraulic cylinders.

There are 2 Series for **Electric Linear Actuators**. They are **LAP Series** and **LA Series**. They have some of the same features, for example:

- 3phase normal motor (380v 3ph AC) as standard. Brake motors are also available.
- Self-locking trapezoidal lead screw and nut (non-backdriving).
- Non-rotating extension rod with anti-rotation guide.
- Accessories: Brake motor, handwheel, external limit switches, bellows boots and clamps, trunnion mounting brackets, electrical control box, encoder, and stainless steel or chrome plated piston rod.

LAP Series Electric Linear Actuator

- Parallel drive configurations.
- Thrust force: 100 kgf to 15000 kgf.
- Travel speed: 21 mm/s to 84 mm/s.
- Motor power: 0.18 kW to 15 kW.
- Stroke length: custom, 100 mm to 2000 mm.

LA Series Electric Linear Actuator

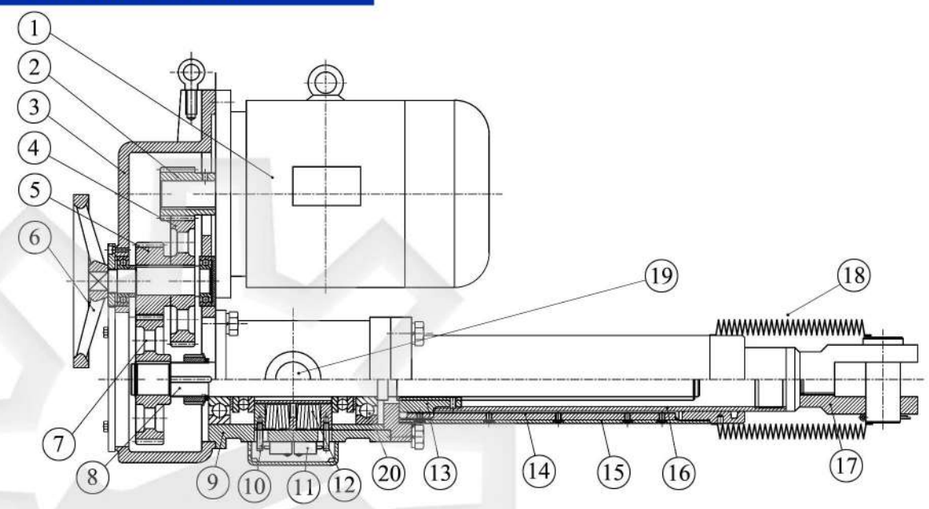
- In-line drive configurations.
- Thrust force: 10 kgf to 1000 kgf. Custom 1500 kgf.
- Travel speed: 28 mm/s to 85 mm/s.
- Motor power: 0.06 kW to 3.0 kW.
- Stroke length: custom, 100 mm to 1000 mm.

Working Principle of Electric Linear Actuators: A trapezoidal lead screw and nut is driven by an electric motor, through a reduction gearbox. The lead screw converts rotary motion to linear movement. When the motor is activated, it rotates the screw, which moves the nut, the nut extends and retracts the piston rod, which is attached to the load.

Advantages of Electric Linear Actuators: Comparing with pneumatic cylinders and hydraulic cylinders. The electric linear actuators don't not require a pipework, powerpack, valves, compressor or a hydraulic station, it can be driven as long as there is electricity. And the electric linear actuators are smaller than pneumatic or hydraulic systems. They are also a lot cheaper to employ. Besides that, the electric linear actuators are of high efficiency, precise control of positioning, speed and force, high dynamic capacity, high speed capability, low noise, low-maintenance, low power consumption, lower installation costs (easy installation with trunnion mounting feet), no oil leaks, fire risk, longer life, clean and zero-pollution in operation, making them ideal for the widest variety of applications.

Electric Linear Actuators are widely used in industrial equipment, motion platforms, such as gates, dampers, oven and processing tank doors, antennas, orthopedic tables and other medical equipment, ergonomic furniture, and agricultural equipment, scissor lifts, scissor platforms, lifting platforms, robotics, continuous paint pumps, medical beds, coiling machines, tundish cars, continuous operation process lines, opening and closing doors, lifting, pushing and pulling, and precise positioning.

