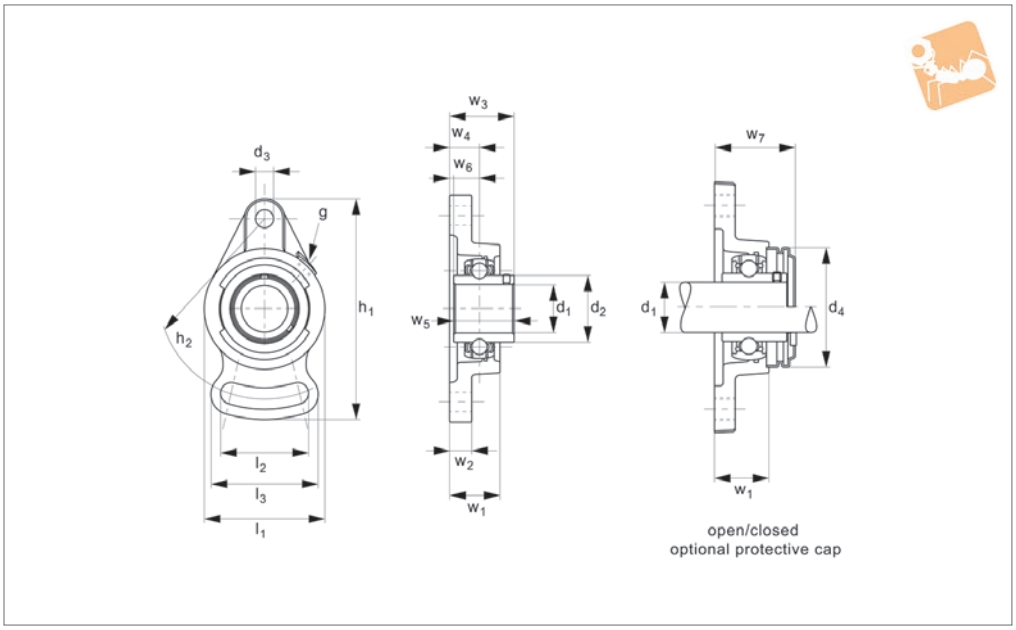
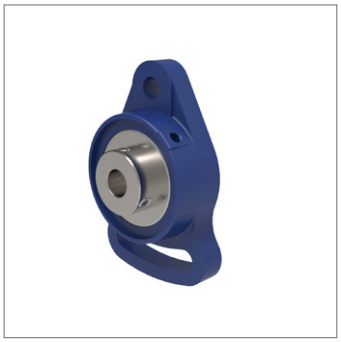




L1869

Material
Quality grey cast iron (FG20 or FG25), passivated and painted (RAL 5010).

Technical Notes
Self-aligning bearings, relubricatable.
Temperature range: -20°C to +120°C.

The max. axial load is 0.5 x radial static load.
The housings are rated to take the maximum bearing loads.
For optional shaft end caps add suffixes:
-C0 for one open protective cap (with seal)
for through shafts
-CC for closed protective cap for shaft ends.

Tips
Shaft retention with set screw.
Used with h6 tolerance shafts (see our part no.s L1770-L1776.

Order No.	d_1 for h6	l_1	h_1	l_2	d_2	d_3	d_4	d_5	h_2	l_3	Weight kg
L1869.012	12	60	102	40	29.0	10	M6x1	54	78	54	0.5
L1869.015	15	60	102	40	29.0	10	M6x1	54	78	54	0.5
L1869.017	17	60	102	40	29.0	10	M6x1	54	78	54	0.5
L1869.020	20	60	102	40	29.0	10	M6x1	54	78	54	0.5
L1869.025	25	68	125	51	34.0	12	M6x1	60	98	65	0.7
L1869.030	30	80	144	58	40.3	12	M6x1	70	117	72	1.2
L1869.035	35	90	161	66	48.0	15	M6x1	80	130	82	1.6
L1869.040	40	100	175	71	53.0	15	M6x1	88	144	87	2.0
L1869.045	45	108	181	72	57.2	15	M6x1	95	148	90	2.3
L1869.050	50	115	190	76	61.8	15	M6x1	100	157	94	2.7
L1869.055	55	130	219	86	69.0	16	M6x1	110	184	104	3.5
L1869.060	60	140	250	92	74.9	23	M6x1	120	202	118	4.2

