

Linear actuators with ball screw LK2818 - LK5718



Option

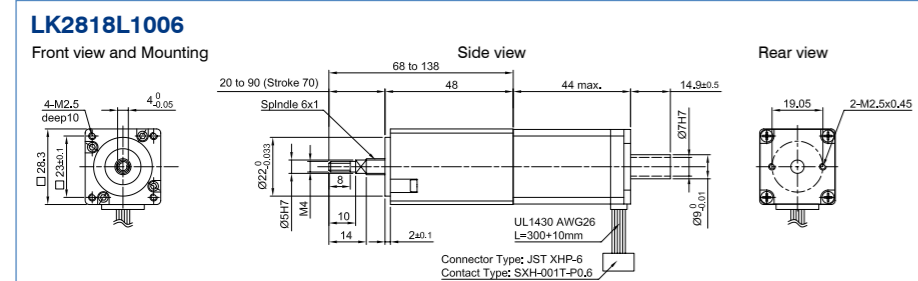


Through the large-dimension rolling bearing, the new linear actuators with integrated ball screw reach a high thrust up to 1.8 kN with high accuracy and extremely long service life.

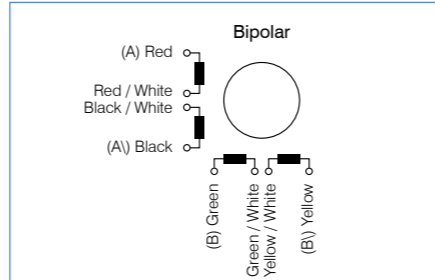
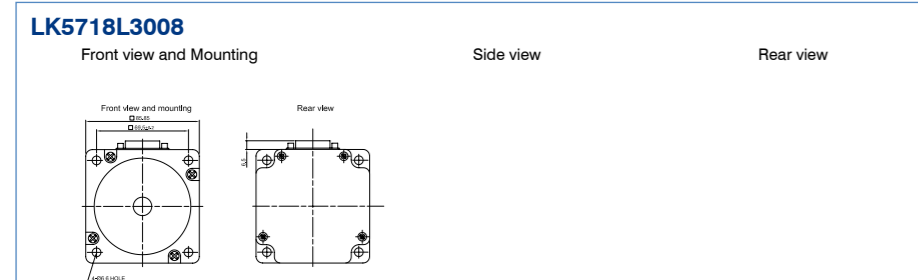
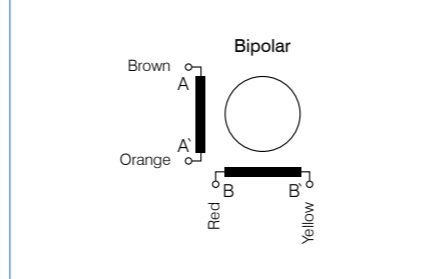
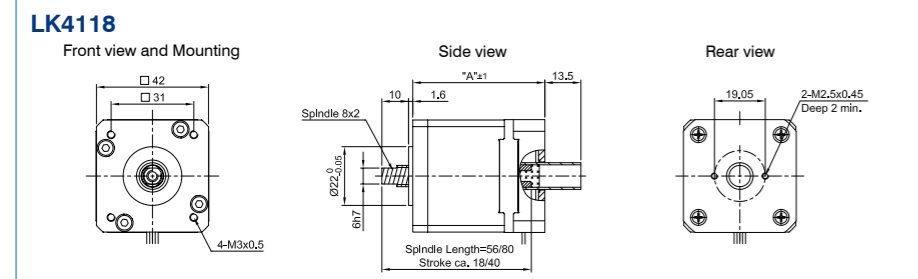
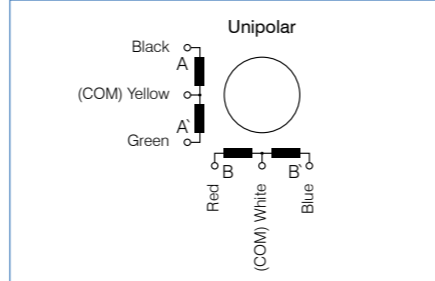
- Simple assembly due to same flange size as the standard motors
- Standard axial play (max. 0.05) can be compensated
- Encoder version possible as well as Plug & Drive
- On request: High-precision actuator with spindle accuracy up to G5 and axial play <=0.01 as well as wipers

Economic incremental encoders are available for all models.
In addition, all sizes can also be delivered in IP54

Outline drawing (mm)



Connector configuration



Available versions (others on request)

Type	Flange mm	Max. thrust N	Max. precision feed control mm/s	Resolution mm/step	Positioning accuracy mm	Pitch of screw mm	Stroke mm	Current A/winding	Inductance per winding mH/winding	Resistance per winding Ohm/winding	Weight kg	Length "A" mm
LK2818L1006	28	350	100	0,005	0,015	1	73,5	0,95	1,4	4,60	0,32	44,0
LK4118S1404	42	80	100	0,010	0,010	2	18,0	1,40	3,6	2,00	0,35	49,5
LK4118L1804	42	800	100	0,010	0,010	2	40,0	1,80	3,3	1,75	0,56	73,5
LK5718L3008	56	1800	50	0,010	0,010	2	123,5	3,00	2,2	1,00	1,00	100

All data refer to 1 half of the winding or unipolar!

