



LBMF

Flanged dry bushes

Stepping forward together with our customers

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The benefits of slide bearings versus roller bearings

In a variety of applications, designers are increasingly replacing roller bearings with slide bearings. In addition to ease of installation and cost effectiveness, slide bearings offer a number of distinct advantages. Slide bearings require less installation space, have a larger load bearing capacity, are maintenance-free or require little maintenance, are easier to assemble and are less susceptible to noise and vibration.

The following list gives an overview of the general advantages of bearings compared to bearings.

Slide bearing

- Higher load bearing capacity and reduced footprint
- Higher resistance to vibration and increased lifetime
- Easier installation
- Lower installation costs
- Increased shaft tolerances possible
- Compensates misalignment and reduces the edge load

Roller bearing

- sensitive to shock, vibration and edge load
- high costs for bearings, housings, counterfaces and - fixing materials
- large space required
- is prone to noise development

Technologies for top performance

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- pressing tools
- injection molds
- general engineering

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Bushes with PTFE sliding layer

The lead-free composite material SO#936FR is used for maintenance-free plain bearings that preferably run dry, i.e. without lubricant. The rolled and calibrated bushings are made of thin-walled strip material. The butt joint runs parallel to the bushing axis.

Properties

- Good sliding properties of the maintenance-free bronze / PTFE sliding layer
- Suitable for dry running and clean operation
- Smooth movement, without stick-slip effect
- For oscillating and rotating movements, even at low speed
- Low friction, low wear and long service life
- High specific load, even shock-wise
- Temperature resistant between -200 and +280 °C
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An adaptation process takes place on the sliding surfaces of the shaft and bushing during the first hours of operation. The surface structure of the shaft smoothes out and absorbs part of the PTFE sliding layer.

Running-in characteristic

Dadurch werden die tragenden Kontaktflächen und die Tragfähigkeit zwischen den Elementen verbessert. Der Einlaufverschleiß nach Abb. 1 stabilisiert sich je nach Belastung schon in kurzer Zeit und führt zu einem günstigen Reibwert.

Sliding partners

Suitable sliding partners for Sankyo Oilless Bushes and Plates are **gas nitrated or hardened steel** alloys with **HRC > 35**.

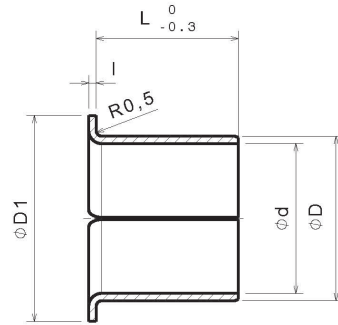
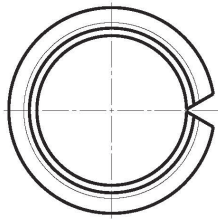
In order to ensure an optimal sliding behaviour, the difference in hardness between the sliding material and sliding partner should at least be **100 HB**.

The surface roughness of the sliding partner should be **Rz = 3...6,3 µm (grinding)**.

If guides, like in large dies of punching tools, are continuously moved apart during operation, the counterpart partner should be provided with correspondingly generous centering chamfers.

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Article informationen



Toleranzen / Tolerances
Gehäuse / Housing: H7
Welle / Shaft: -0,025 / -IT7

Properties:

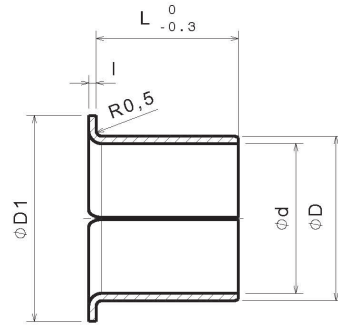
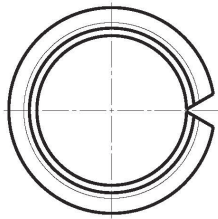
Base material		Steel
Self-lubricating		Yes
Lubricant		PTFE
Max. surface pressure P	<100.000 load cases	29 N/mm ²
	>10 Mio. load cases	15 N/mm ²
	rotating, oscillating, gliding	59 N/mm ²
	very slow movement	147 N/mm ²
Max. sliding speed v		120 m/min
Operating temperature		-200°C / +280°C

