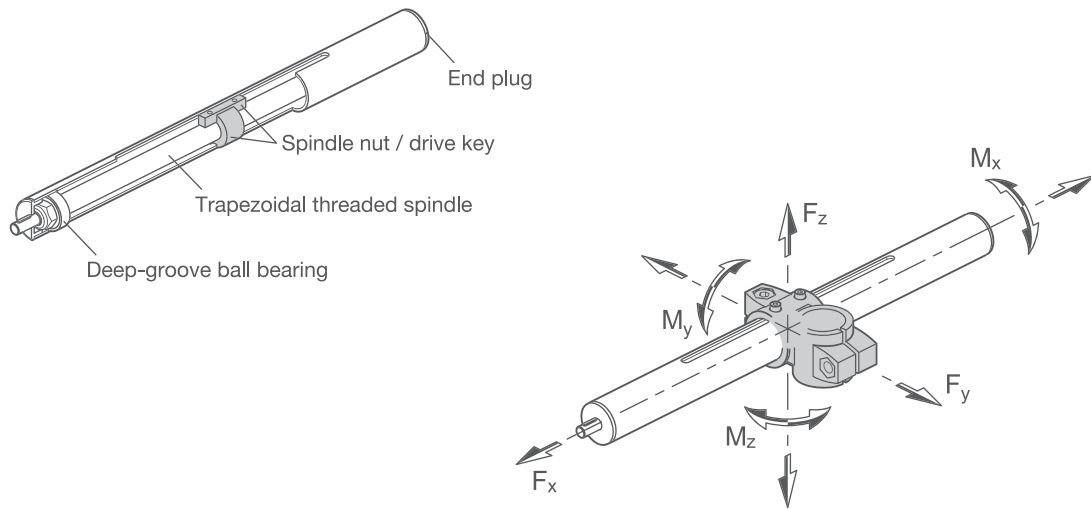


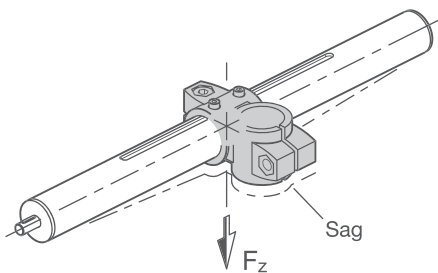
Single tube linear units / Load data



Linear unit nominal diameter	F _x in N		F _y in N		F _z in N			M _x in Nm	M _y in Nm	M _z in Nm
	l = 500	l = 500	l = 1000	l = 1500	l = 500	l = 1000	l = 1500			
18	400	80	15	-	65	10	-	1,5	4,5	4,5
30	850	500	70	15	550	55	10	6,5	15	15
40	1100	2150	250	65	1900	150	50	15	42	42
50	1750	3100	650	150	3100	650	150	29	69	69
60	2600	4550	1500	400	4550	1400	350	45	125	125

Sag / elastic deformation

The maximum permissible forces and tightening torques listed in the table will result in elastic deformation of the linear unit. For the listed values, this amounts to approximately 0.4 mm. This deformation is shown here using the force F_z as an example.



Positioning precision

The positioning precision indicates the deviation with which a position can be reached. The table shown here lists the maximum arising deviation.

	Trapezoidal thread lead screw	Fine thread lead screw
Max. deviation	$\pm 0,1$ mm / 300 mm stroke	$\pm 0,1$ mm / 300 mm stroke

Repeatable precision

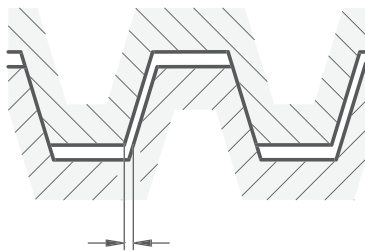
The repeatable precision indicates how precisely a position can be approached multiple times under the same conditions. In most cases, the repeatable precision is higher than the positioning precision because manufacturing tolerances have no influence on the repeatable precision. The trapezoidal and fine thread lead screws have a repeatable precision of ± 0.05 mm.

Guide precision

The precision guide tubes of the linear units of steel are manufactured as per DIN EN 10305-4 and also chrome-plated. In the stainless steel version, steel precision guide tubes as per EN10216-5 are used.

Backlash on reversal

Due to the play between the thread flanks of the spindle and spindle nut, backlash (lost motion) occurs when the direction of the drive movement is changed. This backlash must be overcome before the guide element moves in the opposite direction. The backlash on reversal is required to prevent the spindle nut from seizing on the spindle. For linear units with trapezoidal and fine thread spindle, the value is 0.2 mm.



Self-braking

Because trapezoidal and fine thread spindles have pitch angles lower than the angle of friction, they are often self-braking. It is not possible to slide the guide element. In addition, the spindle can be secured against movement with an external spindle clamp. The clamping plates listed as accessories may be used for this.

