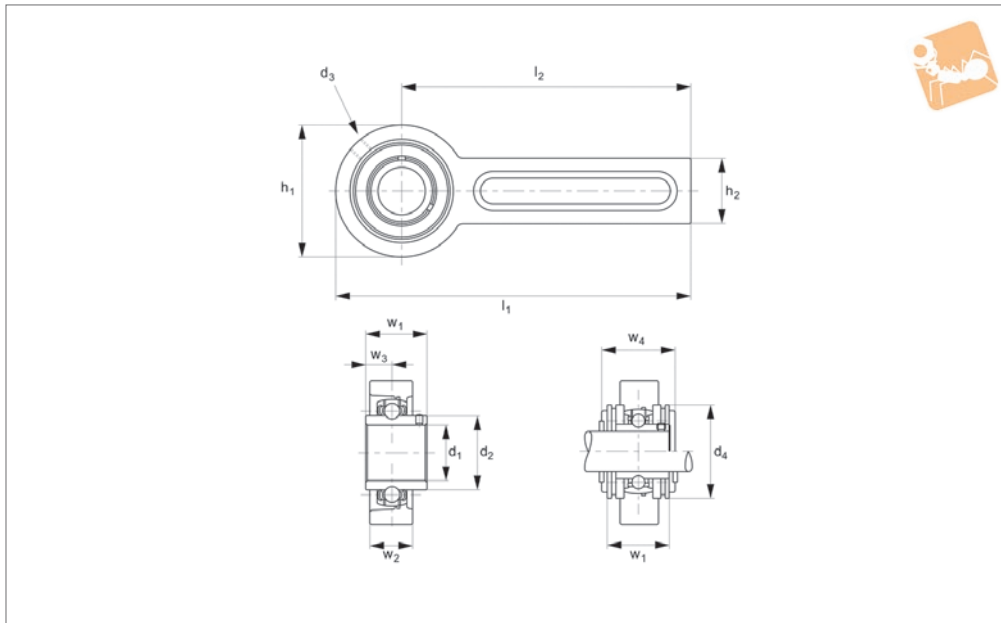




Conveyor Belt Tensioners

cast iron

Bearing Mounts



L1867

BEARING MOUNTS

Material

Housings made from cold rolled sheet steel with zinc-plated surfaces.

Technical Notes

Re-lubricatable. For use with stretcher

frame (see our part L1868).

For optional shaft end caps add suffixes:

- CO for two open protective caps (with seal) for through shafts.
- CC for one open and one closed protective

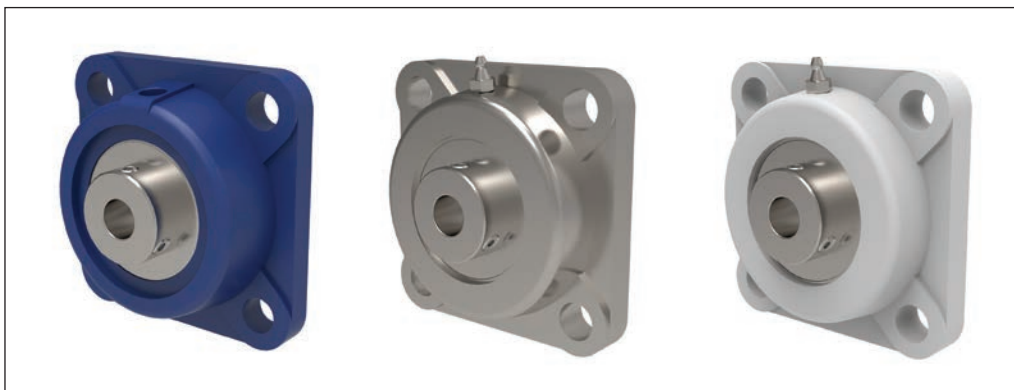
caps for shaft ends.

