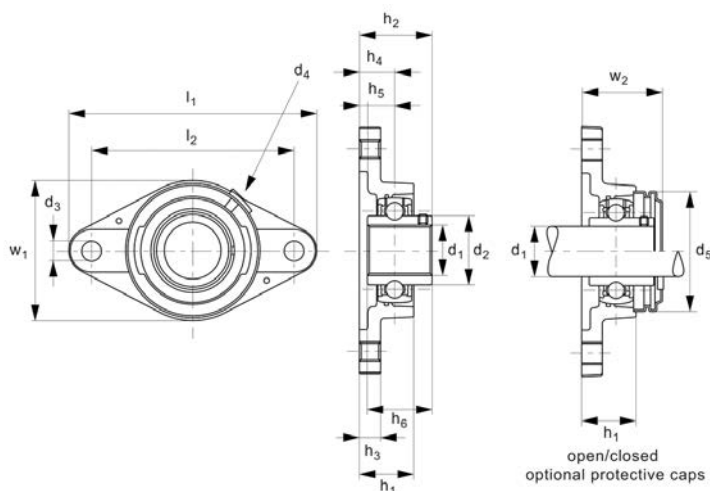




Oval Flanged Bearing Unit

cast iron

Bearing Mounts



L1864

BEARING MOUNTS

Material

Cast iron (FG20 or FG25), passivated and painted blue (RAL 5010). Steel, self-aligning bearing units with double seals, lubricated for life.

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:

- CO for one open protective cap (with seal) for through shafts
- CC for closed protective cap for shaft ends.

Tips

Shaft retention with two set screws (at

120° offset).

Used with h6 tolerance shafts (see our part no.s L1770-L1776).

Important Notes

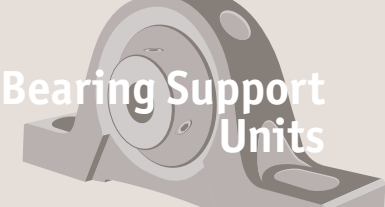
For precise positioning of the flanged units they are provided with a rear centring bore and dowel pin location - please see technical pages from these dimensions.

Order No.	d ₁ for h6	l ₁ ±0.7	h ₁	l ₂	d ₂	d ₃	d ₄	d ₅	h ₂	h ₃	Weight kg
L1864.012	12	112	30.3	90.0	29.0	11.5	R1/8"	54	37.3	10.0	0.5
L1864.015	15	112	30.3	90.0	29.0	11.5	R1/8"	54	37.3	10.0	0.5
L1864.017	17	112	30.3	90.0	29.0	11.5	R1/8"	54	37.3	10.0	0.5
L1864.020	20	112	30.3	90.0	29.0	11.5	R1/8"	54	37.3	10.0	0.5
L1864.025	25	124	29.3	99.0	34.0	11.5	R1/8"	60	38.7	11.0	0.6
L1864.030	30	142	32.1	116.5	40.3	11.5	R1/8"	70	42.2	12.0	0.8
L1864.035	35	155	33.7	130.0	48.0	14.0	R1/8"	80	46.4	12.5	1.1
L1864.040	40	172	37.5	143.5	53.0	14.0	R1/8"	88	54.2	13.0	1.6
L1864.045	45	180	37.5	148.5	57.2	14.0	R1/8"	95	54.2	13.0	1.8
L1864.050	50	190	41.6	157.0	61.8	18.0	R1/8"	100	60.6	13.0	2.1
L1864.055	55	222	45.8	184.0	69.0	18.0	R1/8"	110	64.4	15.0	3.4
L1864.060	60	238	50.4	202.0	74.9	18.0	R1/8"	120	73.7	16.0	3.7
L1864.065	65	258	57.0	216.0	82.0	21.0	R1/8"	132	77.7	18.0	4.0
L1864.070	70	258	57.0	216.0	86.5	21.0	R1/8"	-	82.4	18.0	5.4
L1864.075	75	258	57.0	216.0	91.5	21.0	R1/8"	-	82.5	18.0	5.2

