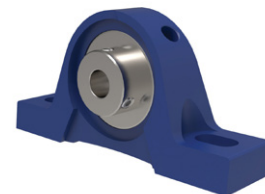
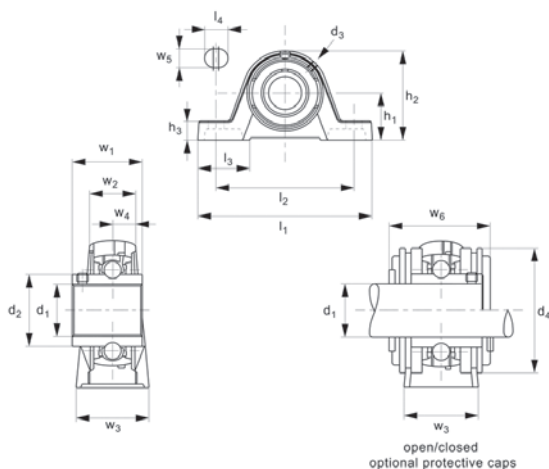




# Pillow Block Bearing Units

cast iron

## Bearing Mounts



## L1860

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:

-C0 for two open protective caps (with seals) for through shafts.

-CC for one open and one closed protective

caps for shaft ends.

### Tips

Shaft retention with two set screws (at 120° offset).

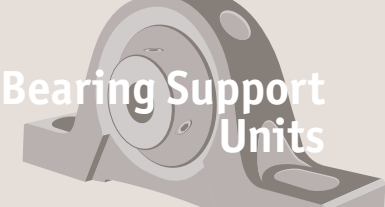
Used with h6 tolerance shafts (see our part no.s L1770-L1776).

Order No.	d <sub>1</sub> for h6	l <sub>1</sub>	h <sub>1</sub> ±0.2	l <sub>2</sub> ±1.0	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	h <sub>2</sub>	h <sub>3</sub>	Weight kg
L1860.012	12	130	33.3	97	29.0	R1/8"	54	64.0	14.5	0.5
L1860.015	15	130	33.3	97	29.0	R1/8"	54	64.0	14.5	0.5
L1860.017	17	130	33.3	97	29.0	R1/8"	54	64.0	14.5	0.5
L1860.020	20	130	33.3	97	29.0	R1/8"	54	64.0	14.5	0.5
L1860.025	25	130	36.5	103	34.0	R1/8"	60	70.0	14.5	0.7
L1860.030	30	158	42.9	118	40.3	R1/8"	70	82.0	17.0	1.1
L1860.035	35	163	47.6	126	48.0	R1/8"	80	93.0	19.0	1.5
L1860.040	40	179	49.2	138	53.0	R1/8"	88	99.0	19.0	1.8
L1860.045	45	192	54.0	150	57.2	R1/8"	95	107.0	21.5	2.2
L1860.050	50	200	57.2	158	61.8	R1/8"	100	115.0	21.5	2.7
L1860.055	55	222	63.5	176	69.0	R1/8"	110	124.5	22.5	3.4
L1860.060	60	240	69.9	190	74.9	R1/8"	120	140.0	25.0	4.8
L1860.065	65	260	79.4	203	82.0	R1/8"	132	140.0	27.5	6.1
L1860.070	70	260	79.4	203	86.5	R1/8"	-	156.0	27.5	6.1
L1860.075	75	265	82.5	210	91.5	R1/8"	-	156.0	27.5	6.9
L1860.080	80	290	89.0	232	98.0	R1/8"	-	175.0	30.0	9.0

