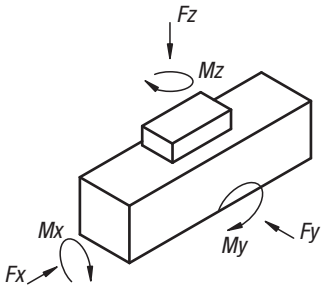
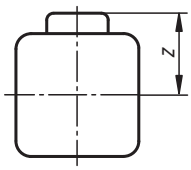
Technical information for linear axis with toothed belt drive

Calculation of the service life:

The specified maximum dynamic forces and torques relate to the centre of the profile guide rails.



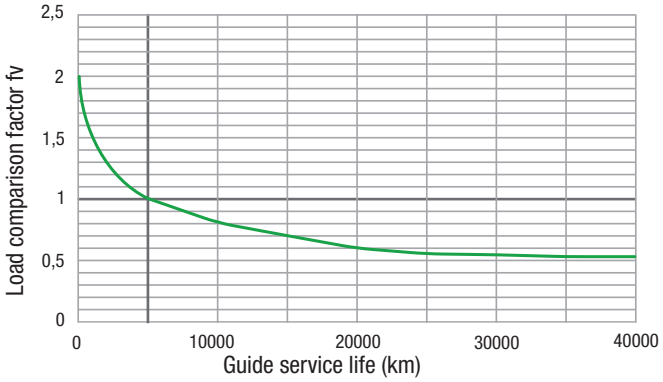


Distance between the contact faces of the slides and centre of the profile guide rails:

Size:	60	80
Height z [mm]:	26	23

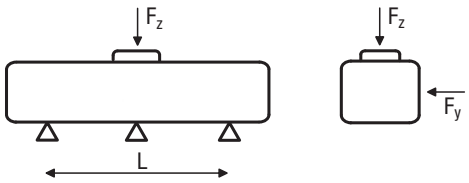
If the linear axis is subjected to two or more forces and torques simultaneously, the load comparison factor fv must first be calculated according to the following formula. The calculated load comparison factor can be used to determine the service life from the service life characteristic curve. For a linear axis to achieve its nominal service life of 5,000 km, the load comparison factor must be less than or equal to 1.

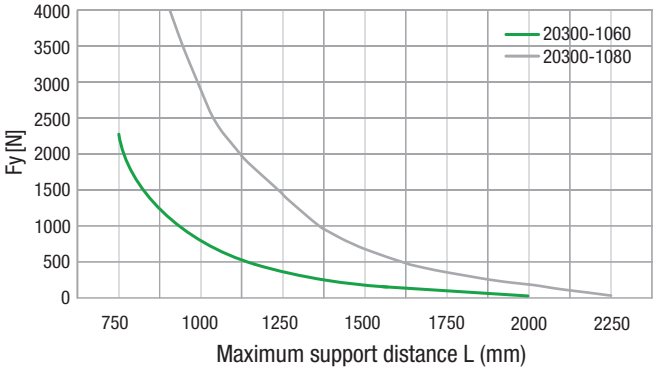
$$f_v = \frac{[F_y]}{F_{ydynmax}} + \frac{[F_y]}{F_{zdynmax}} + \frac{[M_y]}{M_{xdynmax}} + \frac{[M_y]}{M_{ydynmax}} + \frac{[M_y]}{M_{ydynmax}} \leq 1$$



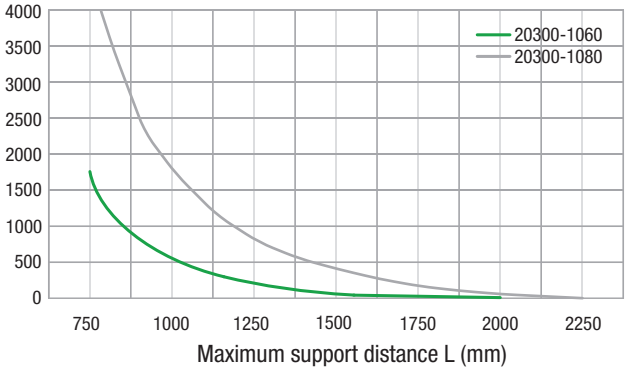
Calculating the support distance:

With linear axis with long travel, high load and self-supported mounting, a high level of deflection may occur in the linear actuator. To prevent this, the linear actuator should be supported at several points. The following diagrams can be used to determine the maximum permissible support distance L depending on the applied force. The maximum permissible deflection in these curves is f = 0.5 mm.





Maximum support distance depending on force Fy



Maximum support distance depending on force Fz