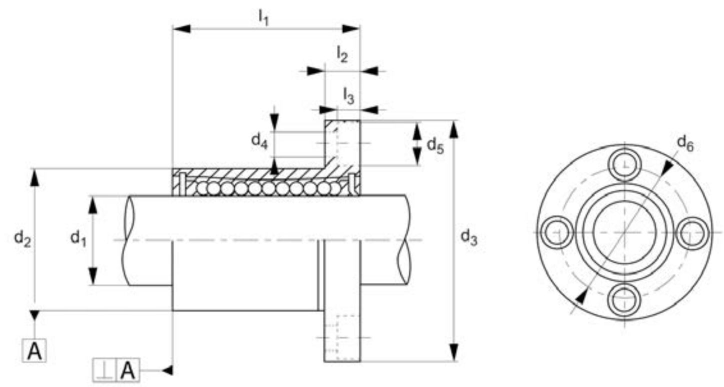
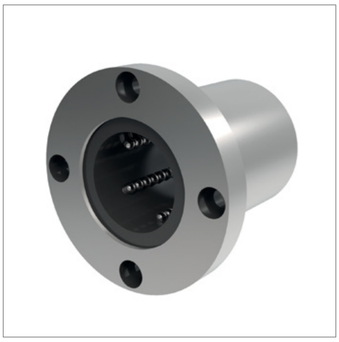
Flanged Linear Ball Bushings
circular flange





L1718

Material
Hardened and ground body from bearing steel.
Single body resin retainer (POM).
Supplied with nitrile rubber (NBR) end-seals -UU as standard.

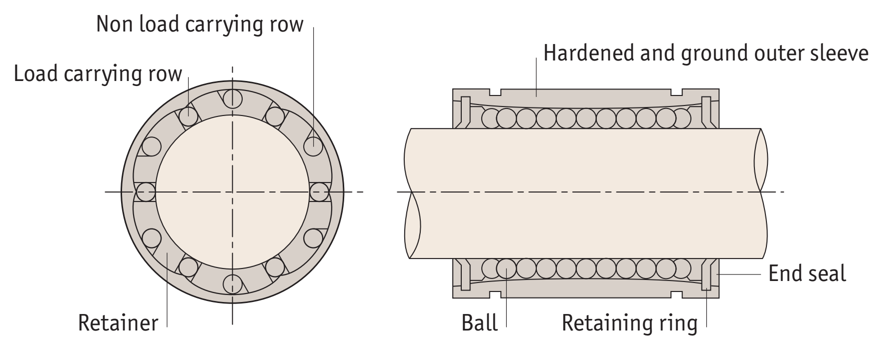
Technical Notes
For use with hardened shafts only (see part nos. L1770 - L1772) - tolerance h6.
For part numbers with $^{-1}$ shaft tolerance required is g6. Temperature range : -20°C to +80°C.
Steel ball retainers can be supplied for higher temperature applications (up to +120°C - with no end seals. Please advise at time of ordering if this is required.

Tips
Nickel plated version with stainless steel balls (for corrosion resistance) on request - or stainless steel version no. L1720.

Order No.	d_1	d_2	l_1	d_3	d_4	d_5	d_6	Weight g
L1718.006-1	6	12	19	28	3.4	6.5	20	26.5
L1718.008	8	16	25	32	3.4	6.5	24	44.0
L1718.010-1	10	19	29	40	4.5	8.0	29	78.0
L1718.012	12	22	32	42	4.5	8.0	32	86.0
L1718.016	16	26	36	46	4.5	8.0	36	120.0
L1718.020	20	32	45	54	5.5	9.5	43	184.0
L1718.025	25	40	58	62	5.5	9.5	51	335.0
L1718.030	30	47	68	76	6.6	11.0	62	545.0
L1718.040	40	62	80	98	9.0	14.0	80	1185.0
L1718.050	50	75	100	112	9.0	14.0	94	1730.0
L1718.060	60	90	125	134	11.0	17.5	112	3180.0

Order No.	l_2	l_3	No. of ball circuits	Squareness A µm	Dyn. load C N	Static load C_0 N
L1718.006-1	5	3.3	4	12	200	260
L1718.008	5	3.3	4	12	260	400
L1718.010-1	6	4.4	4	12	370	540
L1718.012	6	4.4	4	12	410	590
L1718.016	6	4.4	5	12	770	1170
L1718.020	8	5.4	5	15	860	1370
L1718.025	8	5.4	6	15	980	1560
L1718.030	10	6.5	6	15	1560	2740
L1718.040	13	8.6	6	20	2150	4010
L1718.050	13	8.6	6	20	3820	7930
L1718.060	18	10.8	6	25	4700	9990

Linear ball bushings



Applications

- Computers and peripheral equipment.
- Recording equipment.
- Linear motion systems.
- Multi-axis drilling machine.
- Printing machines.
- Food packaging machines.
- Punching presses.
- Tool grinders.
- Assembly systems.
- Card selectors.

Interchangeability

Our linear bushing systems are designed to have full interchangeability, with other manufacturers' parts. **For shafting see part numbers L1770 to L1785.**

High precision retainer

The single body retainer guides 4-6 ball circuits. It precisely guides the balls with a smooth motion.

