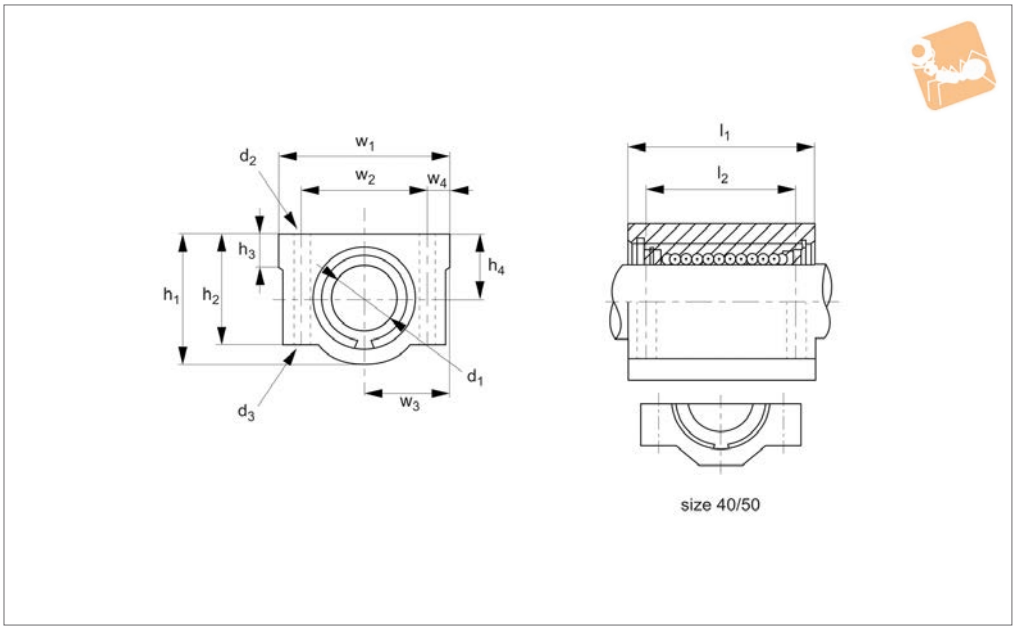


L1750

Material
Aluminium body, with linear bearing L1706 (steel shell) installed. Bearing has a resin retainer (POM).
Supplied with nitrile rubber (NBR) end seals -UU as standard.

Long versions have L1712 linear bearing installed, short versions have L1715 Linear bearing installed.

Technical Notes
For use with hardened shafts only (see part nos. L1770 - L1772).
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.

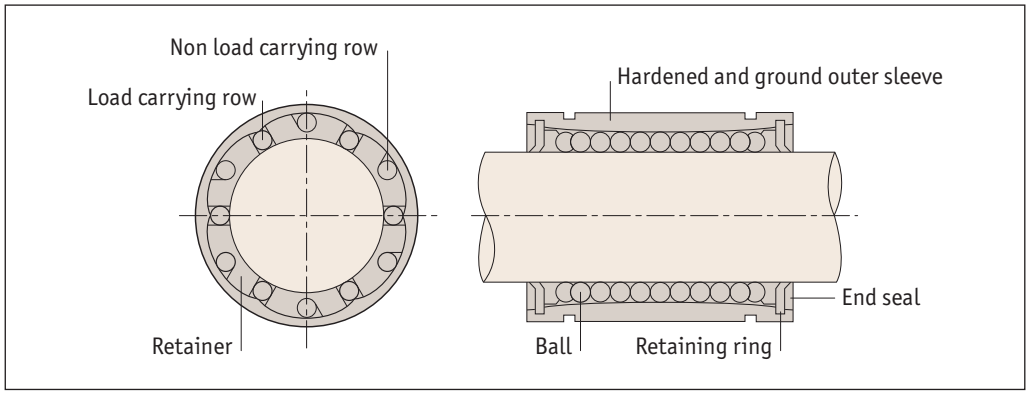
Order No.	Type	d_1 tol. h6	l_1	d_2	d_3	h_1	h_2	h_3	Weight g
L1750.008	Standard	8	30.0	M 4x8	3.4	22.0	18.0	6	60
L1750.012	Standard	12	39.0	M 5x10	4.3	30.0	24.5	8	118
L1750.016	Standard	16	44.0	M 5x12	4.3	38.5	32.5	9	180
L1750.020	Standard	20	53.0	M 6x12	5.2	41.0	35.0	11	245
L1750.025	Standard	25	67.0	M 8x18	6.8	51.5	41.0	12	550
L1750.030	Standard	30	76.0	M 8x18	6.8	59.5	49.0	15	760
L1750.040	Standard	40	90.0	M10x25	8.6	78.0	62.0	20	1700
L1750.050	Standard	50	110.0	M10x25	8.6	102.0	80.0	24	2950
L1750.008-L	Long	8	58.0	M 4X8	3.4	22.0	18.0	6	98
L1750.012-L	Long	12	77.0	M 5x10	4.3	30.0	24.5	8	232
L1750.016-L	Long	16	89.0	M 5x12	4.3	38.5	32.5	9	360
L1750.020-L	Long	20	106.0	M 6x12	5.2	41.0	35.0	11	490
L1750.025-L	Long	25	136.0	M 8x18	6.8	51.5	41.0	12	1100
L1750.030-L	Long	30	154.0	M 8x18	6.8	59.5	49.0	15	1525
L1750.040-L	Long	40	180.0	M10x25	8.6	78.0	62.0	20	3400
L1750.050-L	Long	50	230.0	M10x25	8.6	102.0	80.0	24	5920
L1750.008-S	Short	8	14.4	M 4x8	3.4	22.0	18.0	6	40
L1750.012-S	Short	12	20.3	M 5x10	4.3	30.0	24.5	8	82
L1750.016-S	Short	16	22.3	M 5x12	4.3	38.5	32.5	9	122
L1750.020-S	Short	20	28.3	M 6x12	5.2	41.0	35.0	11	176
L1750.025-S	Short	25	40.4	M 8x18	6.8	51.5	41.0	12	400
L1750.030-S	Short	30	48.4	M 8x18	6.8	59.5	49.0	15	570
L1750.040-S	Short	40	56.4	M10x25	8.6	78.0	62.0	20	1320
L1750.050-S	Short	50	72.3	M10x25	8.6	102.0	80.0	24	1900

