HLDB SLIDING BEARING

嘉善宏利达滑动轴承有限公司
Jiashan Honglida Sliding Bearing Co.,ltd.



www.hldbearings.com

公司简介
Introduction

嘉善宏利达滑动轴承有限公司成立于2003年，是一家专业研发和生产滑动轴承的制造商。经过多年的探索与努力，已成功研制和生产出多种系列的滑动轴承产品，包括：HLDB-10系列无油复合自润滑轴承，HLDB-20系列边界自润滑轴承，HLDB-800系列双金属轴承，HLDB-JDB系列铸造青铜轴承，HLDB-090系列青铜卷制轴承等。HLDB轴承可运用于高载低速条件下的旋转、摆动和直线往复运动，同时也适用于传统润滑无法达到或被禁止使用的场合。

HLDB系列产品主要出口到欧美市场，我们的客户遍布全球。我们拥有强大的技术研发团队，精益求精的生产制造队伍，严谨高效的管理体系。HLDB产品的整个生产流程严格遵照国际标准化组织（ISO）的准则和要求。一直以来，我们的高品质产品和完善的服务赢得来自世界各地客户的一致好评。

我们始终坚持“没有最好，只有更好”的理念。热诚为来自世界各地的客户提供更高品质的产品，更优质的服务，更满意的价格。欢迎广大客商来电咨询，HLDB愿与您携手，共创美好未来！

Jiashan Honglida Sliding Bearing Co.,Ltd. established in 2003, is a professional manufacturer dedicates in researching and producing self-lubricating bearings. After years of work, we have successfully developed various kinds of bearings, including self-lubricating multilayer composite bushing(HLDB-10), steel bronze powder with POM marginal bearings(HLDB-20), bimetal bushing(HLDB-800), wrapped bronze bushes and washers(HLDB-090/092), metallic self-lubricating bearings(HLDB-JDB), steel bushings(HLDB-200), etc. HLDB bushings can be used wherever there is rotation or linear motion between mechanical parts where lubrication is not allowed or external lubricating accessibility is limited.

HLDB have the excellent ability to source customers with the wide range of slide bearing products. HLDB products were exported mostly to Europe and America. Our customers are widely ranged from all over the world. HLDB possesses a professional team in R&D technique; a careful, experienced team in production and an effective, strict system in management. We implement strictly to the latest standards of the international organization for standardization (ISO) throughout the entire production process. For years, HLDB enjoy an excellent reputation in the field of self-lubricating applications.

'No best, but better.' We persevere in everlasting improvement and doing our best to meet your expectations on products and service, together for a better future hand by hand!

JIASHAN HONGLIDA SLIDING BEARING



JIASHAN HONGLIDA
SLIDING BEARING



Certificate of Registration

nqa

兹证明

嘉善宏润达精机有限公司

统一社会信用代码：91330421MA2BXY157K
经营地址：浙江省嘉兴市嘉善县干窑镇合胜北路 18 号（第 1 层北侧，第 2 层，第 3 层东侧，第 4 层）
注册地址：浙江省嘉兴市嘉善县干窑镇合胜北路 18 号 2 层

的质量管理体系适用于

滑动轴承轴套的生产

已经 NQA 根据标准

ISO 9001:2015

审核和注册

往册要求组织必须按照上述标准保持其质量管理体系，并由 NQA 进行监管。
获证组织必须定期接受监管审核并经审核合格，此证书方能续有效。
本证书信息可在国家认证认可监督管理委员会官方网站（www.cnca.gov.cn）上查询。
NQA 查询网址：www.nqa.com.cn

Managing Director 总经理

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证书有效期至： 2025 年 02 月 22 日
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UKAS MANAGEMENT SYSTEMS 0013

IAF



Certificate of Registration

nqa

兹证明

嘉善宏润达精机有限公司

浙江省嘉兴市嘉善县干窑镇合胜北路 18 号（第 1 层北侧，第 2 层，第 3 层东侧，第 4 层）

的质量管理体系适用于

滑动轴承轴套的生产

已经 NQA 根据标准

IATF 16949:2016

（即附产品设计）

审核和注册

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Managing Director

NQA Certificate No: TS9424
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Version: 1

