

BHAVI IMPEX

One Stop For Bearings & Linear Solutions



rolios®

BHAVI IMPEX

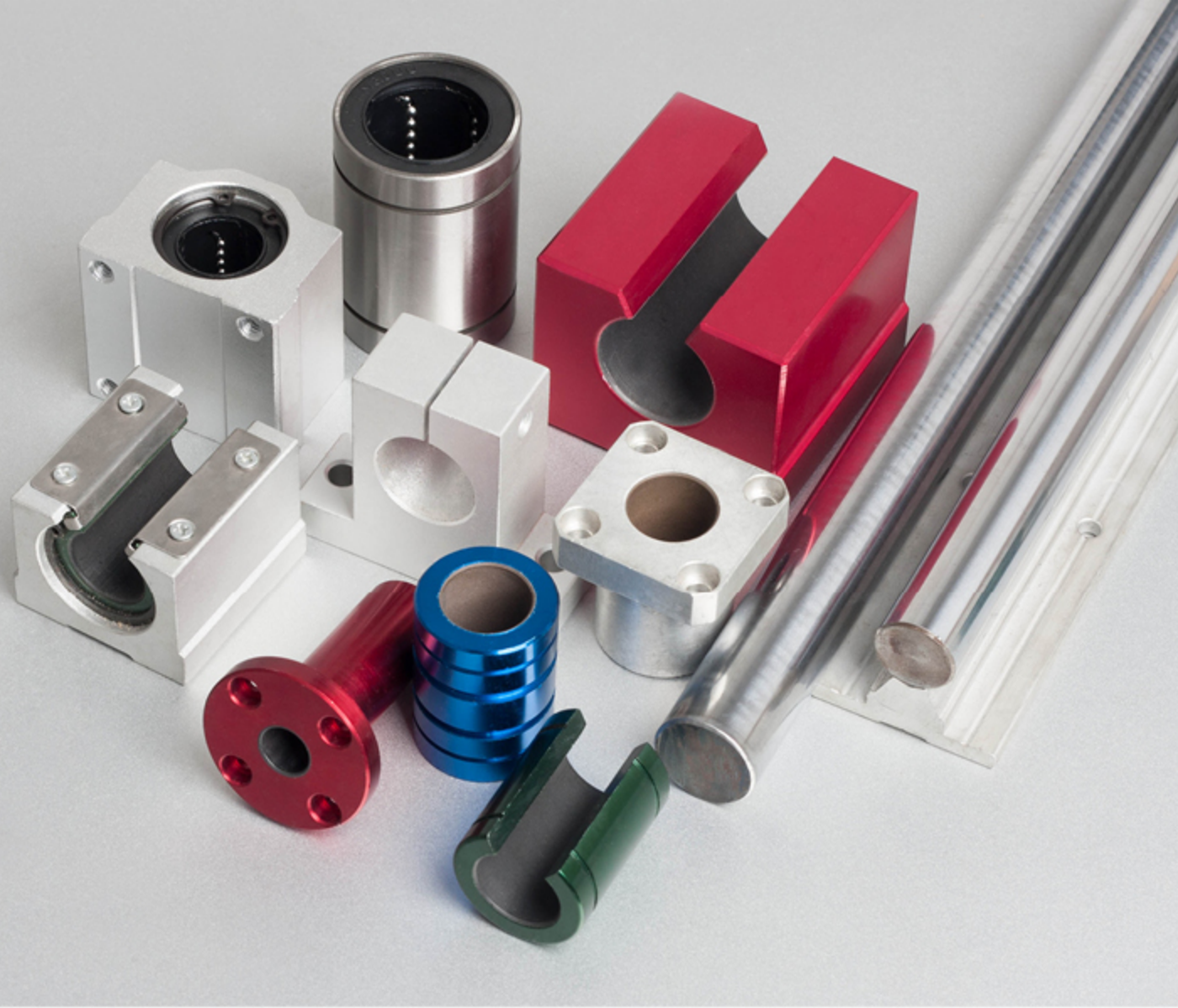
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rolios®

Comparison Between Self-Lubricating Linear Bearings And Linear Motion Bearings



ABOUT US

BHAVI IMPEX hereby introduces ROLIOS® which combines the Polytetrafluoroethylene (PTFE) with other proprietary fillers to create the linear plain bearing and then placed that bearing inside of a housing to create a Self-Aligning, Plain Bearing Pillow Block and also created linear plain bearing with flange made to thrive and survive in the presence of contaminants. ROLIOS® self lubricating plain bearings can move in rotary, linear, oscillating, or any combination of motions at speeds exceeding 4 m/s (165 in/s). Designed to handle loads 10 times greater than linear ball bearings, they will not fail catastrophically.

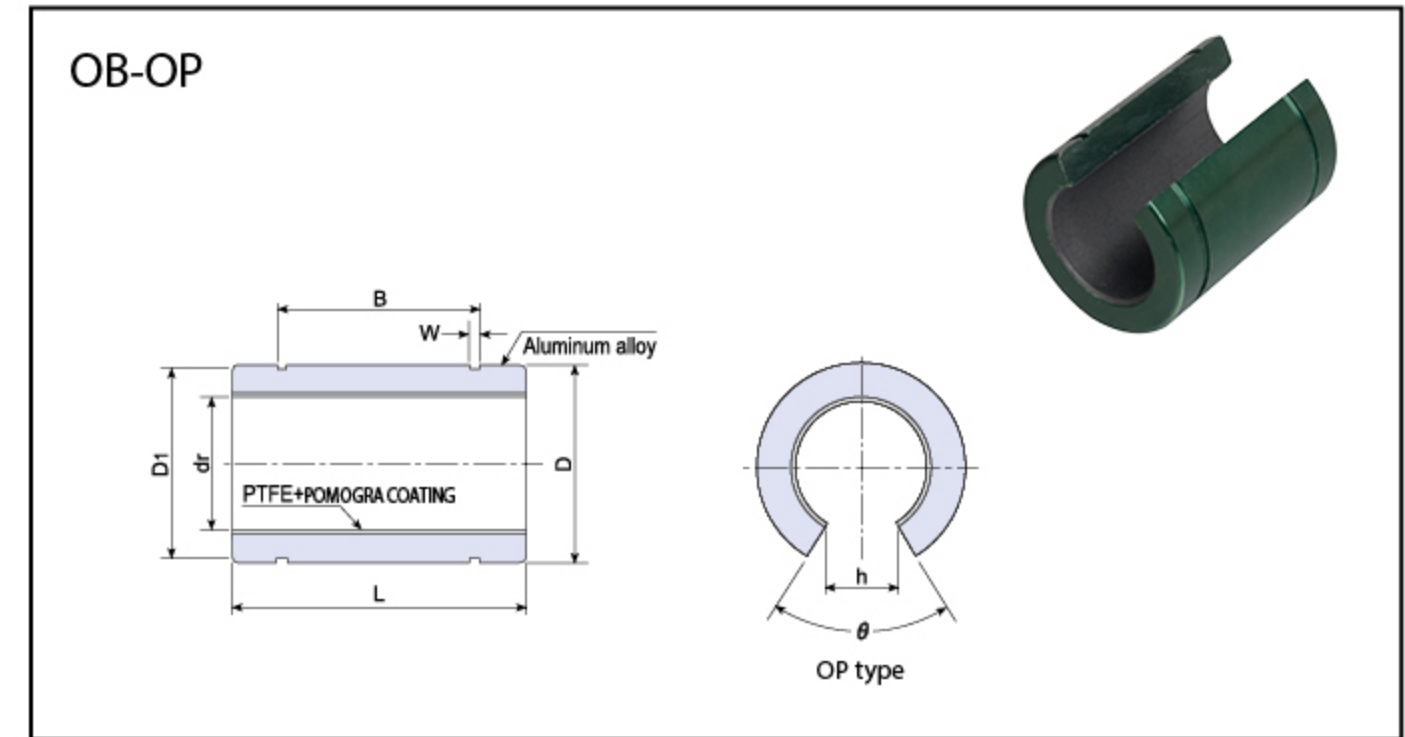
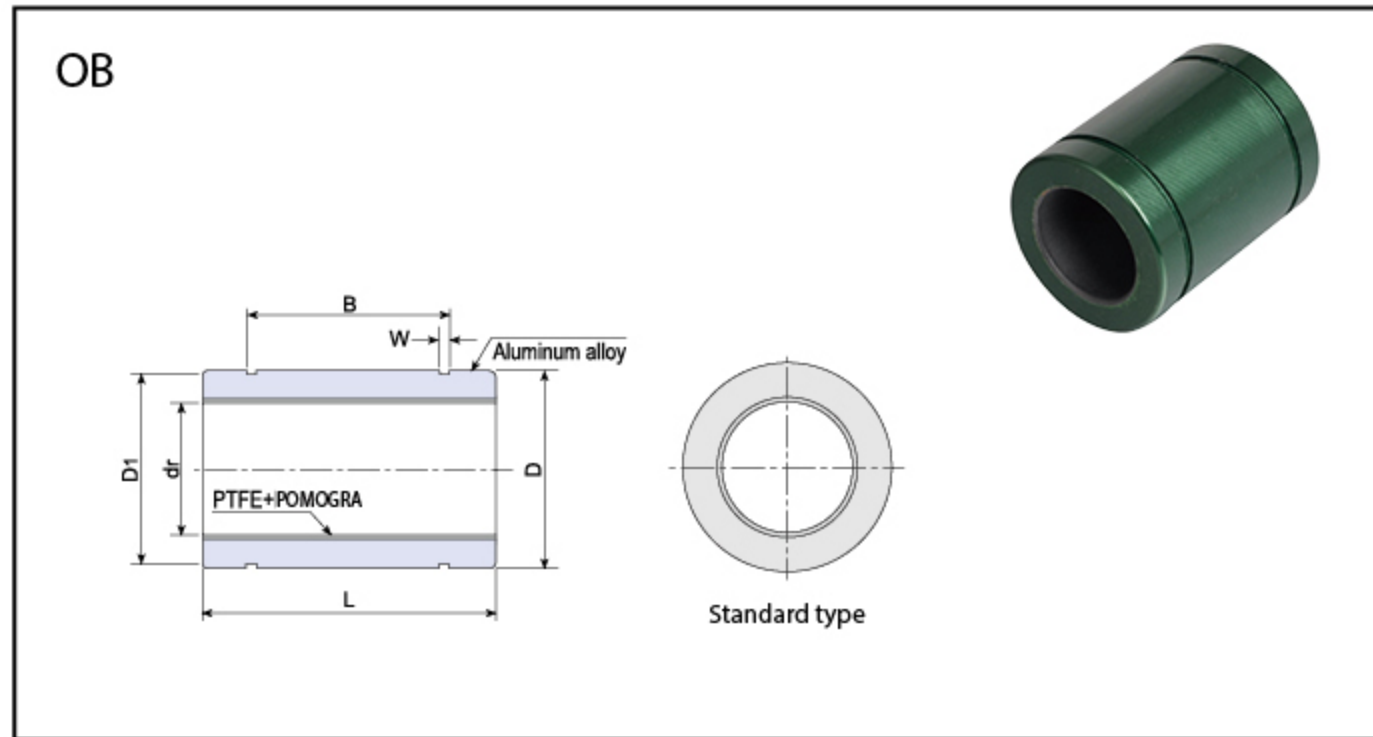
The self-lubricating liners offer a number of other desirable features:

- The ability to absorb hard particulates eliminates galling and shaft damage
- Vibration is dampened, offering smooth and quiet linear motion
- Handles loads over 700 kN (157,000 lbs)
- Wide temperature range: -100° C / 250° C
- Low maintenance in contaminated environments
- Size interchangeable drop-in replacement for linear ball bearings
- Straight OD or optional crowned self-aligning OD
- Ball-less design will NOT catastrophically fail
- Reliable friction characteristics that do not increase over the life of the bearing
- Custom modifications available – contact an Application Engineer for details

Item	Self-lubricating linear bushings	LM linear bushings Bushings
		
Load	Withstand higher loads	Withstand lower loads
Speed	Without lubrication: 40m/min, lubrication: 120m/min	High speed movement
Temperature (° C)	-100~250	80
Coefficient of friction (μ)	0.03~0.06 (depending on lubrication)	0.002~0.003
Noise	Minimal or no noise during operation	Noise is generated during operation
Lubrication	Ok Without Lubrication Also	Need lubrication
Anti-rust	100% No Rust	Without anti-rust treatment will rust
Anti-dust	Can be embedded in micro-particles, without dusting with oil seal	Need to use oil seal to Anti-dust
Impact	Large contact area with the shaft, impact resistance	Not resistant to impact. impact causes damaged
Shock resistance	Large contact area with the shaft, excellent shock resistance	Without shockproof, easy to damage
Waterproof	Good waterproof, Anti-rust	Without Waterproof, easy to rust
Chemical resistance	Excellent chemical resistance	Without chemical resistant, easy to rust and corrosion
Interchangeability	Can replace LM linear BUSH	Can replace 0B self-lubricating bush
Direction of movement	Rotational, Linear, Oscillatory	Only perform linear motion
Material	Anti-polar treatment of the aluminum alloy shell combined with the inner diameter of PTFE and special proprietary coating 'Pomogra'	Bearing steel
Matching axis	Heat treatment (HRC 62 ± 2) or without heat treatment	Heat treatment required (HRC 62 ± 2)
Recommended lubricant oil (0B self-lubricating bearing after adding lubricating oil, the friction coefficient can be reduced to 50%) Lightweight Lubricant (Oil) Three-in-one lubricant (Oil)		Note: Please avoid using the following lubricants(Oil) ○ WD-40 ○ Teflon (PTFE) spray lubricant ○ Silicone lubricants

OB Self-Lubricating Linear Bush

OP Open Type Self-Lubricating Linear Bushing



• OB Type size is the same as linear bearing LM Type

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OB Type	D1 mm	Tolerance μm		D mm	L mm	B mm	W mm	D1 mm	Max Static Load kgf	Dry m/min	Lub m/min	Weight g
		mm	μm									
OB 10	10	+28	+10	19	29	22	1.3	18	300			15
OB 12	12	+43	+16	21	30	23	1.3	20	370			20
OB 13	13			23	32	23	1.3	22	430			25
OB 16	16	+53	+20	28	37	26.5	1.6	27	620			40
OB 20	20			32	42	30.5	1.6	30.5	880			52
OB 25	25	+64	+25	40	59	41	1.85	38	1,500	40	120	120
OB 30	30			45	64	44.5	1.85	42	2,000			160
OB 35	35	+76	+30	52	70	49.5	2.1	49	2,500			220
OB 40	40			60	80	60.5	2.1	57	3,300	350		
OB 50	50	+76	+30	80	100	74	2.6	76.5	5,200			850
OB 60	60			90	110	85	3.15	86.5	6,900	1,100		
OB 80	80	+76	+30	120	140	105.5	4.15	116	11,500			2,400
OB 100	100			150	175	125.5	4.15	145	18,000	4,700		

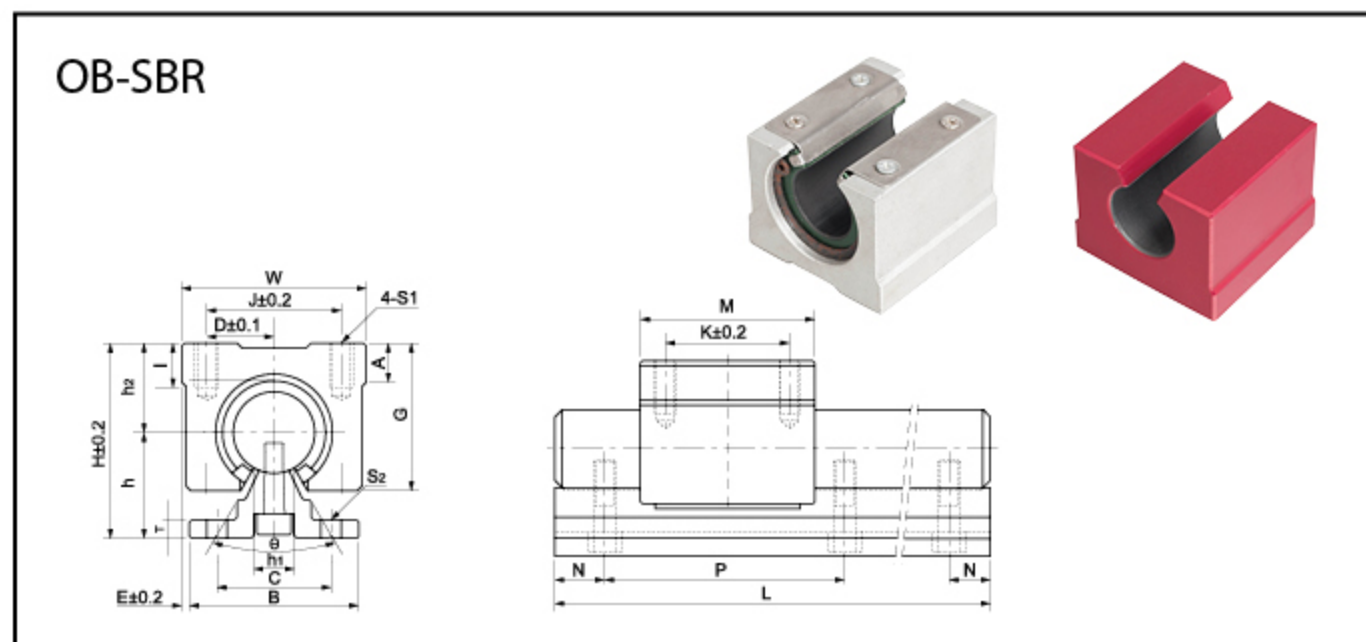
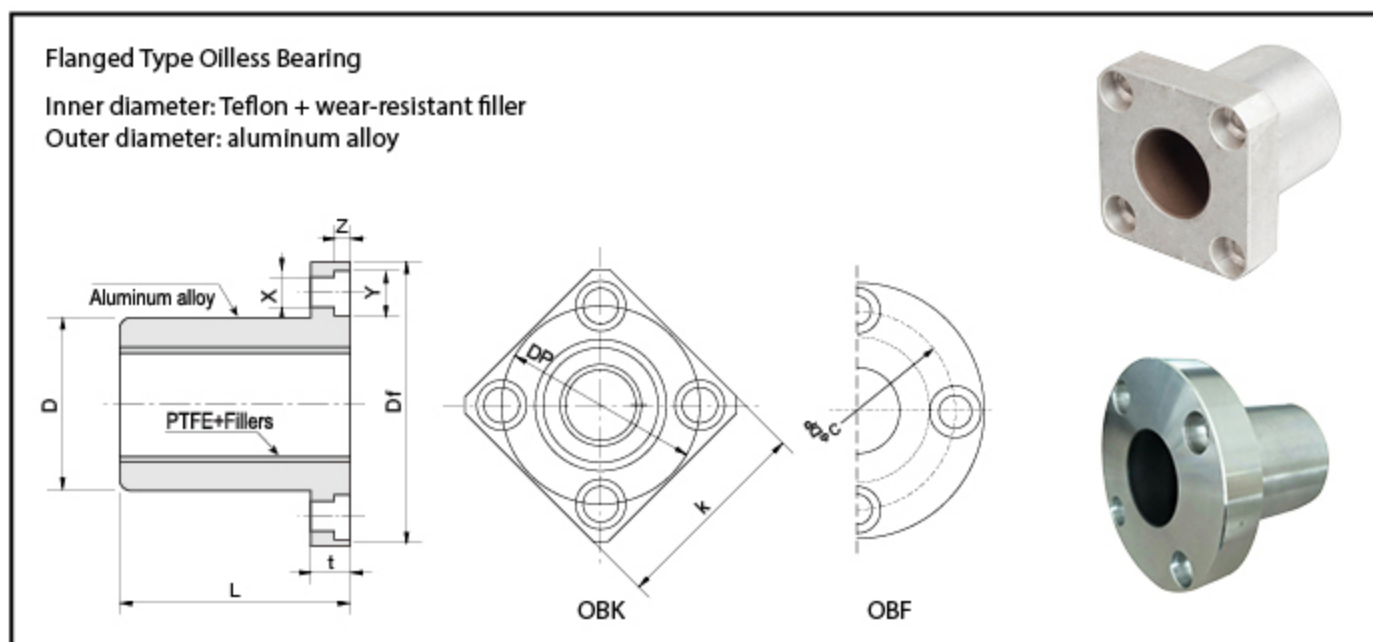
Model No.	Main dimensions and tolerance												Max Static Load kgf	Max.Speed		Weight g
	OP Type	mm	dr mm	D mm	L mm	B mm	W mm	D1 mm	h mm	θ	Dry m/min	Lub m/min				
QB 8OP	8	+35	15	0	24	11.5	1.1	14.5	-	-	200			6		
OB 10OP	10	+43	+16	19	29	22	1.3	18	6.8	80°	300			13		
OB 12OP	12			21	30	23	1.3	20	8	80°	370			15		
OB 13OP	13	+43	+16	23	32	23	1.3	22	9	80°	430			19		
OB 16OP	16			28	37	26.5	1.6	27	11	80°	620			32		
OB 20OP	20	+53	+20	32	42	30.5	1.6	30.5	11	60°	880			45		
OB 25OP	25			40	59	41	1.85	38	12	50°	1,500			105		
OB 30OP	30	+64	+25	45	64	44.5	1.85	42	15	50°	2,000	40	120	130		
OB 35OP	35			52	70	49.5	2.1	49	17	50°	2,500			190		
OB 40OP	40	+64	+25	60	80	60.5	2.1	57	20	50°	3,300			250		
OB 50OP	50			80	100	74	2.6	76.5	25	50°	5,200	730				
OB 60OP	60	+76	+30	90	110	85	3.15	86.5	30	50°	6,900			900		
OB 80OP	80			120	140	105.5	4.15	116	40	50°	11,500	2,100				
OB 100OP	100	+76	+30	150	175	125.5	4.15	145	50	50°	18,000			4,000		