Order No.	h_4 ±0.02	l_2 ±0.2	w_1	w_2 ±0.2	w_3 ±0.02	w_4	Dyn. load C N max.	Static load C_0 N max.	Linear ball bushing used
L1750.008	11	18	34	24	17	5.0	260	400	L1706.008
L1750.012	15	26	44	33	22	5.5	410	590	L1706.012
L1750.016	19	34	50	36	25	7.0	770	1170	L1706.016
L1750.020	21	40	54	40	27	7.0	860	1370	L1706.020

Linear Carriages
closed

Order No.	h_4 ±0.02	l_2 ±0.2	w_1	w_2 ±0.2	w_3 ±0.02	w_4	Dyn. load C N max.	Static load C_0 N max.	Linear ball bushing used
L1750.025	26	50	76	54	38	11.0	980	1560	L1706.025
L1750.030	30	58	78	58	39	10.0	1560	2740	L1706.030
L1750.040	40	60	102	80	51	11.0	2150	4010	L1706.040
L1750.050	52	80	122	100	61	11.0	3820	7930	L1706.050
L1750.008-L	11	42	34	24	17	5.0	410	800	2 x L1706.008
L1750.012-L	15	64	44	33	22	5.5	650	1180	2 x L1706.012
L1750.016-L	19	79	50	36	25	7.0	1230	2340	2 x L1706.016
L1750.020-L	21	90	54	40	27	7.0	1370	2740	2 x L1706.020
L1750.025-L	26	119	76	54	38	11.0	1560	3120	2 x L1706.025
L1750.030-L	30	132	78	58	39	10.0	2490	5480	2 x L1706.030
L1750.040-L	40	150	102	80	51	11.0	3440	8020	2 x L1706.040
L1750.050-L	52	200	122	100	61	11.0	6110	15860	2 x L1706.050
L1750.008-S	11	-	34	24	17	5.0	260	400	L1706.008
L1750.012-S	15	-	44	33	22	5.5	410	590	L1706.012
L1750.016-S	19	-	50	36	25	7.0	770	1170	L1706.016
L1750.020-S	21	-	54	40	27	7.0	860	1370	L1706.020
L1750.025-S	26	-	76	54	38	11.0	980	1560	L1706.025
L1750.030-S	30	-	78	58	39	10.0	1560	2740	L1706.030
L1750.040-S	40	-	102	80	51	11.0	2150	4010	L1706.040
L1750.050-S	52	-	122	100	61	11.0	3820	7930	L1706.050

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

Linear Ball Bushings from Automotion Components

Technical Information

Load rating important information

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.