Recommendations for use / life calculation for the LK series

Lubrication:

The standard roller bearing lubrication regulations apply for ball screws. One-time filling with grease as lifetime lubrication is, however, not sufficient in most cases. Needs-based regular lubrication is crucial to the lifetime of a ball screw.

Calculations at dynamic loads:

Critical speed $n_{Admiss.}$

The admissible speeds must be sufficiently distant from the natural frequency of the spindle.

$$n_{Adm.} = K_D \cdot 10^6 \cdot \frac{d_2}{l_a^2} \cdot S_n \text{ [min}^{-1}\text{]}$$

$n_{Adm.}$ = admissible speed [min⁻¹]

K_D = characteristic constant depending on the bearing case [-]

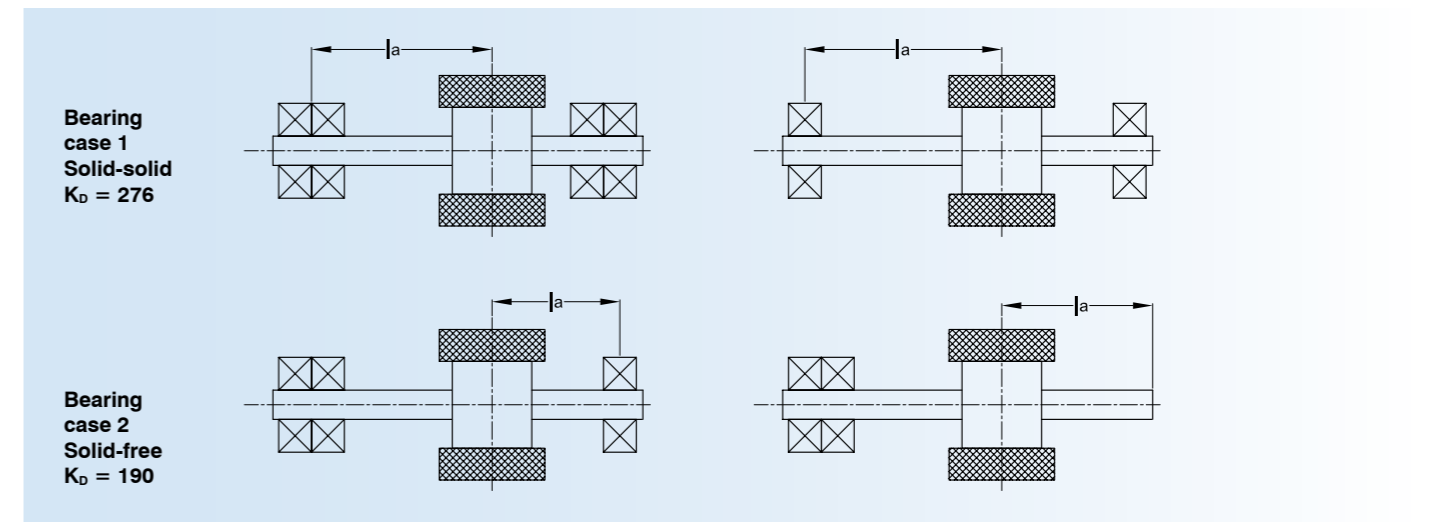
→ See below

d_2 = spindle core diameter [mm]

l_a = bearing clearances [mm] → See below (the max. possible l_a must always be included in the calculation)

S_n = safety factor

i.a. $S_n = 0.5 \dots 0.8$ [-]



Nominal service life L_{10} or L_h

$$L_{10} = \left(\frac{C_{dyn}}{F_m} \right)^3 \cdot 10^6 \text{ [U]}$$

$$L_h = \frac{L_{10}}{n_m \cdot 60} \text{ [h]}$$

L_{10} = service life in revolutions [U]

L_h = service life in hours [h]

C_{dyn} = dynamic loading factor [N]

F_m = mean axial load [N]

$F_{1...n}$ = load per time quota [N]

n_m = mean rotational speed [min⁻¹]

$n_{1...n}$ = speed per time quota [min⁻¹]

$q_{1...n}$ = time quota [%]

100 = $\sum q$ (sum of time quotas $q_{1...n}$) [%]

Mean axial load F_m

at constant speed $n_{constant}$ and dynamic loading capacity C_{dyn}

$$F_{10} = \sqrt[3]{F_1^3 \frac{q_1}{100} + F_2^3 \frac{q_2}{100} + F_3^3 \frac{q_3}{100} + \dots} \text{ [N]}$$

$$L_{10} = \left(\frac{C_{dyn}}{F_m} \right)^3 \cdot 10^6 \text{ [U]}$$

$$L_h = \frac{L_{10}}{n_m \cdot 60} \text{ [h]}$$