Order No.	l <sub>3</sub>	l <sub>4</sub>	w <sub>1</sub>	w <sub>2</sub>	w <sub>3</sub>	w <sub>4</sub>	w <sub>5</sub>	w <sub>6</sub>	Dyn. radial load C kN max.	Static radial load C <sub>0</sub> kN max.	Speed rpm max.
L1860.012	40.0	19	31.0	19	32	12.7	11	44.6	12.80	6.65	6500
L1860.015	40.0	19	31.0	19	32	12.7	11	44.6	12.80	6.65	6500
L1860.017	40.0	19	31.0	19	32	12.7	11	44.6	12.80	6.65	6500
L1860.020	40.0	19	31.0	19	32	12.7	11	44.6	12.80	6.65	6500
L1860.025	39.0	19	34.0	21	36	14.3	11	47.8	14.00	7.88	6500
L1860.030	47.0	22	38.1	25	40	15.9	14	52.8	19.50	11.20	4500
L1860.035	49.0	21	42.9	27	45	17.5	14	57.4	25.70	15.20	4500
L1860.040	53.0	26	49.2	30	48	19.0	14	66.8	26.90	18.20	3500
L1860.045	54.5	29	49.2	32	48	19.0	14	67.8	31.85	20.80	3500



Order No.	$l_3$	$l_4$	$w_1$	$w_2$	$w_3$	$w_4$	$w_5$	$w_6$	Dyn. radial load C kN max.	Static radial load $C_0$ kN max.	Speed rpm max.
<b>L1860.050</b>	61.0	23	51.6	34	54	19.0	18	74.6	35.10	23.20	3000
<b>L1860.055</b>	68.0	30	55.6	35	60	22.2	18	75.2	43.55	29.20	3000
<b>L1860.060</b>	71.0	28	65.1	42	60	25.4	18	87.8	52.50	32.80	2500
<b>L1860.065</b>	77.0	28	65.1	44	65	25.4	22	88.8	57.20	40.00	2500
<b>L1860.070</b>	77.0	28	74.6	44	65	30.2	22	-	62.00	45.00	2500
<b>L1860.075</b>	78.0	30	77.8	48	66	33.3	22	-	66.00	49.50	2500
<b>L1860.080</b>	90.0	34	82.6	55	78	33.3	26	-	72.50	54.20	2500