Order No.	d ₁ for h6	l ₁	h ₁	l ₂	d ₂	d ₃	d ₄	h ₂	w ₁	Weight kg
L1867.012	12	264	78	225	29.0	R1/8"	60	41	31.0	1.7
L1867.015	15	264	78	225	29.0	R1/8"	60	41	31.0	1.7
L1867.017	17	264	78	225	29.0	R1/8"	60	41	31.0	1.7
L1867.020	20	264	78	225	29.0	R1/8"	60	41	31.0	1.7
L1867.025	25	264	78	225	34.0	R1/8"	60	41	34.0	1.7
L1867.030	30	264	78	225	40.3	R1/8"	80	41	38.1	1.9
L1867.035	35	264	78	225	48.0	R1/8"	80	41	42.9	2.1
L1867.040	40	274	98	225	53.0	R1/8"	100	41	49.2	4.2
L1867.045	45	274	98	225	57.2	R1/8"	100	41	49.2	4.2
L1867.050	50	274	98	225	61.8	R1/8"	100	41	51.6	4.2

Order No.	w ₂	w ₃	w ₄	Dyn. radial load C kN max.	Static radial load C ₀ kN max.	Speed rpm max.
L1867.012	21	12.7	48.8	12.8	6.6	6500
L1867.015	21	12.7	48.8	12.8	6.6	6500
L1867.017	21	12.7	48.8	12.8	6.6	6500
L1867.020	21	12.7	48.8	12.8	6.6	6500
L1867.025	21	14.3	48.8	14.0	7.8	6500
L1867.030	21	15.9	58.4	19.5	11.2	4500
L1867.035	21	17.5	58.4	25.7	15.2	4500
L1867.040	21	19.0	75.6	29.6	18.2	3500
L1867.045	21	19.0	45.6	31.8	20.8	3500
L1867.050	21	19.0	75.6	35.1	23.2	3000



Housing material options

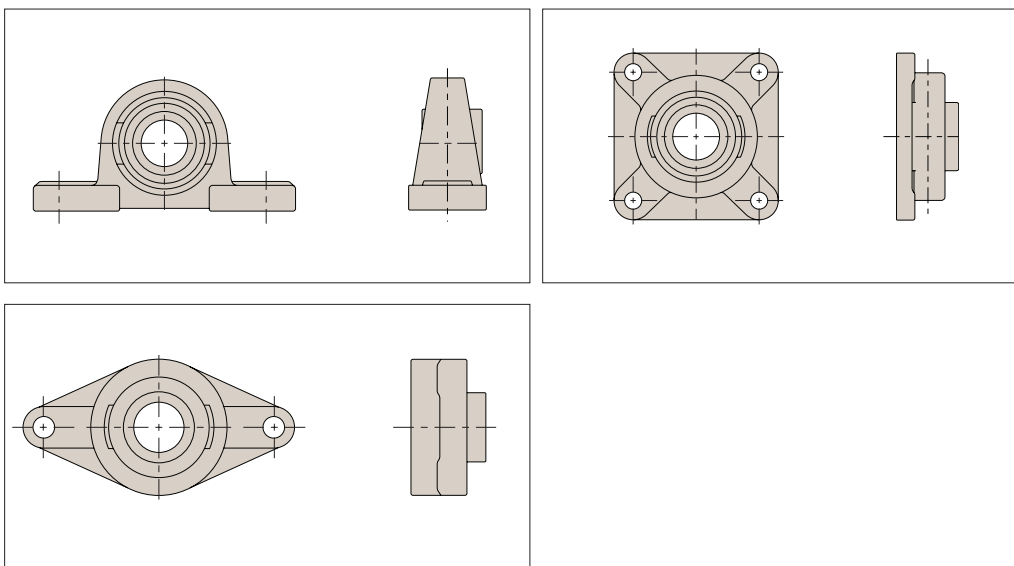


Cast iron housing
Standard version, passivated and painted $\varnothing 12-120\text{mm}$.

Stainless steel housing
Stainless AISI 304, $\varnothing 12-60\text{mm}$.