Internal Structure



1. Motor
2. The First Gear (Steel)
3. Gearbox
4. The Second Gear (Steel)
5. The Third Gear (Steel)
6. Hand Wheel
7. The Fourth Gear (Steel)
8. Trapezoidal Screw
9. Thrust Housing
10. Hammer Blow Pin
11. Safety Switches
12. Thrust Limit Disc Springs
13. Drive Nut (Bronze)
14. Anti-rotation Guide
15. Outer Tube
16. Inner Tube (Piston Rod)
17. Front Clevis (Fork Head)
18. Protective Bellows
19. Trunnion Pins and Trunnion Mounting Brackets
20. Anti-friction Bearings

- **Motor:** 3phase normal motor (380v 3ph AC) as standard. Brake motors are also available.it causes the actuator to travel forwards or backwards. All others 220v, 240v, 400v, 415v, 460v and 480v three phase motors for actuators can be supplied.
- **Spindle:** also known as the self-locking trapezoidal lead screw, rotating screw, or lifting screw, which is a long, straight rod that turns in a machine or tool. This linear actuator rotates, extending or retracting the nut/inner tube, which creates a linear motion.
- **Drive Nut:** The lead screw nut is attached to the inner tube and travels along the spindle. The nut is the component that allows extension or retraction of the inner tube.
- **Inner Tube:** Also known as the extension tube, drive tube, translating tube, thrust rod, push rod, or piston rod. It has internal anti-rotation guide.While retracted, the inner tube is where the spindle is located. This tube is attached to the threaded drive nut and extends and retracts when the nut moves along the rotating spindle. Custom stainless steel or chrome plated piston rod.
- **Outer Tube:** Also known as the cover tube, this tube protects the outside of the linear actuator and houses all of the actuator's inner components. The housing is used for guiding the piston rod too.
- **Safety Switches:** Interior limit switches control the fully extended and retracted inner tube position by electrically cutting current to the motor. These switches prevent the actuator from over extending or over retracting. It also protects the motor.
- **Front Clevis:** Also known as the fork head. A clevis is a U-shaped metal piece with holes in each end through which a fastening device, a pin or bolt, is run.
- **Hand Wheel:** is available for manual operation/adjustment of the actuator.
- **Protective Bellows:** Also known as the extension rod cover, to avoid the possible entry of particles or liquid through the piston rod.

Sample Part Number

LAP	-	2500	-	M	-	2.2	-	900	-	TMF	-	LS	-	B
(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)

(1) Series:

1.1) **LAP:** Parallel drive configurations

1.2) **LA:** In-line drive configurations.

(2) Thrust (kgf)

2.1) **2500:** 2500kgf

The maximum thrust shown in the Technical Charts.

(3) Speed (mm/s)

3.1) **H:** High speed

3.2) **M:** Medium speed

3.3) **L:** Slow speed

The speed shown in the Technical Charts.

(4) Motor Power (kW)

4.1) **2.2:** 2.2kW

The motor power shown in the Technical Charts.

(5) Stroke (mm)

5.1) **900:** 900mm

Each model can be provided with a stroke length up to the maximum shown in the Technical Charts. Where the stroke required exceeds the maximum shown, or there is a high static load, Please contact our Technical Sales Department.