Operating temperature range: -100~250° C
The Shafts of promotion: CRS or SUSC

Operating temperature range: -100~250° C
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OBK/OBF Flange Type Self-Lubricating Linear Bearing

SBR Opening Support Slide



• OB Type size is the same as linear bearing LM Type

Model No.	Main dimensions and tolerance											Eccentricity μm	Squareness μm	Max Static Load kgf	Max. Speed m/min	OBF	Weight g	OBK	Weight g	
	OBK/OBF	dr	D		L		Flange													
		mm	Tolerance μm	mm	Tolerance μm	mm	Tolerance μm	K	t	Dp	X									Y
OBK/OBF 10	10		19		29		30	9	29	4.5	7.5	4.1	12	12	300	No oil (Dry) 40	OBF 10	37	OBK 10	28
OBK/OBF 12	12		21	0	30		32	9	32	4.5	7.5	4.1					OBF 12	41	OBK 12	32
OBK/OBF 13	13	+43 +16	23	-13	32	0	34	9	33	4.5	7.5	4.1					OBF 13	46	OBK 13	38
OBK/OBF 16	16		28		37	-200	37	9	38	4.5	7.5	4.1					OBF 16	67	OBK 16	55
OBK/OBF 20	20		32	0	42		42	11	43	5.5	9	5.1	15	15	880	No oil (Dry) 40	OBF 20	94	OBK 20	77
OBK/OBF 25	25	+53 +20	40	-16	59		50	11	51	5.5	9	5.1					OBF 25	168	OBK 25	150
OBK/OBF 30	30		45		64	-300	58	14	60	6.6	11	6.1					OBF 30	245	OBK 30	207
OBK/OBF 35	35		52	0	70		64	14	67	6.6	11	6.1	17	17	2,500	oil (Lub) 120	OBF 35	326	OBK 35	281
OBK/OBF 40	40	+64 +25	60	-19	80		75	18	78	9	14	8.1					OBF 40	534	OBK 40	444
OBK/OBF 50	50		80		100		92	18	98	9	14	8.1					OBF 50	1062	OBK 50	950
OBK/OBF 60	60		90	0	110		106	24	112	11	17	11.1	20	20	6,900	oil (Lub) 120	OBF 60	1377	OBK 60	1250
OBK/OBF 80	80	+76 +30	120	-22	140	0	136	24	142	11	17	11.1					OBF 80	2800	OBK 80	2630

Operating temperature range: -100~250° C
The Shafts of promotion: CRS or SUSC

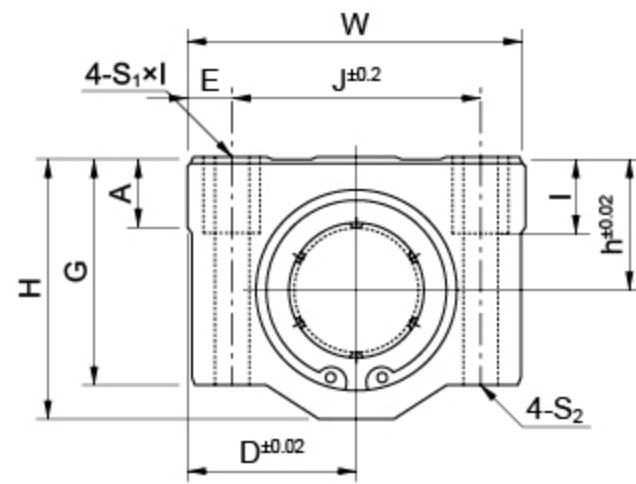
Model No.		Shaft Diameter	Basic load rating		Weight (gf)		Dimensions (mm)				
Rail Units	Slide Units		Dynamic C N	Static Co N	Slide Units (kgf)	Rails (kgf/m)	D	h	H	E	θ
OB-SBR16SA	OB-SBR16UUA	ϕ 16	770	1,170	0.15	0.15	22.5	25	2.5	2.5	80°
OB-SBR20SA	OB-SBR20UUA	ϕ 20	860	1,370	0.20	0.20	24	27	1.5	1.5	60°
OB-SBR25SA	OB-SBR25UUA	ϕ 25	980	1,560	0.45	0.45	30	33	2.5	2.5	50°
OB-SBR30SA	OB-SBR30UUA	ϕ 30	1,560	2,740	0.63	0.63	35	37	5	5	50°
OB-SBR35SA	OB-SBR35UUA	ϕ 35	1,660	3,130	0.92	0.92	40	43	7.5	7.5	50°
OB-SBR40SA	OB-SBR40UUA	ϕ 40	2,150	4,010	1.33	1.33	45	48	7.5	7.5	50°
OB-SBR50SA	OB-SBR50UUA	ϕ 50	3,820	7,930	3.00	3.00	60	62	12.5	12.5	50°

型号	Dimensions (mm)												
	W	G	A	B	T	M	S ₁ × 1	J	K	S ₂	C	N	P
OB-SBR16SA	45	33	9	40	5	45	M5 × 12	32	30	ϕ 5.5	30	20	150
OB-SBR20SA	48	39	11	45	5	50	M6 × 12	35	35	ϕ 5.5	30	20	150
OB-SBR25SA	60	47	14	55	6	65	M6 × 12	40	40	ϕ 6.6	35	25	200
OB-SBR30SA	70	56	15	60	7	70	M8 × 18	50	50	ϕ 6.6	40	25	200
OB-SBR35SA	80	63	18	65	8	80	M8 × 18	55	55	ϕ 9.0	45	30	200
OB-SBR40SA	90	72	20	75	9	90	M10 × 20	65	65	ϕ 9.0	55	30	200
OB-SBR50SA	120	91	25	95	11	110	M10 × 25	94	80	ϕ 11	70	35	200

Designation	Dimensions (mm)											With linear bearing model			
	h ₂	D	W	M	G	h ₁	θ	K	S ₁	I	A	Designation	Basic load rating		Weight (gf)
													Dynamic C N	Static Co N	
OB-SBR16L	20	22.5	45	85	33	10	80°	60	M5	12	9	2*OB16OP	1,548	2,360	300
OB-SBR20L	23	24	48	96	39	10	60°	70	M6	12	11	2*OB20OP	1,764	2,740	400
OB-SBR25L	27	30	60	130	47	11.5	50°	100	M6	12	14	2*OB25OP	1,960	3,140	900
OB-SBR30L	33	35	70	140	56	14	50°	110	M8	18	15	2*OB30OP	3,140	5,480	1,260
OB-SBR40L	42	45	90	175	72	19	50°	140	M10	20	20	2*OB40OP	4,320	8,040	2,660

Closed Support Slide

OB-SC



LIN Series Linear Bearings



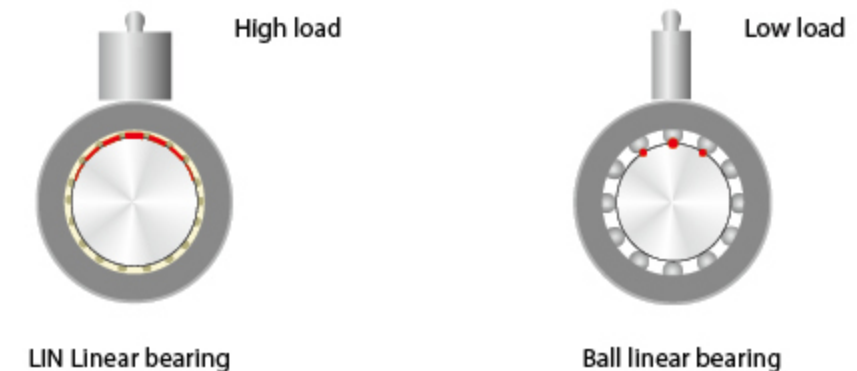
Product Features

- Maintenance free plastic linear bearing. Low noise operation is suitable for continuously application under the critical dusty environment. It is washable by the clean detergent of the food machine. There is no critical requirement about the shaft hardness or the mounting holes of the housing;
- Maintenance-free, Drying working, noiseless;
- Suitable for long-time running in dusty environment;
- Corrosion resistance; Cleaning with disinfectant lotion;
- Inclined groove designation provides better protection to the shaft;
- Narrowed groove improves the load capacity;
- Easy installation and replacement;
- Suitable for lightweight design.

Standard		Basic load rating		Weight (gf)	Length Type		Basic load rating		Weight (gf)
Designation	Liner Bearing	Dynamic C N	Static Co N		Designation	Liner Bearing	Dynamic C N	Static Co N	
OB-SC8UU	OB8UU	260	400	80	OB-SC8LUU	2*OB8UU	410	800	98
OB-SC12UU	OB12UU	410	590	118	OB-SC12LUU	2*OB12UU	650	1,180	232
OB-SC16UU	OB16UU	770	1,170	180	OB-SC16LUU	2*OB16UU	1,230	2,340	360
OB-SC20UU	OB20UU	860	1,370	245	OB-SC20LUU	2*OB20UU	1,370	2,740	490
OB-SC25UU	OB25UU	980	1,560	550	OB-SC25LUU	2*OB25UU	1,560	3,120	1,100
OB-SC30UU	OB30UU	1,560	2,740	760	OB-SC30LUU	2*OB30UU	2,490	5,480	1,525
OB-SC40UU	OB40UU	2,150	4,010	1,700	OB-SC40LUU	2*OB40UU	3,440	8,020	3,400
OB-SC50UU	OB50UU	3,820	7,930	2,950	OB-SC50LUU	2*OB50UU	6,110	15,860	5,920

LIN series bearing with high loading capability

As a linear sliding bearings, the contacting of the bearing and the shaft is a surface instead of point contact of the traditional ball bearings. So it results in that the surface contacting LIN series linear sliding bearings are with better loading capability than the sliding ball bearings.



Basic load rating		Weight (gf)	Shaft Diameter	Dimensions (mm)													SC...UU		SC...LUU		SC...SUU	
Dynamic C N	Static Co N			Nominal Dimensions (mm)									S ₁ × l	S ₂	K	L	K _r	L _r	L _s			
				h	D	W	H	G	A	J	E											
260	400	40	φ 8	11	17	34	22	18	6	24	5	M4 × 8	φ 3.4	18	30	42	58	14.4				
410	590	82	φ 12	15	22	44	30	24	8	33	5.5	M5 × 10	φ 4.3	26	39	64	77	20.3				
770	1,170	122	φ 16	19	25	50	38.5	32.5	9	36	7	M5 × 12	φ 4.3	34	44	79	89	22.3				
860	1,370	176	φ 20	21	27	54	41	35	11	40	7	M6 × 12	φ 5.2	40	53	90	106	28.3				
980	1,560	400	φ 25	26	38	76	51.5	41	12	54	11	M8 × 18	φ 7.0	50	67	119	136	40.4				
1,560	2,740	570	φ 30	30	39	78	59.5	49	15	58	10	M8 × 18	φ 7.0	58	76	132	154	48.4				
2,150	4,010	1,320	φ 40	40	51	102	78	62	20	80	11	M10 × 25	φ 8.7	60	90	150	180	56.5				
3,820	7,930	1,900	φ 50	52	61	122	102	80	25	100	11	M10 × 25	φ 8.7	80	110	200	230	72.3				

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Lin Series Linear Bearings

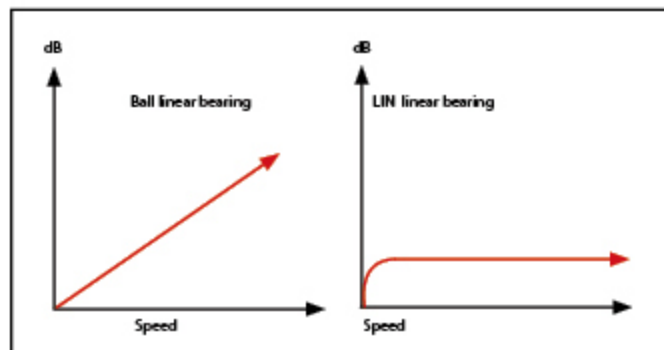
LIN series linear sliding bearing used in critical of containments and dusts



LIN series sliding membrane is an excellent material specially designed for dry operation. The patented designation of this material allows the bearing to be used in the critical conditions such as in containments and dusts. The spiral groove designation slows the containments or dusts entering the grooves and be brought out of the bearing system finally while the traditional sliding ball bearings will be blocked by the entered containments and therefore cause the breakout of the bearing system causing shaft or bearing damages.

LIN series linear sliding bearings operation with low noise

Metal ball sliding bearings generates high noise by the crashing of balls to the shafts during the operation and the noise will be sharply increased when the operation speed goes higher while the LIN series linear sliding bearings are with the surface contacting structure which ensures a lower operation noise level.



■ Comparison of noise development

LIN series linear sliding bearing allows the access of cleaning solution

The LIN series linear sliding bearings are used in the food packing machine guiding system so it is easily access to the cleaning solutions. Years of application experience proves that the LIN series bearings are corrosion resistant to most kinds of Alkaline cleaning solutions or could be even immersed into the solutions.

Lin Series Linear Bearings

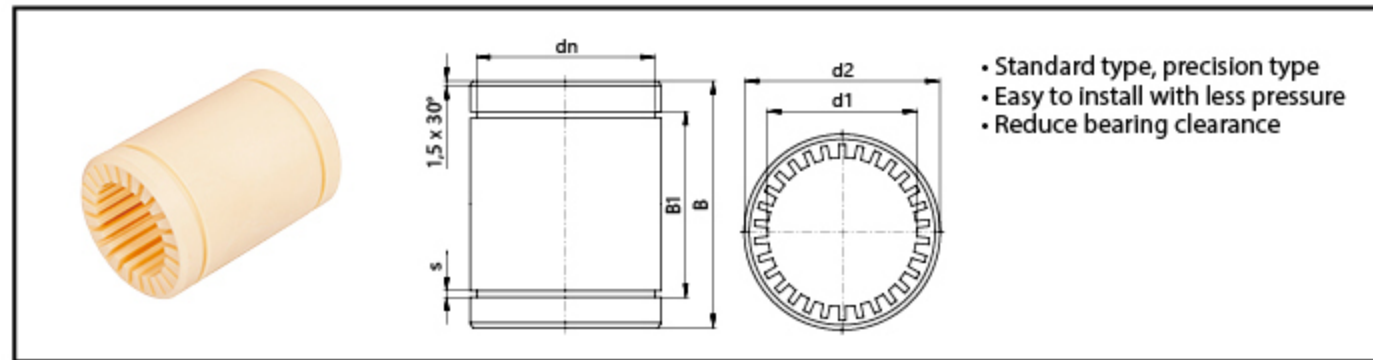
Sliding Membrane Material Data Sheets

Common Capability	Testing Method	Unit	EPB13	EPB5
Density	ISO1183	g/cm ³	1.48	1.44
Color			Yellow	Black
Dynamic friction/steel(dry)			0.05-0.15	0.09-0.25
Max.PV (dry)		N/mm ² × m/s	0.4	1.5
Max. rotating velocity		m/s	1.5	1.5
Max. oscillating velocity		m/s	1.1	1.1
Max. linear velocity		m/s	8.0	5.0
Tensile strength	ISO527	MPa	75	170
Compressive strength(Axial)		MPa	60	100
E-module	ISO527	MPa	2400	7900
Max. static pressure of the surface, 20℃		MPa	35	150
Rockwell hardness	ISO2039-2	HRR	74	85
continuous work temperature		℃	-50/+90	100/+250
Short-time		℃	-50/+120	100/+315
Thermal conductivity	ASTME1461	W/m k	0.25	0.6
Linear coef. of thermal expansion	ASTMD696	K ⁻¹ × 10 ⁻⁵	9	5
Moisture absorption RH50/23℃	ASTMD570	%	0.2	0.1
Max. water absorption, 23℃		%	1.2	0.5
Flammability	UL94		HB	V0
Volume resistivity	IEC60093	Ω cm	> 10 ¹³	> 10 ⁸
Surface resistivity	IEC60093	Ω	> 10 ¹²	> 10 ⁷

LIN Load Capacity

Inside nominal diameter	Dynamic Load P=5MPa		Max. Static Load P=35MPa	
	LIN-11,13 series of sliding membranes	LIN-12 series of sliding membranes	LIN-11,13 series of sliding membranes	LIN-12 series of sliding membranes
10	870N	780N	6090N	5460N
12	1152N	1008N	8064N	7056N
16	1728N	1440N	12096N	10080N
20	2700N	1800N	18900N	12600N
25	4350N	3000N	30650N	21000N
30	6120N	4500N	42840N	31500N
40	9600N	7200N	67200N	50400N
50	15000N	10500N	105000N	73500N

Lin-01 Full Plastic Bearing



Housing:H7 Shaft:h6-h9

Order P/N	d1 mm ²	olerance mm ²	d2 mm ²	B mm ²	B1 mm ²	s mm ²	dn mm ²
LIN-01-06	6	0/+0.03	12	19	13.5	1.1	11.5
LIN-01-08	8	0/+0.04	16	25	16.2	1.1	15.2
LIN-01-10	10	0/+0.04	19	29	21.6	1.3	17.5
LIN-01-12	12	0/+0.04	22	32	22.6	1.3	20.5
LIN-01-16	16	0/+0.04	26	36	24.6	1.3	24.2
LIN-01-20	20	0/+0.04	32	45	31.2	1.6	29.6
LIN-01-25	25	0/+0.05	40	58	43.7	1.85	36.5
LIN-01-30	30	0/+0.05	47	68	51.7	1.85	43.5

Order P/N	Shaft mm ²	Housing mm ²	Tolerance mm ²	F max.[N] Dynamic Load P=2.5MPa	F max.[N] Static Load P=17.5MPa	Weight g
LIN-01-06	6	12	0/+0.018	200	1400	2
LIN-01-08	8	16	0/+0.018	250	1750	4
LIN-01-10	10	19	0/+0.021	363	2538	7
LIN-01-12	12	22	0/+0.021	480	3360	9
LIN-01-16	16	26	0/+0.021	720	5040	13
LIN-01-20	20	32	0/+0.025	1125	7875	24
LIN-01-25	25	40	0/+0.025	1813	12688	47
LIN-01-30	30	47	0/+0.025	2550	17850	72

Can cooperate with:

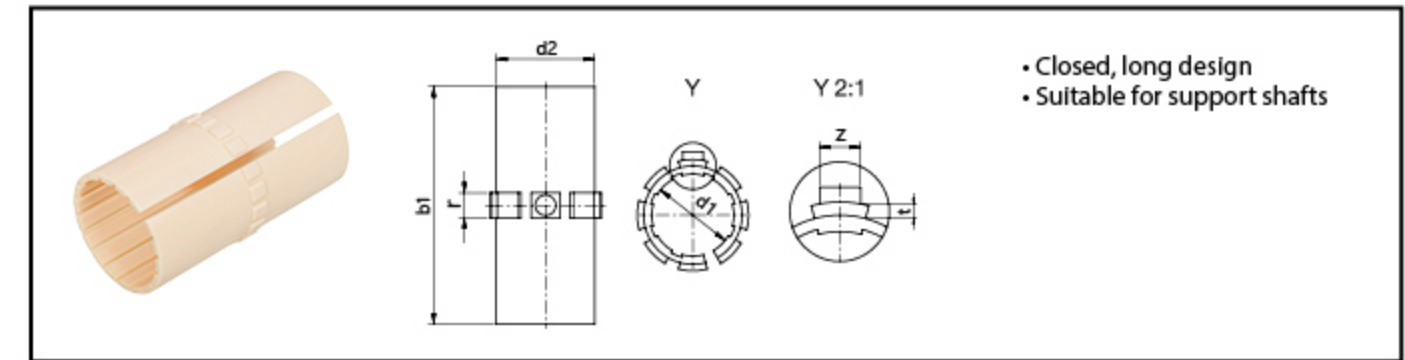


Production Code

LIN-01-06



LIN-01 Linear Sliding Film

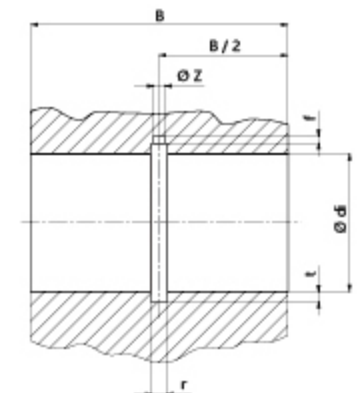


Size[mm]