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Revision Date: Feb 2017

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Self-lubricating Bearings

HLDB-10

自润滑轴承
Self-lubricating Bearings



HLDB-20

边界自润滑轴承
Marginal Self-lubricating Bearings



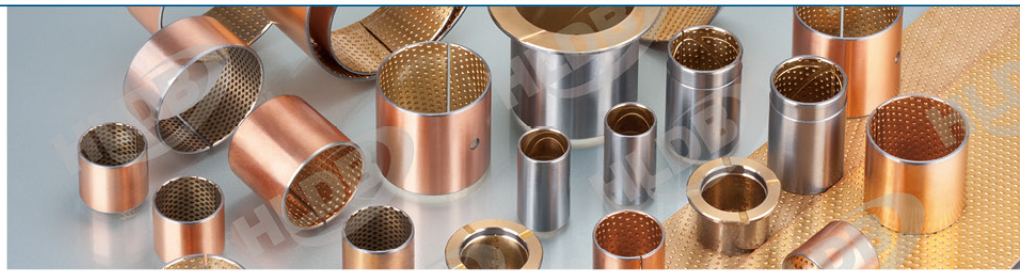
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Bronze-Wrapped Bearings



HLDB-800

双金属自润滑轴承
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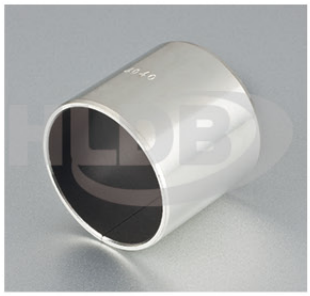


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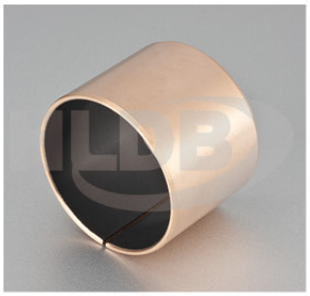
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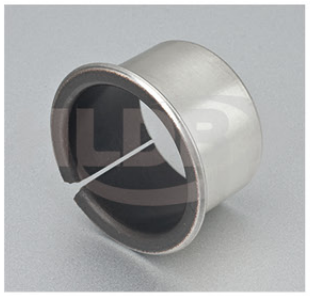
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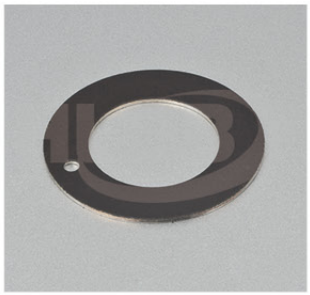
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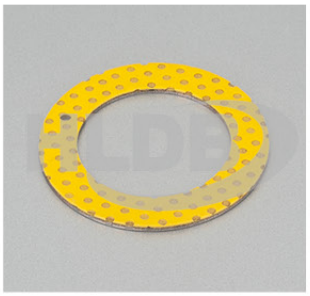
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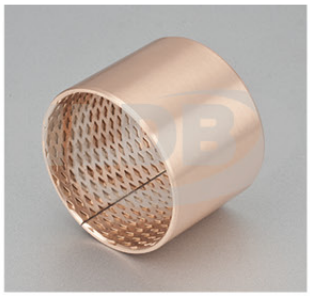
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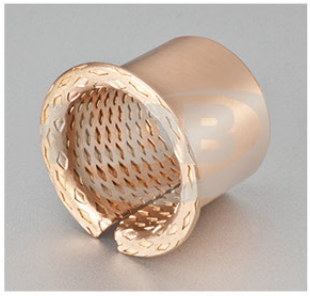
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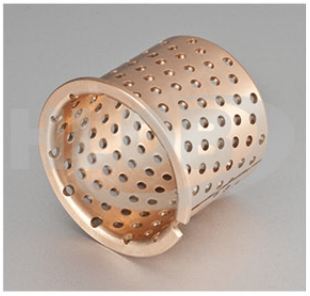
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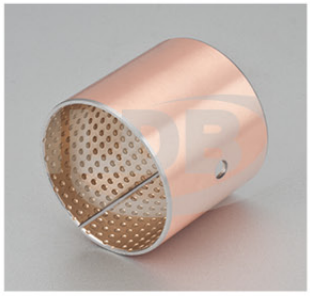
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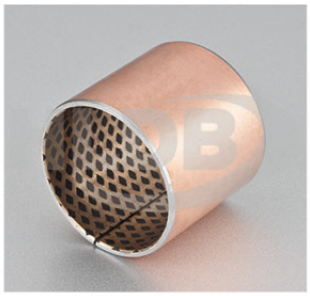


