Available in bore sizes 2" and larger, this new T4 series thruster offers the smooth actuation of the "T" series Thrusters, while delivering twice the static load-carrying capability.

With the same distinct design as the original Thruster series, including a black anodized body and precision re-circulating ball bearings, the "T4" provides ultra smooth actuation. At the same time, four guide shafts, instead of the typical two, double the load-carrying capacity and reduce deflection.

How to Order

The model number of all Linear Thrusters consists of three alphanumeric clusters. These designate product type, bore size and stroke length, and options. Please refer to the charts below for an example of model number T-316-CM. This is a 2" bore, 6" stroke Linear Thruster with adjustable cushions and a magnet for position sensing.

T4-31 6 - CM

BORE SIZE
31 - 2"
50 - 2-1/2"
70 - 3"

STANDARD STROKE LENGTHS*
1" increments to 12"
1" increments to 12"
1" increments to 12"

*Stroke lengths beyond maximum are available; the rear of the cylinder must be supported in horizontal applications.

Note: For Multiple Position, specify Stroke A/Stroke B

OPTIONS	
B	Internal bumpers, both ends[1]
C	Adjustable cushions, both ends[1]
EB1	External bumpers, extension (one set)[2]
EB2	External bumpers, both ends (two sets)[2]
M	MRS® magnetic position sensing
NP	No mounting plate

1 Internal bumpers and cushions cannot be ordered in combination.

2 Shock Absorbers available upon request.

Approximate Power Factors

2" = 3.1
2-1/2" = 5.0
3" = 7.0

For example, a T-31-CM will exert a force of 3.1 times the air line pressure.

List Prices

Basic Model	Base Price by Bore Size		
	2"	2-1/2"	3"
T4	$1020.00	$1754.30	$3114.30
Adder per 1" of stroke	14.30	17.20	21.50

Options	Adders by Bore Size		
	2"	2-1/2"	3"
B-Internal Bumpers, Both Ends	$6.85	$6.50	$8.45
C-Adjustable Cushions, Both Ends	30.20	35.85	40.70
EB1-External Bumpers, Extension (1 set)	70.90	149.00	254.60
EB2-External Bumpers, Both Ends (2 sets)	141.70	273.90	482.70
M-MRS Magnetic Position Sensing	17.65	16.80	29.85
NP-No Mounting Plate (Deduct from Price)	(63.10)	(110.70)	(220.80)

Engineering Data

- Rated 250 psi
- Low breakaway friction

Components:

- Case hardened steel shafts
- Steel tooling plate and collars
- Black anodized aluminum housing and mounting plate
- Precision recirculating ball bearings

Cylinder:

- 304 stainless steel body
- High-strength aluminum alloy porting ends
- 303 stainless steel piston rods
- Buna N "U" cup seals
- Sintered bronze rod guide bushing

Options:

- Internal Buna N or external urethane bumpers
- Patented adjustable cushions
- Buna N magnet for position sensing

Temperature Range:
Buna N seals with a temperature range of -20°F (-25°C) to 200°F (95°C) are standard in all BIMBA air cylinders. High temperature option V seals rated for higher temperature applications are available. If cylinders are operated at temperatures below 0°F for extended time periods, special modifications may be required. Special seal materials are available on request. With -M option: -20°F to +185°F (-25°C to +85°C)

Lubrication:
Air cylinders are pre-lubricated and sealed at the factory for extensive maintenance-free life. Cylinder life can be lengthened by providing additional lubricant with an air line mist lubricator or direct introduction of oil to the cylinder every 500 hours of operation. Recommended oils are medium to heavy inhibited hydraulic and general purpose oil.

The two spring-loaded oiler ports on the housing face should also receive several drops of the same oil every 100 hours of operation. For applications that involve rapid cycling, oil these ports more often.

External Bumpers

Use and Dimensional Changes

The stroke can be adjusted with external urethane bumpers. These are available on one or both ends (-EB1 and -EB2 options). They fit over the guide shafts at the ends of the housing (see illustration). Shaft collars are supplied with each set of bumpers to eliminate movement possible with high loads and velocities. Thus, with -EB1 option, there will be a total of eight collars; with -EB2 option, there will be 12 shaft collars. Flat stainless steel washers are also installed to protect the shaft seals from impact damage. Guide shafts are lengthened so stroke on extension isn't affected; however, bumpers reduce the retraction stroke if the mounting plate is used in the shipped position (see charts below). Higher loads and velocities may dictate the use of external means of deceleration such as shock absorbers.