Order P/N	d1	Tolerance	d2	b1	r	t	z	F Maximum dynamic P=5MPa[N]	F Maximum static P=3.5MPa[N]	Weight [g]
LIN-01-10	10	+0.030/+0.070	12	29	3.0	0.8	2.5	725	5075	1.10
LIN-01-12	12	+0.030/+0.070	14	31	3.0	0.8	3	960	6720	1.50
LIN-01-16	16	+0.030/+0.070	18	35	3.5	0.8	3.5	1440	10080	2.20
LIN-01-20	20	+0.030/+0.070	23	44	5.0	0.8	3.5	2250	15750	4.90
LIN-01-25	25	+0.030/+0.070	28	57	5.0	0.8	4	3625	25375	8.23
LIN-01-30	30	+0.040/+0.085	34	67	5.0	1.8	4	5100	35700	14.95
LIN-01-35	35	+0.040/+0.085	39	69	5.0	0.8	4	7300	51000	18.20
LIN-01-40	40	+0.040/+0.085	44	79	6.0	1.3	5	8000	56000	23.16
LIN-01-50	50	+0.040/+0.085	55	99	7.0	1.3	6	12500	87500	45.35

Assembly drawing Base hole for sliding film LIN-01 Dimensions [mm]

Order P/N	Shaft ϕ	D H7	B h10	r	t	f	z
LIN-01-10	10	12	29	3.0	1.0	1.0	2.6
LIN-01-12	12	14	32	3.0	1.0	1.5	3.1
LIN-01-16	16	18	36	3.5	1.0	1.7	3.6
LIN-01-20	20	23	45	5.0	1.0	2.0	3.6
LIN-01-25	25	28	58	5.0	1.0	2.0	4.1
LIN-01-30	30	34	68	5.0	1.0	2.0	4.1
LIN-01-35	35	39	70	1.0	1.0	2.0	4.1
LIN-01-40	40	44	80	6.0	1.5	2.5	5.31
LIN-01-50	50	55	100	7.0	1.5	2.5	6.1



Can cooperate with:

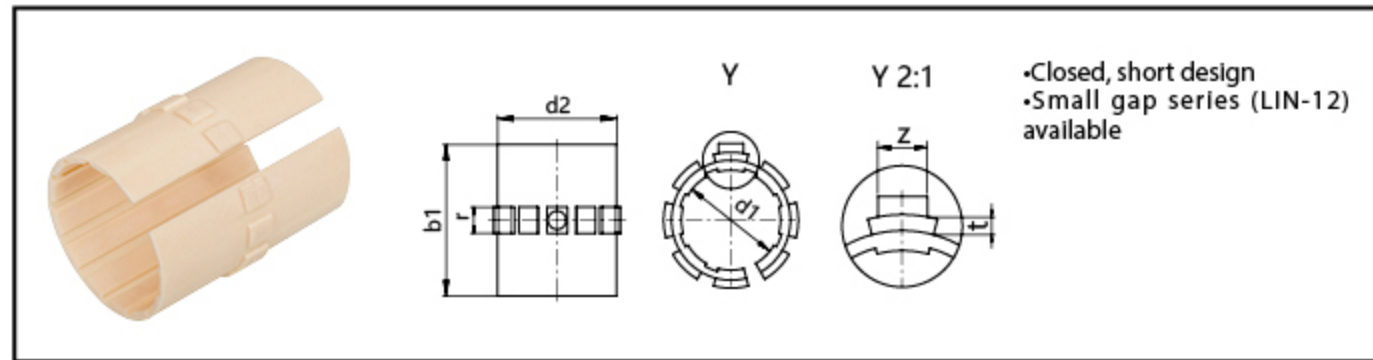


Production Code

LIN-01-10



Lin-02 Linear Sliding Film

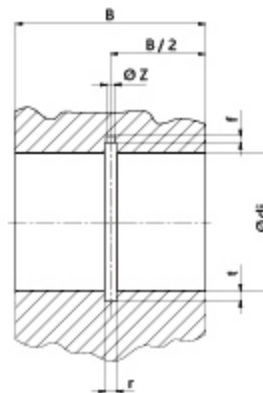


Size[mm]

Production Code	d1	Tolerance	d2	b1	r	t	z	F Maximum dynamic P=5MPa(N)	F Maximum static P=35MPa(N)	Weight [g]
LIN-02-10	10	+0.030 +0.070	12	25	3	0.8	2.5	650	4,550	1.02
LIN-02-12	12	+0.030 +0.070	14	27	3	0.8	3	840	5,880	1.27
LIN-02-16	16	+0.030 +0.070	18	29	3.5	0.8	3.5	1,200	8,400	1.82
LIN-02-20	20	+0.030 +0.070	23	29	5	0.8	3.5	1,500	10,500	3.27
LIN-02-25	25	+0.030 +0.070	28	39	5	0.8	4	2,500	17,500	5.75
LIN-02-30	30	+0.040 +0.085	34	49	5	0.8	4	3,750	26,250	11.28
LIN-02-35	35	+0.040 +0.085	44	59	6	1.3	5	6,000	42,000	17.94
LIN-02-40	40	+0.040 +0.085	50	59	7	1.3	6.1	7,200	50,400	27.00
LIN-02-50	50	+0.050 +0.100	55	69	7	1.3	6	8,750	61,250	32.56

Assembly drawing Base hole for sliding film LIN-02 Dimensions [mm]

Production Code	Shaft ∅	d1 H7	B h10	r	t	f	z
LIN-02-10	10	12	26	3.0	1.0	1.0	2.6
LIN-02-12	12	14	28	3.0	1.0	1.5	3.1
LIN-02-16	16	18	30	3.5	1.0	1.7	3.6
LIN-02-20	20	23	30	5.0	1.0	2.0	3.6
LIN-02-25	25	28	40	5.0	1.0	2.0	4.1
LIN-02-30	30	34	50	5.0	1.0	2.0	4.1
LIN-02-35	35	39	60	6.0	1.5	2.5	5.1
LIN-02-40	40	44	60	7.0	1.5	2.5	6.1
LIN-02-50	50	55	70	7.0	1.5	2.5	6.1



Can cooperate with:

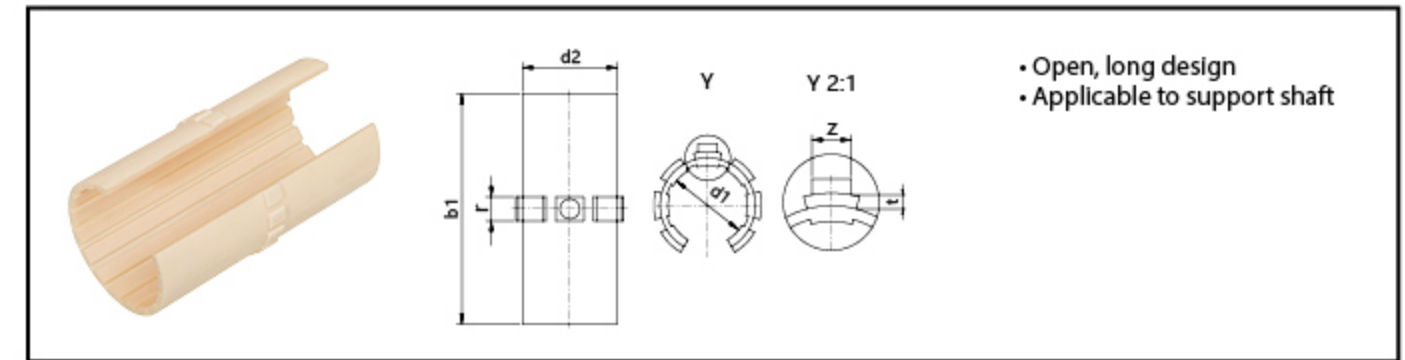


Production Code

LIN-02-10



LIN-01K Linear Sliding Film

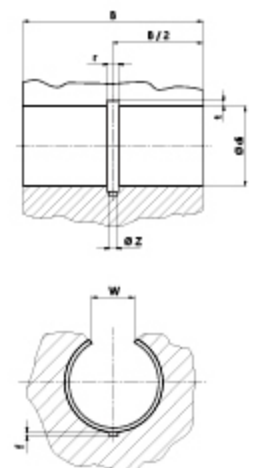


Size[mm]

Production Code	d1	Tolerance	d2	b1	r	t	z	Weight [g]
LIN-01K-10	10	+0.030 +0.070	12	28	3	0.8	2.5	1.10
LIN-01K-12	12	+0.030 +0.070	14	31	3	0.8	3	1.50
LIN-01K-16	16	+0.030 +0.070	18	35	3.5	0.8	3.5	2.20
LIN-01K-20	20	+0.030 +0.070	23	44	5	0.8	3.5	4.90
LIN-01K-25	25	+0.030 +0.070	28	57	5	0.8	4	8.23
LIN-01K-30	30	+0.040 +0.085	34	67	5	0.8	4	14.95
LIN-01K-40	40	+0.040 +0.085	44	79	6	1.3	5	23.16
LIN-01K-50	50	+0.050 +0.100	55	99	7	1.3	6	45.35

Assembly drawing Base hole for sliding film LIN-01 Dimensions [mm]

Production Code	Shaft ∅	d1 H7	B h10	W +0.2	r +0.05	t +0.1	f +0.5	z +0.2
LIN-01K-10	10	12	29	7.3	3	1	1	2.6
LIN-01K-12	12	14	32	9	3	1	1.5	3.1
LIN-01K-16	16	18	36	11.6	3.5	1	1.7	3.6
LIN-01K-20	20	23	45	12	5	1	2	3.6
LIN-01K-25	25	28	58	14.5	5	1	2	4.1
LIN-01K-30	35	39	70	16.6	5	1	2	4.1
LIN-01K-40	40	44	80	21	6	1.5	2.5	5.1
LIN-01K-50	50	55	100	25.5	7	1.5	2.5	6.1



Can cooperate with:

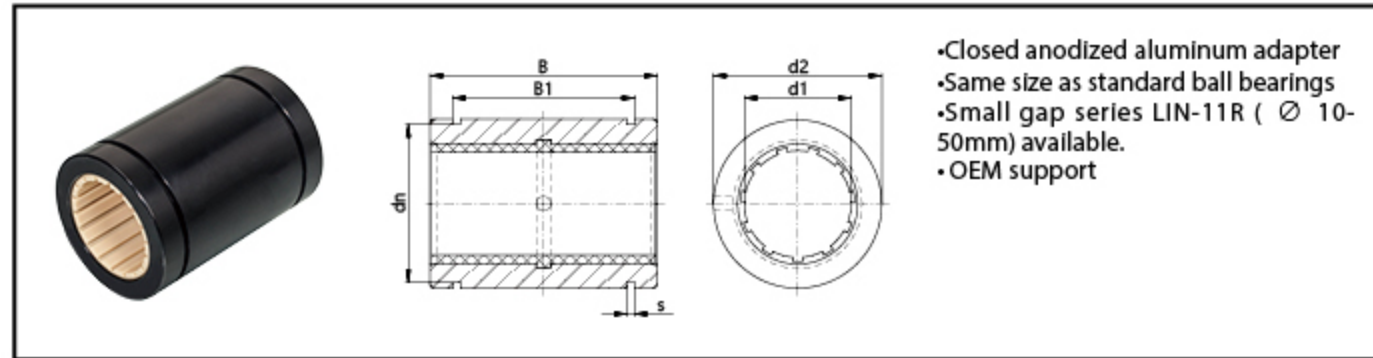


Production Code

LIN-01K-10



OBP-11R Linear Gliding Bearing



Housing:H7 Shaft:h6-h9

Production Code	d1 [mm]	Tolerance [mm]	d2 h7 [mm]	B h10 [mm]	B1 H10 [mm]	dn h10 [mm]	S H10 [mm]
OBP-11R-06B	6	+0.020 +0.068	12	22	14.2	11.5	1.1
OBP-11R-08B	8	+0.025 +0.083	16	25	16.2	15.2	1.1
OBP-11R-10	10	+0.030 +0.088	19	29	21.6	17.5	1.3
OBP-11R-12	12	+0.030 +0.088	22	32	22.6	20.5	1.3
OBP-11R-16	16	+0.030 +0.088	26	36	24.6	24.2	1.3
OBP-11R-20	20	+0.030 +0.091	32	45	31.2	29.6	1.6
OBP-11R-25	25	+0.030 +0.091	40	58	43.7	36.5	1.85
OBP-11R-30	30	+0.040 +0.110	47	68	51.7	43.5	1.85
OBP-11R-40	40	+0.040 +0.115	62	80	60.3	57.8	2.15
OBP-11R-50	50	+0.050 +0.130	75	100	77.3	70.5	2.65

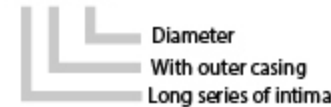
Production Code	Shaft ∅ [mm]	Tolerance bearing inner ring Diameter [mm]	F Maximum dynamic P=5MPa [N]	F Maximum static P=35MPa [N]	Weight [g]
OBP-11R-10	10	+0.030 +0.088	725	5,075	14
OBP-11R-12	12	+0.030 +0.088	960	6,720	21
OBP-11R-16	16	+0.030 +0.088	1,440	10,080	28
OBP-11R-20	20	+0.030 +0.091	2,250	15,750	49
OBP-11R-25	25	+0.030 +0.091	3,625	25,375	108
OBP-11R-30	30	+0.040 +0.110	5,100	35,700	162
OBP-11R-40	40	+0.040 +0.115	8,000	56,000	334
OBP-11R-50	50	+0.050 +0.130	12,500	87,500	579

Can cooperate with:

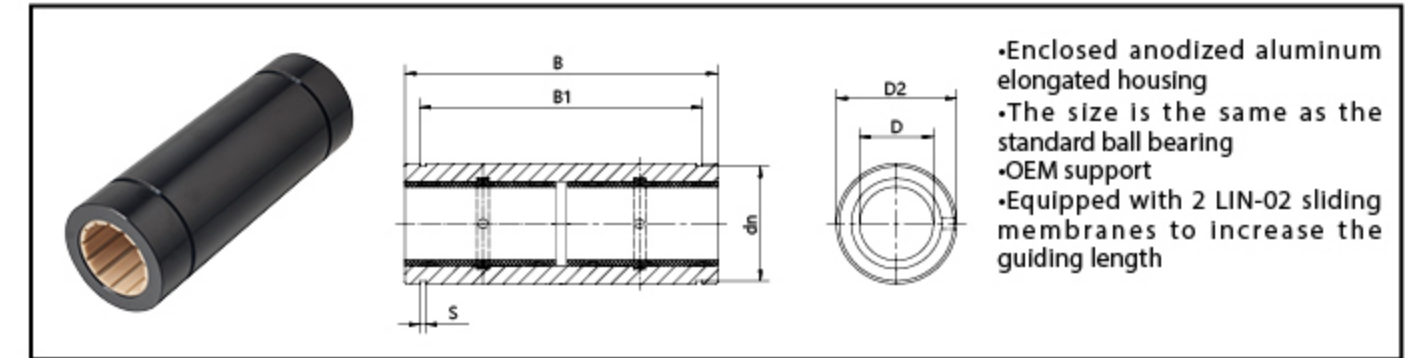


Production Code

OBP-11R-10



OBP-11RL Linear Gliding Bearing



Housing:H7 Shaft:h6-h9

Production Code	d1 [mm]	Tolerance [mm]	d2 h7 [mm]	B h10 [mm]	B1 H10 [mm]	s H10 [mm]	dn h10 [mm]
OBP-11RL-10	10	+0.03 +0.088	19	55	44	1.3	17.5
OBP-11RL-12	12	+0.03 +0.088	22	57	46	1.3	20.5
OBP-11RL-16	16	+0.03 +0.088	26	70	53	1.6	24.2
OBP-11RL-20	20	+0.03 +0.091	32	80	61	1.6	29.6
OBP-11RL-25	25	+0.03 +0.091	40	112	82	1.85	36.5
OBP-11RL-30	30	+0.03 +0.110	47	123	89	1.85	43.5

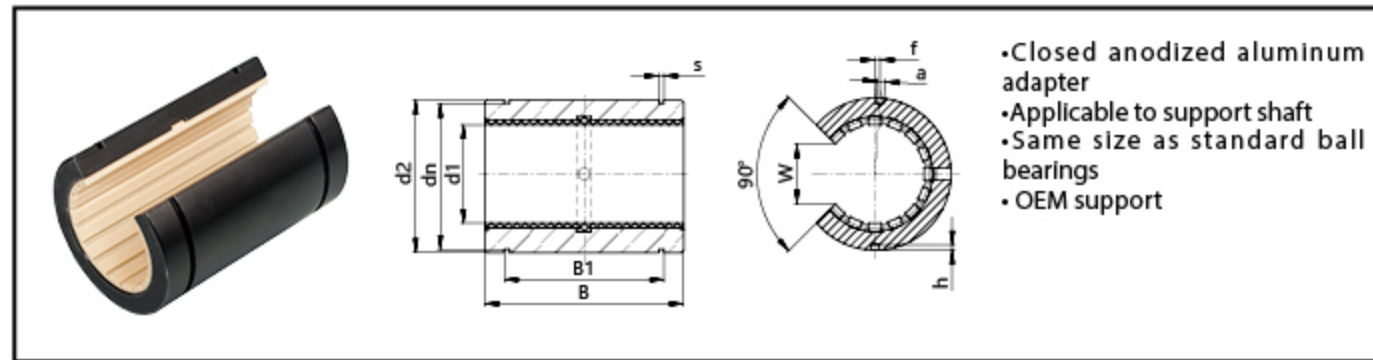
Production Code	Shaft ∅ [mm]	Tolerance bearing inner ring Diameter [mm]	F Maximum dynamic P=5MPa [N]	F Maximum static P=35MPa [N]	Weight [g]
OBP-11RL-10	10	+0.030 +0.088	1560	10920	26
OBP-11RL-12	12	+0.030 +0.088	2016	14112	33
OBP-11RL-16	16	+0.030 +0.088	2880	20160	50
OBP-11RL-20	20	+0.030 +0.091	3600	25200	80
OBP-11RL-25	25	+0.030 +0.091	6000	42000	189
OBP-11RL-30	30	+0.040 +0.110	9000	63000	269

Production Code

OBP-11RL-10



OBP-11ROP Linear Gliding Bearing



- Closed anodized aluminum adapter
- Applicable to support shaft
- Same size as standard ball bearings
- OEM support

Housing:H7 Shaft:h6-h9

Production Code	d1	d2	B	W	a	dn	B1	s	f	h
		h7	h10	-1	+0.1	h10	H10	H10	± 0.2	-0.5
OBP-11R10OP	10	19	29	7,3	0,0	17.5	21.6	1.3	0	1.2
OBP-11R12OP	12	22	32	9,0	3,0	20.5	22.6	1.3	1.33(7°)	1.2
OBP-11R16OP	16	26	36	11,6	2,2	24.2	24.6	1.3	0	1.2
OBP-11R20OP	20	32	45	12,0	2,2	29.6	31.2	1.6	0	1.2
OBP-11R25OP	25	40	58	14,5	3,0	36.5	43.7	1.85	-1.5(-4.3°)	1.5
OBP-11R30OP	30	47	68	16,6	3,0	43.5	51.7	1.85	2(4.9°)	2
OBP-11R40OP	40	62	80	21,0	3,0	57.8	60.3	2.15	1.5(2.8°)	2
OBP-11R50OP	50	75	100	25,5	5,0	70.5	77.3	2.65	2.5(3.8°)	2

Production Code	Shaft ∅ [mm]	Tolerance bearing inner ring Diameter [mm]	F Maximum[N] dynamic P=5MPa			F Maximum[N] static P=35MPa			Weight [g]
			0°	90°	180°	0°	90°	180°	
OBP-11R10OP	10	+0.030 +0.088	725	500	196	5075	3500	1370	11
OBP-11R12OP	12	+0.030 +0.088	960	635	240	6720	4445	1680	15
OBP-11R16OP	16	+0.030 +0.088	1440	990	396	10080	6943	2772	21
OBP-11R20OP	20	+0.030 +0.091	2250	1800	900	15750	12600	6300	42
OBP-11R25OP	25	+0.030 +0.091	3625	2953	1523	25375	20670	10658	70
OBP-11R30OP	30	+0.040 +0.110	5100	4250	2278	35700	29735	15946	132
OBP-11R40OP	40	+0.040 +0.115	8000	6810	3800	56000	47660	26660	278
OBP-11R50OP	50	+0.050 +0.130	12500	10750	6125	87500	75265	42875	479

