Advantages

Ntec's universal linear drives offer a host of new, low-cost and powerful potential applications.

- Simple and flexible motor design slashes system costs
- Stroke-independent traversing of any position
- High, reproducible resolutions (<1µm) and fast feed rates (>250mm/sec.) with identical unit volume pave
- Direct coupling of power into the load does not require additional components and consequently features a rigid and light mechanical system
- With a stationary screw, highly dynamic and rigid machine designs and multi-motor mode are possible
- Even high power can be sensitively controlled with low energy requirement
- Partially self-restraining, thus additional brake not necessary
- Stroke depends solely on available screw length.

The achievable resolutions, feed rates and powers can be calculated on the basis of the screw pitch (p in mm), torque characteristic (Md in Ncm) and efficiency (η) as follows:

1)	**Resolution in mm/step**	=	**p / (360° / step angle)** such as 1 mm / (360°/ 0.9°) = 0.0025 mm/step
2)	**Feed rate**	=	**f • resolution** such as 2000 1/s • 0.0025 mm = 5 mm/sec
3)	**Thrust force in N**	=	$\mathbf{M_{dMot} \cdot 2\pi \cdot \eta / p}$ such as L5609X approx. 15 Ncm at 2 kHz
		=	**15 • 6,28 • 0,1/0,1 cm = 94 N (peak t)**

4) Efficiency

The efficiency of fine thread is approximately 0.1 according to DIN 267 - Sheet 1; with a trapezoidal screw it is approximately 0.5 ; with a ball screw it is approximately 0.9. Further, consideration has to be given to static and rolling friction (0.9 to 0.7), surface finish (peak-to-valley height/hardness of screw and nut), coupling of materials (steel/steel), (steel/Cu bronze), (steel/plastic POM), degree of soiling and concentric screw guide in the calculation of estimated service life. It is most important to determine endurance strength and potential service life by means of an actual test.

The dynamic efficiencies and power outputs quoted in the data sheets are based on a duty cycle of approximately 10% to 20% and have to be reduced accordingly at higher values.
The axial play toward the motor is approximately 0.1 to 0.7 mm at 20 N.

Care must be taken to ensure that the screw is **not** affected by transverse forces and that the screw runs concentrically to the motor shaft. Twisting of the screw has to be prevented to obtain linear motion.

In the meantime, coefficients of friction can be reduced to a large degree and resistance to wear can be considerably improved by means of different finishing processes (such as those of Balzers, Mifa, and Ikos).

Generally speaking, the screws are clamped or fixed to the moving part. For all other applications in which they cannot be fixed in this manner, or a free screw end has to move the load, corresponding locking elements can be provided by Ntec and in part supplied following mounting on the motor. The travel length must then be specified (refer to Accessories, screw).

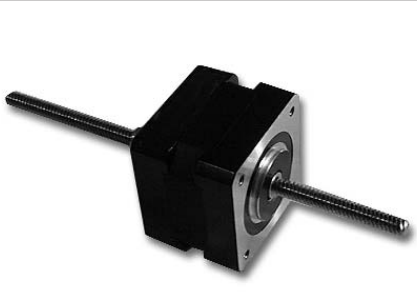
Linear travel and motions are a frequent task for many designers. The linear actuator and servo motor family L40, L56, L86, L42, L57, LS 42 have been successfully used for a considerable time in numerous applications (such as regulating, dosing, levelling, stroke, actuating, adjusting and closing tasks, route-independent pressure and tensile force adjustment and many more) on account of their versatility with regard to power and infeed speeds.

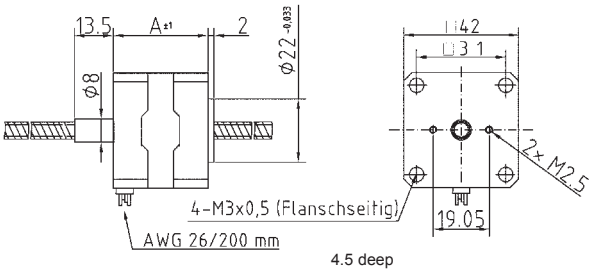
High Torque Linear Actuators L42, L57

The combination of a high-torque stepper motor with a screw of 2 and 5 mm pitch not only gives the linear actuators L42.. and L57.. linear actuators an extremely high actuating speed (or extremely short setting times) but, in its compact form, also supports high thrust and tensile forces.
With the matching sdm.. microstep drivers, resolutions up to <0.01 mm/step are possible and thus the L42, L57 linear motors are extremely well suited for precision linear axes.
As a result of the relatively good screw efficiency of >0.5, even higher service lives were achieved in addition to improved performance.

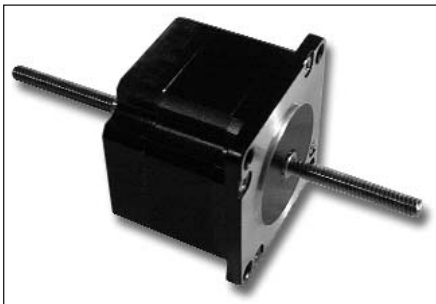
For position feedback, the linear actuators are also available with attached encoder or encoder plus line driver (refer to Accessories).

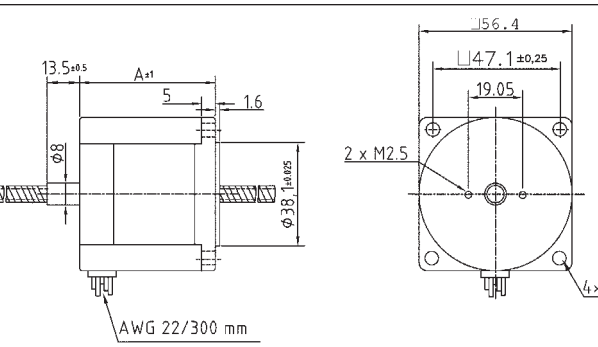
Linear Actuator L42





Linear Actuator L57





Matching M.x. or T.x. threaded screws and lubrication notes for the integral bronze and PEEK nut will be found under Accessories. (Please order screw separately)

Available Sizes

Type Order Code	Thrust N	Feed mm/sec.	Resolution mm/step	Current A/Winding	Resistance Ohm/Winding	Weight kg	Length "A" mm	Leads
	----------Values Full Step----------			---------Values Unipolar----------				
L4218S1404-T5x5 -T6x2 -M6x1	65 (25) 150 (60)	5 (120) 2 (50)	0.025 0.01	1,4	2	0.2	33	4
L4218M1404-T5x5 -T6x2 -M6x1	95 (25) 150 (60)	5 (210) 2 (80)	0.025 0.01	1,4	1.2	0.25	39	4
L4218L1804-T5x5 -T6x2 -M6x1	150 (25) 150 (60)	5 (250) 2 (100)	0.025	1,8	1.75	0.33	47	4
L5718X2008-T5x5 -T6x2 -M6x1	200 (25) 200 (60)	5 (300) 2 (120)	0.025	2	1.4	0.47	43.5	8
L5718M2008-T5x5 -T6x2 -M6x1	300 (25) 250	5 (210)	0.025	2	1.8	0.7	55	8