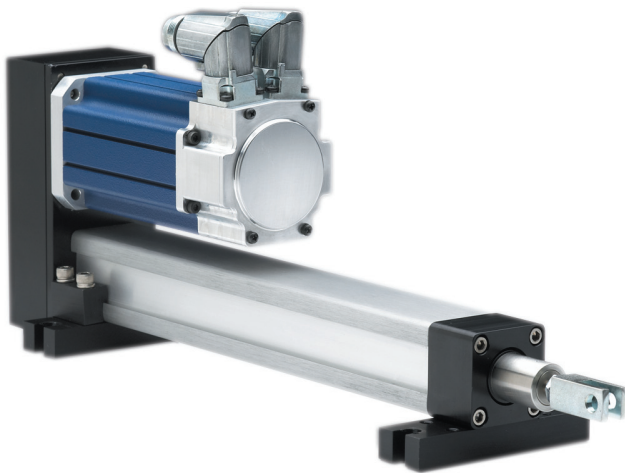
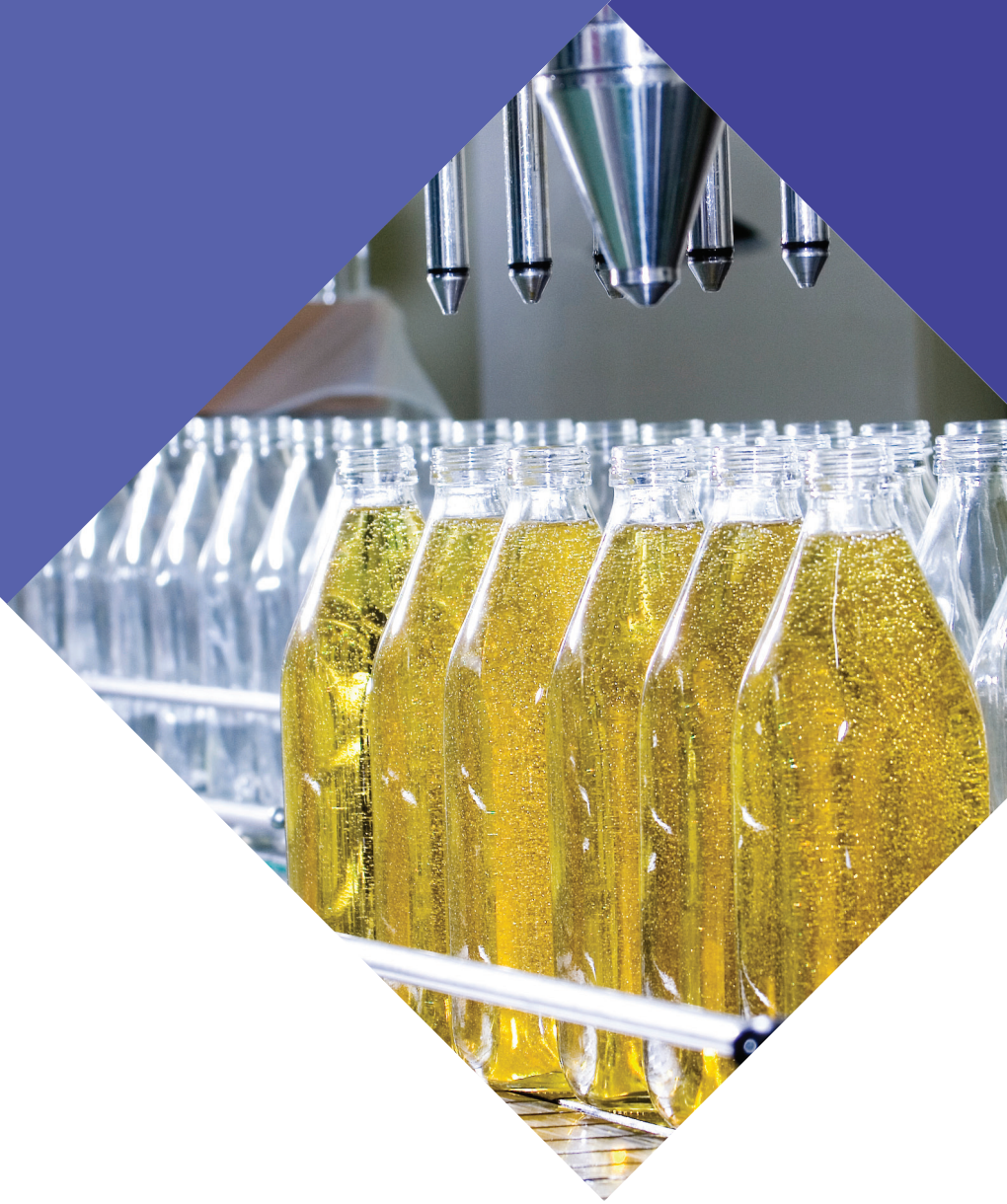