Can cooperate with:



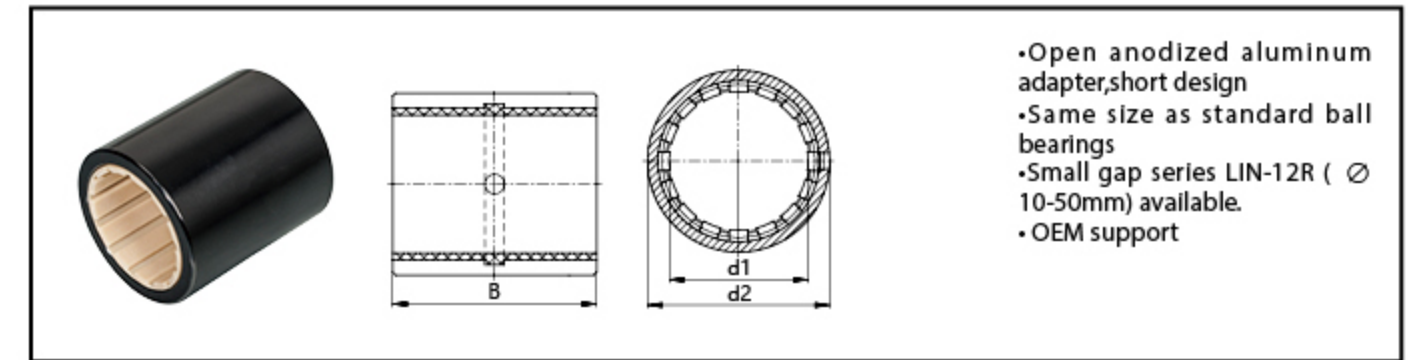
Slidable film that can be matched:

Production Code

OBP-11R10 OP



OBP-11R Linear Gliding Bearing



- Open anodized aluminum adapter, short design
- Same size as standard ball bearings
- Small gap series LIN-12R (∅ 10-50mm) available.
- OEM support

Housing:H7 Shaft:h6-h9

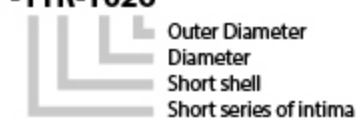
Production Code	Shaft ∅ [mm]	Base hole ∅ H7 [mm]	Tolerance bearing inner ring Diameter [mm]	F Maximum dynamic P=5MPa [N]	F Maximum static P=35MPa [N]	Weight [g]
OBP-11R-1026	10	17	+0.030 +0.088	650	4550	8
OBP-11R-1228	12	19	+0.030 +0.088	840	5880	10
OBP-11R-1630	16	24	+0.030 +0.088	1200	8400	17
OBP-11R-2030	20	28	+0.030 +0.091	1500	10500	18
OBP-11R-2540	25	35	+0.030 +0.091	2500	17500	42
OBP-11R-3050	30	40	+0.040 +0.110	3750	26250	56
OBP-11R-4060	40	52	+0.040 +0.115	6000	42000	113
OBP-11R-5070	50	62	+0.050 +0.130	8750	61250	147

Size[mm]

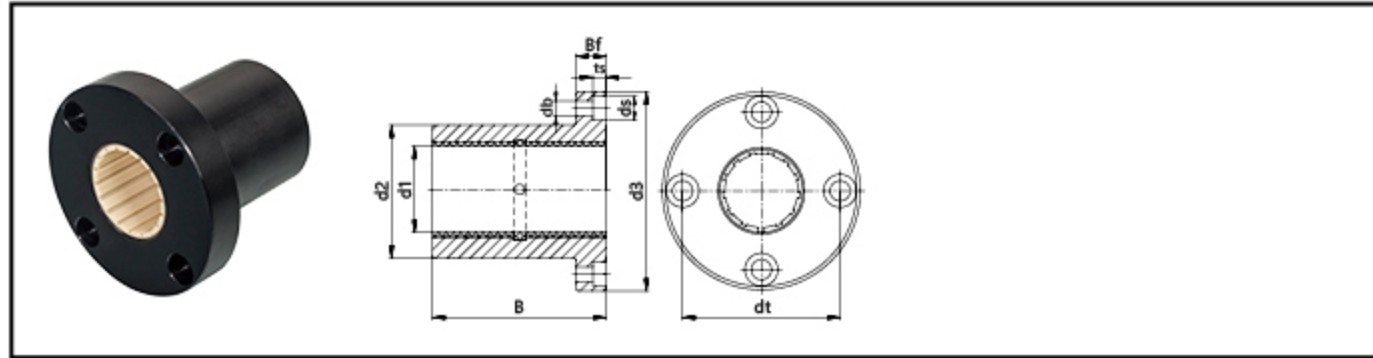
Production Code	d1	d2 k7	B h10
OBP-11R-1026	10	17	26
OBP-11R-1228	12	19	28
OBP-11R-1630	16	24	30
OBP-11R-2030	20	28	30
OBP-11R-2540	25	35	40
OBP-11R-3050	30	40	50
OBP-11R-4060	40	52	60
OBP-11R-5070	50	62	70

Production Code

OBP-11R-1026



OBP-11RF Flanged Bearing



Housing:H7 Shaft:h6-h9

Production Code	d1	d2	dt	d3	B	Bf	ts	db	ds
		h7	± 0.15						
OBP-11RF10	10	19	29	39	29	9	4.1	4.5	7.5
OBP-11RF12	12	22	32	42	32	9	4.1	4.5	7.5
OBP-11RF16	16	26	36	46	36	9	4.1	4.5	7.5
OBP-11RF20	20	32	43	54	45	11	5.1	5.5	9
OBP-11RF25	25	40	51	62	58	11	5.1	5.5	9
OBP-11RF30	30	47	62	76	68	14	6.1	6.6	11
OBP-11RF40	40	62	80	98	80	18	8.1	9	14
OBP-11RF50	50	75	94	112	100	18	8.1	9	14

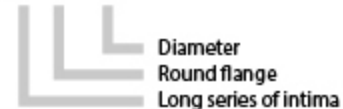
Production Code	Shaft ∅ [mm]	Tolerance bearing inner ring Diameter [mm]	F Maximum dynamic P=5MPa [N]	F Maximum static P=35MPa [N]	Weight [g]
OBP-11RF10	10	+0.030 +0.088	725	5,075	32
OBP-11RF12	12	+0.030 +0.088	960	6,720	42
OBP-11RF16	16	+0.030 +0.088	1,440	10,080	51
OBP-11RF20	20	+0.030 +0.091	2,250	15,750	88
OBP-11RF25	25	+0.030 +0.091	3,625	25,375	152
OBP-11RF30	30	+0.040 +0.110	5,100	35,700	266
OBP-11RF40	40	+0.040 +0.115	8,000	56,000	552
OBP-11RF50	50	+0.050 +0.130	12,500	87,500	853

Slidable film that can be matched:



Production Code

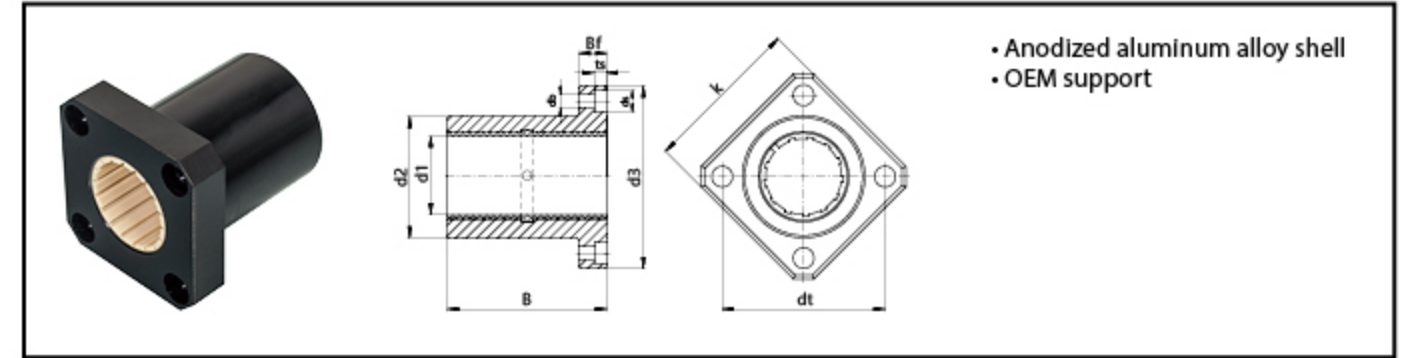
OBP-11RF-10



OBP-11RF-10



OBP-11RK Flanged Bearing



Housing:H7 Shaft:h6-h9

Production Code	d1	d2	dt	d3	K	B	Bf	ts	db	ds
		h7	± 0.15		± 0.15					
OBP-11RK-10	10	19	29	39	30	29	9	4.1	4.5	7.5
OBP-11RK-12	12	22	32	42	32	32	9	4.1	4.5	7.5
OBP-11RK-16	16	26	36	46	35	36	9	4.1	4.5	7.5
OBP-11RK-20	20	32	43	54	42	45	11	5.1	5.5	9
OBP-11RK-25	25	40	51	62	50	58	11	5.1	5.5	9
OBP-11RK-30	30	47	62	76	60	68	14	6.1	6.6	11
OBP-11RK-40	40	62	80	98	75	80	18	8.1	9	14
OBP-11RK-50	50	75	94	112	88	100	18	8.1	9	14

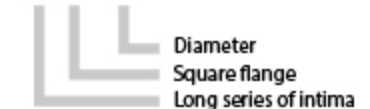
Production Code	Shaft ∅ [mm]	Tolerance bearing inner ring Diameter [mm]	F Maximum dynamic P=5MPa [N]	F Maximum static P=35MPa [N]	Weight [g]
OBP-11RK-10	10	+0.030 +0.088	725	5,075	25
OBP-11RK-12	12	+0.030 +0.088	960	6,720	32
OBP-11RK-16	16	+0.030 +0.088	1,440	10,080	41
OBP-11RK-20	20	+0.030 +0.091	2,250	15,750	73
OBP-11RK-25	25	+0.030 +0.091	3,625	25,375	135
OBP-11RK-30	30	+0.040 +0.110	5,100	35,700	228
OBP-11RK-40	40	+0.040 +0.115	8,000	56,000	454
OBP-11RK-50	50	+0.050 +0.130	12,500	87,500	735

Slidable film that can be matched:

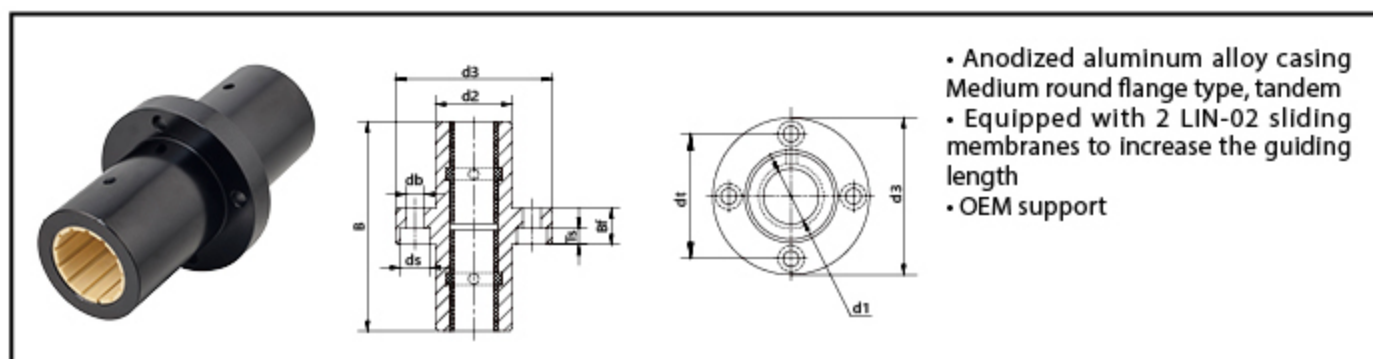


Production Code

OBP-11RK-10



LIN-11RFC Center Flange Type Bearing



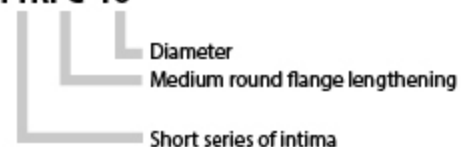
Housing:H7 Shaft:h6-h9

Production Code	Shaft ⌀ [mm]	Housing H7 [mm]	Tolerance Diameter [mm]	F Maximum dynamic P=5MPa [N]	F Maximum static P=35MPa [N]	Weight [g]
LIN-11RFC-10	10	19	+0.030 +0.083	1,300	9,100	44
LIN-11RFC-12	12	22	+0.030 +0.083	1,680	11,760	57
LIN-11RFC-16	16	26	+0.030 +0.083	2,400	16,800	79
LIN-11RFC-20	20	32	+0.030 +0.091	3,000	21,000	128
LIN-11RFC-25	25	40	+0.040 +0.091	5,000	35,000	249
LIN-11RFC-30	30	47	+0.040 +0.110	7,500	52,500	388
LIN-11RFC-40	40	62	+0.040 +0.115	12,000	84,000	835
LIN-11RFC-50	50	75	+0.030 +0.130	17,500	122,500	1,352

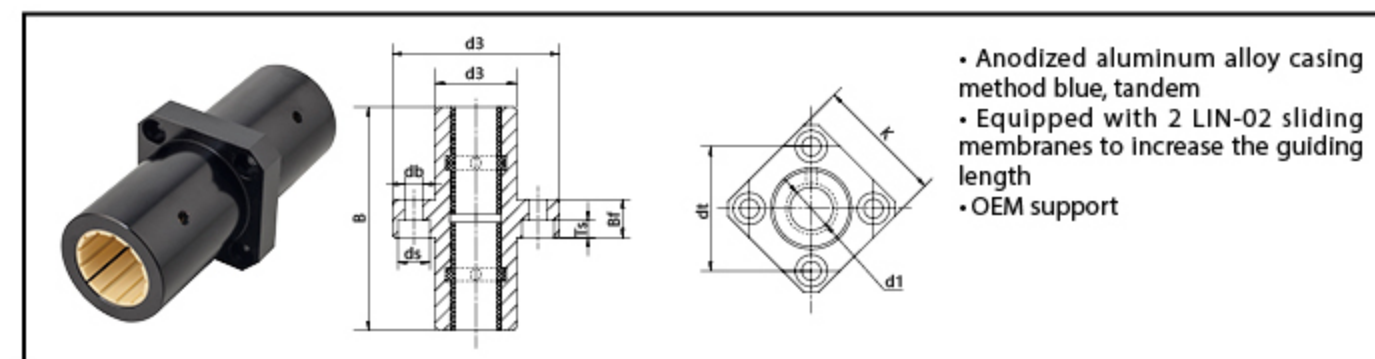
Production Code	d1	d2 h7	d3	dt ± 0.15	B	Bf	ts	db	ds
LIN-11RFC-10	10	19	39	29	52	9	4.1	4.5	7.5
LIN-11RFC-12	12	22	42	32	57	9	4.1	4.5	7.5
LIN-11RFC-16	16	26	46	36	70	9	4.1	4.5	7.5
LIN-11RFC-20	20	32	54	43	80	11	5.1	5.5	9
LIN-11RFC-25	25	40	62	51	112	11	5.1	5.5	9
LIN-11RFC-30	30	47	76	62	123	14	6.1	6.6	11
LIN-11RFC-40	40	62	98	80	151	18	8.1	9	14
LIN-11RFC-50	50	75	112	94	192	18	8.1	9	14

Production Code

LIN-11RFC-10



OBP-11RKC Center Flange Type Bearing



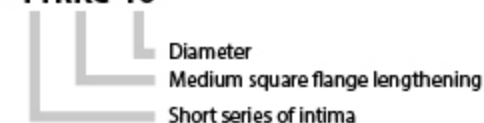
Housing:H7 Shaft:h6-h9

Production Code	d1	d2 h7	d3	dt ± 0.15	B	Bf	ts	db	ds	K
OBP-11RKC-10	10	19	39	29	52	9	4.1	4.5	7.5	30
OBP-11RKC-12	12	22	42	32	57	9	4.1	4.5	7.5	32
OBP-11RKC-16	16	26	46	36	70	9	4.1	4.5	7.5	35
OBP-11RKC-20	20	32	54	43	80	11	5.1	5.5	9	42
OBP-11RKC-25	25	40	62	51	112	11	5.1	5.5	9	50
OBP-11RKC-30	30	47	76	62	123	14	6.1	6.6	11	60
OBP-11RKC-40	40	62	98	80	151	18	8.1	9	14	75
OBP-11RKC-50	50	75	112	94	192	18	8.1	9	14	88

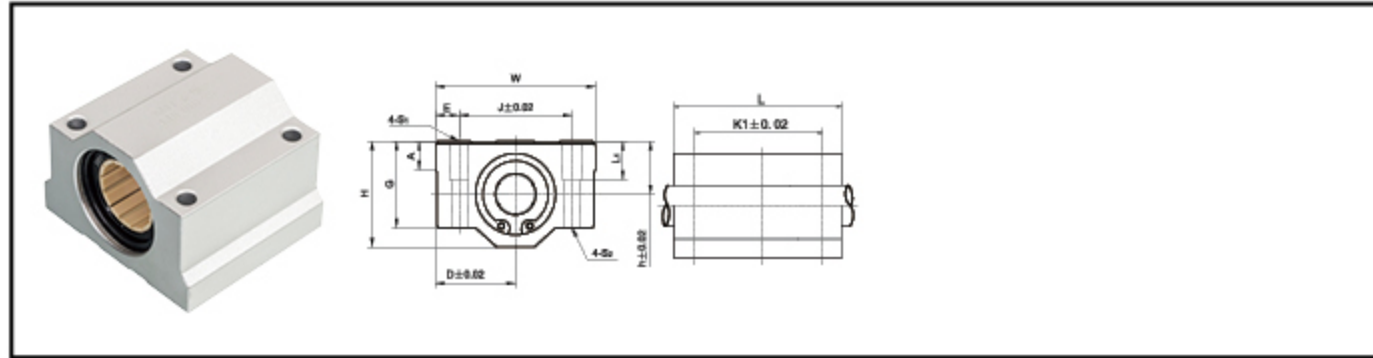
Production Code	Shaft ⌀ [mm]	Housing H7 [mm]	Tolerance Diameter [mm]	F Maximum dynamic P=5MPa [N]	F Maximum static P=35MPa [N]	Weight [g]
OBP-11RKCA-10	10	19	+0.030 +0.083	1,300	9,100	44
OBP-11RKCA-12	12	22	+0.030 +0.083	1,680	11,760	57
OBP-11RKCA-16	16	26	+0.030 +0.083	2,400	16,800	79
OBP-11RKCA-20	20	32	+0.030 +0.091	3,000	21,000	128
OBP-11RKCA-25	25	40	+0.040 +0.091	5,000	35,000	249
OBP-11RKCA-30	30	47	+0.040 +0.110	7,500	52,500	388
OBP-11RKCA-40	40	62	+0.040 +0.115	12,000	84,000	835
OBP-11RKCA-50	50	75	+0.030 +0.130	17,500	122,500	1,352

Production Code

OBP-11RKC-10



OBP-SC Linear Bearing With Housing



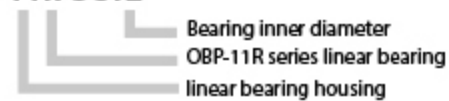
Shaft:h6-h9

Production Code	Bearing Install	Shaft diameter [mm ²]	Size[mm ²]											
			h	D	W	H	G	A	J	E	S ₁ × L ₁	S ₂	K	L
OBP-11R-SC12	OBP-11R-12	φ12	15	22	44	30	24	8	33	5.5	M5 × 10	φ4.3	26	39
OBP-11R-SC16	OBP-11R-16	φ16	19	25	50	38.5	32.5	9	36	7	M5 × 12	φ4.3	34	44
OBP-11R-SC20	OBP-11R-20	φ20	21	27	54	41	35	11	40	7	M6 × 12	φ5.2	40	53
OBP-11R-SC25	OBP-11R-25	φ25	26	38	76	51.5	41	12	54	11	M8 × 18	φ7	50	67
OBP-11R-SC30	OBP-11R-30	φ30	30	39	78	59.5	49	15	58	10	M8 × 18	φ7	58	76
OBP-11R-SC40	OBP-11R-40	φ40	40	51	102	78	62	20	80	11	M10 × 25	φ8.7	60	90
OBP-11R-SC50	OBP-11R-50	φ50	52	61	122	102	80	25	100	11	M10 × 25	φ8.7	80	110