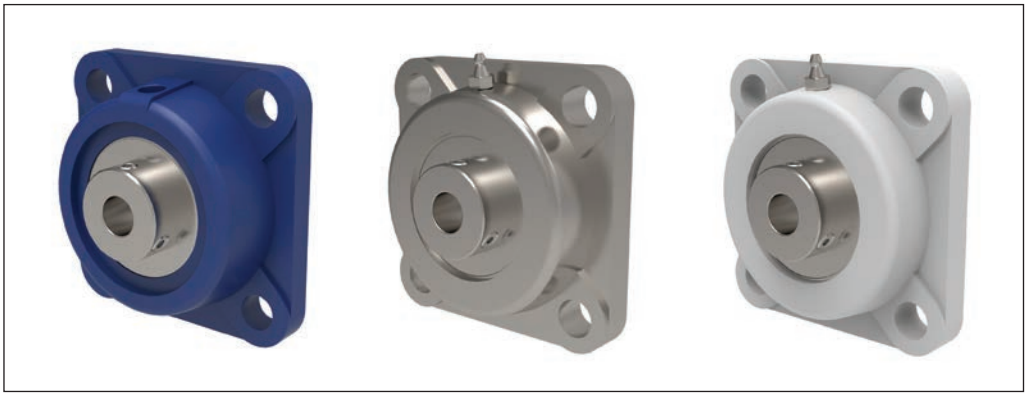
Order No.	w_1	w_2	w_3	w_4	w_5	w_6	w_7	Dyn. radial load C kN max.	Static radial load C_0 kN max.	Speed rpm max.
L1869.012	25.5	12	33.3	15	31.0	12.7	36.5	12.8	6.6	6500
L1869.015	25.5	12	33.3	15	31.0	12.7	36.5	12.8	6.6	6500
L1869.017	25.5	12	33.3	15	31.0	12.7	33.0	12.8	6.6	6500
L1869.020	25.5	12	33.3	15	31.0	12.7	36.5	12.8	6.6	6500
L1869.025	27.0	14	35.7	16	34.0	14.3	39.1	14.0	7.8	6500
L1869.030	31.0	14	40.2	18	38.1	15.9	44.1	19.5	11.2	4500
L1869.035	34.0	16	44.4	19	42.9	17.5	48.3	25.7	15.2	4500
L1869.040	36.0	16	51.2	21	49.2	19.0	55.1	29.6	18.2	3500
L1869.045	38.0	18	52.2	22	49.2	19.0	56.3	31.8	20.8	3500
L1869.050	40.0	18	54.6	22	51.6	19.0	59.3	35.1	23.2	3000
L1869.055	43.0	20	58.4	25	55.6	22.2	62.8	43.5	29.2	3000
L1869.060	48.0	20	68.7	29	65.1	25.4	73.3	52.5	32.8	2500