Guide Shaft Extension with Bumpers (in.)	
Bore Size	Length Adder
2"	0.875
2-1/2"	1.38
3"	1.50

Retraction Stroke Reduction with Bumpers (in.)		
Bore Size	With Mounting Plate	Bumper Thickness
2"	0.81	0.25"
2-1/2"	1.06	0.50"
3"	1.31	0.75"

NOTE: The single set of shaft collars supplied with each Linear Thruster are for setup only. DO NOT use them to limit the stroke or damage can occur. Thin washer included with EB option to protect housing wipers from impact damage.

Repair Parts

Add the bore size to the basic model number shown below. For the Basic Shaft, specify the stroke length in inches and indicate options -EB1 or -EB2 as applicable. Cylinder repair part number corresponds to number shown on cylinder shipped with Linear Thruster.

Part #	Description	Quantity
B-☐	Shaft Bearing	4
BS-☐	-X.XX Basic Shaft	2
EB-☐	External Bumper Assembly	2 or 4
LT-Bore Stroke-D	Cylinder	1
LT-Bore Stroke-DB	Cylinder	1
LT-Bore Stroke-DM	Cylinder	1
LT-Bore Stroke-DBM	Cylinder	1
LTC-Bore Stroke-D	Cylinder	1
LTC-Bore Stroke-DM	Cylinder	1
S-☐	Shaft Seal	4
SC-☐	Shaft Collars	2, 4 or 6
TN-☐	Cylinder Lock Nut	1

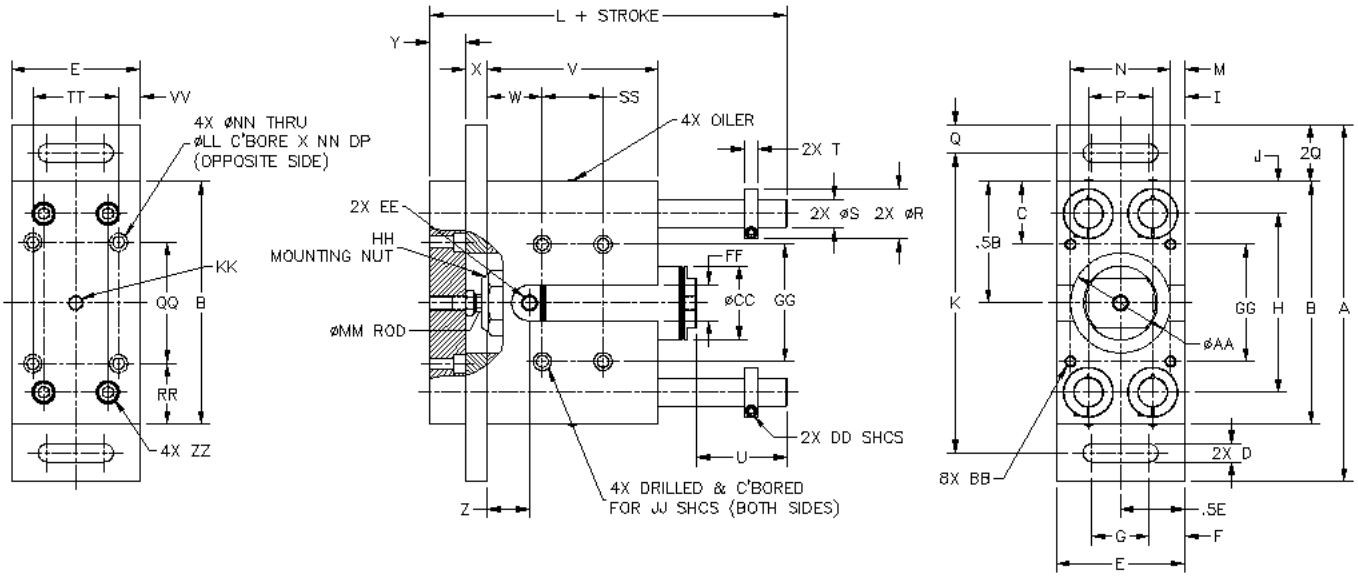
NOTE: We recommend that if bearings are replaced, seals be replaced at the same time.