Tolerance of housing bore

Normal fit is standard, pressed fit is for without clearance.

Type	Case	
Part no.	Normal fit	Pressed fit
L1706 to L1733	H7	K6, J6
L1706...$^{-1}$ to L1733...$^{-1}$	H7	J7

Rigid outer sleeve

The hardened and precisely ground outer sleeve is made of bearing steel.

L1750 bushing carriages

Consists of light aluminium case and L1706 type linear bushing, so the installation can be finished simply by bolting. Longer life can be obtained by adjusting the orientation of the ball circuits in the linear carriage element against the direction of load.

Tolerance of shaft

Type	Shaft	
Part no.	Normal fit	Tight fit
L1706 to L1733	h6	k6
L1706...$^{-1}$ to L1733...$^{-1}$	f6, g6	h6

ov-linear-ball-bushings-applications-and-tolerances-lnh - Updated - 22-02-2023

Basic dynamic load rating C

The basic dynamic load rating is defined as the constant load both in direction and magnitude under which a group of identical linear bushings are individually operated. 90% of the units can travel 50Km without failing due to rolling contact fatigue.

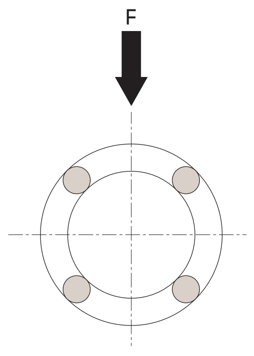
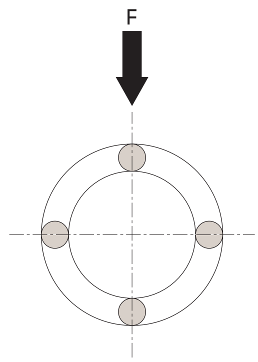
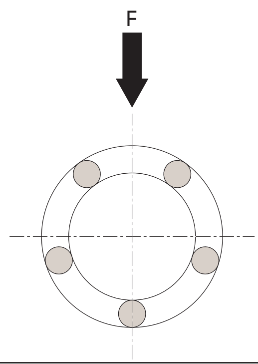
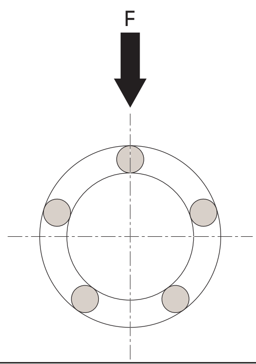
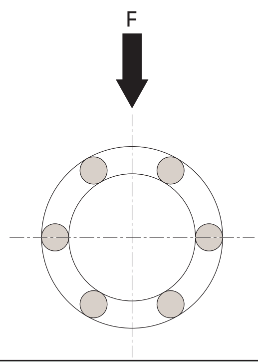
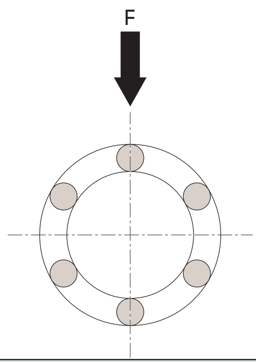
Basic static load rating C_0

If a linear bushing is subject to an excessive load or impact, a permanent deformation occurs between the raceway and the rolling element. The basic static load rating is defined as the static load that gives a prescribed constant contact stress at the centre of the contact area between the rolling element and raceway receiving the maximum load.

Relationships between load ratings and the position of ball circuits

Load ratings of linear bushing are affected by the position of the ball circuits as shown below.

Load ratings and orientation of balls.

No of ball rows	Orientation of balls	
	Maximum load rating	Minimum load rating
4		
	F = 1.41 x C	F = C
5		
	F = 1.46 x C	F = C
6		
	F = 1.26 x C	F = C

ov-linear-ball-bushings-load-rating-a-rnh - Updated - 22-02-2023

When designing a linear motion system it is necessary to consider how the application will affect performance. The following examples demonstrate how the position of the load and the centre of gravity can influence product selection. When evaluating your application, review each of the forces acting on your system and determine the product that best suits your needs.

Horizontal application

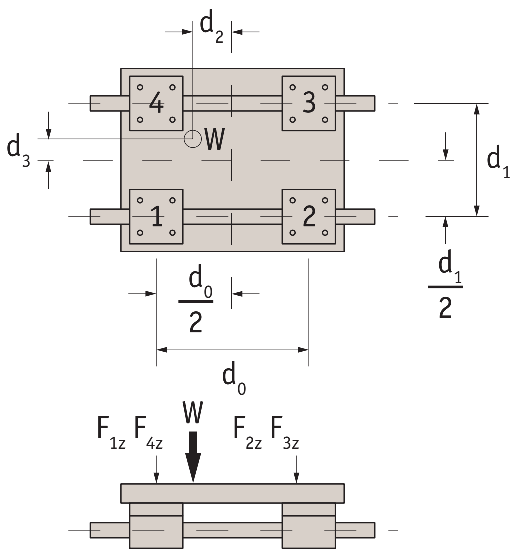
For uniform speed or when stopped.