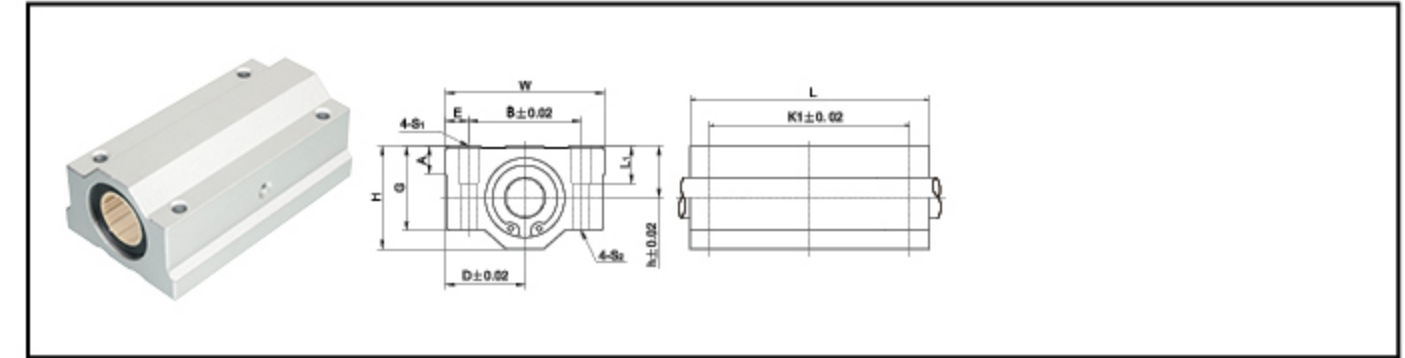
Production Code	Inside Diameter [mm ²]	Tolerance [mm ²]	Extreme dynamic load P=5MPa[N]	Extreme static load P=35Mpa[N]	Weight [g]
OBP-11R-SC12	12	+0.030/+0.088	1152N	8064N	79
OBP-11R-SC16	16	+0.030/+0.088	1728N	12096N	125
OBP-11R-SC20	20	+0.030/+0.091	2700N	18900N	159
OBP-11R-SC25	25	+0.030/+0.091	4350N	30650N	343
OBP-11R-SC30	30	+0.040/+0.110	6120N	42840N	450
OBP-11R-SC40	40	+0.040/+0.115	9600N	67200N	1021
OBP-11R-SC50	50	+0.040/+0.130	15000N	105000N	1871

Production Code

OBP-11R-SC12



OBP-11R-SCL Linear Bearing With Housing Long Type



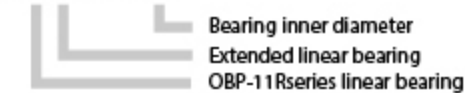
Shaft:h6-h9

Production Code	Bearing Install	Shaft diameter [mm]	Size[mm]											
			h	D	W	H	G	A	B	E	S ₁ × L ₁	S ₂	K1	L
OBP-11R-SCL16	2xOBP-11R-16	φ16	19	25	50	38.5	32.5	9	36	7	M5 × 12	φ4.3	60	89
OBP-11R-SCL20	2xOBP-11R-20	φ20	21	27	54	41	35	11	40	7	M6 × 12	φ5.2	70	106
OBP-11R-SCL25	2xOBP-11R-25	φ25	26	38	76	51.5	41	12	54	11	M8 × 18	φ7	100	136
OBP-11R-SCL30	2xOBP-11R-30	φ30	30	39	78	59.5	49	15	58	10	M8 × 18	φ7	110	154
OBP-11R-SCL40	2xOBP-11R-40	φ40	40	51	102	78	62	20	80	11	M10 × 25	φ8.7	140	180

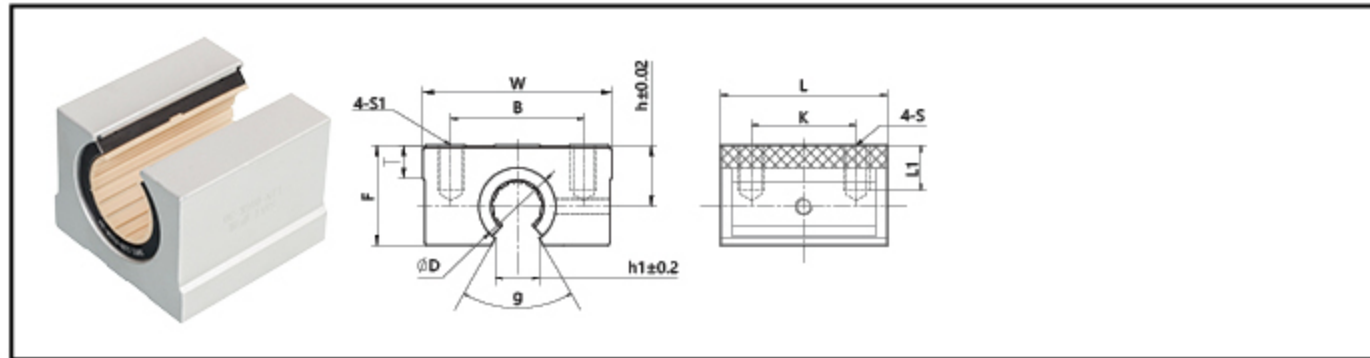
Production Code	Inside Diameter [mm ²]	Tolerance [mm ²]	Extreme dynamic load P=5MPa[N]	Extreme static load P=35Mpa[N]	Weight [g]
OBP-11R-SCL16	16	+0.030/+0.088	3456N	24192N	250
OBP-11R-SCL20	20	+0.030/+0.091	5400N	37800N	318
OBP-11R-SCL25	25	+0.030/+0.091	8400N	61300N	686
OBP-11R-SCL30	30	+0.040/+0.110	12240N	85680N	905
OBP-11R-SCL40	40	+0.040/+0.115	19200N	134400N	2041

Production Code

OBP-11 R-SCL16



OBP-11R-SBR Linear Bearing With Housing Open Type



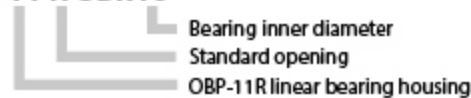
Shaft:h6-h9

Production Code	Bearing Install	Shaft diameter [mm ²]	Size(mm)												
			D(H7)	h	W	L	F	h1	T	A	g	J	K	E	S1
OBP-11R-SBR16	OBP-11R-16OP	φ16	26	19	49.7	46.4	32.3	17	11	M5	60°	37	40	15	M5
OBP-11R-SBR20	OBP-11R-20OP	φ20	32	21	54.1	51.3	35.2	17	11.8	M5	60°	41	35	17	M5
OBP-11R-SBR25	OBP-11R-25OP	φ25	40	26	76	66.4	42.2	21	12.5	M6	60°	54	50	20	M6
OBP-11R-SBR30	OBP-11R-30OP	φ30	47	30	78	71.5	49.1	21	15.5	M6	60°	58	55	25	M8

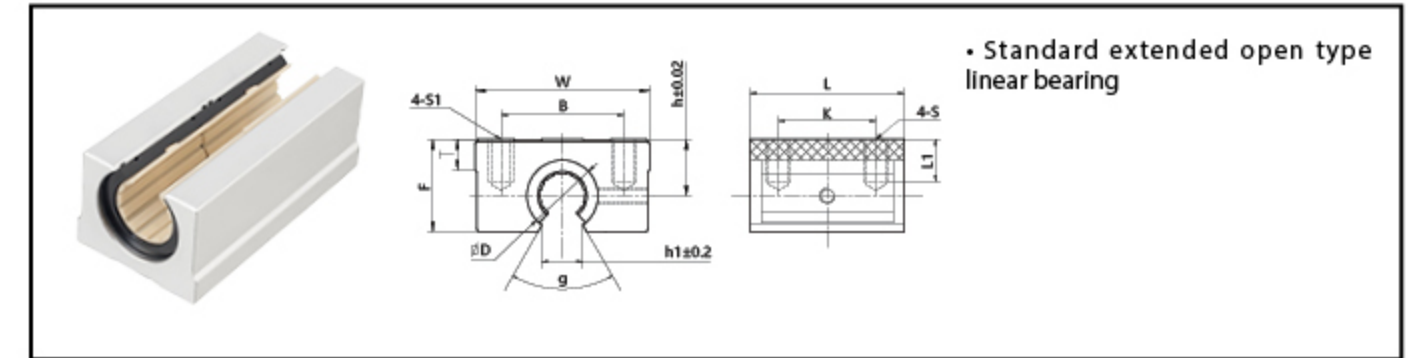
Production Code	Inside Diameter [mm ²]	Tolerance [mm ²]	Extreme dynamic load P=5MPa[N]	Extreme static load P=35Mpa[N]	Weight [g]
OBP-11R-SBR16	16	+0.030/+0.088	1728N	12096N	125
OBP-11R-SBR20	20	+0.030/+0.091	2700N	18900N	159
OBP-11R-SBR25	25	+0.030/+0.091	4350N	30650N	343
OBP-11R-SBR30	30	+0.040/+0.110	6120N	42840N	450

Production Code

OBP-11 R-SBR16



OBP-11R-SBRL Linear Bearing With Open Type Housing Long Type



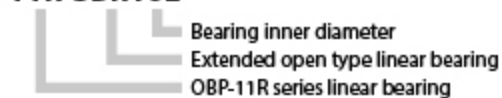
Shaft:h6-h9

Production Code	bearing Install	Shaft diameter [mm ²]	Size(mm)													
			D(H7)	h	W	L	F	h1	T	A	B	g	J	K	E	S1
OBP-11R-SBR-16L	2xOBP-11R-16OP	φ16	28	19	49.7	86.3	32.3	17	11	M5	41	60°	37	70	15	M5
OBP-11R-SBR-20L	2xOBP-11R-20OP	φ20	32	21	54.1	96.2	35.2	17	11.8	M5	47	60°	41	80	17	M5
OBP-11R-SBR-25L	2xOBP-11R-25OP	φ25	40	26	76	131.4	42.2	21	12.5	M6	63	60°	54	110	20	M6
OBP-11R-SBR-30L	2xOBP-11R-30OP	φ30	45	30	78	141.5	49.1	21	15.5	M6	70	60°	58	115	25	M8

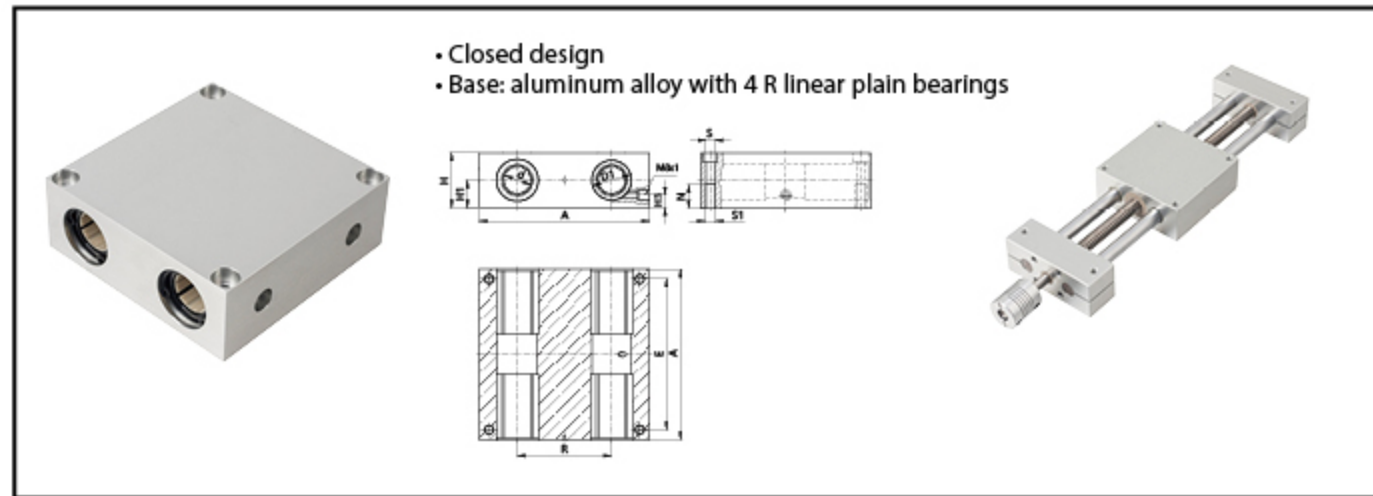
Production Code 标准型	Inside diameter I.D [mm]	I.D Tolerance [mm]	Extreme dynamic load [P=5MPa]	Extreme static load [P=35Mpa]	Weight [g]
OBP-11R-SBR-16L	16	+0.030/+0.088	3456N	24192N	250
OBP-11R-SBR-20L	20	+0.030/+0.091	5400N	37800N	318
OBP-11R-SBR-25L	25	+0.030/+0.091	8400N	61300N	686
OBP-11R-SBR-30L	30	+0.040/+0.110	12240N	85680N	905

Production Code

OBP-11R-SBR16L



OBP Square Slider



- Closed design
- Base: aluminum alloy with 4 R linear plain bearings

Unit: mm

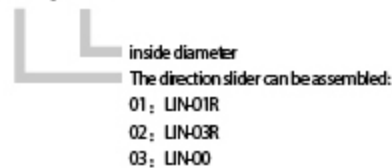
Production Code			d	d1	A	H	H1	H3	R	N	E	S	S1
Optional standard	Optional self-aligning	Optional all plastic											
OBP-01RQ-12	OBP-03RQ-12	LIN-00Q-12	12	22	85	32	16	13	42	13	73	5.3	M6
OBP-01RQ-16	OBP-03RQ-16	LIN-00Q-16	16	26	100	36	18	15	54	13	88	5.3	M6
OBP-01RQ-20	OBP-03RQ-20	LIN-00Q-20	20	32	130	46	23	19	72	18	115	6.6	M8
OBP-01RQ-25	OBP-03RQ-25	LIN-00Q-25	25	40	160	56	28	24	88	22	140	8.4	M10
OBP-01RQ-30	OBP-03RQ-30	LIN-00Q-30	30	47	180	64	32	27	96	26	158	10.5	M12
OBP-01RQ-40	OBP-03RQ-40	/	40	62	230	79	40	35	122	34	202	13.5	M16

Equipped with:



Production Code

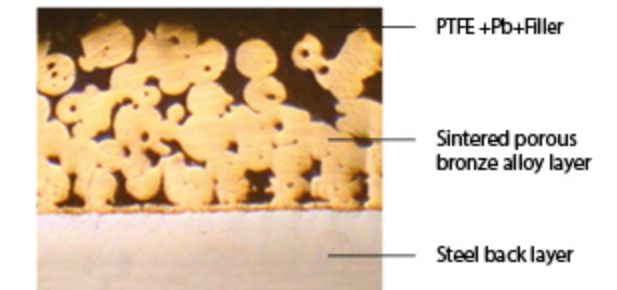
LIN-01RQ-10



SF-1 Self-Lubricating Multilayer Composite Bearing



Metallography



Structure Characteristics and Applications

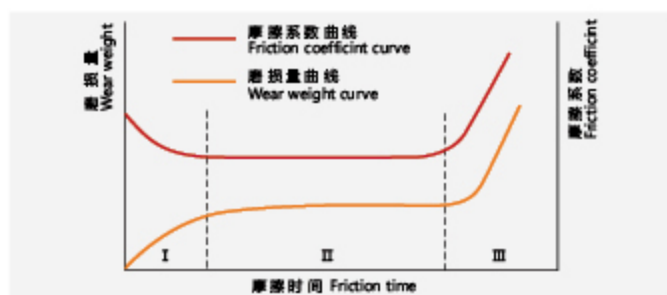
SF-1 is backed with copper-plated steel with porous bronze sintered on the steel and polymers (PTFE+Pb) imbedded into the bores of the bronze. By combining the metals and the polymers together, its products are endowed with the lower friction coefficient and good capacity of anti-abrasion and self-lubrication. Moreover, the steel back is plated with an erosion-prevention layer. Products of SF-1 series are widely applied in printing, weaving and tobacco producing machines, gymnastic equipments, etc.

Physical and Mechanical Performance

Performance Index		Data	Performance Index		Data
Max Load P	Static Load	250N/mm ²	Friction Coefficient μ	Dry Lubrication	0.08~0.20
	Dynamic Load	140N/mm ²		Oil Lubrication	0.02~0.07
	Oscillation Load	60N/mm ²	Mating Axis	Hardness	>200 HB
Linear Velocity V	Dry Lubrication	2.5m/s		Roughness	Ra=0.4~1.25
	Oil Lubrication	>5m/s	Working Temperature		-200~+280°C
Max PV value	Grease Lubrication	1.8N/mm ² .m/s	Heat-conducting Coefficient		40W/(mK)
	Oil Lubrication	3.6N/mm ² .m/s	Heat-expansion Coefficient(Axial)		11 × 10 ⁻⁶ K ⁻¹

Wear Resistant

SF-1 is of excellent anti-abrasion performance, mainly due to the particular molecule structure of PTFE. The abrasion process can be generally divided into three phases, so there are kinds of friction coefficient. See the right graph:



Wear curve of SF-1

1. "Running-in" phase: PTFE compound on the bushing is transferred to its mating surface and forms a lubricating film. At this phase, the friction coefficient is bigger, thus the abrasion pace is very quick. See the curve showed in area I of the graph.
2. "Stabilization" abrasion phase: After the "Running-in" phase, the friction happens between PTFE and PTFE, thus the friction coefficient is smaller and keeps steady. As a result, the wear rate is low and steady. See the curve showed in area II of the graph.
3. "Sharp" abrasion phase: As PTFE in the porous layer is slowly consumed up, not enough lubricant can be supplied to the gliding media. Friction coefficient and wear rate will rapidly rise. When 70% of the bronze surface is exposed, service life of SF-1 closes to its end. See the curve showed in area III of the graph.

Main Factors that Influence the Service life of the Bushing

1).PV Value

PV value is an effective criterion to calculate the service life of SF-1. If there is need to prolong the service Life, PV value must be reduced.

2).Ambient Temperature

The higher the working temperature is, the shorter the life of the products would be.




3).Quality of the Mating Surface

Service life SF-1 can be obviously prolonged if its mating axis is made by alloy steel or is plated by hard chrome and with surface Roughness Ra=0.4~0.63

Besides the standard products displayed in the list of this catalogue. We can also supply non-standard products or develop according to customer design.

