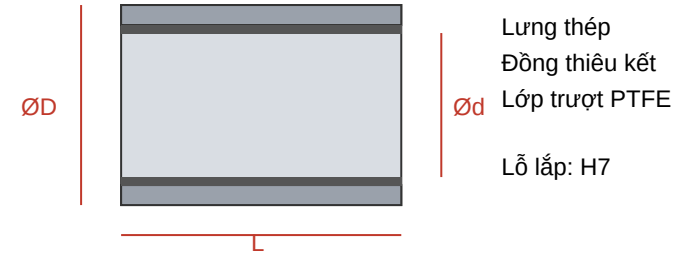


LFB — Bạc lạng thép trụ tự bôi trơn

Bạc cuộn lạng thép · lớp trượt PTFE · chạy khô không cần mỡ

KOLBEN

shop.kolben.com.vn · 0906 871 899



Thông số (chạy khô)

Nhiệt độ làm việc	-200 → +280 °C
Áp suất bề mặt tối đa	49 N/mm ² (tính 137)
Vận tốc trượt tối đa	0,65 m/s
PV tối đa	3,6 N/mm ² ·m/s
Cách đọc mã	LFB 2520 = ID 25 × L 20
Lắp đặt	Ép vào lỗ H7, trục mài Ra ≤ 0,8

Bảng đường kính ngoài theo ID

ID Ød	OD ØD	Thành T	ID Ød	OD ØD	Thành T
3	5	1	31	35	2
4	6	1	32	36	2
5	7	1	35	39	2
6	8	1	38	42	2
7	9	1	40	44	2
8	10	1	45	50	2,5
9	11	1	50	55	2,5
10	12	1	55	60	2,5
12	14	1	60	65	2,5
13	15	1	65	70	2,5
14	16	1	70	75	2,5
15	17	1	75	80	2,5
16	18	1	80	85	2,5
17	19	1	85	90	2,5
18	20	1	90	95	2,5
19	22	1,5	100	105	2,5
20	23	1,5	110	115	2,5
22	25	1,5	120	125	2,5
24	27	1,5	130	135	2,5
25	28	1,5	140	145	2,5
26	30	2	150	155	2,5
28	32	2	160	165	2,5
30	34	2			

ID 3–18: thành 1,0 mm · ID 19–25: 1,5 mm · ID 26–40: 2,0 mm · ID ≥ 45: 2,5 mm.

Lỗ lắp gia công H7, vát mép; ép bằng trục gá, không gõ búa. Khe nối đặt tránh hướng chịu tải lớn nhất.

Các trang sau: đặc tính vật liệu, gá ép và lực ép (dùng chung cho bạc LFB và LFF).

Size LFB có sẵn tại kho KOLBEN (180 mã)

Mã	ID	OD	L	Mã	ID	OD	L	Mã	ID	OD	L
LFB 0404	4	5,5	4	LFB 3530	35	39	30	LFB 8045	80	85	45
LFB 0505	5	7	5	LFB 3535	35	39	35	LFB 8050	80	85	50
LFB 0512	5	7	12	LFB 3540	35	39	40	LFB 8060	80	85	60
LFB 0608	6	8	8	LFB 3740	37	—	40	LFB 8535	85	90	35
LFB 1006	10	12	6	LFB 3745	37	—	45	LFB 8540	85	90	40
LFB 1010	10	12	10	LFB 3840	38	42	40	LFB 8550	85	90	50
LFB 1208	12	14	8	LFB 3845	38	42	45	LFB 8560	85	90	60
LFB 1210	12	14	10	LFB 3850	38	42	50	LFB 9030	90	95	30
LFB 1215	12	14	15	LFB 4015	40	44	15	LFB 9035	90	95	35
LFB 1315	13	15	15	LFB 4020	40	44	20	LFB 9045	90	95	45
LFB 1415	14	16	15	LFB 4025	40	44	25	LFB 9050	90	95	50
LFB 1430	14	16	30	LFB 4030	40	44	30	LFB 9060	90	95	60
LFB 1515	15	17	15	LFB 4030	40	45	30	LFB 9530	95	—	30
LFB 1525	15	17	25	LFB 4035	40	44	35	LFB 9535	95	—	35
LFB 1612	16	18	12	LFB 4040	40	44	40	LFB 9540	95	—	40
LFB 1615	16	18	15	LFB 4045	40	44	45	LFB 9545	95	—	45
LFB 1620	16	18	20	LFB 4050	40	44	50	LFB 9550	95	—	50
LFB 1625	16	18	25	LFB 4520	45	50	20	LFB 9560	95	—	60

