Take-up Units & Frame
with stretcher frame

L1865

optional end cap
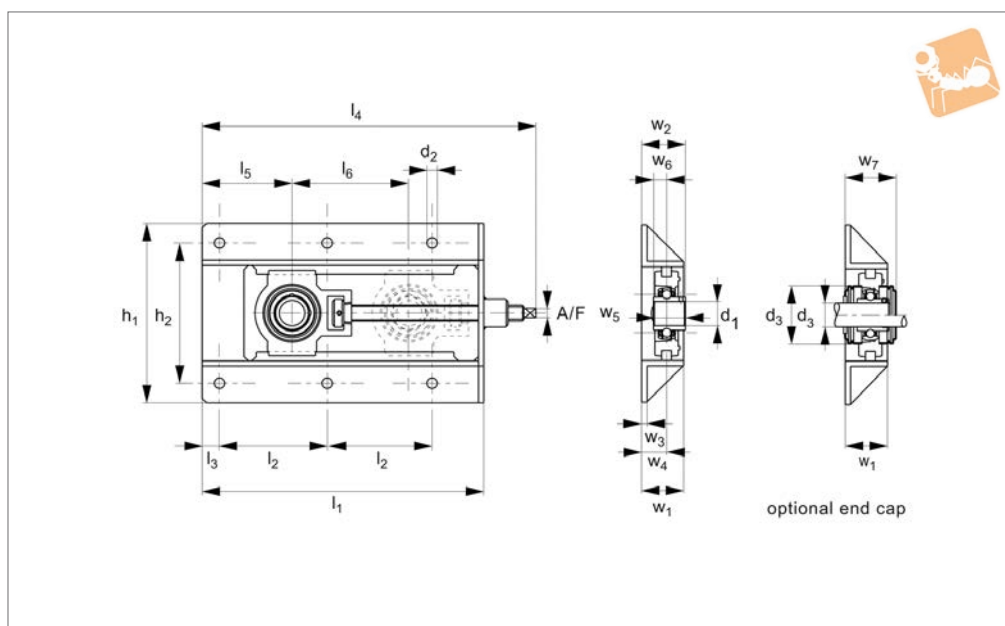
Material
Cast iron (FG20 or FG25), passivated and painted blue (RAL 5010). Steel stretcher frame.

Technical Notes
Shaft retention with set screw.

Used with h6 tolerance shafts (see our part no.s L1770-L1776.
For optional shaft end caps add suffixes:
-CO for two open protective caps (with seala) for through shafts.
-CC for one open and one closed protective

caps for shaft ends.
Stretcher frame allows easy access and adjustment.

Order No.	d_1 for h6	l_1	h_1	l_2	d_2	d_3	h_2	l_3	l_4	l_5	Weight kg
L1865.012	12	317	199	117	12	54	154	19	367	83	5.2
L1865.015	15	317	199	117	12	54	154	19	367	83	5.2
L1865.017	17	317	199	117	12	54	154	19	367	83	5.2
L1865.020	20	317	199	117	12	54	154	19	367	83	5.2
L1865.025	25	317	199	117	12	60	154	19	368	83	5.2
L1865.030	30	337	212	127	12	70	166	19	396	95	6.2
L1865.035	35	429	212	173	12	80	166	19	490	99	8.4
L1865.040	40	520	233	219	15	88	192	22	591	108	11.7
L1865.045	45	520	233	219	15	95	192	22	590	108	11.8
L1865.050	50	520	233	219	15	100	192	22	593	108	12.0
L1865.055	55	542	301	230	15	110	240	22	631	114	18.4
L1865.060	60	568	301	243	15	120	240	22	651	127	20.2
L1865.065	65	606	322	260	15	132	260	22	699	144	25.3