Sf-1 Self-Lubricating Multilayer Composite Bearing

SF-1 self-lubricating bearing uses low carbon steel as the base material. In actual use, depending on the environment, working conditions and environmental protection requirements, the steel base can be changed to copper or stainless steel. The surface plastic layer can be changed to: PTFE+ Filling material containing Pb. The SF-1, SF-1B, SF-1S, SF-1T, SF-1P, SF-1D, and SF-1SS products are derived from this product. The material structure, application fields and technical parameters are summarized as follows:

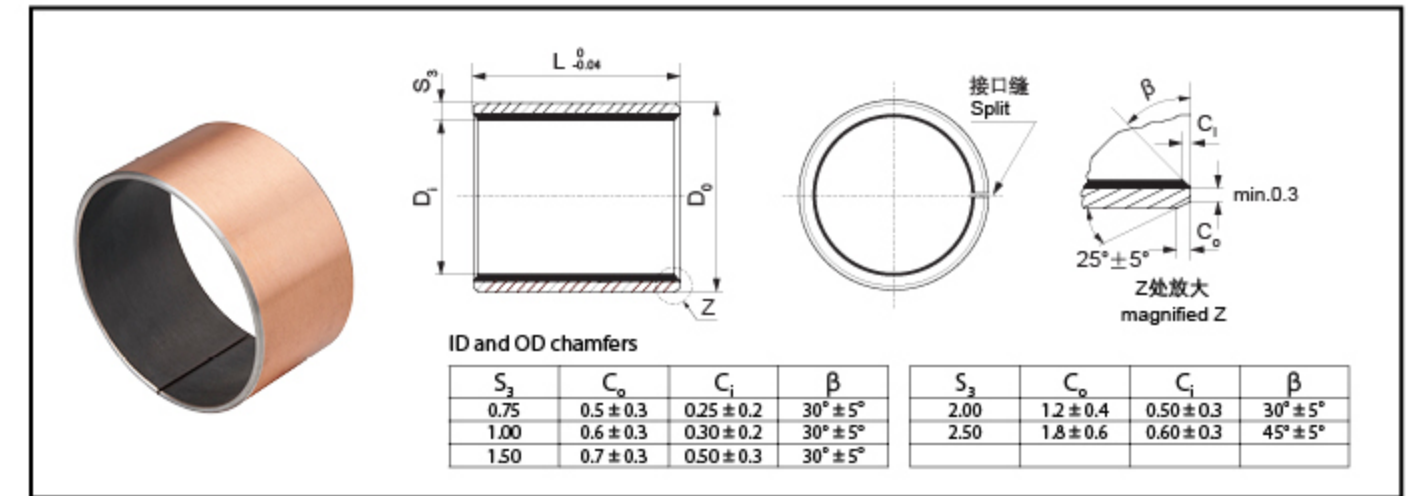
	Grade	SF-1	SF-1B	SF-1S
Date	Material	Steel+Bronze+(PTFE+Pb+Filler)	Bronze+Bronze+(PTFE+Pb+Filler)	Stainless+Bronze+(PTFE+Pb+Filler)
Typical application		Application: the printing, woven, tobacco and gymnastic machinery, etc.	Application: metallurgical industry, continuous casting and rolling mill, concrete machinery and spiral conveyers, etc.	Application: the corrosion resistant part in dyeing machinery and ocean industry, etc.
Load capacity P (Dry friction)	Static load N/mm ²	250	250	250
	Dynamic load N/mm ²	140	140	140
	Oscillation Load N/mm ²	60	60	60
Max line speed V	Dry friction m/s	2.5	2.5	2.5
	Oil lubrication m/s	> 5	> 5	> 5
PV value limit	Dry friction N/mm ² ·m/s	1.8	1.8	1.8
	Oil lubrication N/mm ² ·m/s	3.6	3.6	3.6
Friction coefficient	Dry friction	0.08~0.20	0.08~0.20	0.08~0.20
	Oil lubrication	0.02~0.12	0.02~0.12	0.02~0.12
Mating Axis	Hardness	> 220	> 220	> 220
	Roughness	0.4~1.25	0.4~1.25	0.4~1.25
Working temperature °C		-200~+280	-200~+280	-200~+280
Thermal conductivity W/mk		40	60	40
Coefficient of linear expansion		11 × 10 ⁻⁶ /K	18 × 10 ⁻⁶ /K	11 × 10 ⁻⁶ /K
Outside surface Plating		copper/tin	No	No
We can also develop according to customers special request while out of this table				

Sf-1 Self-Lubricating Multilayer Composite Bearing

Metal back of SF-1 can be changed to bronze, stainless steel depending on different working condition and environment protection, the PTFE polymers can be without lead. like our product SF-1、SF-1B、SF-1S、SF-1T、SF-1P、SF-1D、SF-1SS so there kinds of friction coefficient. See below in detail:

SF-1T	SF-1P	SF-1D (without lead)	SF-1SS (without lead)
Steel+Bronze+(PTFE+Pb+Filler)	Steel+Bronze+(PTFE+Pb+Filler)	Steel+Bronze+(PTFE+Filler)	Stainless+Bronze+(PTFE+Filler)
Application: medium, high-pressure gear pump, ram pump, vane pumps, etc.	Application: shock absorber of automobiles, motorcycles and pneumatic cylinder.etc	Application: he printing, woven, tobacco and gymnastic machinery, shock absorber etc..	Application: the corrosion resistant part in dyeing machinery and ocean industry, etc.
250	250	250	250
140	140	140	140
60	60	60	60
2.5	2	2.5	2.5
> 5	> 5	> 5	> 5
1.0	1.8	1.8	1.8
10	3.6	3.6	3.6
0.08~0.25	0.08~0.20	0.08~0.20	0.08~0.20
0.02~0.08	0.02~0.08	0.02~0.08	0.02~0.08
> 220	> 220	> 220	> 220
0.4~1.25	0.4~1.25	0.4~1.25	0.4~1.25
-200~+280	-200~+280	-200~+280	-200~+280
40	40	40	40
$11 \times 10^{-6}/K$	$11 \times 10^{-6}/K$	$11 \times 10^{-6}/K$	$11 \times 10^{-6}/K$
copper/tin	copper/tin	copper/tin	No
			

SF-1 Standard Metric Bushing



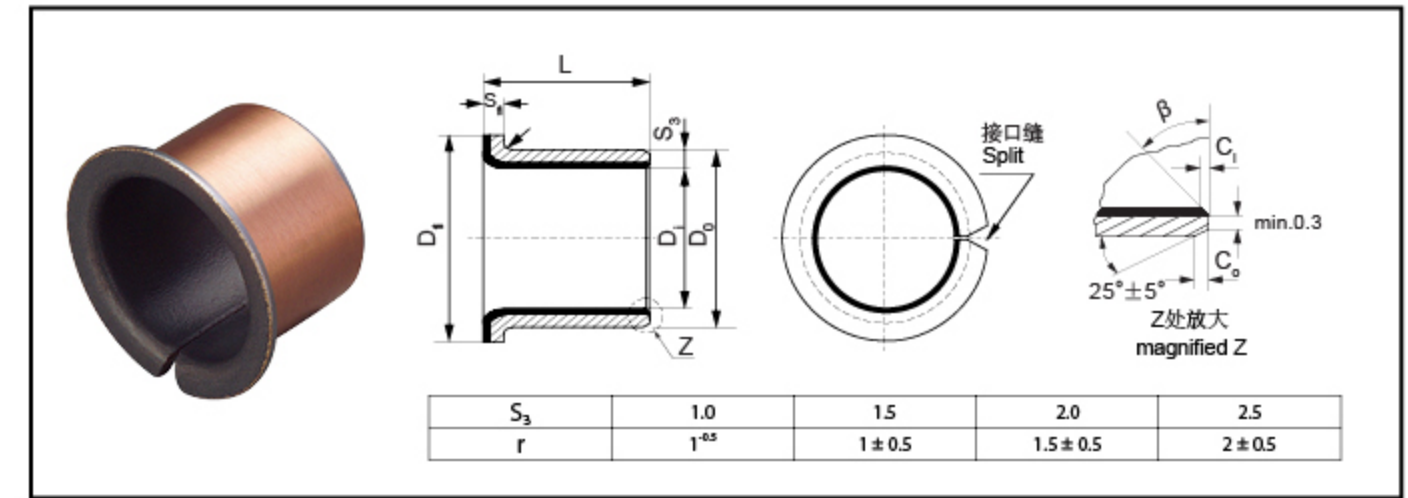
Unit: mm

Shaft (f7) D_s	Housing (H7) D_H	(OD) Tolerance D_o	After fixed (ID) D_{iA}	Clearance D_o	Wall thickness S_3	Length $L_{-0.40}^0$ ($d_s \in \text{H7} L-0.30$, $d_s \in \text{H8} L-0.40$)														
						6	8	10	12	15	20	25	30	40	50					
6 -0.010 -0.022	8 +0.015	8 +0.055 +0.025	6.055 5.990	0.077 0.000	1.005 0.980	0606	0608	0610												
8 -0.013 -0.028	10 +0.015	10 +0.055 +0.025	8.055 7.990	0.083 0.003		0806	0808	0810	0812	0815										
10 -0.013 -0.028	12 +0.018	12 +0.065 +0.030	10.058 9.990	0.086 0.003		1006	1008	1010	1012	1015	1020									
12 -0.016 -0.034	14 +0.018	14 +0.065 +0.030	12.058 11.990	0.092 0.006		1206	1208	1210	1212	1215	1220	1225								
13 -0.016 -0.034	15 +0.018	15 +0.065 +0.030	13.058 12.990						1310	1312	1315	1320	1325							
14 -0.016 -0.034	16 +0.018	16 +0.065 +0.030	14.058 13.990						1410	1412	1415	1420	1425							
15 -0.016 -0.034	17 +0.018	17 +0.065 +0.030	15.058 14.990						1510	1512	1515	1520	1525							
16 -0.016 -0.034	18 +0.018	18 +0.065 +0.030	16.058 15.990						1610	1612	1615	1620	1625							
17 -0.016 -0.034	19 +0.021	19 +0.075 +0.035	17.061 16.990			0.095 0.006			1710	1712	1715	1720	1725							
18 -0.016 -0.034	20 +0.021	20 +0.075 +0.035	18.061 17.990				1810	1812	1815	1820	1825									
20 -0.020 -0.041	23 +0.021	23 +0.075 +0.035	20.071 19.990		0.112 0.010	1.505 1.475			2010	2012	2015	2020	2025	2030						
22 -0.020 -0.041	25 +0.021	25 +0.075 +0.035	22.071 21.990				2210	2212	2215	2220	2225	2230								
24 -0.020 -0.041	27 +0.021	27 +0.075 +0.035	24.071 23.990				2410	2412	2415	2420	2425	2430								
25 -0.020 -0.041	28 +0.021	28 +0.075 +0.035	25.071 24.990	2510			2512	2515	2520	2525	2530	2540	2550							
28 -0.020 -0.041	32 +0.025	32 +0.085 +0.045	28.085 27.990	0.126 0.010	2.005 1.970				2812	2815	2820	2825	2830	2840	2850					
30 -0.020 -0.041	34 +0.025	34 +0.085 +0.045	30.085 29.990			3012	3015	3020	3025	3030	3040	3050								
32 -0.025 -0.050	36 +0.025	36 +0.085 +0.045	32.085 31.990	0.135 0.015					3212	3215	3220	3225	3230	3240	3250					
35 -0.025 -0.050	39 +0.025	39 +0.085 +0.045	35.085 34.990			3512	3515	3520	3525	3530	3540	3550								
38 -0.025 -0.050	42 +0.025	42 +0.085 +0.045	38.085 37.990			3812	3815	3820	3825	3830	3840	3850								
40 -0.025 -0.050	44 +0.025	44 +0.085 +0.045	40.085 39.990			4012	4015	4020	4025	4030	4040	4050								

SF-1 Standard Metric Bushing

Shaft (f7) D _f	Housing (H7) D _H	Tolerance (OD)/D _o	After fixed (ID) D _i	Clearance C _o	Wall thick- ness S ₃	Length ⁰ -0.40																		
						20	25	30	40	50	60	70	80	100	115									
45	-0.050 -0.025	50	+0.025	50	+0.085 +0.045	45.105 44.990	0.155 0.015	2.505 2.460	4520	4525	4530	4540	4550											
50	-0.050 -0.025	55	+0.030	55	+0.100 +0.055	50.110 49.990	0.160 0.015		5020	5025	5030	5040	5050	5060										
55	-0.060 -0.030	60	+0.030	60	+0.100 +0.055	55.110 54.990					5530	5540	5550	5560										
60	-0.060 -0.030	65	+0.030	65	+0.100 +0.055	60.110 59.990					6030	6040	6050	6060	6070									
65	-0.060 -0.030	70	+0.030	70	+0.100 +0.055	65.110 64.990	0.170 0.020				6530	6540	6550	6560	6570									
70	-0.060 -0.030	75	+0.030	75	+0.100 +0.055	70.110 69.990					7030	7040	7050	7060	7070	7080								
75	-0.060 -0.030	80	+0.030	80	+0.100 +0.055	75.110 74.990					7530	7540	7550	7560	7570	7580								
80	-0.045	85	+0.035	85	+0.120 +0.070	80.155 80.020	0.201 0.020					8040	8050	8060	8070	8080	80100							
85	-0.054	90	+0.035	90	+0.120 +0.070	85.155 85.020						8540	8550	8560	8570	8580	85100							
90	-0.054	95	+0.035	95	+0.120 +0.070	90.155 90.020						9040	9050	9060	9070	9080	90100							
95	-0.054	100	+0.035	100	+0.120 +0.070	95.155 95.020	0.209 0.020	2.490 2.440					9550	9560	9570	9580	95100							
100	-0.054	105	+0.035	105	+0.120 +0.070	100.155 100.020							10050	10060	10070	10080	100100	100115						
105	-0.054	110	+0.035	110	+0.120 +0.070	105.155 105.020							10560	10570	10580	105100	105115							
110	-0.054	115	+0.035	115	+0.120 +0.070	110.115 110.020							11060	11070	11080	110100	110115							
120	-0.054	125	+0.040	125	+0.170 +0.100	120.210 120.070	0.264 0.070						12060	12070	12080	120100	120115							
125	-0.063	130	+0.040	130	+0.170 +0.100	125.210 125.070							12560	12570	12580	125100	125115							
130	-0.063	135	+0.040	135	+0.170 +0.100	130.210 130.070							13060	13070	13080	130100	130115							
140	-0.063	145	+0.040	145	+0.170 +0.100	140.210 140.070	0.273 0.070	2.465 2.415					14060	14070	14080	140100	140115							
150	-0.063	155	+0.040	155	+0.170 +0.100	150.210 150.070							15060	15070	15080	150100	150115							
160	-0.063	165	+0.040	165	+0.170 +0.100	160.210 160.070							16060	16070	16080	160100	160115							
180	-0.063	185	+0.046	185	+0.210 +0.130	180.216 180.070	0.279 0.070						18060	18070	18080	180100								
190	-0.072	195	+0.046	195	+0.210 +0.130	190.216 190.070							19060	19070	19080	190100								
200	-0.072	205	+0.046	205	+0.210 +0.130	200.016 200.070	0.288 0.070	2.465 2.415						20060	20070	20080	200100							
220	-0.072	225	+0.046	225	+0.210 +0.130	220.216 220.070							22060	22070	22080	220100								
250	-0.072	255	+0.052	255	+0.260 +0.170	250.222 250.070	0.294 0.070									25080	250100							
260	-0.081	265	+0.052	265	+0.260 +0.170	260.222 260.070										26080	260100							
280	-0.081	285	+0.052	285	+0.260 +0.170	280.222 280.070	0.303 0.070	2.465 2.415								28080	280100							
300	-0.081	305	+0.052	305	+0.260 +0.170	300.222 300.070										30080	300100							

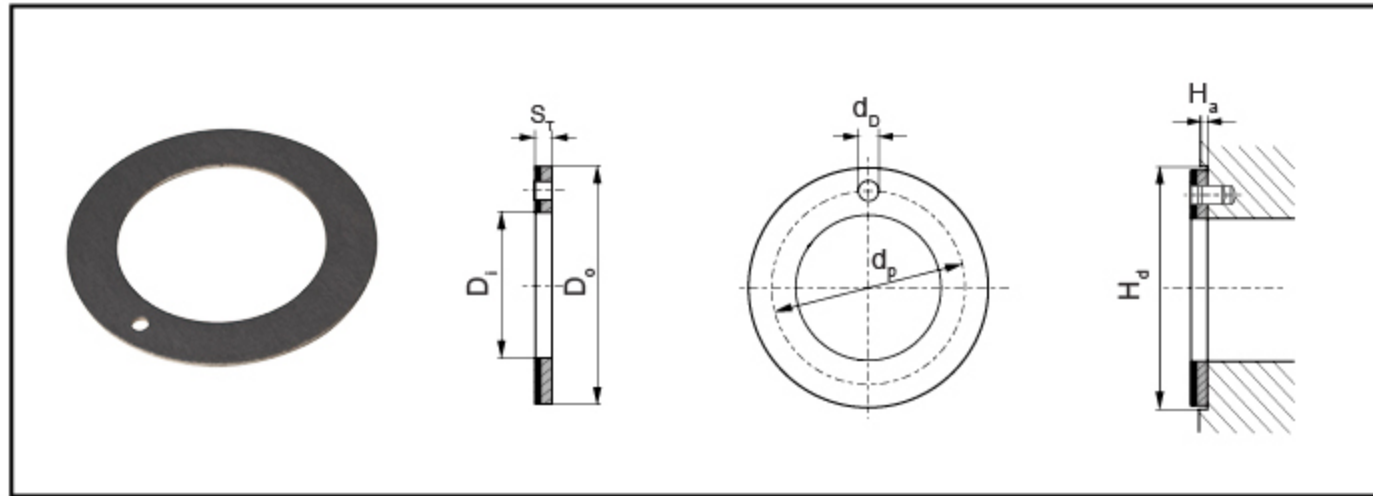
SF-1F Standard Metric Flanged Bushing



Unit: mm

Shaft (f7) D _f	Housing (H7) D _H	(OD) Tolerance D _o	(ID) After fixed D _i	Clearance C _o	Designation	Wall thickness S ₃	Dimension					
							D _i	D _o	D _k ± 0.5	L ± 0.25	S _r ± 0.2	
6	-0.013 -0.028	8	+0.015	8	+0.055 +0.025	6.055 5.990	0.077 0.000	6	8	12	4	1
											7	
8	-0.013 -0.028	10	+0.015	10	+0.055 +0.025	8.055 7.990	0.083 0.003	8	10	15	5.5	1
											7.5	
10	-0.016 -0.034	12	+0.018	12	+0.055 +0.025	10.058 9.990	0.086 0.003	10	12	18	7	1
											9	
											12	
12	-0.016 -0.034	14	+0.018	14	+0.065 +0.030	12.058 11.990	0.092 0.006	12	14	20	7	1
											9	
											12	
14	-0.016 -0.034	16	+0.018	16	+0.065 +0.030	14.058 13.990	0.092 0.006	14	16	22	12	1
											17	
											17	
15	-0.016 -0.034	17	+0.018	17	+0.065 +0.030	15.058 14.990	0.092 0.006	15	17	23	9	1
											12	
											17	
16	-0.016 -0.034	18	+0.018	18	+0.065 +0.030	16.058 15.990	0.092 0.006	16	18	24	12	1
											17	
											17	
18	-0.016 -0.034	20	+0.021	20	+0.075 +0.035	18.061 17.990	0.095 0.006	18	20	26	12	1
											17	
											20	
20	-0.020 -0.041	23	+0.021	23	+0.075 +0.035	20.071 19.990	0.112 0.010	20	23	30	11.5	1.5
											16.5	
											21.5	
22	-0.020 -0.041	25	+0.021	25	+0.075 +0.035	22.071 21.990	0.112 0.010	22	25	32	15	1.5
											20	
											21.5	
25	-0.020 -0.041	28	+0.021	28	+0.075 +0.035	25.071 24.990	0.112 0.010	25	28	35	11.5	2
											16.5	
											21.5	
30	-0.025 -0.050	34	+0.025	34	+0.075 +0.035	30.085 29.990	0.126 0.010	30	34	42	16	2
											26	
35	-0.025 -0.050	39	+0.025	39	+0.085 +0.045	35.085 34.990	0.135 0.015	35	39	47	16	2
											26	
40	-0.025 -0.050	44	+0.025	44	+0.085 +0.045	40.085 39.990	0.135 0.015	40	44	53	26	2
											40	

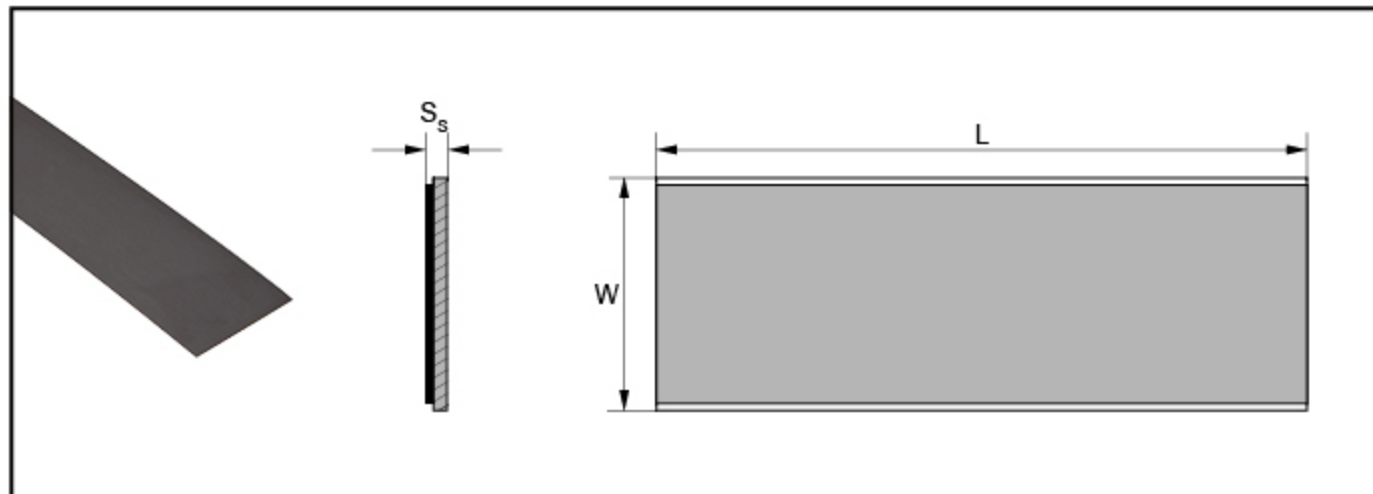
SF-1WC Standard Metric Gasket



Unit: mm

Shaft \$D_s\$	Standard No.	SF-1WCasher size				Assemble size		
		\$D_i+0.25\$	\$D_o-0.25\$	\$S_s-0.05\$	\$d_p \pm 0.125\$	\$d_o \pm 0.1\$	\$H_a \pm 0.2\$	\$H_d+0.12\$
8	SF-1WC 10	10	20	1.5	15	1.5	1	20
10	SF-1WC 12	12	24		18			24
12	SF-1WC 14	14	26		20	26		
14	SF-1WC 16	16	30		23	30		
16	SF-1WC 18	18	32		25	32		
18	SF-1WC 20	20	36		28	36		
20	SF-1WC 22	22	38		30	38		
22	SF-1WC 24	24	42		33	42		
24	SF-1WC 26	26	44		35	44		
26	SF-1WC 28	28	48		38	48		
30	SF-1WC 32	32	54	43	54			
36	SF-1WC 38	38	62	50	62			
40	SF-1WC 42	42	66	54	66			
46	SF-1WC 48	48	74	2	61	4	1.5	74
50	SF-1WC 52	52	78		65			78
60	SF-1WC 62	62	90		76			90

SF-1SP sheet specifications and tolerances



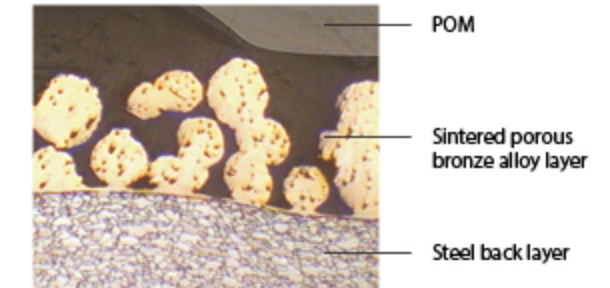
Unit: mm

Standard No.	Length ± 1	Width ± 1	Wall thickness \$S_s-0.05\$
SF-1SP	500	150	1.0
SF-1SP	500	150	1.5
SF-1SP	500	150	2.0
SF-1SP	500	150	2.5

SF-2 Boundary Lubrication Bearing



Metallography



Structure Characteristics and Applications

SF-2 is designed for marginal lubricating bushing. It is backed with copper-plated steel with porous bronze sintered on it and polymers (POM) imbedded into the bores of the bronze. The steel back provides the products with high quality low carbon steel. Oil dents stamped on the surface of the polymer can achieve good lubrication between the bushing and its mating axis. It is of good anti-abrasion and load capability. The plating coating on the surface is erosion protective. And it is environmental protective as no lead included in the surface polymer POM. Products of SF-2 series are widely used on automotive chassis, forging machines, mine quarrying machines, metal melting and casting machines and in water irrigating and steel rolling industries.