Linear Actuator Product Guide



ITT

ENGINEERED FOR LIFE

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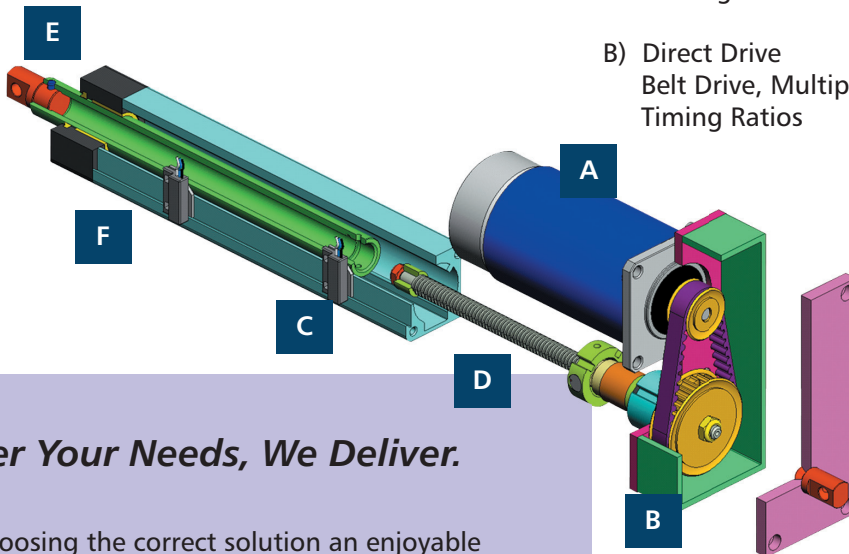
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More solutions from us means more options for you.

At ITT Torque Systems; our aim has always been to offer our customers the broadest range of solutions. Experience has taught us that each application is unique, which is why we strive to ensure that the linear actuator you choose from us is uniquely suited to your needs. Our competitors may stack their shelves with actuators and hardware, but we go much further by filling ours with engineered solutions. By doing so, you have at your disposal just about any type of solution you could require, from simple integration components such as brakes, gears and limit switches, to elaborate breakthrough designs.

Our Custom Engineered MS Series Linear Actuators Can Include:

- A) Brush and Brushless Servomotors
Customer Supplied Motors
Cabling
- B) Direct Drive
Belt Drive, Multiple Timing Ratios
- C) Linear Potentiometers
Magnetic Limit Switches
Brakes
- D) Acme Screws with Bronze or Delrin* Nuts
Ball Screws
- E) Incremental Stroke Lengths
IP 65 Environmental Sealing
- F) Inline & Parallel Mounting
Multiple Front & Rear Mounting Options



Whatever Your Needs, We Deliver.

We make choosing the correct solution an enjoyable process. Our expertly trained sales force will work closely with you so they can gain a thorough understanding of your specific application. Thus enabling them to determine how to create the best solution for you. Once that judgment has been made, our application development engineers step in to ensure that you receive a reliable, high-quality working solution. When all is said and done, you get just what you need because ITT Torque Systems will design a product to fit your application — rather than altering your application to fit our product.

Benefit From Our Vast Selection and Expertise.