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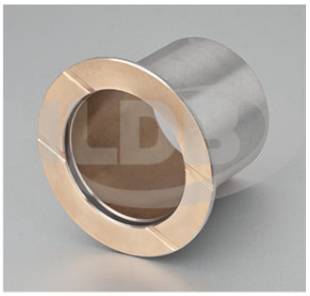


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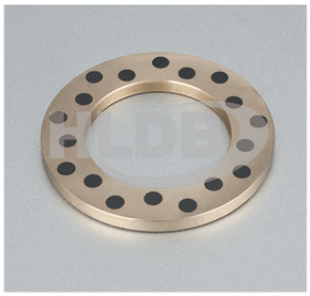
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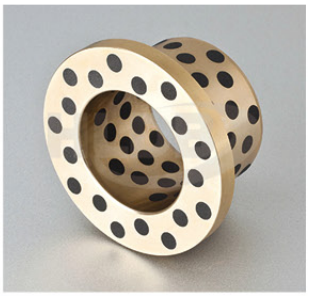
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HLDB-10 自润滑轴承
Self-lubricating Bearings

HLDB-10 碳钢基自润滑轴套
HLDB-10 Carbon Steel Self-lubricating Bushes

该产品以优质低碳钢为基体，中间烧结球形青铜层，表面轧制聚四氟乙烯(PTFE)的混合物。它具有较好的自润滑、耐磨损、摩擦系数低、走合性能好、低噪音等性能，产品广泛应用于各种机械的滑动部位。

HLDB-10 carbon steel self-lubricating bearings, used high quality low-carbon steel plate as base, sintered porous bronze as its interlayer and the compound of PTFE as its surface. It offers the property of good self-lubrication, low wear, low friction, good sliding characteristics, low noise.



应用特点 Application Feature

1. 无油润滑或少油润滑，适用于无法加油或较难加油的场合，可以在使用时不保养或少保养；
2. 耐磨性能好，摩擦系数小，使用寿命长；
3. 可在-195℃～+280℃范围内使用；
4. 走合性能好，低噪音，无污染；
5. 薄壁结构，质量轻，可缩小机械体积；
6. 在运作时能形成转移膜，起到保护对磨轴的作用，无咬轴现象；
7. 对磨轴的硬度要求低，未经调质处理的轴都可使用，从而降低了相关零件的加工难度；
8. 无吸水、吸油性，热膨胀系数小，散热性好，尺寸稳定；
9. 钢背面可电镀多种金属，因此可在腐蚀性介质中使用，不会生锈；

目前已广泛应用于各种机械的滑动部位，如自动化机械设备(伸缩、摇摆、滑动、弯曲、回旋、回转部位)油压气缸导套、齿轮泵、纺织机械、自动售货机、塑胶成型机、压铸机、橡胶机械、烟草机、健身器材、办公机械、液压搬运车、汽机车、摩托车、农林机械等。

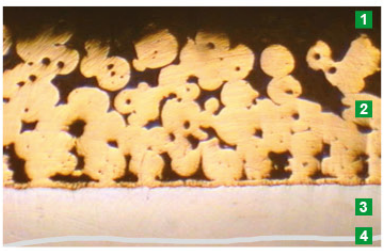
1. Working under oilless or minim oil state, maintenance free or just need a little maintenance.
2. Resist Abrasion, low coefficient of friction long operating life.
3. Operating in -195℃～+280℃.
4. Good mending, low-noise, non-pollution.
5. Thin-walled structure, light in weight, which can reduce the machine to small size.
6. Forming a transferred film during operation to protect shaft and trouble free.
7. Low demand to the shaft even no surface hardness treatment, which lower the cost of the mating components.
8. No absorption to water/oil, small coefficient of Thermal emption, good thermal conductivity and size stability.
9. The back of the steel strip can be plated with various metals, anti-corrosion.

The products have been used in sliding components of different machines, such as auto machines, piston pump, gear pump, textile machine, auto-sides machine, Injection Machine, sports Machine office equipment etc.