Self-Aligning Bearing Units

Overview

Bearing Supports from Automotion Components

Housing material options

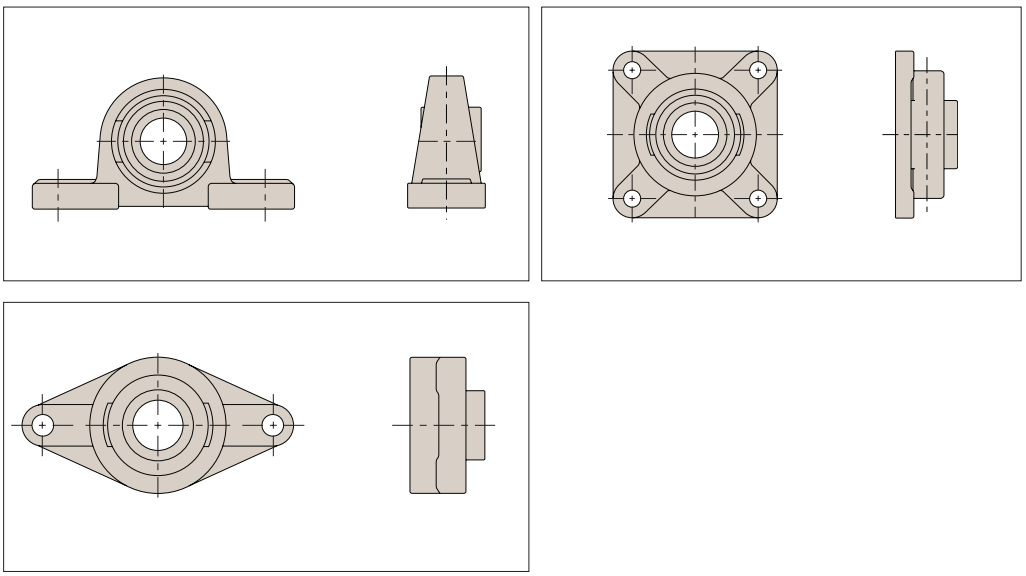


Cast iron housing
Standard version, passivated and painted Ø12-120mm.

Stainless steel housing
Stainless AISI 304, Ø12-60mm.

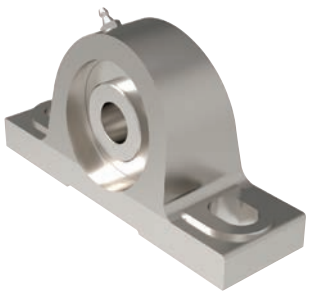
Thermoplastic housing
Food grade applications, smooth PBT resin material, Ø20-40mm.

Pillow Bearings



Use with Automotion linear shafts L1770-L1774

Options

Pillow block	Four point flange	Two point flange
		

For cast iron housings

- Single row radial contact self-aligning bearings (steel 100Cr6).
- Re-lubricatable.
- Fixing to shaft via set screw.
- Operating temperature range -20° to +100°.

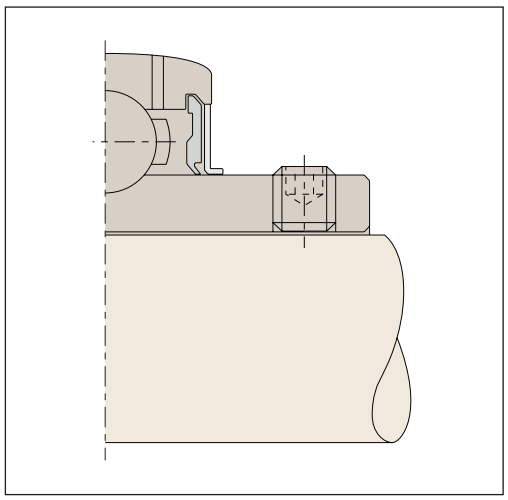
For stainless & thermoplastic housings

- Single row radial contact self-aligning bearings (stainless steel AISI 440C), stainless steel cage.
- Lubricated with food grade grease.
- Fixing to shaft via set screw.

Shaft fixing set screw

2 set screws at 120° with hexagon socket and knurled cup point, recommended shaft tolerance h6/h7.

Set screw	Max. tightening torque (Nm)	Hexagon socket A/F
M5 x 0,8	3,5	2,5
M6 x 1	5,5	3,0
M8 x 1	11,5	4,0
M10 x 1,25	22,0	5,0
M12 x 1,25	33,0	6,0
M14 x 1,5	42,0	7,0
M16 x 1,5	64,0	8,0
M18 x 1,5	75,0	9,0
M20 x 1,5	120,0	10,0