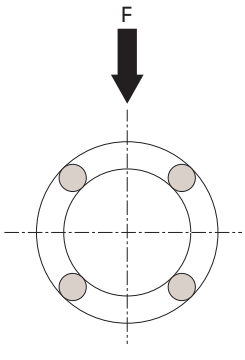
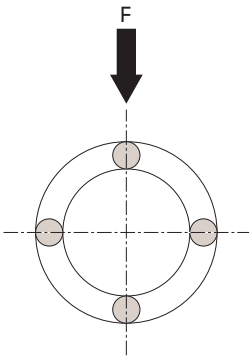
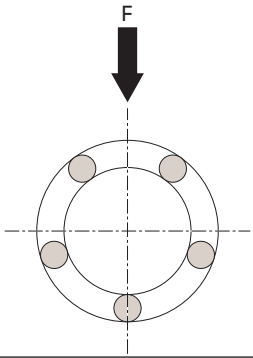
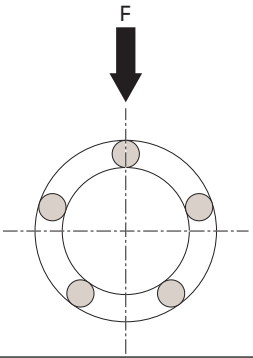
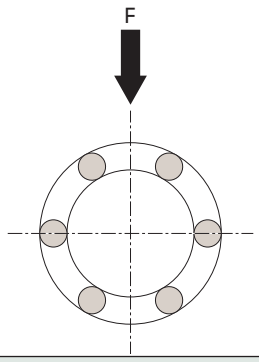
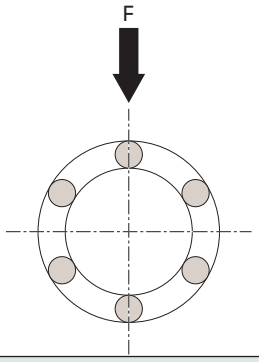
Basic static load rating C_0

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

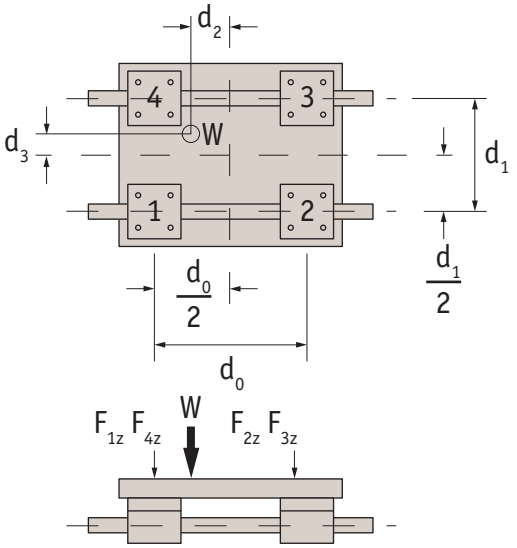
When designing a linear motion system it is necessary to consider how the application will affect performance. The following examples demonstrate how the position of the load and the centre of gravity can influence product selection. When evaluating your application, review each of the forces acting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

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

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

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

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



Horizontal application

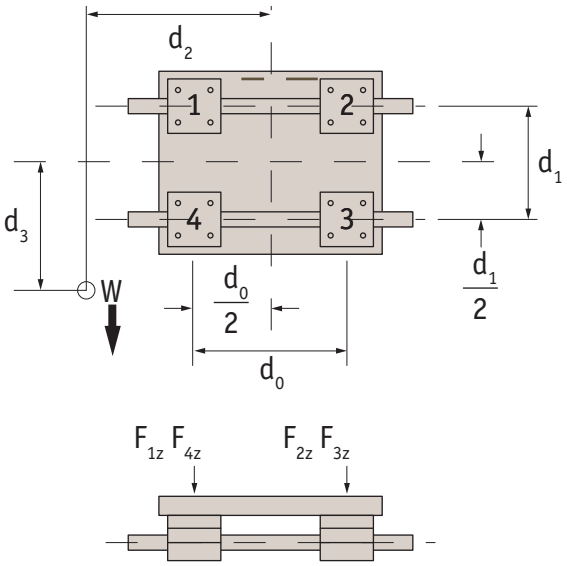
For uniform speed or when stopped.

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

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

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

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



Horizontal application

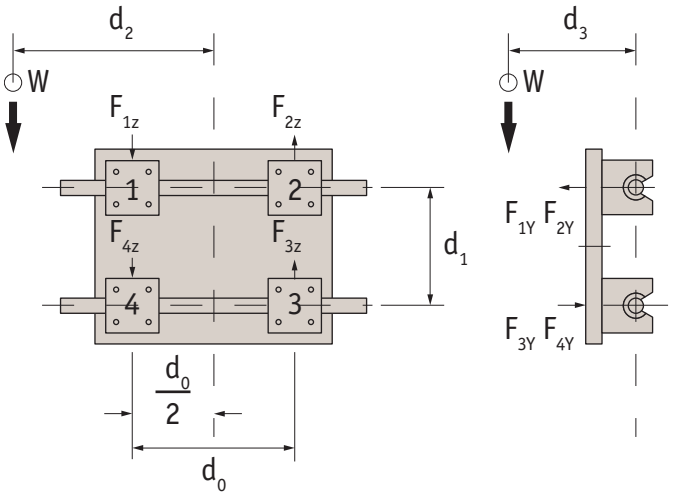
For uniform speed or when stopped.

Side mounted application

For uniform speed or when stopped.

$$F_{1Y} \sim F_{4Y} = \left(\frac{W}{2} \cdot \frac{d_3}{d_0}\right) \qquad F_{1Z} = F_{4Z} = \frac{W}{4} + \left(\frac{W}{2} \cdot \frac{d_2}{d_0}\right)$$

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



Vertical application

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

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

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

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

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