技术参数 Technical Data

最大承载 Max.load	静承载 Static	250N/mm^2
	低速运转 Very low speed	140N/mm^2
	旋转、摇摆运动 Roatating oscillating	60N/mm^2
最大PV值（干摩擦） Max. PV (dry running)	间断性运作 Short-term operation	3.6N/mm^2·m/s
	长期运作 Continuous operation	1.8N/mm^2·m/s
使用温度 Temp. limit		-195℃~+280℃
摩擦系数 Friction coefficient		0.05~0.20 μ
最大线速度 Max. speed	干摩擦 Dry running	2m/s
	流体润滑 Hydrodynamic operation	>2m/s
导热系数 Thermal conductivity		42 W(m·k)$^{-1}$
线胀系数 Coefficient of thermal expansion		11×10^{-6}·K^{-1}

材料组织 Material Structure



1.聚四氟乙烯与铅混合物0.01-0.03mm
2.球形青铜粉0.2-0.3mm
3.钢背0.7-2.3mm
4.电镀层:镀锡层厚0.005mm，或镀铜层厚0.008mm

1.PTFE with mixture 0.01~0.03mm
2.Porous bronze 0.2~0.3mm
3.Steel backing 0.7~2.3mm
4.Tin-plating 0.005mm or copper plating 0.008mm

可供标准产品：
直套P04，翻边轴套P06，止推垫片P07，板材P07。

可供非标产品：
直套，翻边轴套，止推垫片，板材，轴瓦，滑板，钢套组合件。

Standard Size:
Stright Bearing P04, Flange Bearing P06, Thrust washer P07, Strip P07.

Non-Standard Size:
Stright Bearing, Flange Bearing, Thrust washer, Strip, Bearing bushing, Wear strips, Steel combine units.

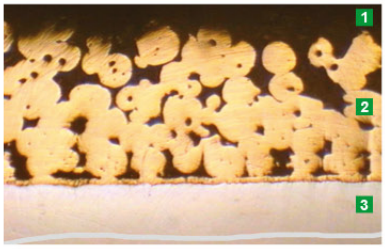
HLDB-1B 铜基无铅自润滑轴套
HLDB-1B Bronze Pb-free Self-lubricating Bushes

HLDB-1B青铜基轴承，是以锡青铜为基体，中间烧结青铜球粉，表面轧制聚四氟乙烯(PTFE)和耐高温填充材料而成。它具有很高的安全系数，在连续工作不能停机修理的场所和高温不能加油的场所特别适用。目前已广泛应用在冶金钢铁工业，连铸机方坯滚道、高温炉炉前设备，水泥灌浆泵和螺旋式输送机上。它可以在外部组合钢套，也可以制成翻边，达到端面、内孔同时摩擦使用的效果。桥梁支座滑动部位，就是采用HLDB-1B耐磨层加厚的产品以取代纯PTFE板，达到130N/mm^{2}轴载使用的要求。

HLDB-1B is one of high safty factory, and particularly appropriate for high temperature environment where no oil is effcient and where the machine must be under successive long period working condition.
This is widely used in steel metallurgy industry such as bushes for roller grooves of successive casting machines. cement grouting pumps and screw converyers for cement. It can also be composed in steel housing or fabricated into Flanged bushes which can move both in radial and in axial directions.
It can be applied in bridge bearing plate because of thicker inner surface layer to arrive 130N/mm^2.



材料组织 Material Structure



1.聚四氟乙烯与亲油性纤维混合物
0.01-0.03mm
2.球形青铜粉0.2-0.3mm
3.铜背0.7-2.3mm

1.PTFE with Fiber 0.01~0.03mm
2.Porous bronze 0.2~0.3mm
3.Bronze backing 0.7~2.3mm

应用特点 Application Feature

1.聚四氟乙烯与亲油性纤维混合物在运动时可形成很好的转移膜保护对磨轴。
2.烧结层与铜基板具有良好的导热性，可迅速转移运作过程中产生的热量。
3.铜具有自润滑性能，可用于长期运作而无法停机检修的部位。
4.基体铜具有良好的抗腐蚀能力，可应用于弱酸、强碱场合。
5.具有良好的承载能力。
6.产品已广泛应用于冶金钢铁工业、高温炉钢环部位、水泥灌浆泵、螺旋式输送机、港口机械及船舶机械上等。
7.可在外部组合钢套；或制成翻边，达到内孔、端面同时使用的效果。

1.PTFE and lipophilic Friber can protect the shaft,while the machine in operation.
2.Bronze have good thermal conductivity, it'll divert heat while the machine operating.
3.It can be applied in the machine, working long time, which examine and repair is incapable, because the bronze can lubricate itself.
4.It is used in the feeble acid and alkali condition because of good anti-corrosion of bronze backing.
5.Good load capacity.
6.It is widely used in steel metallurgy industry, such as bushes for foller grooves of successive casting machines, cement grouting pumps and scrow conveyers of machine.
7.It can be composed in steel housing, or fabricated into flanged bushes which result in function for montion both on flange and I.D.