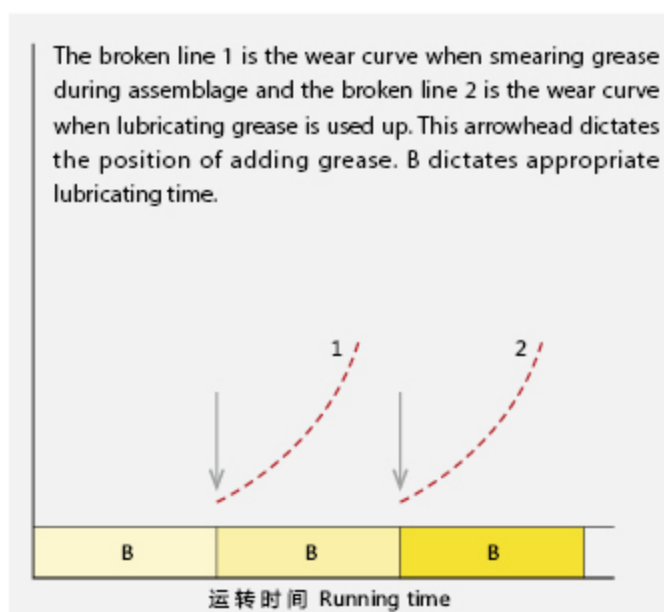
Physical and Mechanical Performance

Performance Index		Data	Performance Index		Data
Max Load P	Static Load	140N/mm ²	Friction Coefficient μ	Grease Lubrication	0.06~0.12
	Dynamic Load	70N/mm ²			
Linear Velocity V	Grease Lubrication	2.5m/s	Mating Axis	Hardness	>270 HB
				Roughness	Ra=0.4~1.25
Max PV value	Grease Lubrication	2.8N/mm ² .m/s	Working Temperature		-40~+120°C
			Heat-conducting Coefficient		52W/(m·k)
			Heat-expansion Coefficient(Axial)		$11 \times 10^{-6} \text{K}^{-1}$

Normally, the surface polymer of SF-2 is of chemical-erosion resistant quality. So its erosion-prevention quality is primarily decided by the quality of the steel back and its plating layer. Air-erosion could be effectively prevented if the steel back is plated with bronze or tin. If the bushing is to be used in erosive environment, the steel back needs to be plated with zinc, etc.

Anti-abrasion Performance

See the following chart for abrasion characteristics of SF-2 in the condition of grease lubrication. From the chart, it can be known that in the "Running-in" phase, the wear rate is rather small and when smearing grease during assemblage, it will gradually become bigger (see dashed line 1 in the chart). Of course, if the lubricating grease was duly added, the wear rate could still keep steady. Service life of the bushing could be prolonged if the time interval for adding grease is appropriate. The time interval is decided by the running PV value while service life is decided by the accumulative abrasion quantity. In the condition of grease lubrication: recommend to use lithium fatty acid when environment temperature is lower than 80°C and to use silicon fatty acid when environment temperature is above 80°C. It is not advisable to use fatty acid with EP additives.



The wear curve of SF-2

Main Factors that Influence the Service life of the Bushing

1). PV Value

PV value is an effective criterion to calculate the service life of SF-2. If there is need to prolong the service life, PV value must be reduced.

2). Ambient Temperature


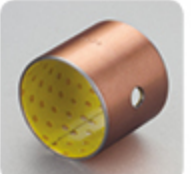
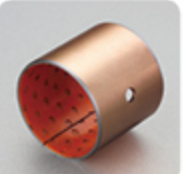

When the environment temperature is above 40 °C, performance of SF-2 will be obviously debased. Therefore, the higher the working temperature is, the shorter the life of the products would be.

3). Quality of the Mating Surface

When Roughness of the mating surface Ra=0.4~0.63, service life of SF-2 could be obviously prolonged.

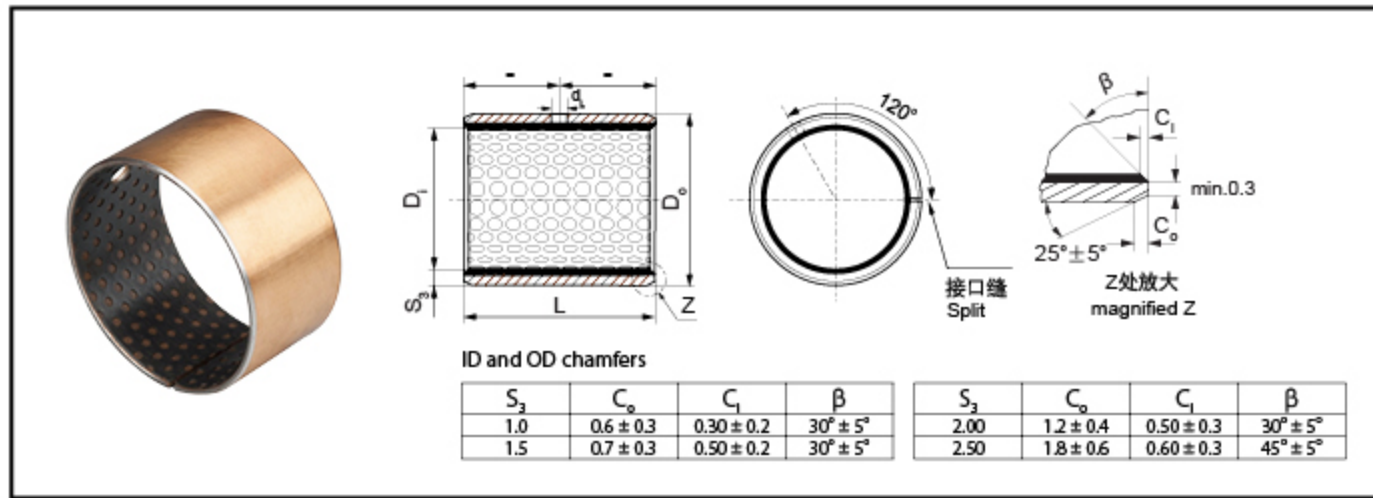
Besides the standard products displayed in the list of this catalogue, we can also supply non-standard products or develop according to customer design.

SF-2 Bushing special for heavy load low speed rotation, Oscillating motion, and the situation under heavy load but not possible to put grease. This type of bushing can work longer life when put grease during the working condition. The POM can be added different material depend on different working condition and environment production request, like our product SF-2X、SF-2Y、SF-2S、SF-2L Detail see below :

Data	Grade	SF-2X	SF-2Y (without lead)	SF-2S (without lead)	SF-2L (without lead)
	Material	Steel+ Bronze+(POM+Pb)	Steel+Bronze+POM	Steel+Bronze+POM	Steel+Bronze+POM
Typical application	It's used in vehicle chassis, forming machine tools, steel metallurgical machinery, mineral mountain machinery, hydraulic industry and rolling steel industry, etc.				
Max load capacity P	Static load N/mm ²	140	140	110	140
	Dynamic load N/mm ²	70	70	45	70
Max line speed V m/s	Greases lubrication	2.5	2.5	2.5	2.5
PV value limit N/mm ² ·m/s		2.8	2.8	2.8	2.8
Friction coef u		0.06~0.12	0.06~0.12	0.05~0.1	0.06~0.12
Mating Axis	Hardness	>270	>270	>270	>270
	Roughness	0.4~1.25	0.4~1.25	0.4~1.25	0.4~1.25
Working temperature N/mm ² ·m/s		-40~+120	-40~+120	-60~+120	-60~+120
Thermal conductivity		52	52	52	52
Coefficient of linear expansion		11 × 10 ⁻⁶ /K	11 × 10 ⁻⁶ /K	11 × 10 ⁻⁶ /K	11 × 10 ⁻⁶ /K
Outside surface Plating		copper/tin	copper/tin	copper/tin	copper/tin
We can also develop according to customers special request while out of this table					

SF-2 Boundary Lubrication Bearing

SF-2 Boundary Lubrication Bearing



ID and OD chamfers

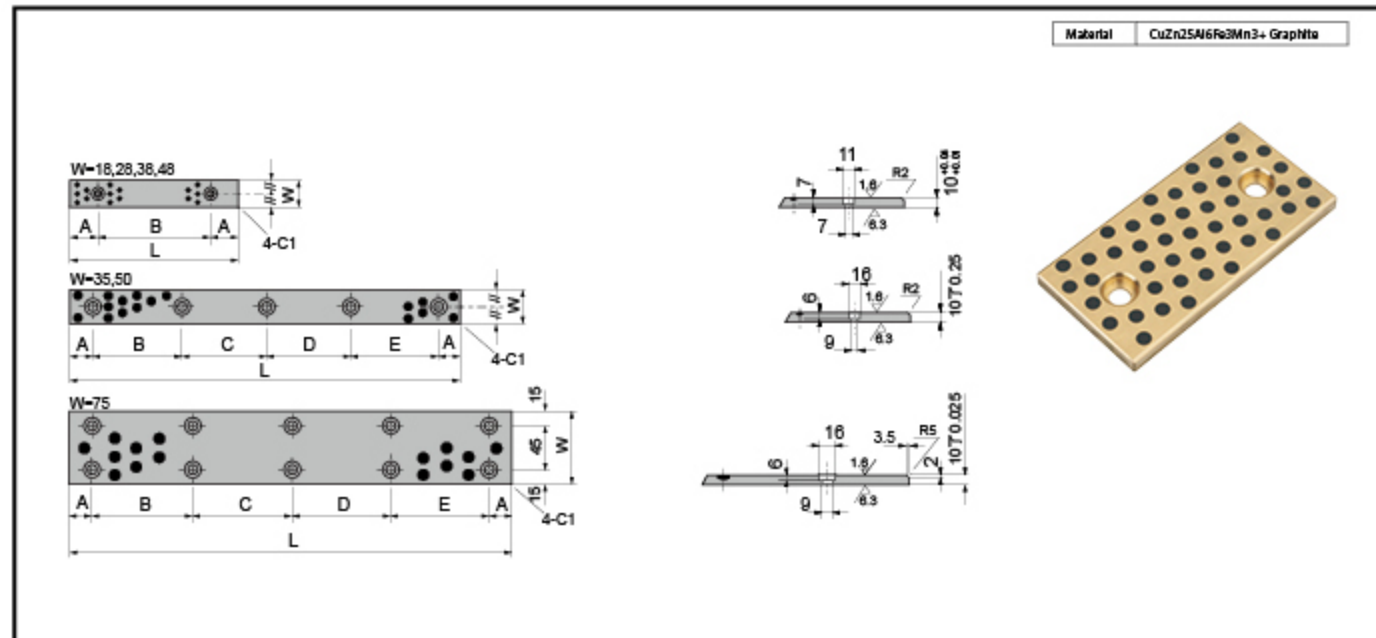
S_3	C_0	C_1	β	S_3	C_0	C_1	β
1.0	0.6 ± 0.3	0.30 ± 0.2	$30^\circ \pm 5^\circ$	2.00	1.2 ± 0.4	0.50 ± 0.3	$30^\circ \pm 5^\circ$
1.5	0.7 ± 0.3	0.50 ± 0.2	$30^\circ \pm 5^\circ$	2.50	1.8 ± 0.6	0.60 ± 0.3	$45^\circ \pm 5^\circ$

Unit: mm

Shaft D_s h8	Housing H7 D_H	(OD) Tolerance D_0	(ID) After fixed D_{L1}	Clearance D_0	Wall thickness S_3	Oil hole d_L	Length $^0_{-0.40}$															
							10	15	20	25	30	35	40	45	50	60						
10 _{-0.022}	12 ^{+0.018}	12 ^{+0.065} _{+0.030}	10.108 10.040	0.130 0.040	0.980 0.955	4	1010	1015	1020													
12 _{-0.027}	14 ^{+0.018}	14 ^{+0.065} _{+0.030}	12.108 12.040				1210	1215	1220													
14 _{-0.027}	16 ^{+0.018}	16 ^{+0.065} _{+0.030}	14.108 14.040	0.135 0.040			1415	1420														
15 _{-0.027}	17 ^{+0.018}	17 ^{+0.065} _{+0.030}	15.108 15.040				1515	1520	1525													
16 _{-0.027}	18 ^{+0.018}	18 ^{+0.065} _{+0.030}	16.108 16.040				1615	1620	1625													
18 _{-0.027}	20 ^{+0.021}	20 ^{+0.075} _{+0.035}	18.111 18.040	0.138 0.040			1815	1820	1825													
20 _{-0.033}	23 ^{+0.021}	23 ^{+0.075} _{+0.035}	20.131 20.050				2015	2020	2025	2030												
22 _{-0.033}	25 ^{+0.021}	25 ^{+0.075} _{+0.035}	22.131 22.050	0.164 0.050			2215	2220	2225	2230												
25 _{-0.033}	28 ^{+0.021}	28 ^{+0.075} _{+0.035}	25.131 25.050				2515	2520	2525	2530												
28 _{-0.033}	32 ^{+0.025}	32 ^{+0.085} _{+0.045}	28.155 28.060	0.188 0.060			1.970 1.935	6		2820	2825	2830										
30 _{-0.033}	34 ^{+0.025}	34 ^{+0.085} _{+0.045}	30.155 30.060			3020			3025	3030	3035	3040										
35 _{-0.039}	39 ^{+0.025}	39 ^{+0.085} _{+0.045}	35.155 35.060	0.194 0.060		3520			3525	3530	3535	3540										
40 _{-0.039}	44 ^{+0.025}	44 ^{+0.085} _{+0.045}	40.155 40.060			4020			4025	4030	4035	4040	4045	4050								
45 _{-0.039}	50 ^{+0.025}	50 ^{+0.085} _{+0.045}	45.195 45.080	0.234 0.080		4520			4525	4530	4535	4540	4545	4550								
50 _{-0.039}	55 ^{+0.030}	55 ^{+0.100} _{+0.055}	50.200 50.080	0.239 0.080	2.460 2.415	8						5030	5035	5040	5045	5050	5060					
55 _{-0.046}	60 ^{+0.030}	60 ^{+0.100} _{+0.055}	55.200 55.080	0.246 0.080									5530	5535	5540	5545	5550	5560				
60 _{-0.046}	65 ^{+0.030}	65 ^{+0.100} _{+0.055}	60.200 60.080										6030	6035	6040	6045	6050	6060				

Shaft D_s h8	Housing H7 D_H	(OD) Tolerance D_0	(ID) After fixed D_{L1}	Clearance D_0	Wall thickness S_3	Oil hole d_L	Length $^0_{-0.40}$																		
							40	50	60	80	90	95	100	110	120										
65 _{-0.046}	70 ^{+0.030}	70 ^{+0.100} _{+0.055}	65.200 65.080	0.246 0.080	2.460 2.415	8	6540	6550	6560																
70 _{-0.046}	75 ^{+0.030}	75 ^{+0.100} _{+0.055}	70.200 70.080				7040	7050	7060	7080															
75 _{-0.046}	80 ^{+0.030}	80 ^{+0.100} _{+0.055}	75.200 75.080				7540	7550	7560	7580															
80 _{-0.046}	85 ^{+0.035}	85 ^{+0.120} _{+0.070}	80.265 80.100	0.313 0.100			8040	8050	8060	8080															
85 _{-0.054}	90 ^{+0.035}	90 ^{+0.120} _{+0.070}	85.265 85.100				8540	8550	8560	8580															
90 _{-0.054}	95 ^{+0.035}	95 ^{+0.120} _{+0.070}	90.265 90.100	0.321 0.100			9040	9050	9060	9080	9090														
100 _{-0.054}	105 ^{+0.035}	105 ^{+0.120} _{+0.070}	100.265 100.100				10050	10060	10080	10090	10095														
105 _{-0.054}	110 ^{+0.035}	110 ^{+0.120} _{+0.070}	105.265 105.100				10550	10560	10580	10590	10595	105100	105110												
110 _{-0.054}	115 ^{+0.035}	115 ^{+0.120} _{+0.070}	110.265 110.110				11050	11060	11080	11090	11095	110100	110110												
120 _{-0.054}	125 ^{+0.040}	125 ^{+0.170} _{+0.100}	120.270 120.110				0.324 0.100			12050	12060	12080	12090	12095	120100	120110									
125 _{-0.063}	130 ^{+0.040}	130 ^{+0.170} _{+0.100}	125.270 125.110							12550	12560	12580	12590	12595	125100	125110									
130 _{-0.063}	135 ^{+0.040}	135 ^{+0.170} _{+0.100}	130.270 130.110							13050	13060	13080	13090	13095	130100	130110									
140 _{-0.063}	145 ^{+0.040}	145 ^{+0.170} _{+0.100}	140.270 140.110							14050	14060	14080	14090	14095	140100	140110									
150 _{-0.063}	155 ^{+0.040}	155 ^{+0.170} _{+0.100}	150.270 150.110							15050	15060	15080	15090	15095	150100	150110									
160 _{-0.063}	165 ^{+0.040}	165 ^{+0.170} _{+0.100}	160.270 160.110							2.450 2.385			16050	16060	16080	16090	16095	160100	160110						
170 _{-0.063}	175 ^{+0.040}	175 ^{+0.170} _{+0.100}	170.270 170.110	17050	17060	17080							17090	17095	170100	170110									
180 _{-0.063}	185 ^{+0.046}	185 ^{+0.210} _{+0.130}	180.276 180.110	18050	18060	18080							18090	18095	180100	180110									
190 _{-0.072}	195 ^{+0.046}	195 ^{+0.210} _{+0.130}	190.276 190.110	19050	19060	19080							19090	19095	190100	190110	190120								
200 _{-0.072}	205 ^{+0.046}	205 ^{+0.210} _{+0.130}	200.276 200.110	20050	20060	20080							20090	20095	200100	200110	200120								
220 _{-0.072}	225 ^{+0.046}	225 ^{+0.210} _{+0.130}	220.276 220.110	22050	22060	22080	22090	22095	220100				220110	220120											
240 _{-0.072}	245 ^{+0.046}	245 ^{+0.210} _{+0.130}	240.276 240.110	24050	24060	24080	24090	24095	240100				240110	240120											
250 _{-0.072}	255 ^{+0.052}	255 ^{+0.260} _{+0.170}	250.282 250.110	0.354 0.110			25050	25060	25080				25090	25095	250100	250110	250120								
260 _{-0.081}	265 ^{+0.052}	265 ^{+0.260} _{+0.170}	260.282 260.110				26050	26060	26080				26090	26095	260100	260110	260120								
280 _{-0.081}	285 ^{+0.052}	285 ^{+0.260} _{+0.170}	280.282 280.110				28050	28060	28080				28090	28095	280100	280110	280120								
300 _{-0.081}	305 ^{+0.052}	305 ^{+0.260} _{+0.170}	300.282 300.110				30050	30060	30080	30090	30095	300100	300110	300120											