Lifespan

The lifespan of linear units depends on the expected ambient conditions of the specific application. The following factors come into play here:

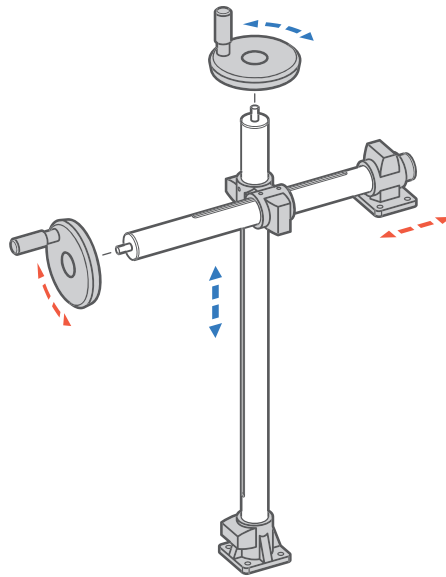
- The installation orientation
- The load to be moved
- The movement speed
- The movement frequency
- Ambient temperature
- External influences
- Compliance with the maintenance intervals

Ambient conditions

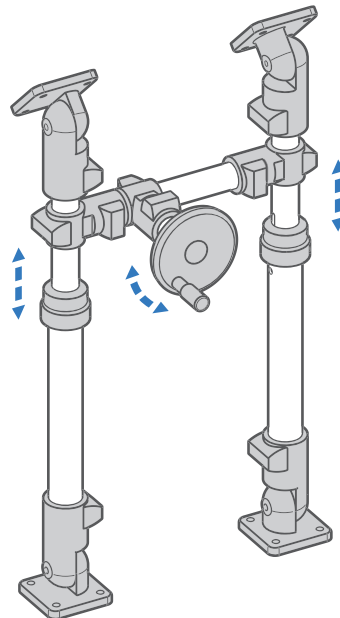
The linear units are designed for ambient temperatures from -20°C to $+100^{\circ}\text{C}$. Large temperature fluctuations and condensing humidity should also be avoided.

Safety device for vertical linear units

It is possible to install an additional spindle nut that is carried along as a safety nut. This holds the linear unit in position in the event of damage (such as due to overloading or wear) and prevents the guide element from falling when used in a vertical orientation.



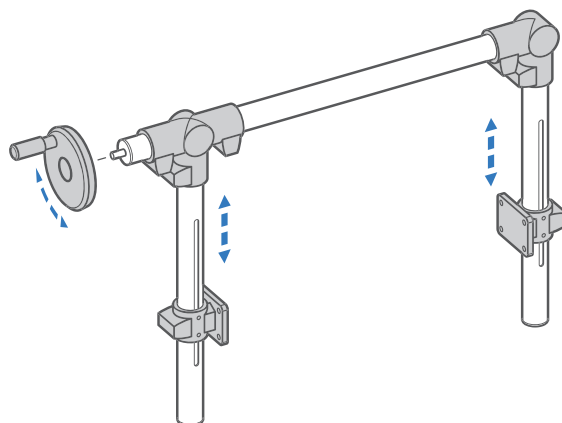
Single tube linear units combination with adjustment in the X / Z direction



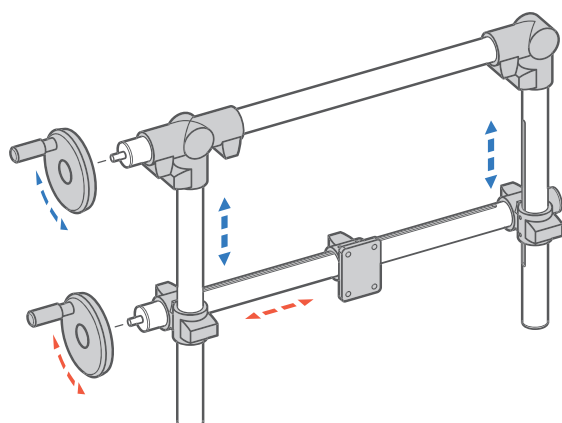
Height adjustment by two telescope linear units

2A

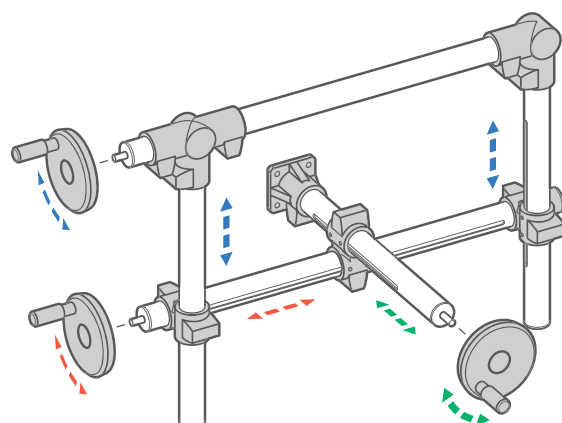
Multi-axis systems are assemblies comprised of multiple linear units. The use of angle gears and transfer units allows multiple linear units to move synchronously. To ensure smooth, even and low-wear movement of the linear units, they must be oriented exactly perpendicular or parallel to each other.



Multi-axis system with adjustment in Z direction



Multi-axis system with adjustment in Z / X direction



Multi-axis system with adjustment in Z / X / Y direction