Order No.	l_6	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.	A/F
L1865.012	150	50	47.3	6	29	31.0	12.7	43.7	12.8	6.6	6500	11
L1865.015	150	50	47.3	6	29	31.0	12.7	43.7	12.8	6.6	6500	11
L1865.017	150	50	47.3	6	29	31.0	12.7	43.7	12.8	6.6	6500	11
L1865.020	150	50	47.3	6	29	31.0	12.7	43.7	12.8	6.6	6500	11
L1865.025	150	50	48.7	6	29	34.0	14.3	47.5	14.0	7.8	6500	11
L1865.030	150	50	52.2	6	30	38.1	15.9	52.5	19.5	11.2	4500	11
L1865.035	230	50	55.4	6	30	42.9	17.5	59.1	25.7	15.2	4500	11
L1865.040	300	50	60.2	6	30	49.2	19.0	68.6	29.6	18.2	3500	15
L1865.045	300	50	60.2	6	30	49.2	19.0	68.6	31.8	20.8	3500	15
L1865.050	300	50	631	6	30	51.6	19.0	74.1	35.1	23.2	3000	15
L1865.055	300	65	71.4	6	38	55.6	22.2	75.3	43.5	29.2	3000	19
L1865.060	300	65	77.7	6	38	65.1	25.4	88.6	52.5	32.8	2500	19
L1865.065	300	65	77.7	6	38	65.1	25.4	88.6	57.2	40.0	2500	24

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Bearing Support Units

Bearing Supports from Automotion Components

Housing material options

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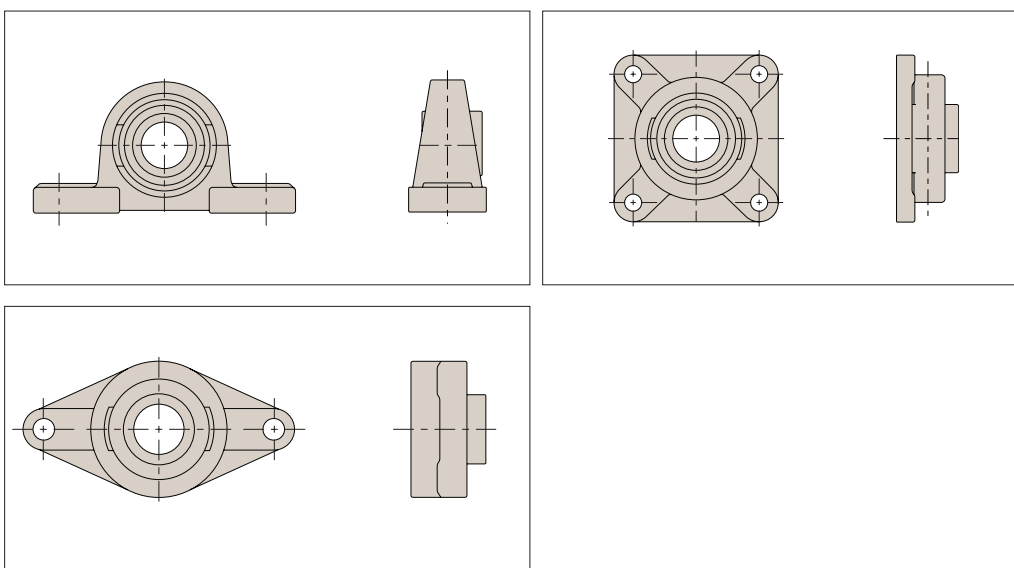Standard version, passivated and painted Ø12-120mm.