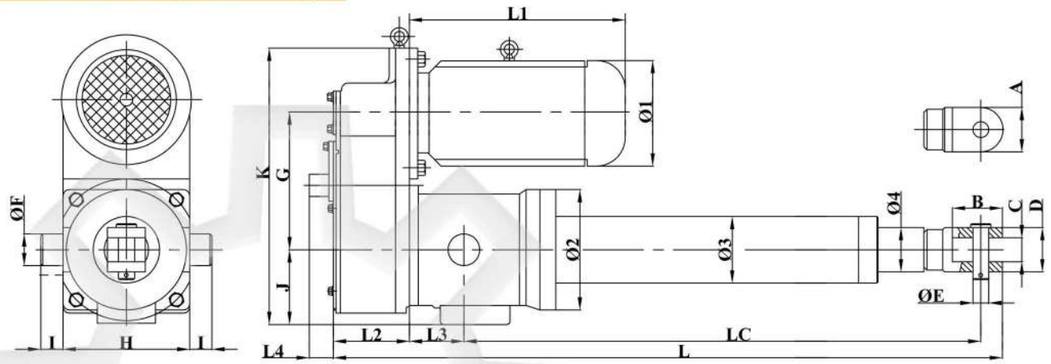
(6).(7). (8) Optional Accessories

*** TMF:** Trunnion mount feet. *** LS:** External adjustable limit switches. *** B:** Brake motor.

● **Note:** 380v 3ph 50hz AC as standard. If it's different, please indicate_____.

Specifications and Dimensions

LAP Series (100-1600)



● **H:** High Speed ● **M:** Medium Speed ● **L:** Slow Speed

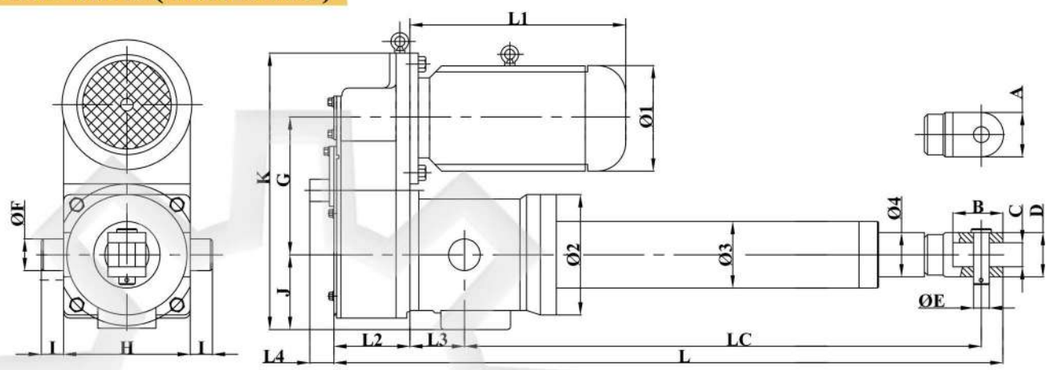
Specifications							
Model		LAP100	LAP250	LAP500	LAP630	LAP1000	LAP1600
Thrust (Kgf)		100	250	500	630	1000	1600
Travel Speed (mm/s)	H	84	84	65	65	65	84
	M	42	42	42	42	42	42
	L	28	28	28	28	28	28
Motor Type	H	YE3-712-4	YE3-713-4	YE3-802-4	YE3-803-4	YE3-90L-4	YE3-100L2-4
	M	YE3-711-4	YE3-712-4	YE3-802-4	YE3-802-4	YE3-803-4	YE3-100L1-4
	L	YE3-711-6	YE3-712-6	YE3-802-6	YE3-802-6	YE3-803-6	YE3-100L-6
Motor Power (kw)	H	0.37	0.55	0.75	1.1	1.5	3
	M	0.25	0.37	0.75	0.75	1.1	2.2
	L	0.18	0.25	0.55	0.55	0.75	1.5

Dimensions							
Maximum Stroke S (mm)		≤800	≤800	≤1000	≤1000	≤1000	≤1200
Length (mm)	L1	227	227	250	250	250 (260)	320
	L2	70	70	90	90	90	130
	L3	25	25	40	40	40	86
	L4	40	40	40	40	40	46
Retract (mm)	L	420+S	420+S	550+S	550+S	550+S	700+S
	LC	310+S	310+S	400+S	400+S	400+S	450+S
Extend (mm)	LC	310+2S	310+2S	400+2S	400+2S	400+2S	450+2S
Fork Head (mm)	A	30	30	40	40	40	68
	B	40	40	50	50	50	80
	C	20	20	25	25	25	38
	D	40	40	50	50	50	70
	ΦE	14	14	14	14	14	25
Trunnion Mount (mm)	ΦF	25	25	35	35	35	50
	G	126	126	180	180	180	237
	H	105	105	150	150	150	200
	I	20	20	25	25	25	35
	J	70	70	100	100	100	116
	K	276	276	390	390	390	480
Piston Rod (mm)	Φ1	140	140	160	160	160 (175)	205
	Φ2	100	100	128	128	128	170
	Φ3	63.5	63.5	76	76	76	102
	Φ4	40	40	52	52	52	70