Approximate Weights

(T4 Series)

	Base Weight lbs.	Adder per 1" lbs.
2" (31)	24	0.67
2-1/2" (50)	41	1.16
3" (70)	82.5	1.82

Dimensions



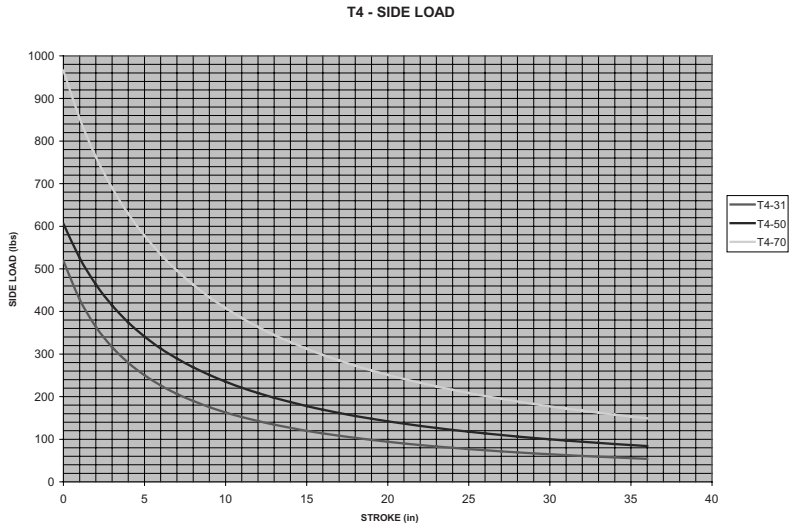
Bore	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	R
2" (31)	9.50	7.00	1.75	0.56	4.00	1.22	1.56	5.25	1.00	0.88	8.25	7.00	0.63	2.75	2.00	0.63	1.50
2-1/2" (50)	12.50	8.50	2.20	0.63	4.50	1.25	2.00	6.25	1.13	1.13	10.50	9.50	0.50	3.50	2.25	1.00	1.75
3"	15.00	11.00	2.88	0.81	6.00	1.41	3.19	8.00	1.50	1.50	13.00	11.50	0.50	5.00	3.00	1.00	2.06

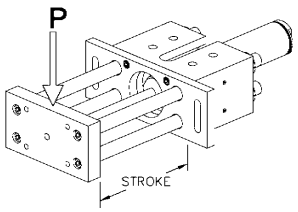
Bore	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	GG	HH
2" (31)	0.75	0.50	0.95	4.00	1.25	0.75	1.00	1.53	3.00	3/8-16	2.08	1/4-28	1/4 NPT	1.25	3.50	1-1/4-12
2-1/2" (50)	1.00	0.50	3.17	6.00	1.94	0.75	1.25	1.49	3.50	3/8-16	2.62	1/4-28	1/4 NPT	1.25	4.10	1-3/8-12
3" (70)	1.25	0.50	3.87	7.00	1.75	1.00	1.50	1.97	4.63	1/2-13	3.12	1/4-28	3/8 NPT	1.25	5.25	1-3/8-12

Bore	JJ	KK	LL	MM	NN	QQ	RR	SS	TT	UU	VV	ZZ
2" (31)	3/8	1/2-20	0.63	0.63	0.41	3.50	1.75	1.50	3.00	10.00	0.50	3/8-16 SHCS
2-1/2" (50)	3/8	1/2-20	0.63	0.63	0.41	4.25	2.13	2.13	3.00	12.25	0.75	1/2-13 SHCS
3"	1/2	5/8-18	0.81	0.75	0.53	5.50	2.75	3.50	4.50	15.00	0.75	3/4-16 Hex Bolt

Linear Thrusters ordered with adjustable cushions incorporate a side port on rear of cylinder.