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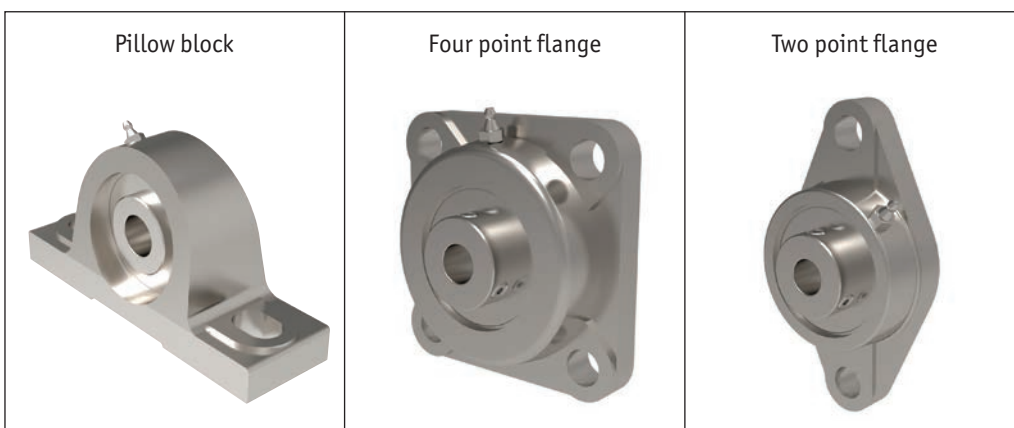Stainless AISI 304, Ø12-60mm.

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 |

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Bearing Supports from Automotion Components

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
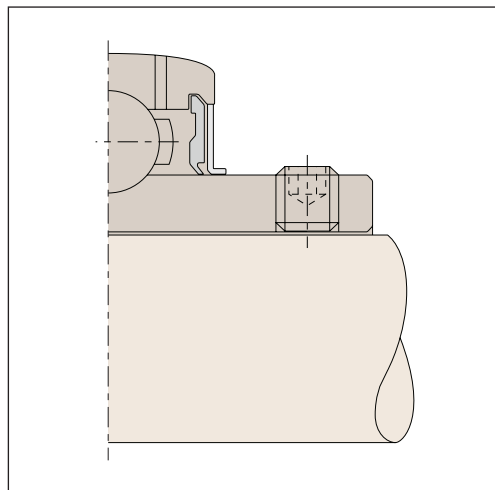
Lubrication

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 $100mm^2/s$ at 40°C.

Installation

Shaft misalignment is compensated to a certain degree by the shaft-aligning bearings.
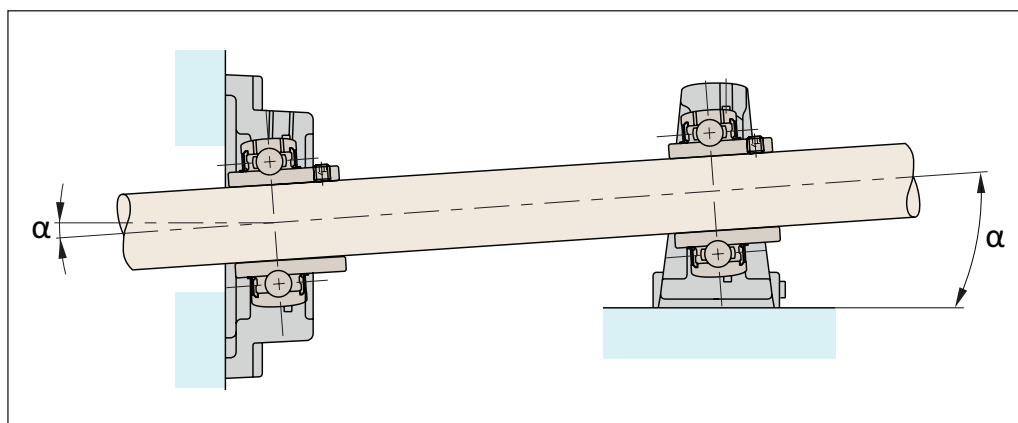
If re-lubrication required

α = ± 2°

If no re-lubrication

α = ± 5°

When using protective end caps

α = ± 5°

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:

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

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:

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

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

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

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:

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

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

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

n = speed (min^{-1})

BEARING MOUNTS

ov-bearing-support-units-technical-load-life-rnh-Updated-01-03-2023

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