*. Dimensions are subject to change without notice

Specifications and Dimensions

LAP Series (2500-15000)



● **H:** High Speed ● **M:** Medium Speed ● **L:** Slow Speed

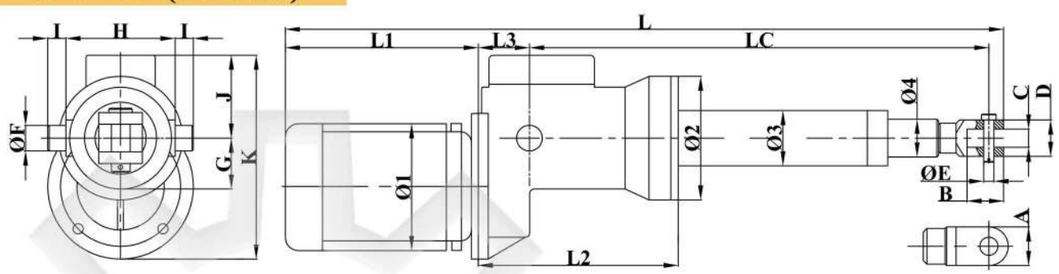
Specifications							
Model		LAP2500	LAP4000	LAP6300	LAP8000	LAP10000	LAP15000
Thrust (Kgf)		2500	4000	6300	8000	10000	15000
Travel Speed (mm/s)	H	84		60			
	M	42	42	42	42	42	42
	L	28	28	21	28	21	21
Motor Type	H	YE3-112M-4		YE3-132M-4			
	M	YE3-100L1-4	YE3-112M-4	YE3-132S-4	YE3-132M-4	YE3-160M-4	YE3-160L-4
	L	YE3-100L-6	YE3-112M-6	YE3-132M-8	YE3-132M2-6	YE3-160M2-8	YE3-160L-8
Motor Power (kw)	H	4		7.5			
	M	2.2	4	5.5	7.5	11	15
	L	1.5	2.2	3	5.5	5.5	7.5

Dimensions							
Maximum Stroke S (mm)		≤1200	≤1200	≤1600	≤1600	≤2000	≤2000
Length (mm)	L1	320 (340)	340	395 (435)	435	490	535
	L2	130	130	164	164	195	195
	L3	86	86	114	114	145	145
	L4	46	46	46	46	48	48
Retract (mm)	L	700+S	700+S	820+S	820+S	1020+S	1020+S
	LC	450+S	450+S	492+S	492+S	620+S	620+S
Extend (mm)	LC	450+2S	450+2S	492+2S	492+2S	620+2S	620+2S
Fork Head (mm)	A	68	68	100	100	120	120
	B	80	80	120	120	180	180
	C	38	38	50	50	80	80
	D	70	70	100	100	140	140
	ΦE	25	25	50	50	60	60
Trunnion Mount (mm)	ΦF	50	50	50	50	60	60
	G	237	237	268	268	332	332
	H	200	200	240	240	300	300
	I	35	35	50	50	60	60
	J	116	116	120	120	150	150
	K	480	480	560	560	710	710
Piston Rod (mm)	Φ1	205 (230)	230	270	270	325	325
	Φ2	170	170	250	250	280	280
	Φ3	102	102	130	130	150	150
	Φ4	70	70	92	92	105	105

*. Dimensions are subject to change without notice

Specifications and Dimensions

LA Series (25-1000)