For over three decades, ITT Torque Systems has developed many innovative solutions to support our customers' needs for linear actuators. Today, the flexibility of the MS Series product line enables our engineering staff to size virtually any screw, nut and motor combination. We can also combine that flexibility with multiple rod end and end mounting designs to help meet your application, regardless of its uniqueness.



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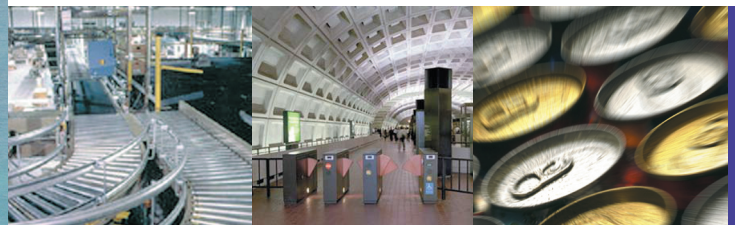
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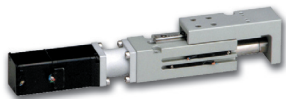
MS Series Platforms

MS Standard Design Features:

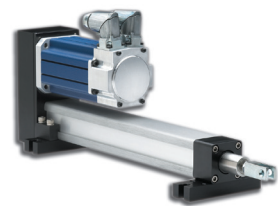
- 100% Duty Cycle Ball Screws
- 60% Duty Cycle Acme Screws
- Stroke Length Up to 30 in.
- (91.5 cm) – 1 in. (25.4 mm) increments
- Accuracy to 0.0005 in. (0.013 mm)
- Durable Aluminum Body
- Corrosion Resistant Stainless Steel Rod
- Protective Rod Wiper
- End of Stroke Bumpers

Rigid Application Development Process

- Application Review
- Motion Profile Analysis
- FEA, 3D Modeling & Computer Simulation
- Prototype Design
- Performance Verification



Platform MS 65																	
General Capabilities				1:1 Timing Ratio Performance Data													
Max Stroke		Available Screws		Max Design Thrust		Max Design Speed		Screw Type		Thrust		Speed		Tested Motor		Torque	
in.	mm	Acme	Ball	lb. Force	N	in/sec	mm/sec			lb. Force	N	in/sec	mm/sec			oz.-in.	mNM
5.9	150	A2, A4	MB1	65	290	10	254	A4	65	290	10	254		AC Servo	9	63.7	
		A16, A20						A16	65	290	10	254					



Platform MS 150																	
General Capabilities								2:1 Timing Ratio Performance Data									
Max Stroke		Available Screws		Max Design Thrust		Max Design Speed		Screw Type		Thrust		Speed		Tested Motor		Torque	
in.	mm	Acme	Ball	lb. Force	N	in/sec	mm/sec			lb. Force	N	in/sec	mm/sec			lb.-in.	NM
10	254	A2, A5	B8	150	667	30	762	A2	150	667	12.4	315					
		A10						A5	150	667	4.2	107		BMR 2202D	5	0.57	
								A10	150	667	2.3	58					
								B8	150	667	2.9	74					



Platform MS 400																	
General Capabilities								2:1 Timing Ratio Performance Data									
Max Stroke		Available Screws		Max Design Thrust		Max Design Speed		Screw Type		Thrust		Speed		Tested Motor		Torque	
in.	mm	Acme	Ball	lb. Force	N	in/sec	mm/sec			lb. Force	N	in/sec	mm/sec			lb.-in.	NM
30	762	A2.7	B2, B5	400	1780	30	762	A2.7	400	1780	10.0	254					
		A5, A10						A5	400	1780	5.5	140		BMR 2202D	5	0.57	
								A10	400	1780	2.7	67					
								B2	400	1780	12.4	315					
								B5	400	1780	5.6	142					



Platform MS 800																	
General Capabilities								2:1 Timing Ratio Performance Data									
Max Stroke		Available Screws		Max Design Thrust		Max Design Speed		Screw Type		Thrust		Speed		Tested Motor		Torque	
in.	mm	Acme	Ball	lb. Force	N	in/sec	mm/sec			lb. Force	N	in/sec	mm/sec			lb.-in.	NM
30	762	A2, A2.7	B2, B5	800	3558	30	762	A2.7	800	3560	7.3	185					
		A5, A10						A5	800	3560	3.9	99		BNR 3045	47	5.13	
								A10	800	3560	1.9	48					
								B2	800	3560	9.7	246					
								B5	800	3560	3.9	99					