$$F_{1z} = \frac{W}{4} + \left(\frac{W}{2} \cdot \frac{d_2}{d_0}\right) - \left(\frac{W}{2} \cdot \frac{d_3}{d_1}\right)$$

$$F_{2z} = \frac{W}{4} - \left(\frac{W}{2} \cdot \frac{d_2}{d_0}\right) - \left(\frac{W}{2} \cdot \frac{d_3}{d_1}\right)$$

$$F_{3z} = \frac{W}{4} - \left(\frac{W}{2} \cdot \frac{d_2}{d_0}\right) + \left(\frac{W}{2} \cdot \frac{d_3}{d_1}\right)$$

$$F_{4z} = \frac{W}{4} + \left(\frac{W}{2} \cdot \frac{d_2}{d_0}\right) + \left(\frac{W}{2} \cdot \frac{d_3}{d_1}\right)$$



Horizontal application

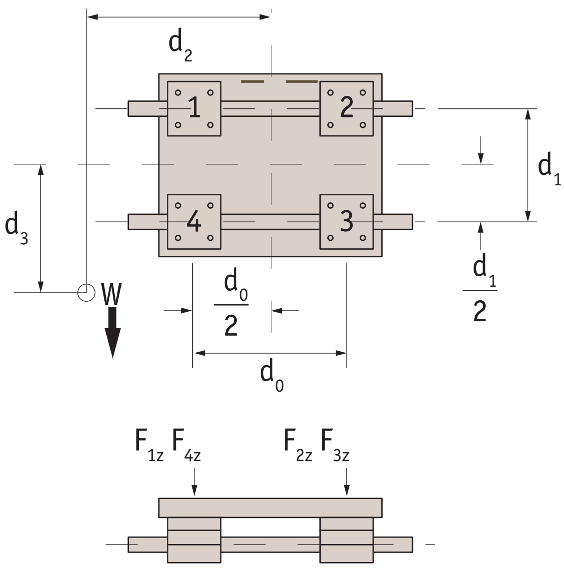
For uniform speed or when stopped.

$$F_{1z} = \frac{W}{4} + \left(\frac{W}{2} \cdot \frac{d_2}{d_0}\right) - \left(\frac{W}{2} \cdot \frac{d_3}{d_1}\right)$$

$$F_{2z} = \frac{W}{4} - \left(\frac{W}{2} \cdot \frac{d_2}{d_0}\right) - \left(\frac{W}{2} \cdot \frac{d_3}{d_1}\right)$$

$$F_{3z} = \frac{W}{4} - \left(\frac{W}{2} \cdot \frac{d_2}{d_0}\right) + \left(\frac{W}{2} \cdot \frac{d_3}{d_1}\right)$$

$$F_{4z} = \frac{W}{4} + \left(\frac{W}{2} \cdot \frac{d_2}{d_0}\right) + \left(\frac{W}{2} \cdot \frac{d_3}{d_1}\right)$$



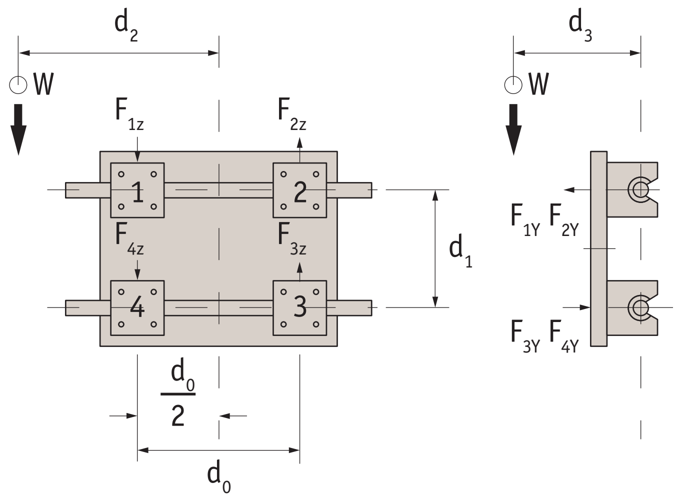
Side mounted application

For uniform speed or when stopped.

$$F_{1Y} \sim F_{4Y} = \left(\frac{W}{2} \cdot \frac{d_3}{d_0}\right)$$

$$F_{1Z} = F_{4Z} = \frac{W}{4} + \left(\frac{W}{2} \cdot \frac{d_2}{d_0}\right)$$

$$F_{2Z} = F_{3Z} = \frac{W}{4} + \left(\frac{W}{2} \cdot \frac{d_2}{d_0}\right)$$



Vertical application

For uniform speed or when stopped. On start up/stop the load varies due to inertia in the system.

$$F_{1X} \sim F_{4X} = \left(\frac{W}{2} \cdot \frac{d_2}{d_0}\right)$$

$$F_{1Y} \sim F_{4Y} = \left(\frac{W}{2} \cdot \frac{d_3}{d_0}\right)$$

$$F_{1X} + F_{4X} \sim F_{2X} + F_{3X}$$

$$F_{1Y} + F_{4Y} \sim F_{2Y} + F_{3Y}$$