### Housing material options



#### Cast iron housing

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

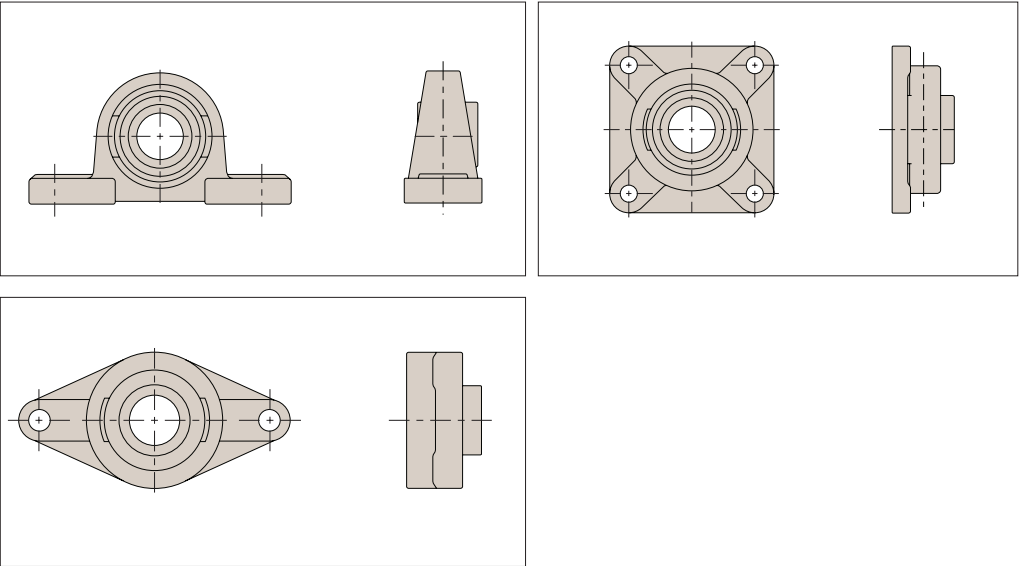
#### Stainless steel housing

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

#### Thermoplastic housing

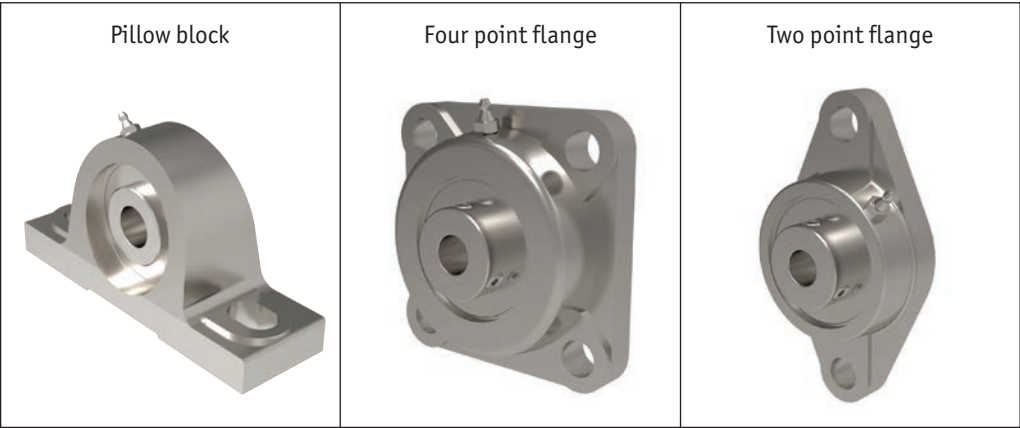
Food grade applications, smooth PBT resin material,  $\varnothing 20-40\text{mm}$ .

### 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  $-20^{\circ}$  to  $+100^{\circ}$ .

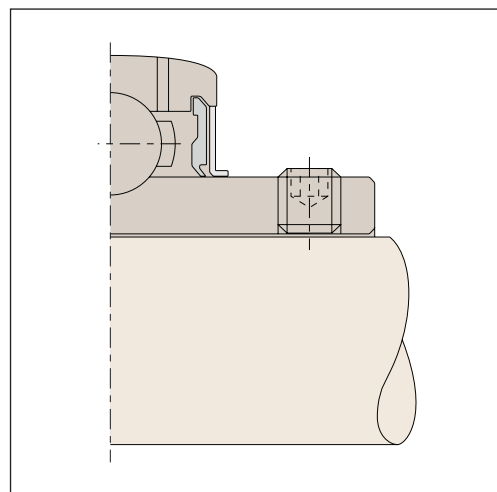
### For stainless & thermoplastic housings

- 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  $120^{\circ}$  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

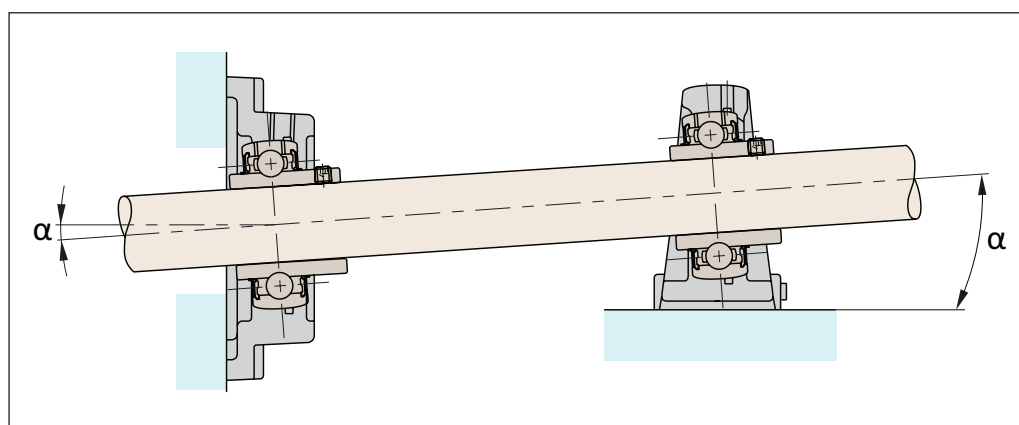


### Lubrication

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  $100\text{mm}^2/\text{s}$  at  $40^{\circ}\text{C}$ .

### 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:

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

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

$P_0$  = 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:

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

$n$  = speed ( $\text{min}^{-1}$ )