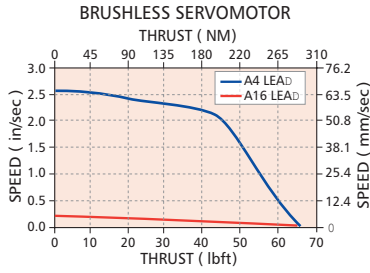
Simply put: ITT Torque Systems will design a product to fit your application - rather than altering your application to fit our product.



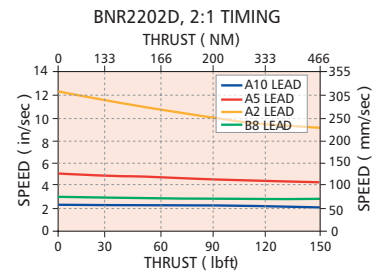
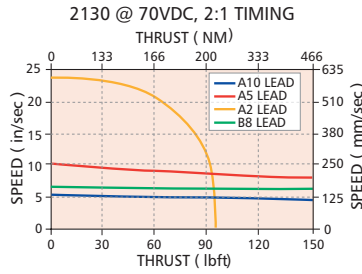
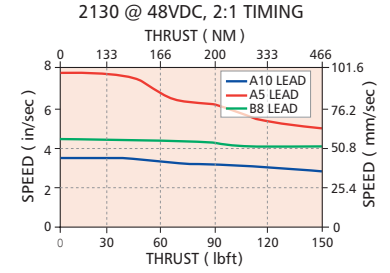
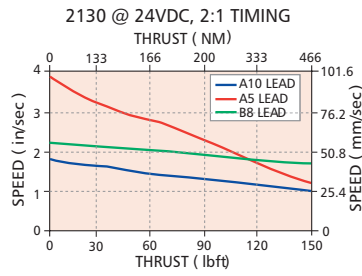
MS Series Platforms

Typical Velocity Thrust Profiles - Many Others Available

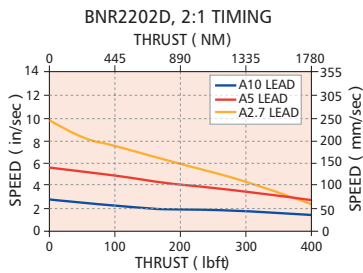
MS65



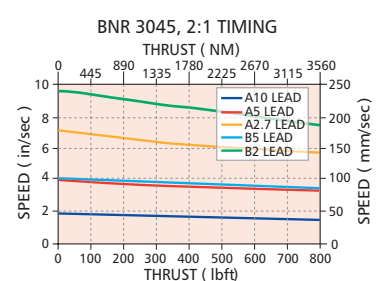
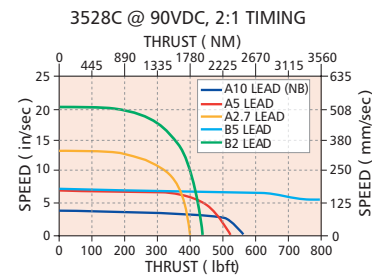
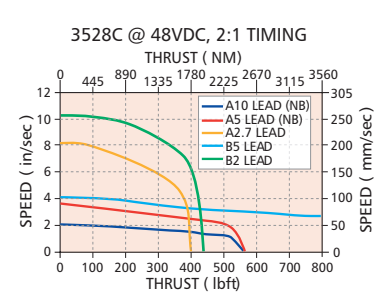
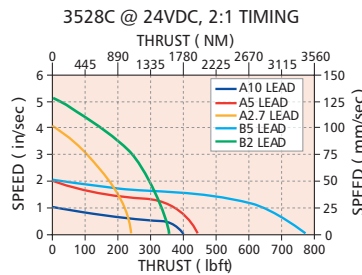
MS150