● **H:** High Speed ● **M:** Medium Speed ● **L:** Slow Speed

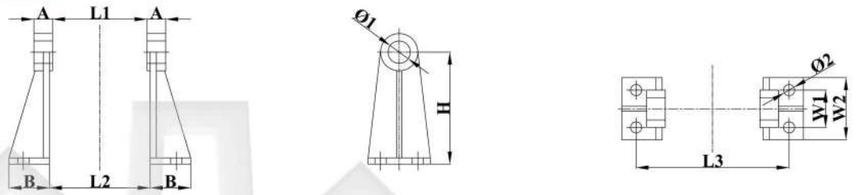
Specifications										
Model		LA10	LA25	LA63	LA90	LA100	LA300	LA500	LA700	LA1000
Thrust (Kgf)		10	25	63	90	100	300	500	700	1000
Travel Speed (mm/s)	H	60	60	76	76	84	84	85	85	85
	M	30	30	38	38	42	42	60	60	60
	L					28	28	40	40	40
Motor Type	H	YE3-501-2	YE3-502-2	YE3-561-2	YE3-562-2	YE3-712-4	YE3-713-4	YE3-90S-4	YE3-90S-4	YE3-90L-4
	M	YE3-502-4	YE3-502-4	YE3-561-4	YE3-562-4	YE3-711-4	YE3-712-4	YE3-802-4	YE3-802-4	YE3-90L-6
	L					YE3-711-6	YE3-712-6	YE3-803-6	YE3-803-6	YE3-803-6
Motor Power (kw)	H	0.06	0.09	0.12	0.18	0.37	0.55	1.1	1.1	1.5
	M	0.06	0.06	0.09	0.12	0.25	0.37	0.75	0.75	1.1
	L					0.18	0.25	0.75	0.75	0.75

Dimensions										
Maximum Stroke S (mm)		≤400	≤400	≤600	≤600	≤800	≤800	≤1000	≤1000	≤1000
Length (mm)	L1	145	145	193	193	227	227	250 (260)	250 (285)	285
	L2	125	125	157	157	232	232	279	279	279
	L3	55	55	62	62	65	65	70	70	70
Retract (mm)	L	330+S	330+S	430+S	430+S	560+S	560+S	621+S	621+S	656+S
	LC	120+S	120+S	165+S	165+S	253+S	253+S	281+S	281+S	281+S
Extend (mm)	LC	120+2S	120+2S	165+2S	165+2S	253+2S	253+2S	281+2S	281+2S	281+2S
Fork Head (mm)	A	20	20	20	20	30	30	40	40	40
	B	25	25	25	25	40	40	50	50	50
	C	15	15	15	15	20	20	25	25	25
	D	25	25	25	25	40	40	50	50	50
	ΦE	10	10	10	10	14	14	14	14	14
Trunnion Mount (mm)	ΦF	20	20	25	25	25	25	35	35	35
	G	23	23	35	35	48	48	66	66	66
	H	90	90	100	100	130	130	150	150	150
	I	15	15	20	20	20	20	25	25	25
	J	70	70	80	80	97	97	114	114	114
	K	148	148	180	180	225	225	280	280	280
Piston Rod (mm)	Φ1	95	95	115	115	140	140	160 (175)	160 (175)	175
	Φ2	84	84	106	106	130	130	170	170	170
	Φ3	42	42	54	54	63.5	63.5	76	76	76
	Φ4	22	22	30	30	40	40	52	52	52