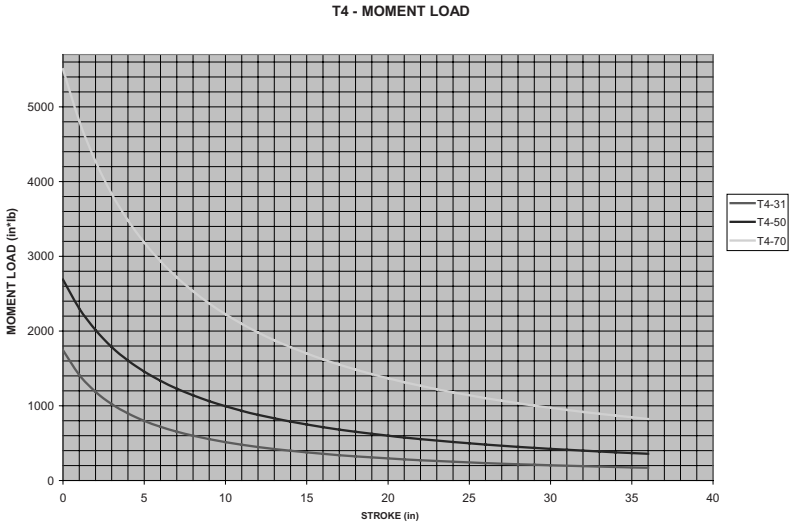
T4 - Maximum Side Loads (lbs.)

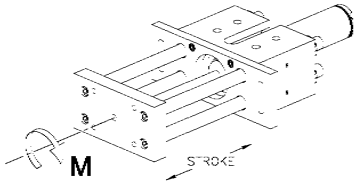




	T4-31	T4-50	T4-70
0	518.70	605.94	965.54
1	428.08	525.43	852.80
2	364.07	463.46	763.04
3	316.45	414.28	689.88
4	279.63	374.30	629.11
5	250.32	341.16	577.82
6	226.43	313.25	533.96
7	206.58	289.41	496.02
8	189.83	268.83	462.88
9	175.51	250.86	433.68
10	163.12	235.05	407.77
11	152.30	221.03	384.60
12	142.76	208.50	363.78
13	134.30	197.25	344.95
14	126.74	187.09	327.85
15	119.94	177.86	312.25
16	113.79	169.45	297.97
17	108.21	161.75	284.83
18	103.11	154.67	272.71
19	98.45	148.14	261.49
20	94.16	142.11	251.09
21	90.20	136.50	241.40
22	86.54	131.29	232.36
23	83.14	126.43	223.91
24	79.97	121.89	215.99
25	77.02	117.63	208.56
26	74.26	113.64	201.56
27	71.68	109.88	194.97
28	69.25	106.33	188.74
29	66.96	102.99	182.85
30	64.81	99.83	177.28
31	62.78	96.83	171.99
32	60.86	94.00	166.97
33	59.03	91.30	162.19
34	57.31	88.74	157.64
35	55.67	86.30	153.30
36	54.11	83.97	149.17

T4 - Maximum Moments Loads (in.-lbs.)





	T4-31	T4-50	T4-70
0	1745.02	2687.72	5504.63
1	1413.35	2302.45	4810.54
2	1186.76	2012.74	4269.61
3	1022.14	1786.95	3836.17
4	897.12	1606.03	3481.08
5	798.95	1457.82	3184.85
6	719.81	1334.17	2933.96
7	654.66	1229.45	2718.74
8	600.09	1139.62	2532.09
9	553.72	1061.71	2368.66
10	513.83	993.50	2224.38
11	479.14	933.28	2096.06
12	448.70	879.73	1981.20
13	421.78	831.79	1877.78
14	397.80	788.63	1784.17
15	376.30	749.56	1699.04
16	356.91	714.03	1621.28
17	339.34	681.58	1549.98
18	323.35	651.83	1484.36
19	308.72	624.44	1423.77
20	295.30	599.16	1367.65
21	282.94	575.74	1315.53
22	271.51	553.99	1266.98
23	260.92	533.74	1221.66
24	251.08	514.83	1179.25
25	241.91	497.13	1139.48
26	233.34	480.54	1102.11
27	225.32	464.95	1066.93
28	217.79	450.27	1033.75
29	210.71	436.43	1002.40
30	204.05	423.36	972.75
31	197.76	410.99	944.64
32	191.82	399.26	917.97
33	186.19	388.14	892.63
34	180.86	377.57	868.51
35	175.80	367.51	845.54
36	170.99	357.94	823.63

Note: Static load data represented