MS400



MS800



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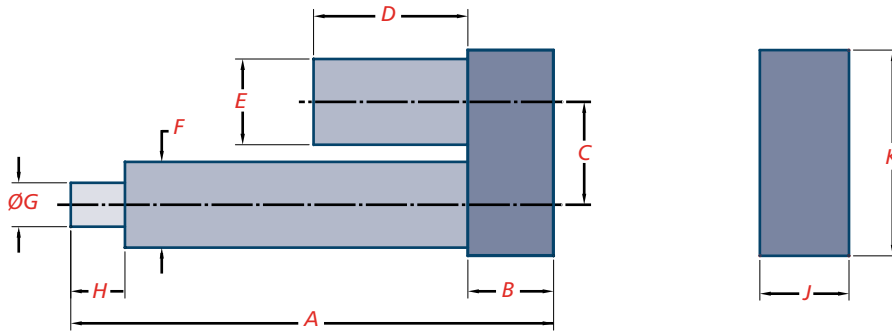
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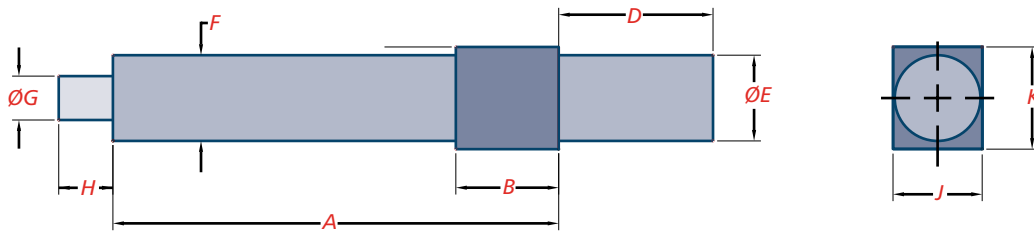
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Today, the flexibility of ITT Torque Systems linear actuator product line enables our engineering staff to size virtually any screw, nut and motor combination.



Motor Parallels Mount Dimensions																				
	A		B		C		D		E		F		ØG		H		J		K	
	inches	m	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
MS 65	3.79 + S	96.3 + S	0.94	23.9	1.13	28.7	2.52	64.0	0.98	24.9	1.02	25.9	0.47	11.9	0.44	11.2	1.00	25.4	2.19	55.6
MS 150	7.29 + S	185.2 + S	1.44	36.6	2.32	58.9	5.67	144.0	2.25	57.2	1.5	38.1	0.75	19.1	0.91	23.1	2.25	57.2	4.81	122.2
MS 400	7.82 + S	198.6 + S	1.63	41.4	2.32	58.9	5.67	144.0	2.25	57.2	2.25	57.2	1.00	25.4	0.91	23.1	2.25	57.2	4.81	122.2
MS 800	8.19 + S	208.0 + S	2.00	50.8	3.30	83.8	6.4	162.6	3.38	85.9	2.25	57.2	1.00	25.4	0.91	23.1	3.38	85.9	7.00	177.8

* Retracted Length
S = Stroke Length



Motor In-Line Mount Dimensions																		
	A		B		D		ØE		F		ØG		H		J		K	
	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
MS 65	6.20 + S	157.5 + S	1.24	31.5	2.52	64.0	0.98	24.9	1.02	25.9	0.47	11.9	0.44	11.2	1.00	25.4	1.00	25.4
MS 150	4.94 + S	125.5 + S	2.06	52.3	5.55	141.0	2.27	57.7	1.5	38.1	0.75	19.1	0.91	23.1	2.25	57.2	2.25	57.2
MS 400	7.53 + S	191.3 + S	2.25	57.2	5.67	144.0	2.25	57.2	2.25	57.2	1.00	25.4	0.91	23.1	2.50	63.5	2.50	63.5
MS 800	8.88 + S	225.6 + S	2.69	68.3	6.40	162.6	3.38	85.9	2.25	57.2	1.00	25.4	0.91	23.1	3.38	85.9	3.38	85.9

* Retracted Length
S = Stroke Length