*. Dimensions are subject to change without notice

Trunnion Mounting Feet Dimensions

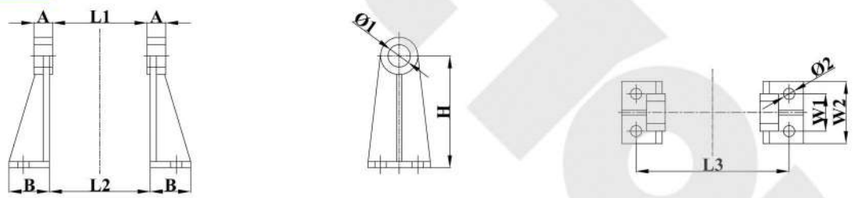
LAP Series



Model	Thrust (Kgf)	Dimensions (mm)									
		L1	L2	L3	W1	W2	H	Φ1	Φ2	A	B
LAP100	100	105	105	190	60	100	180	25	14	20	45
LAP250	100	105	105	190	60	100	180	25	14	20	45
LAP500	500	150	162	245	60	120	180	35	18	25	60
LAP630	630	150	162	245	60	120	180	35	18	25	60
LAP1000	1000	150	162	245	60	120	180	35	18	25	60
LAP1600	1600	200	222	290	120	160	200	50	18	35	70
LAP2500	2500	200	222	290	120	160	200	50	18	35	70
LAP4000	4000	200	222	290	120	160	200	50	18	35	70
LAP6300	6300	240	262	350	120	180	180	50	22	50	70
LAP8000	8000	240	262	350	120	180	180	50	22	50	70
LAP10000	10000	300	322	430	160	200	250	60	26	60	90
LAP15000	15000	300	322	430	160	200	250	60	26	60	90

• **Note:** The final trunnion mounting feet dimensions are based on the production drawings