LFB 1630	16	18	30	LFB 4525	45	50	25	LFB 10030	100	105	30
LFB 1812	18	20	12	LFB 4535	45	50	35	LFB 10035	100	105	35
LFB 1815	18	20	15	LFB 4540	45	50	40	LFB 10040	100	105	40
LFB 1820	18	20	20	LFB 4550	45	50	50	LFB 10050	100	105	50
LFB 1825	18	20	25	LFB 5015	50	55	15	LFB 10060	100	105	60
LFB 1920	19	22	20	LFB 5035	50	55	35	LFB 10070	100	105	70
LFB 2020	20	23	20	LFB 5040	50	55	40	LFB 10535	105	—	35
LFB 2025	20	23	25	LFB 5045	50	55	45	LFB 10540	105	—	40
LFB 2030	20	23	30	LFB 5050	50	55	50	LFB 10545	105	—	45
LFB 2120	21	—	20	LFB 5525	55	60	25	LFB 10550	105	—	50
LFB 2215	22	25	15	LFB 5530	55	60	30	LFB 10560	105	—	60
LFB 2220	22	25	20	LFB 5535	55	60	35	LFB 11035	110	115	35
LFB 2320	23	—	20	LFB 5540	55	60	40	LFB 11040	110	115	40
LFB 2415	24	27	15	LFB 5550	55	60	50	LFB 11045	110	115	45
LFB 2425	24	27	25	LFB 5575	55	60	75	LFB 11055	110	115	55
LFB 2430	24	27	30	LFB 6030	60	65	30	LFB 11060	110	115	60
LFB 2510	25	28	10	LFB 6035	60	65	35	LFB 11070	110	115	70
LFB 2515	25	28	15	LFB 6040	60	65	40	LFB 11535	115	—	35
LFB 2520	25	28	20	LFB 6045	60	65	45	LFB 11540	115	—	40
LFB 2525	25	28	25	LFB 6050	60	65	50	LFB 11545	115	—	45
LFB 2530	25	28	30	LFB 6060	60	65	60	LFB 11550	115	—	50
LFB 2535	25	28	35	LFB 6530	65	70	30	LFB 11560	115	—	60
LFB 2620	26	30	20	LFB 6535	65	70	35	LFB 12035	120	125	35
LFB 2630	26	30	30	LFB 6540	65	70	40	LFB 12050	120	125	50
LFB 2736	27	—	36	LFB 6545	65	70	45	LFB 12060	120	125	60
LFB 2820	28	32	20	LFB 6550	65	70	50	LFB 12065	120	125	65
LFB 2825	28	32	25	LFB 6560	65	70	60	LFB 12070	120	125	70
LFB 2830	28	32	30	LFB 7030	70	75	30	LFB 12550	125	—	50
LFB 3010	30	34	10	LFB 7035	70	75	35	LFB 12560	125	—	60
LFB 3015	30	34	15	LFB 7040	70	75	40	LFB 125173	125	130	173
LFB 3020	30	34	20	LFB 7045	70	75	45	LFB 13050	130	135	50
LFB 3025	30	34	25	LFB 7050	70	75	50	LFB 13060	130	135	60
LFB 3030	30	34	30	LFB 7060	70	75	60	LFB 13550	135	—	50
LFB 3040	30	34	40	LFB 7080	70	75	80	LFB 13560	135	—	60
LFB 3230	32	36	30	LFB 7530	75	80	30	LFB 14050	140	145	50
LFB 3240	32	36	40	LFB 7535	75	80	35	LFB 14060	140	145	60
LFB 3345	33	—	45	LFB 7540	75	80	40	LFB 14070	140	145	70
LFB 3345	33	36	45	LFB 7545	75	80	45	LFB 14560	145	—	60
LFB 3515	35	39	15	LFB 7550	75	80	50	LFB 16050	160	165	50
LFB 3520	35	39	20	LFB 7560	75	80	60	LFB 17060	170	—	60
LFB 3525	35	39	25	LFB 8035	80	85	35	LFB 220100	220	—	100
LFB 3530	35	39	30	LFB 8040	80	85	40	LFB 26080	260	—	80