Article no.:	Article name:	Inner Ø d:	Outer Ø D:	Length L:	D1 :	I:
11300303	LBMF 3-4,6-3	3	4,6	3	7	0,8
11300305	LBMF 3-4,6-5			5		
11300404	LBMF 4-5,6-4	4	5,6	4	9	
11300406	LBMF 4-5,6-6			6		
11300504	LBMF 5-7-4	5	7	4	10	1
11300505	LBMF 5-7-5			5		
11300506	LBMF 5-7-6			6		
11300603	LBMF 6-8-3	6	8	3	12	
11300604	LBMF 6-8-4			4		
11300605	LBMF 6-8-5			5		
11300606	LBMF 6-8-6			6		
11300607	LBMF 6-8-7			7		
11300608	LBMF 6-8-8			8		
11300610	LBMF 6-8-10			10		
11300705	LBMF 7-9-5	7	9	5	13	
11300707	LBMF 7-9-7			7		
11300710	LBMF 7-9-10			10		
11300712	LBMF 7-9-12			12		
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11300809	LBMF 8-10-9			9		
11300810	LBMF 8-10-10			10		
11300812	LBMF 8-10-12			12		
11301006	LBMF 10-12-6	10	12	6	18	
11301007	LBMF 10-12-7			7		
11301008	LBMF 10-12-8			8		
11301009	LBMF 10-12-9			9		
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11301208	LBMF 12-14-8			8		
11301210	LBMF 12-14-10			10		
11301212	LBMF 12-14-12			12		

Article no.:	Article name:	Inner Ø d:	Outer Ø D:	Length L:	D1 :	l:
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11301810	LBMF 18-20-10	18	20	10	26	
11301812	LBMF 18-20-12			12		
11301815	LBMF 18-20-15			15		
11301817	LBMF 18-20-17			17		
11301820	LBMF 18-20-20			20		
11301822	LBMF 18-20-22			22		
11301825	LBMF 18-20-25			25		
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113020115	LBMF 20-23-11			11		
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11302021	LBMF 20-23-21			21		
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11302212	LBMF 22-25-12			12		
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11302225	LBMF 22-25-25			25		
11302415	LBMF 24-27-15	24	27	15	35	
11302420	LBMF 24-27-20			20		
11302425	LBMF 24-27-25			25		
11302430	LBMF 24-27-30			30		
11302510	LBMF 25-28-10	25	28	10	36	
11302511	LBMF 25-28-11			11		
11302512	LBMF 25-28-12			12		
11302515	LBMF 25-28-15			15		

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Article informationen



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Welle / Shaft: -0,025 / -IT7

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11302516	LBMF 25-28-16	25	28	16	35	1,5
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11302530	LBMF 25-28-30			30		
11302615	LBMF 26-30-15	26	30	15	38	
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11302812	LBMF 28-32-12	28	32	12	40	2
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11303015	LBMF 30-34-15			15		
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11303220	LBMF 32-36-20	32	36	20	46	
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11304020	LBMF 40-44-20			20		
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11304030	LBMF 40-44-30	40	44	30	54	2
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11304516	LBMF 45-50-16	45	50	16	60	2,5
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11304525	LBMF 45-50-25			25		
11304526	LBMF 45-50-26			26		
11304530	LBMF 45-50-30			30		
11304540	LBMF 45-50-40			40		
11304550	LBMF 45-50-50			50		
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11305040	LBMF 50-55-40			40		
11305530	LBMF 55-60-30	55	60	30	70	
11305540	LBMF 55-60-40			40		
11306030	LBMF 60-65-30	60	65	30	75	

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Installation note

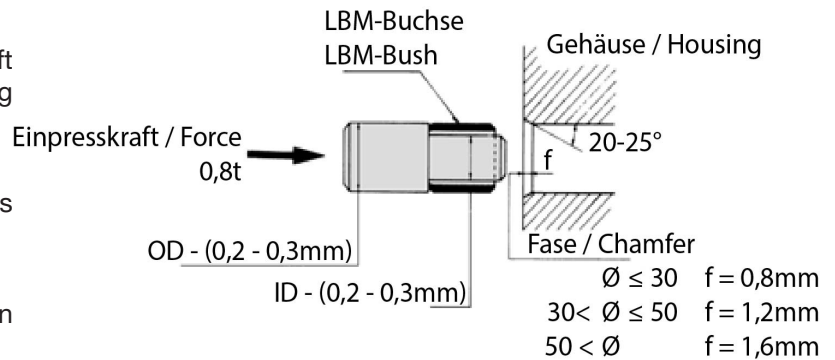
Bush

Observe tolerances of the press-in mandrel (shaft and calibrating mandrel diameter) and the housing when pressing in the bushing.

In large diameter range, use calibrating mandrels if necessary!