Self-Lubricating Copper Wear Plate

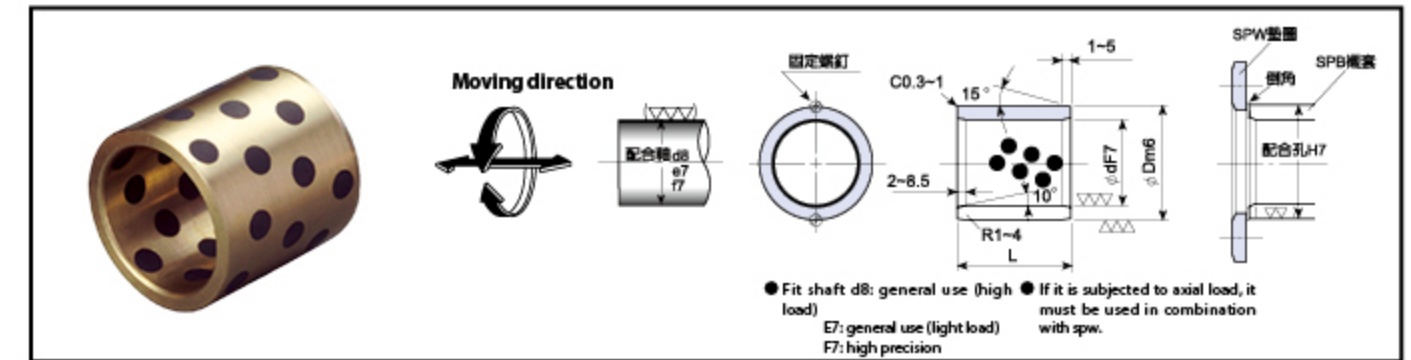


unit:mm

Standard No.	W	L	A	B	C	D	E	Flat Head Screw	No. of Holes	
SFP-1875	18	75	15	45				M6	2	
SFP-18100		100	25	60						
SFP-18125		125		75						
SFP-18150		150		100						
SFP-2875	28	75	15	45			M6	2		
SFP-28100		100	25	50						
SFP-28125		125		75						
SFP-28150		150		100						
SFP-35100	35	100	20	60			M8	3		
SFP-35150		150		55	55					
SFP-35200		200		55	50	55				
SFP-35250		250		70	70	70				
SFP-35300		300		65	65	65			65	
SFP-35350		350		80	75	75			80	
SFP-3875	38	75	15	45			M6	2		
SFP-38100		100	25	50						
SFP-38125		125		75						
SFP-38150		150		100						
SFP-4875	48	75	15	45			M6	2		
SFP-48100		100	25	50						
SFP-48125		125		75						
SFP-48150		150		100						
SFP-50100	50	100	20	60			M8	3		
SFP-50150		150		55	55					
SFP-50200		200		55	50	55				
SFP-50250		250		70	70	70				
SFP-50300		300		65	65	65			65	
SFP-50400		400		90	90	90			90	
SFP-75150	75	150	20	110			M8	4		
SFP-75200		200		80	80					
SFP-75250		250		105	105					
SFP-75300		300		85	90	85				
SFP-75400		400		120	120	120				
SFP-75500		500		115	115	115			115	

Note: In addition to the above specifications of size, manufactured according to customer drawings.

Self-Lubricating Copper Guide Sleeve



Shaft diameter difference	Size(mm)		Length Tolerance ⁰ _{-0.03}										
	inside diameter	Outer diameter	8	10	12	15	16	20	25	30	35		
	φ d Tolerance	φ D Tolerance	SPB	SPB	SPB	SPB	SPB	SPB	SPB	SPB	SPB		
8	8 ^{+0.020} _{-0.012}	12 ^{+0.018} _{-0.007}	-081208	-081210	-081212	-081215							
10	10 ^{+0.020} _{-0.012}	14 ^{+0.018} _{-0.007}	-101408	-101410	-101412	-101415			-101420				
12	12 ^{+0.024} _{-0.016}	18 ^{+0.021} _{-0.008}	-121808	-121810	-121812	-121815	-121816	-121818	-121820	-121825	-121830		
13	13 ^{+0.024} _{-0.016}	19 ^{+0.021} _{-0.008}		-131910	-131912	-131915			-131920				
14	14 ^{+0.024} _{-0.016}	20 ^{+0.021} _{-0.008}		-142010	-142012	-142015			-142020	-142025	-142030		
15	15 ^{+0.024} _{-0.016}	21 ^{+0.021} _{-0.008}		-152110	-152112	-152115	-152116	-152120	-152125	-152130			
16	16 ^{+0.024} _{-0.016}	22 ^{+0.021} _{-0.008}		-162210	-162212	-162215	-162216	-162220	-162225	-162230	-162235		
18	18 ^{+0.024} _{-0.016}	24 ^{+0.021} _{-0.008}			-182412	-182415	-182416	-182420	-182425	-182430			
20	20 ^{+0.024} _{-0.016}	28 ^{+0.021} _{-0.008}		-202810	-202812	-202815	-202816	-202820	-202825	-202830	-202835		
20	20 ^{+0.024} _{-0.016}	30 ^{+0.021} _{-0.008}					-203016	-203020	-203025	-203030	-203035		
25	25 ^{+0.024} _{-0.016}	33 ^{+0.021} _{-0.008}			-253312	-253315	-253316	-253320	-253325	-253330	-253335		
25	25 ^{+0.024} _{-0.016}	35 ^{+0.021} _{-0.008}			-253512	-253515	-253516	-253520	-253525	-253530	-253535		
30	30 ^{+0.024} _{-0.016}	38 ^{+0.021} _{-0.008}			-303812	-303815		-303820	-303825	-303830	-303835		
30	30 ^{+0.024} _{-0.016}	40 ^{+0.021} _{-0.008}			-304012	-304015		-304020	-304025	-304030	-304035		
31.5	31.5 ^{+0.024} _{-0.016}	40 ^{+0.021} _{-0.008}									-314030		
35	35 ^{+0.024} _{-0.016}	44 ^{+0.021} _{-0.008}								-354425	-354430	-354435	
35	35 ^{+0.024} _{-0.016}	45 ^{+0.021} _{-0.008}						-354520	-354525	-354530	-354535		
40	40 ^{+0.024} _{-0.016}	50 ^{+0.021} _{-0.008}					-405015		-405020	-405025	-405030	-405035	
40	40 ^{+0.024} _{-0.016}	55 ^{+0.021} _{-0.008}									-405530	-405535	
45	45 ^{+0.024} _{-0.016}	55 ^{+0.021} _{-0.008}									-455530	-455535	
45	45 ^{+0.024} _{-0.016}	56 ^{+0.021} _{-0.008}									-455630	-455635	
45	45 ^{+0.024} _{-0.016}	60 ^{+0.021} _{-0.008}									-456030	-456035	
50	50 ^{+0.024} _{-0.016}	60 ^{+0.021} _{-0.008}						-506020			-506030	-506035	
50	50 ^{+0.024} _{-0.016}	62 ^{+0.021} _{-0.008}									-506230	-506235	
50	50 ^{+0.024} _{-0.016}	65 ^{+0.021} _{-0.008}									-506530	-506535	
55	55 ^{+0.024} _{-0.016}	70 ^{+0.021} _{-0.008}									-557030	-557035	
60	60 ^{+0.024} _{-0.016}	74 ^{+0.021} _{-0.008}									-607430	-607435	
60	60 ^{+0.024} _{-0.016}	75 ^{+0.021} _{-0.008}									-607530	-607535	
63	63 ^{+0.024} _{-0.016}	75 ^{+0.021} _{-0.008}											
65	65 ^{+0.024} _{-0.016}	80 ^{+0.021} _{-0.008}											
70	70 ^{+0.024} _{-0.016}	85 ^{+0.021} _{-0.008}									-708530	-708535	
70	70 ^{+0.024} _{-0.016}	90 ^{+0.021} _{-0.008}											
75	75 ^{+0.024} _{-0.016}	90 ^{+0.021} _{-0.008}											
75	75 ^{+0.024} _{-0.016}	95 ^{+0.021} _{-0.008}											
80	80 ^{+0.024} _{-0.016}	96 ^{+0.021} _{-0.008}											
80	80 ^{+0.024} _{-0.016}	100 ^{+0.021} _{-0.008}											
90	90 ^{+0.024} _{-0.016}	110 ^{+0.021} _{-0.008}											
100	100 ^{+0.024} _{-0.016}	120 ^{+0.021} _{-0.008}											
110	110 ^{+0.024} _{-0.016}	130 ^{+0.021} _{-0.008}											
120	120 ^{+0.024} _{-0.016}	140 ^{+0.021} _{-0.008}											
125	125 ^{+0.024} _{-0.016}	145 ^{+0.021} _{-0.008}											
130	130 ^{+0.024} _{-0.016}	150 ^{+0.021} _{-0.008}											
140	140 ^{+0.024} _{-0.016}	160 ^{+0.021} _{-0.008}											
150	150 ^{+0.024} _{-0.016}	170 ^{+0.021} _{-0.008}											
160	160 ^{+0.024} _{-0.016}	180 ^{+0.021} _{-0.008}											

Self-Lubricating Copper Guide Sleeve

Precautions for use

- Self-running #500sp sets (spb) can be used in swing and reciprocating motion.
- If supporting the axial load, please use the combination of self-running #500SP washer (SPW).
- Please avoid using in water.
- Inner diameter 31.5mm in the middle of the hydraulic cylinder trunnion bushing.

OEM support

Please contact us for special conditions and use of the site.

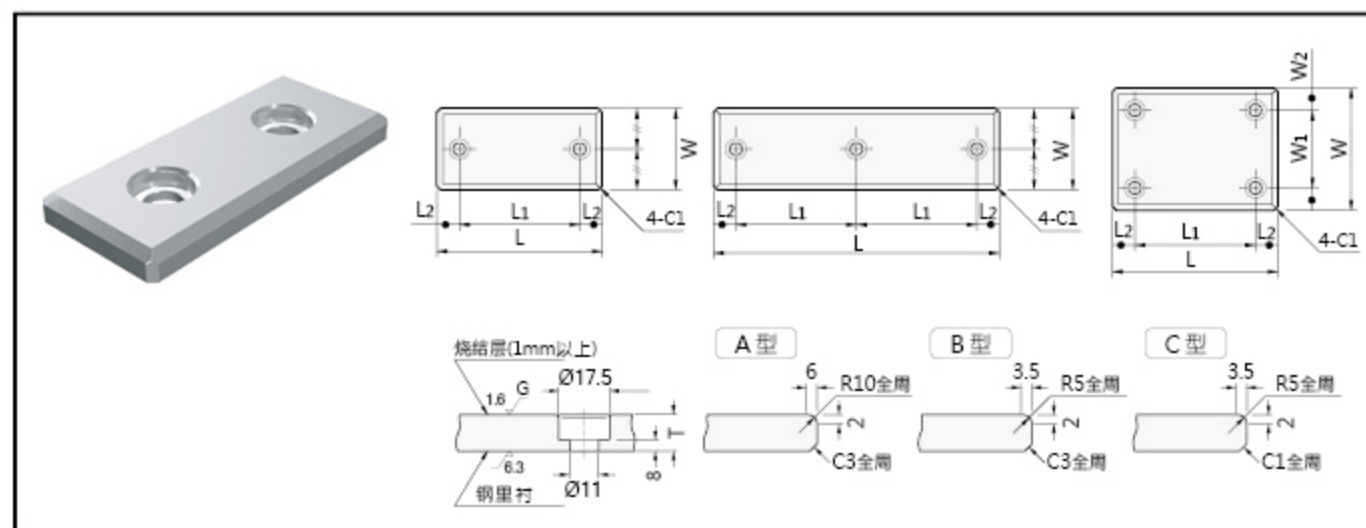
Order model

SPB---

inside diameter Outer diameter Length

Length Tolerance $\begin{matrix} +0.1 \\ -0.3 \end{matrix}$										inside diameter	Outer diameter	Applicable gasket SPW
40	50	60	70	80	100	120	130	140	150			
SPB	SPB	SPB	SPB	SPB	SPB	SPB	SPB	SPB	SPB			
										8	12	—
										10	14	-1003
										12	18	-1203
										13	19	-1303
										14	20	-1403
										15	21	-1503
										16	22	-1603
										18	24	-1803
										20	28	-2005
										20	30	"
										25	33	-2505
										25	35	"
										30	38	-3005
										30	40	"
										31.5	40	—
										35	44	-3505
										35	45	"
										40	50	-4007
										40	55	"
										45	55	-4507
										45	56	"
										45	60	"
										50	60	-5008
										50	62	"
										50	65	"
										55	70	-5508
										60	74	-6008
										60	75	"
										63	75	—
										65	80	-6508
										70	85	-7010
										70	90	"
										75	90	-7510
										75	95	"
										80	96	-8010
										80	100	"
										90	110	-9010
										100	120	-10010
										110	130	—
										120	140	-12010
										125	145	—
										130	150	—
										140	160	—
										150	170	—
										160	180	—

CWP #2000 Self-Lubricating Wear Plate (Widely Applicable)

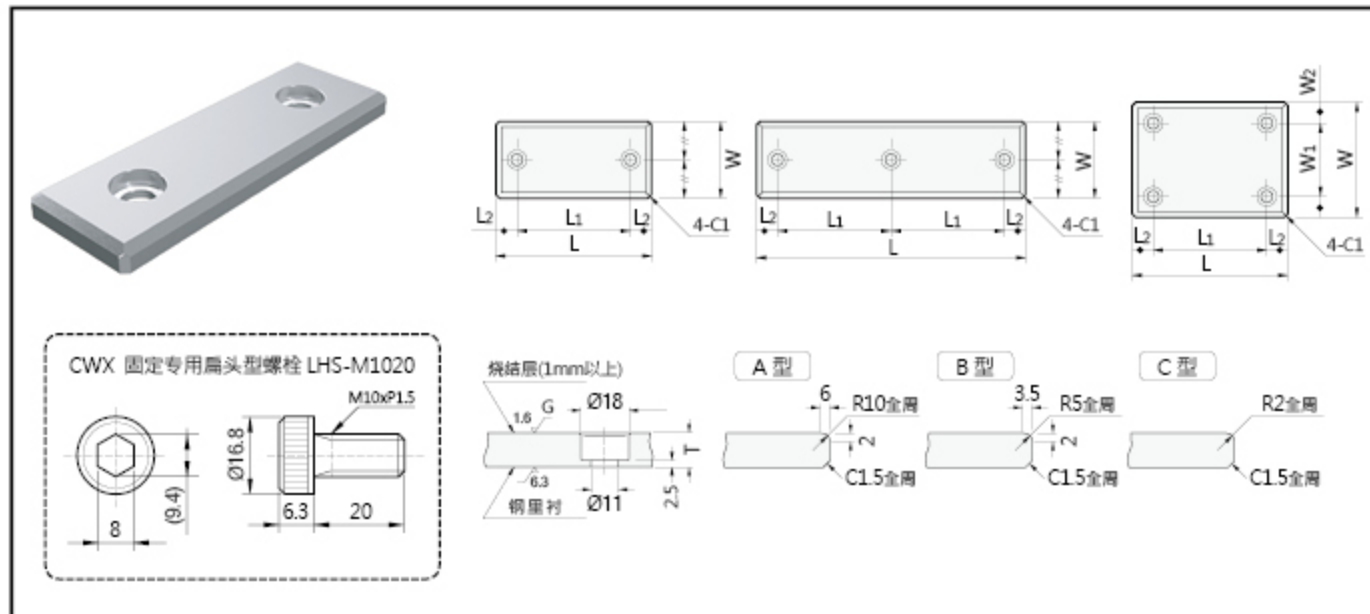


Unit: mm

Standard No.	Width		Length		Thickness		Hole spacing of the assembly holes				Number of assembly holes	Chamfer shape	
	W	Tolerance	L	Tolerance	T	Tolerance	W1	Tolerance	W2	L1			Tolerance
CWP-2875			75				-	-	-	45		15	
CWP-28100	28		100				-	-	-	50		25	
CWP-28150			150				-	-	-	100		25	C
CWP-3875			75				-	-	-	45		15	
CWP-38100	38		100				-	-	-	50		25	
CWP-38150			150				-	-	-	100		25	2
CWP-4875			75				-	-	-	45		15	
CWP-48100			100				-	-	-	50		25	
CWP-48125	48		125				-	-	-	100		25	
CWP-48150			150				-	-	-	100		25	B
CWP-48200			200				-	-	-	100		50	
CWP-48250			250				-	-	-	45		25	3
CWP-5875			75				-	-	-	50		15	
CWP-58100	58		100				-	-	-	75		25	
CWP-58150			150				-	-	-	100		25	
CWP-7575B			75				-	-	-	25		25	2
CWP-75100B			100				-	-	-	50		25	
CWP-75125	75	-0.1	125	-0.1	20	±0.01	-	-	-	75	+0.2	25	
CWP-75150		-0.3	150	-0.3			-	-	-	100		25	
CWP-75200			200				-	-	-	150		25	
CWP-75250			250				-	-	-	100		25	
CWP-75300			300				-	-	-	100		50	3
CWP-100100			100							50		25	
CWP-100125			125							75		25	
CWP-100150	100		150						25	100		25	A
CWP-100200			200							150		25	
CWP-100250			250							200		25	
CWP-100300			300						50	200		50	
CWP-125125			125							75		25	
CWP-125150			150						+0.2	100		25	4
CWP-125200	125		200							150		25	
CWP-125250			250							200		25	
CWP-125300			300							200		50	
CWP-150150			150							100		25	
CWP-150200	150		200						100	25		25	
CWP-150250			250							200		25	

CWX #2000 Self-Lubricating Wear Plate

Bushings & Guide Plates Series



Unit: mm

Standard No.	Width		Length		Thickness		Hole spacing of the assembly holes						Number of assembly holes	Chamfer shape
	W	Tolerance	L	Tolerance	T	Tolerance	W1	Tolerance	W2	L1	Tolerance	L2		
CWX-2875	28		75		10	±0.01	-	-	-	45	+0.2	15	C	
CWX-28100			100				-	-	-	50		25		
CWX-28150			150				-	-	-	100		25		
CWX-3875	38		75		10	±0.01	-	-	-	45	+0.2	15	2	
CWX-38100			100				-	-	-	50		25		
CWX-38150			150				-	-	-	100		25		
CWX-4875	48		75		10	±0.01	-	-	-	45	+0.2	15	B	
CWX-48100			100				-	-	-	50		25		
CWX-48125			125				-	-	-	100		25		
CWX-48150	48		150		10	±0.01	-	-	-	100	+0.2	25	B	
CWX-48200			200				-	-	-	100		50		
CWX-48250			250				-	-	-	45		25		
CWX-5875	58		75		10	±0.01	-	-	-	50	+0.2	15	2	
CWX-58100			100				-	-	-	75		25		
CWX-58150			150				-	-	-	100		25		
CWX-7575B	75	-0.1 -0.3	75	-0.1 -0.3	10	±0.01	-	-	-	25	+0.2	25	2	
CWX-75100B			100				-	-	-	50		25		
CWX-75125			125				-	-	-	75		25		
CWX-75150	75	-0.1 -0.3	150	-0.1 -0.3	10	±0.01	-	-	-	100	+0.2	25	3	
CWX-75200			200				-	-	-	150		25		
CWX-75250			250				-	-	-	100		25		
CWX-75300	75	-0.1 -0.3	300	-0.1 -0.3	10	±0.01	-	-	-	100	+0.2	50	A	
CWX-100100			100				-	-	-	50		25		
CWX-100125			125				-	-	-	75		25		
CWX-100150	100		150		10	±0.01	-	-	-	100	+0.2	25	4	
CWX-100200			200				-	-	-	150		25		
CWX-100250			250				-	-	-	200		25		
CWX-100300	100		300		10	±0.01	50	-	-	200	+0.2	50	A	
CWX-125125			125				-	-	-	75		25		
CWX-125150			150				-	-	-	100		25		
CWX-125200	125		200		10	±0.01	-	-	-	150	+0.2	25	4	
CWX-125250			250				-	-	-	200		25		
CWX-125300			300				-	-	-	200		50		
CWX-150150	150		150		10	±0.01	-	-	-	100	+0.2	25	A	
CWX-150200			200				-	-	-	150		25		
CWX-150250			250				-	-	-	200		25		