可供标准产品：
直套P04，翻边轴套P06，止推垫片P07，板材P07。

可供非标产品：
直套，翻边轴套，止推垫片，板材，轴瓦，滑板，钢套组合件。

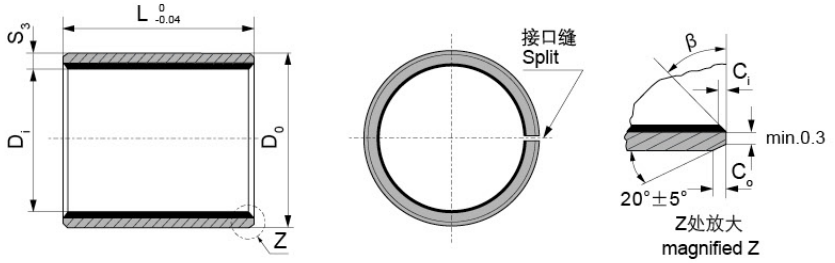
Standard Size:
Stright Bearing P04, Flange Bearing P06, Thrust washer P07, Strip P07.

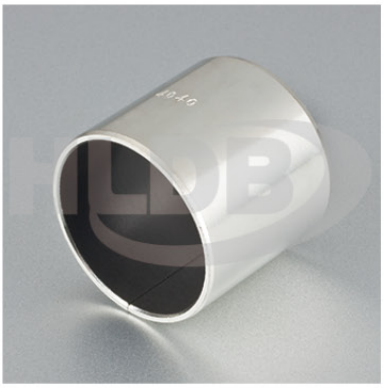
Non-Standard Size:
Stright Bearing, Flange Bearing, Thrust washer, Strip, Bearing bushing, Wear strips, Steel combine units.

技术参数 Technical Data

最大承载 Max.load	静承载 Static	250N/mm^2
	低速运转 Very low speed	140N/mm^2
	旋转、摇摆运动 Roatating oscillating	60N/mm^2
最大PV值（干摩擦）Max. PV (dry running)	间断性运作 Short-term operation	3.6N/mm^2·m/s
	长期运作 Continuous operation	1.8N/mm^2·m/s
使用温度 Temp. limit		-195℃~+280℃
摩擦系数 Friction coefficient		0.03~0.20 μ
最大线速度 Max. speed	干摩擦 Dry running	2m/s
	流体润滑 Hydrodynamic operation	>2m/s
导热系数 Thermal conductivity		60 W(m·k)$^{-1}$
线胀系数 Coefficient of thermal expansion		18×10^{-6}·K^{-1}

HLDB-10 轴套规格及公差
HLDB-10 Sleeve Bushing Specification & Tolerance





内外倒角 ID and OD chamfers

S_3	C_o	C_i	β
0.75	0.5±0.3	0.25±0.2	30°±5°
1.00	0.6±0.3	0.30±0.2	30°±5°
1.50	0.7±0.3	0.50±0.3	30°±5°

S_3	C_o	C_i	β
2.00	1.2±0.4	0.50±0.3	30°±5°
2.50	1.8±0.6	0.60±0.3	45°±5°

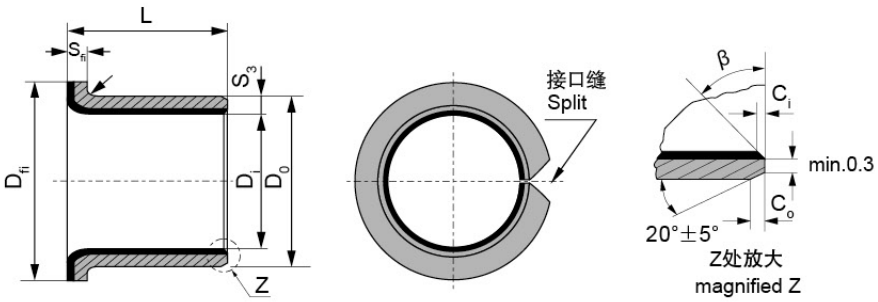
单位Unit: mm

轴径(f7) Shaft D_s	座孔(H7) Housing D_H	(OD) 外径公差 Tolerance D_O	(ID)压装后 内孔公差 After fixed $D_{i,a}$	配合间隙 Clearance D_D	壁厚 Wall thick-ness S_3	长度 L 0 -0.40 (d≤Φ28 L-0.30; d>Φ30 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