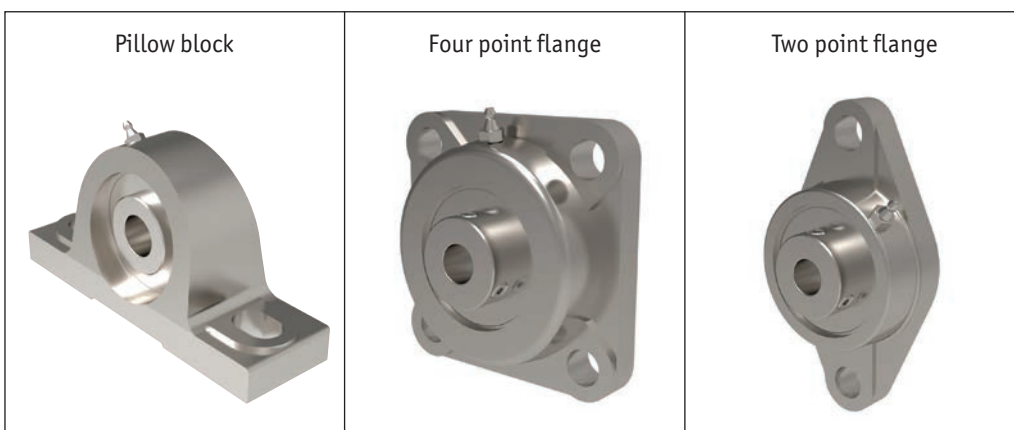
Thermoplastic housing
Food grade applications, smooth PBT resin material, $\varnothing 20-40\text{mm}$.

Pillow Bearings



Use with Automation linear shafts L1770-L1774

Options



Bearing Supports from Automation Components

BEARING MOUNTS



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°.

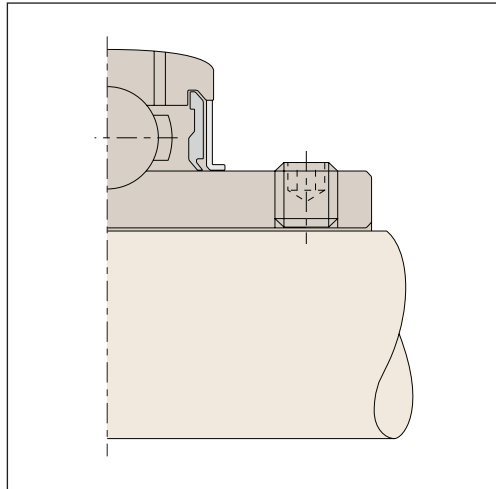
For stainless & thermoplastic housings

- 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

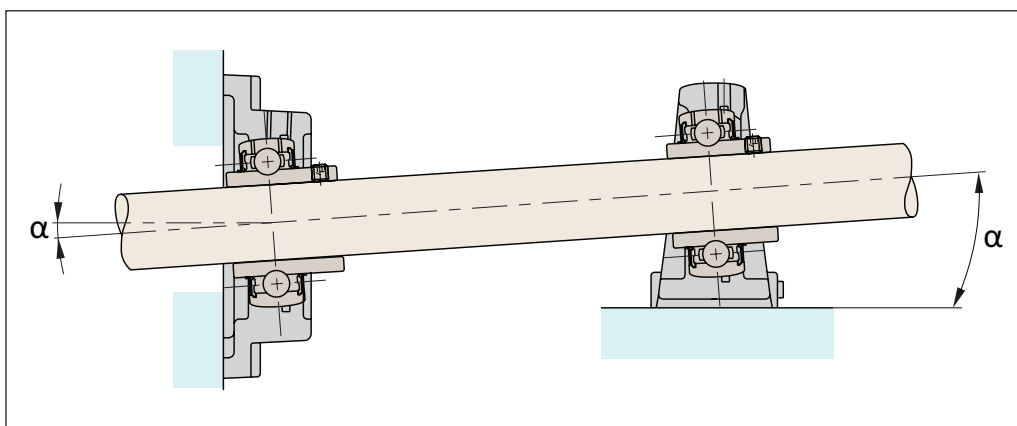


Lubrication

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

$$\alpha = \pm 2^\circ$$

If no re-lubrication

$$\alpha = \pm 5^\circ$$

When using protective end caps

$$\alpha = \pm 5^\circ$$

Bearing Supports from Automation Components

BEARING MOUNTS



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.

Bearing Supports from Automation Components

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:

$$L = X \cdot F_r + Y \cdot F_a \text{ (kN)}$$

- 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:

F_a C_{0r}	e	$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
		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:

$$P_0 = X_0 \cdot F_r + Y_0 \cdot F_a \text{ (kN)}$$

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

P_0 = Static equivalent load (kN)	For all bearing inserts the following applies:
X_0 = Static radial factor	$X_0 = 0.6$
Y_0 = Static axial factor	$Y_0 = 0.5$

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 smoothness
- fs** = 2.0 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:

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

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

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

n = speed (min⁻¹)