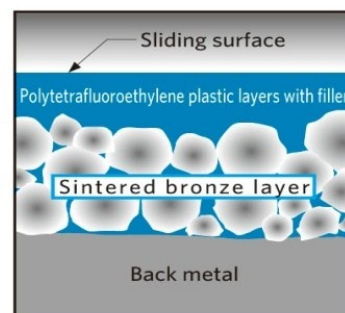
ID trên 160 mm: OD theo bản vẽ, liên hệ Zalo 0906 871 899. Giá & tồn kho cập nhật tại shop.kolben.com.vn.

Oiles Drymet LF Polytetrafluoroethylene plastic multi-layer bearings with back metals



Feature

- Serviceable without the need for lubrication. Thin and lightweight for compact design.
- Demonstrate low coefficient of friction and superior load performances in high-load, low-speed conditions.
- Usable at the high PV values even in the middle- and high-speed zones when lubricated.
- Usable in wide temperature ranges from low to high temperatures. Has superior chemical resistance.
- Features superior dimensional stability, mechanical strength, and thermal conductivity.
- The standard products and plate materials are available in various sizes.



image

Service range

Lubrication condition	Dry
Service temperature range °C	−200~+280
Allowable max. pressure P N/mm ² [kgf/cm ²]	49.0 (137) {500 (1,400) }
Allowable max. velocity V m/s [m/min]	0.65 [39]
Allowable max. PV value N/mm ² · m/s [kgf/cm ² · m/min]	3.60 [2,200]

The values in parentheses are static allowable pressures, which are the allowable bearing pressures when accompanied with no sliding or accompanied with sliding at quite low speed not more than 0.0017 m/s [0.1 m/min.].

※ Allowable max. pressure of LFCF is 24.5N/mm² {250Kgf/cm²} .

Mechanical properties

Tensile strength	JIS Z 2241	N/mm ² [kgf/cm ²]	380 {3,875}
Elongation	JIS Z 2241	%	27
Hardness	JIS Z 2244	Hv	107

※ The values shown above are typical values, not the standard values.

※ The values shown above are values of back metal.

Press-fitting (Rolled bushing)

Press-fitting jig

Generally, as shown in the figure 1, a mandrel is used for the press-fitting. However use of a guide ring facilitates easier press-fitting. Use of a guide ring prevents damage of a bushing at the time of press-fitting. The dimension of a guide ring should be calculated from the table below.

Inner diameter of the guide ring should be the size so that the bushing can be inserted by hands. Length of the guide ring should be more than one-third of the bushing, or if possible, it should be the same length as the bushing.

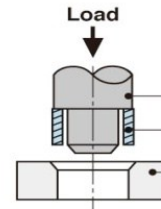
The dimension of mandrel should be calculated from table below.

Dimension of bushing	Dimension of mandrel
I.D. D_0	*1 $d_0 = D_0 - (0.05 \text{ to } 0.10)$
O.D. D_1	*2 $d_1 = D_1 - (0.20 \text{ to } 0.30)$
Length L	$l \geq L$

*1 Techmet B Standard Type (TCB) should be $D_0 - (0.25 \text{ to } 0.30)$.