Order No.	h ₄	h ₅ ±0.5	h ₆	w ₁	w ₂	Dyn. radial load C kN max.	Static radial load C ₀ kN max.	Speed rpm max.
L1864.012	19	12.7	31.0	61	41.8	12.80	6.65	6500
L1864.015	19	12.7	31.0	61	41.8	12.80	6.65	6500
L1864.017	19	12.7	31.0	61	41.8	12.80	6.65	6500
L1864.020	19	12.7	31.0	61	41.8	12.80	6.65	6500
L1864.025	19	14.3	34.0	70	43.9	14.00	7.88	6500
L1864.030	20	15.9	38.1	80	46.9	19.50	11.20	4500
L1864.035	21	17.5	42.9	92	50.2	25.70	15.20	4500
L1864.040	24	19.0	49.2	105	57.9	29.60	18.20	3500



Order No.	h_4	h_5 ± 0.5	h_6	w_1	w_2	Dyn. radial load C kN max.	Static radial load C_0 kN max.	Speed rpm max.
L1864.045	24	19.0	49.2	111	58.4	31.85	20.80	3500
L1864.050	28	19.0	51.6	116	65.8	35.10	23.20	3000
L1864.055	31	22.2	55.6	134	69.1	43.55	29.20	3000
L1864.060	34	25.4	65.1	138	82.4	52.50	32.80	2500
L1864.065	38	25.4	65.1	160	82.9	57.20	40.00	2500
L1864.070	38	30.2	74.6	160	-	62.00	45.00	2500
L1864.075	38	33.3	77.8	160	-	66.00	49.50	2500