Avoid damage to the running surface when mounting the bearings.

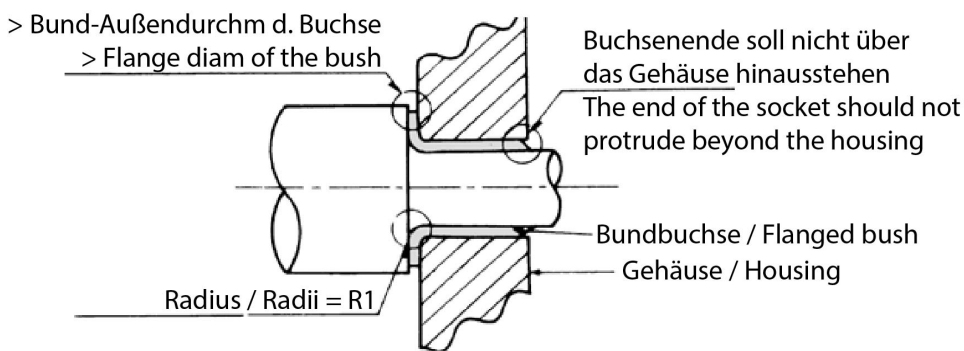
Design of the shaft journal (mating surface): For dry running, surface roughness = Rz2 - Rz3 (ground), for secondary bearing points also drawn material is permissible.



Flanged bush

The mandrel shank diameter should be larger than the collar outside diameter of the bushing when pressing in.

The shaft outside diameter of the shaft should be larger than the collar outside diameter of the bushing.



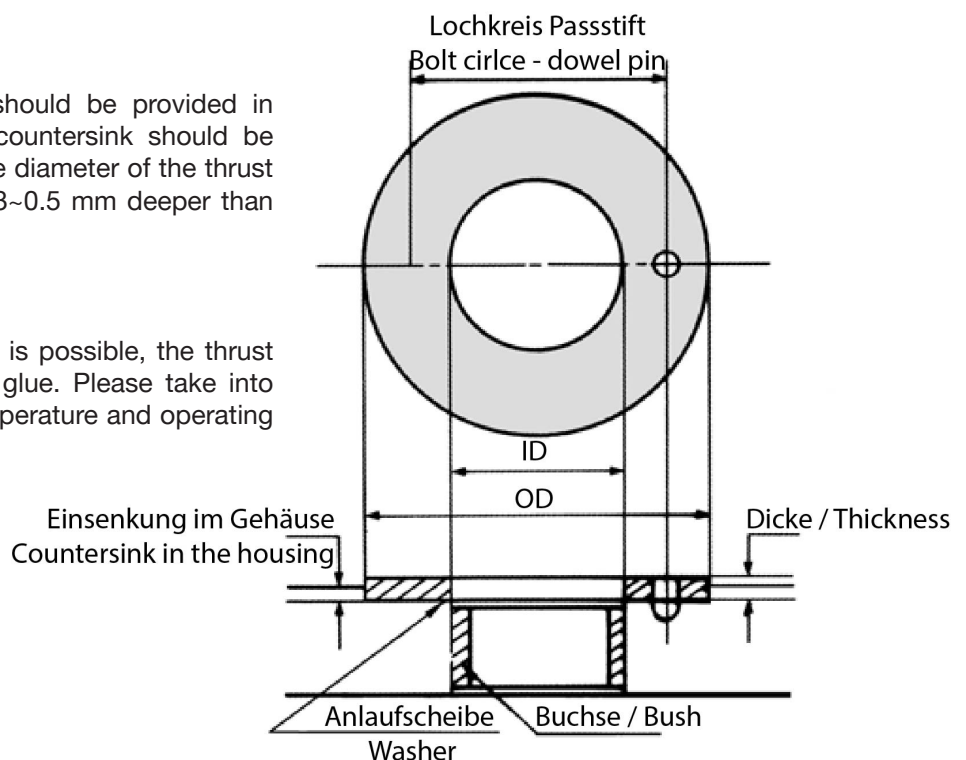
Thrust washer

In case of locking by dowel pin:

If possible, a countersink (cavity) should be provided in the housing. The diameter of the countersink should be 0.05~0.15 mm larger than the outside diameter of the thrust washer. The dowel pin should be 0.3~0.5 mm deeper than the top edge - thrust surface.

Glue in place:

If no dowel pin or screw connection is possible, the thrust washer can also be fixed by using glue. Please take into account the maximum operating temperature and operating conditions of the glue.



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