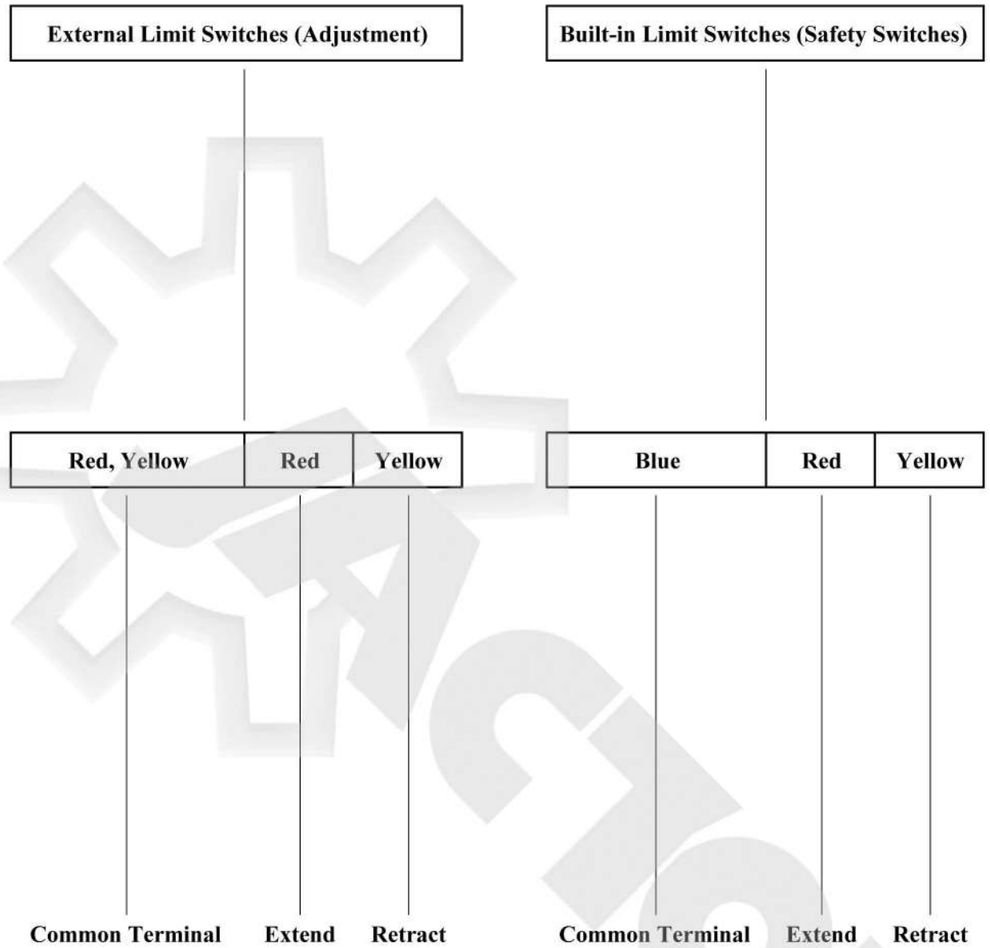
LA Series



Model	Thrust (Kgf)	Dimensions (mm)									
		L1	L2	L3	W1	W2	H	Φ1	Φ2	A	B
LA10	10	92	92	132	60	90	90	20	10	5	35
LA25	25	92	92	132	60	90	90	20	10	5	35
LA63	63	100	100	140	60	90	100	25	10	5	35
LA90	90	100	100	140	60	90	100	25	10	5	35
LA100	100	130	142	210	60	100	180	25	14	20	45
LA300	300	130	142	210	60	100	180	25	14	20	45
LA500	500	150	162	220	60	100	180	35	18	25	60
LA700	700	150	162	220	60	100	180	35	18	25	60
LA1000	1000	150	162	220	60	100	180	35	18	25	60

• **Note:** The final trunnion mounting feet dimensions are based on the production drawings

Wiring Diagram For Limit Switches



***. All Switches Are Normally Closed Contacts**

Other Products

Cubic Machine Screw Jack



- Cubic design permits any mounting position.
- High static loads, best for slow movement and low duty cycles.
- Static load capacities from 2.5 kN to 500 kN as Standard.
- Translating, Anti-rotation (keyed) and Rotating Screw configurations.
- Self locking trapezoidal screw offers maximum stroke of 7500 mm.
- Power source: Manual operation, Motor drive.
- Single jack, or synchronization of multiple jacks arrangeme

Cubic Ball Screw Jack



- Cubic design permits any mounting position.
- High duty cycle, high precision, high speed, less power and long service life.
- Static load capacities from 10 kN to 350 kN as Standard.
- Translating, Anti-rotation and Rotating Screw configurations.
- Not self-locking ball screw offers maximum stroke of 6000 mm.
- Power source: Brake motor drive. Not suited for manual operation.
- Single jack, or synchronization of multiple jacks arrangements.

Classic Machine Screw Jack



- Classic design, no need to attach any construction elements to the housing.
- High static loads, best for slow movement and low duty cycles.
- Static load capacities from 0.5 ton to 100 tons as Standard.
- Translating, Anti-rotation (keyed) and Rotating Screw configurations.
- Self locking trapezoidal screw offers maximum stroke of 7500 mm.
- Power source: Manual operation, Motor drive.
- Single jack, or synchronization of multiple jacks arrangements.

Stainless Steel Screw Jack



- Classic design, no need to attach any construction elements to
- Complete Stainless Steel Screw Jack design.
- High static loads, best for slow movement and low duty cycles.
- Static load capacities from 1 ton to 20 tons as Standard.
- Translating, Anti-rotation (keyed) and Rotating Screw configurations.
- Self locking Stainless Steel trapezoidal screw offers maximum stroke of 7500 mm.
- Power source: Manual operation, Motor drive.
- Single jack, or synchronization of multiple jacks arrangements.

Other Products

Classic Ball Screw Jack



- Classic design, no need to attach any construction elements to the housing.
- High duty cycle, high precision, high speed, less power and long service life.
- Static load capacities from 1 ton to 35 tons as Standard.
- Translating, Anti-rotation and Rotating Screw configurations.
- Not self-locking ball screw offers maximum stroke of 6000 mm.
- Power source: Brake motor drive. Not suited for manual operation
- Single jack, or synchronization of multiple jacks arrangements.

Bevel Gear Machine Screw Jack



- High efficiency, high lifting speed, high duty cycle, long lifespan.
- Spiral bevel gear mechanism are used, with 2:1, 2.5:1 and 3:1 ratios.
- Static load capacities from 400 Kg to 3500 Kg as Standard.
- Translating, Anti-rotation (keyed) and Rotating Screw configurations.
- Self locking trapezoidal screw offers maximum stroke of 6000 mm.
- Power source: Manual operation, Motor drive.
- Single jack, or synchronization of multiple jacks arrangem

Bevel Gear Ball Screw Jack



- Higher efficiency, higher lifting speed, higher duty cycle, longer lifespan.
- Spiral bevel gear mechanism are used, with 2:1, 2.5:1 and 3:1 ratios.
- Static load capacities from 400 Kg to 3500 Kg as Standard.
- Translating, Anti-rotation and Rotating Screw configurations.
- Not self-locking ball screw offers maximum stroke of 6000 mm.
- Power source: Brake motor drive. Not suited for manual operation.
- Single jack, or synchronization of multiple jacks arrangements.