Housing material options



Cast iron housing

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

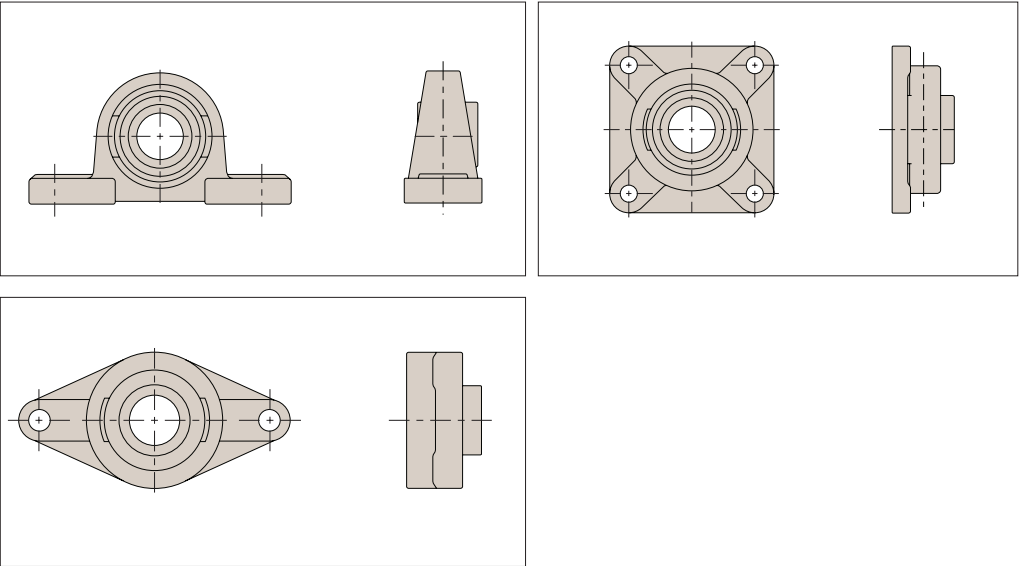
Stainless steel housing

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

Thermoplastic housing

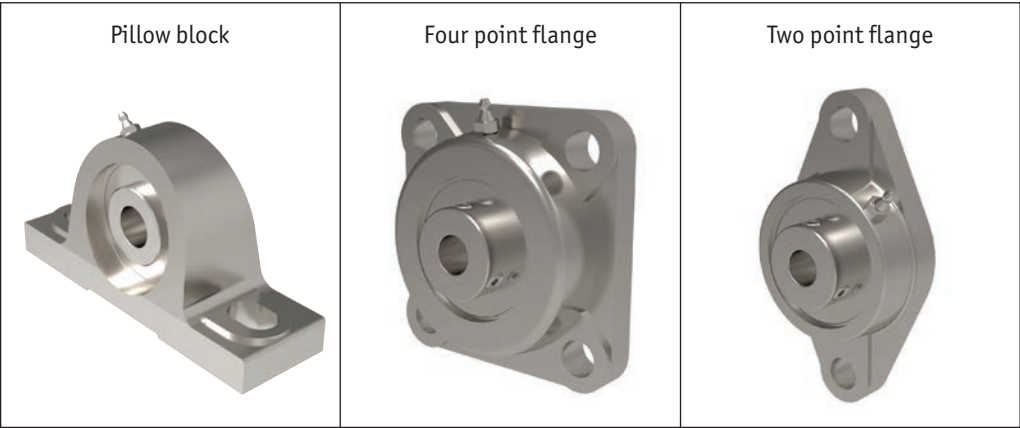
Food grade applications, smooth PBT resin material, $\varnothing 20-40\text{mm}$.

Pillow Bearings



Use with Automation linear shafts L1770-L1774

Options





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°.

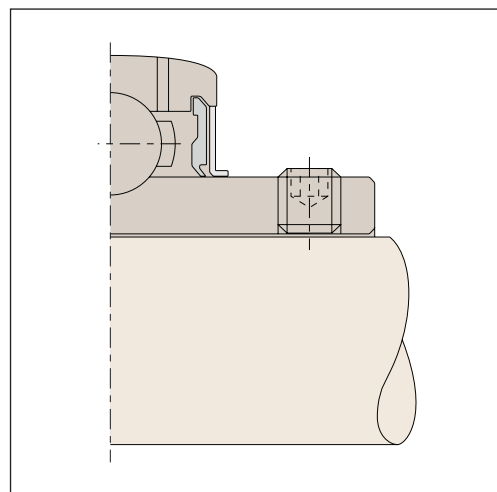
For stainless & thermoplastic housings

- 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

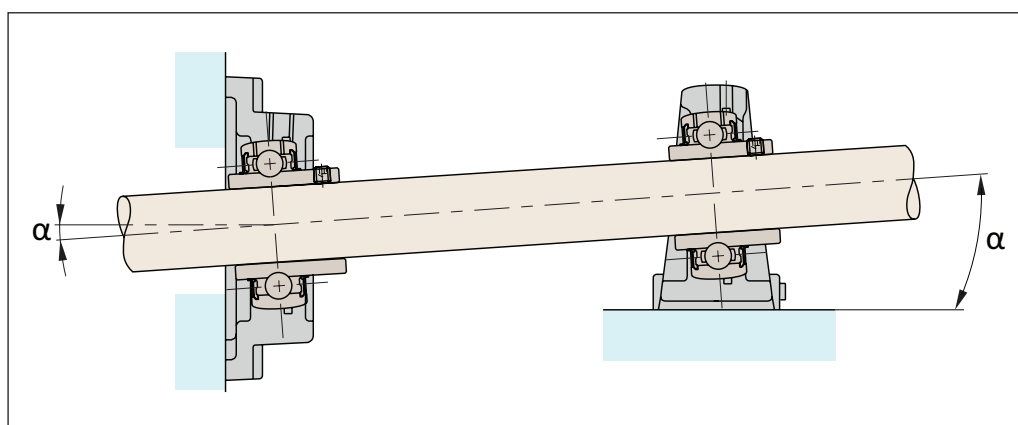


Lubrication

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

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



Cast Iron Bearing Units

Equivalent load ratings

Bearing Support Units



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:

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

- 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)

Bearing Supports from Automotion Components



Static equivalent loads

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

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

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

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

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:

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

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

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

n = speed (min^{-1})