*2 Use of flange bushings should be the same size of flange.

Regular press-fitting



Press-fitting with guide ring

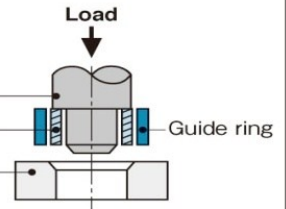


Figure 1

The dimension of guide ring should be calculated from table below.

Dimension of bushing	Guide ring I.D.	Guide ring O.D.
Up to $\phi 40$	$D_1 + (0.1 \text{ to } 0.3)$	
$\phi 42$ to $\phi 60$	$D_1 + (0.2 \text{ to } 0.5)$	$D_1 + (10 \text{ to } 15)$
Over $\phi 65$	$D_1 + (0.5 \text{ to } 1.0)$	

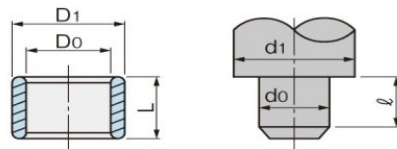


Figure 2

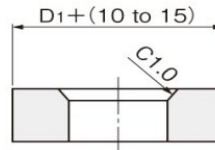


Figure 3

Inner diameter of the guide ring should be the size that bushing can be inserted by hands. The length of the guide ring should be more than one-third of the bushing, or if possible, it should be the same length as the bushing.

Housing chamfer

For the housing chamfer, either a round chamfer or a tapered chamfer is recommended. In case of a C-surface chamfer, (more than C1.0) make sure there is no burr. Smoother press-fitting is possible by applying small amount of grease or lubricant.

Press-fit force

Press-fit smoothly with hydraulic (pressure), pneumatic pressure, or a vice.

Avoid press-fit by use of impact such as use of a hammer.

It might induce damage of the bushing, or change the size of the inner diameter after press-fit.

Press-fit force is obtained by below formula.

$$F = (0.9 \text{ to } 1.2) \times 10^4 \cdot \frac{t \cdot L \cdot S}{D_1} \text{ [kg]}$$

t : thickness of the steel backing
L : length of the bushing
S : average interference
D1 : O.D. of bushing

● Thickness of the steel backing

Drymet LF Unit : mm

I.D. of bushing	t
Up to $\phi 18$	0.65
$\phi 19$ to $\phi 25$	1.15
$\phi 26$ to $\phi 40$	1.65
$\phi 42$ and over	2.15
LFCF	0.25

※ LFCF is obtained by below formula.

$$F = (0.4 \text{ to } 0.8) \times 10^4 \cdot \frac{t \cdot L \cdot S}{D_1} \text{ [kg]}$$

Techmet B Unit : mm

I.D. of bushing	t
Up to $\phi 18$	0.50
$\phi 20$ to $\phi 22$	0.95

Toughmet / Toughmet D Unit : mm

I.D. of bushing	t
Up to $\phi 18$	0.70
$\phi 19$ to $\phi 25$	1.10
$\phi 26$ to $\phi 40$	1.60
$\phi 42$ and over	2.10

Techmet E Unit : mm

thickness of bearing	t
0.5	0.25
1.0	0.65

※ Techmet E (t0.5) is obtained by below formula.

$$F = (0.4 \text{ to } 0.8) \times 10^4 \cdot \frac{t \cdot L \cdot S}{D_1} \text{ [kg]}$$

Dimensional inspection and chamfering on Oiles Drymet LF

Oiles Drymet LF is dimensionally inspected before shipping as indicated below:

1. The O.D. is checked by "GO" and "NO GO" ring gauges.
2. The I.D. mounted in the "GO" ring gauge is checked by plug gauges.
3. The "GO" ring gauge stands for the upper limit and the "NO GO" ring gauge the lower limit of the O.D. tolerance.
4. Chamfering: Both ends of the I.D. and O.D. are chamfered as shown in the right diagram except those with the ID of 9mm or less which are not chamfered.