Screw Jack Lifting Systems



- Lifting systems are not limited to the number of screw jacks. Commonly used are 2, 4, 6, 8 jack systems.
- Full synchronization, self-locking, precision positioning, easy installation and operation, maintenance free.
- From a few kilograms to heavy-duty several hundred tons.
- Complete lifting systems with geared motors, shafting and couplings available.
- Power source: Synchronized drive from a single electric motor.
- With Inverter driven motor, soft start and stop, variable lifting speeds are all available.

Other Products

Cubic Bevel Gearbox



- Modular design spiral bevel gearboxes with cubic housing.
- Ultra Compact Design. All-round tapped holes for universal mounting, 6 possible mounting positions.
- Gear ratios of 1:1, 2:1, 3:1, 4:1 and 5:1 are actual ones.
- Power Ratings up to 156 kW. Torque Ratings up to 1199 N.m.
- Gear transmission average efficiency up to 94%.
- 2-way, 3-way and 4-way Configurations.
- Solid Shaft, Hollow Shaft, and Direct motor mount or via motor flanges.
- High efficiency, high transmission capacity, low backlash, Noiseless operation, low running temperature and long service life.

Classic Bevel Gearbox



- Used in pairs case hardened alloy steel spiral bevel gears.
- Gear ratios of 1:1, 1.5:1, 2:1, 2.5:1, 3:1, 4:1 and 5:1 are actual ones.
- Power Ratings up to 335 kW. Torque Ratings up to 5713 N.m.
- Gear transmission average efficiency up to 94%.
- 2-way, 3-way and 4-way Configurations.
- Solid Shaft, Hollow Shaft, and Direct motor mount or via motor flanges.
- Various Shafts Arrangements, Rotation Directions and Mounting Positions available.
- High efficiency,high transmission capacity, low backlash, noiseless operation, low running temperature and long service life.

Lightweight Bevel Gearbox (Aluminium Alloy)



- Quality finished casing by die-casting, in lightweight aluminium alloy.
- Compact design, small-sized, ultra-lightweight, universal mounting.
- Utilizing carburized case-hardened spiral bevel gears
- Gear ratios of 1:1 and 2:1 are actual ones.
- Power Ratings up to 4.94 kW. Torque Ratings up to 40 N.m.
- Gear transmission average efficiency up to 94%
- 2-way and 3-way Configurations.
- High efficiency,low backlash,quiet operation, maintenance free, low running temperature and long service life.

Other Products

Electric Cylinders



- Be basically screw jacks with travelling nut, but with lifting cylinder design.
- High static loads, best for slow movement and low duty cycles.
- Static load capacities from 2.5 ton to 10 tons as Standard.
- Self-locking, precise positioning, and uniform speed.
- Power source: Manual operation, Motor drive.
- Single unit, or synchronization of multiple units.
- A better choice over hydraulic actuators or pneumatic cylinders with this clean alternative, impler to install, control, low maintenance and a quieter solution.

Electric Linear Actuators



- Parallel or In-Line drive configurations.
- Self-locking ACME screw and nut, driven by an electric motor, through a reduction gearbox.
- Low maintenance due to high-quality grease and enclosed design.
- Load capacities from 100 Kgf to 15 tons as Standard(Parallel)
- Load capacities from 10 Kgf to 1000 Kgf as Standard (In-Line).
- Low noise system,higher dynamic capacity, higher speed capability and longer life.
- Low power consumption and running costs,no oil leaks, contamination or fire risk.
- Easy installation with two trunnion mounting feet, no pipework, powerpack and valves.
- Be a real alternative to pneumatic and hydraulic cylinders.

Customized and molded products