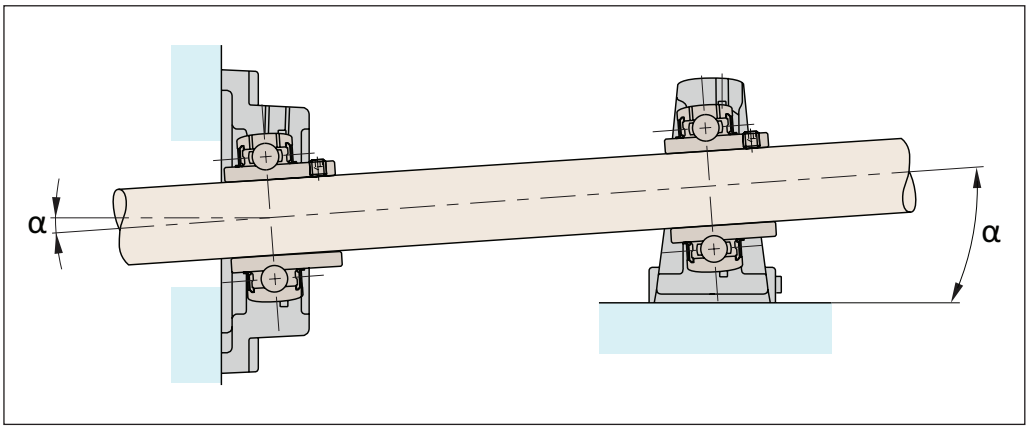


Lubrication

Our units are lubricated for life. If re-lubrication is necessary (because of severe operating conditions), use a lithium soap base with a viscosity of 100mm²/s at 40°C.

Installation

Shaft misalignment is compensated to a certain degree by the shaft-aligning bearings.



If re-lubrication required

α = ± 2°

If no re-lubrication

α = ± 5°

When using protective end caps

α = ± 5°

Bearing Supports from Automotion Components

BEARING MOUNTS

Cast Iron Bearing Units

Equivalent load ratings

The radial loads of the cast iron bearing supports are limited by the bearings themselves – the housings can withstand the maximum loads.

Please see the part numbers for dynamic and static radial loads. The maximum axial loads are 50% of the maximum static radial loads. The standard bearing have a C3 clearance.

Bore nominal size (mm)		Radial bearing clearance (µ) C3	
Above	Up to	Min.	Max.
10	18	11	25
18	24	13	28
24	30	13	28
30	40	15	33
40	50	18	36
50	65	23	43
65	80	25	51
80	100	30	58
100	120	36	66
120	140	41	81

When choosing a suitable bearing size – this depends on the load and speed required.

If the load acts mainly whilst the bearing rotates, then it is a dynamic load, if it acts mainly during no movement or low speeds, then it is a static load.

The maximum for both of these, for each bearing, is shown in the part tables.

Dynamic equivalent loads:

For some situations the bearing will have to withstand both radial and axial loads and we then need to calculate an equivalent dynamic load using the following equation:

$$L = X \bullet F_r + Y \bullet F_a \ (kN)$$

P = Dynamic equivalent load (kN)
F_r = Actual radial load (kN)
F_a = Actual axial load (kN)
X = Radial factor
Y = Axial factor

Load ratio table 1:

$\frac{F_a}{C_{0r}}$	e	$\frac{F_a}{F_r} \le e$		$\frac{F_a}{F_r} > e$	
		X	Y	X	Y
0,014	0,19				2,30
0,028	0,22				1,99
0,056	0,26				1,71
0,084	0,28				1,55
0,110	0,30	1	0	0,56	1,45
0,170	0,34				1,31
0,280	0,38				1,15
0,420	0,42				1,04
0,560	0,44				1,00

e = Limiting value
C_{0r} = Radial static load rating (see dimension tables for ball bearing units)

Static equivalent loads

For situations where there are radial and axial loads on the static or slow moving bearings:

$$P_0 = X_0 \bullet F_r + Y_0 \bullet F_a \ (kN)$$

$$P_0 = F_r \quad \text{if} \quad \frac{F_a}{F_r} \leq 0.8$$

P_0 = Static equivalent load (kN)
X_0 = Static radial factor
Y_0 = Static axial factor

For all bearing inserts the following applies:
X_0 = 0.6
Y_0 = 0.5

Using the ratio ***fs,*** it can be checked if sufficient static dimensioning for the insert has been ensured:

$$fs = \frac{C_{0r}}{p_0}$$

Some standard values are:

fs = 0.7 Minimal demands for running smoothness and rotating movement
fs = 1.0 occasional rotating bearing, normal demands for running
fs = 2.0 smoothness, high demands for running smoothness

It should be noted that this ratio does not provide any assurance against a break or similar, but instead it is assurance against excessive local deformation in the rolling contact (ball/raceway).

Calculating bearing life

When calculating bearing life for bearing units, the following applies:

$$L_{10} = \left(\frac{C_r}{p}\right)^3 \qquad (10^6 \text{ revolutions})$$

If the bearing life should be specified in hours, the following applies:

$$L_{10h} = \left(\frac{C_r}{p}\right)^3 \bullet \frac{10^6}{60n} \quad (h)$$

n = speed (min^{-1})

Bearing Supports from Automotion Components