HLDB-10 轴套规格及公差
HLDB-10 Sleeve Bushing Specification & Tolerance

轴径(f7) Shaft D_s	座孔(H7) Housing D_H	(OD) 外径公差 Tolerance D_O	(ID)压装后 内孔公差 After fixed $D_{i,a}$	配合间隙 Clearance D_D	壁厚 Wall thick-ness S_3	长度 L $^{0}_{-0.40}$									
						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	0.170 0.020				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					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	2.490 2.440				8040	8050	8060	8070	8080	80100	
85 $^{}_{-0.054}$	90 $^{+0.035}$	90 $^{+0.120}_{+0.070}$	85.155 85.020	0.209 0.020					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							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	2.465 2.415						12060	12070	12080	120100	120115
125 $^{}_{-0.063}$	130 $^{+0.040}$	130 $^{+0.170}_{+0.100}$	125.210 125.070	0.273 0.070							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								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	2.465 2.415						18060	18070	18080	180100	
190 $^{}_{-0.072}$	195 $^{+0.046}$	195 $^{+0.210}_{+0.130}$	190.216 190.070	0.288 0.070							19060	19070	19080	190100	
200 $^{}_{-0.072}$	205 $^{+0.046}$	205 $^{+0.210}_{+0.130}$	200.016 200.070								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	2.465 2.415								25080	250100	
260 $^{}_{-0.081}$	265 $^{+0.052}$	265 $^{+0.260}_{+0.170}$	260.222 260.070	0.303 0.070									26080	260100	
280 $^{}_{-0.081}$	285 $^{+0.052}$	285 $^{+0.260}_{+0.170}$	280.222 280.070										28080	280100	
300 $^{}_{-0.081}$	305 $^{+0.052}$	305 $^{+0.260}_{+0.170}$	300.222 300.070										30080	300100	

HLDB-10F 翻边轴套规格及公差
HLDB-10F Flange Bushing Specifiction & Tolerance



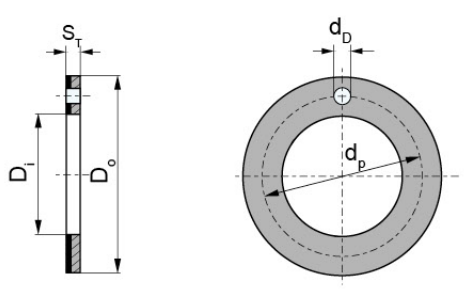


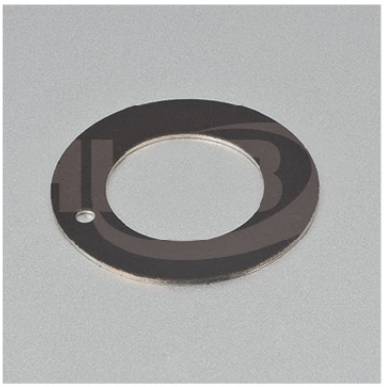
S_3	1.0	1.5	2.0	2.5
r	$1^{-0.5}$	1±0.5	1.5±0.5	2±0.5

单位Unit: mm

轴径(f7) Shaft D_s	座孔(H7) Housing D_H	(OD) 外径公差 Tolerance D_O	(ID)压装后 内孔公差 After fixed $D_{i,a}$	配合间隙 Clearance C_O	Designation 型号规格	Wall thickness 壁厚 S_3	尺寸 Dimension				
							D_i	D_o	D_{fi}±0.5	L±0.25	S_{fi}-0.2
6 -0.013 -0.028	8 +0.015	8 +0.055 +0.025	6.055 5.990	0.077 0.000	HLDB-10F06040	1.005 0.980	6	8	12	4	1
					HLDB-10F06070					7	
8 -0.013 -0.028	10 +0.015	10 +0.055 +0.025	8.055 7.990	0.083 0.003	HLDB-10F08055		8	10	15	5.5	
					HLDB-10F08075					7.5	
10 -0.016 -0.034	12 +0.018	12 +0.055 +0.025	10.058 9.990	0.086 0.003	HLDB-10F10070		10	12	18	7	
					HLDB-10F10090					9	
					HLDB-10F10120					12	
12 -0.016 -0.034	14 +0.018	14 +0.065 +0.030	12.058 11.990	0.092 0.006	HLDB-10F12070		12	14	20	7	
					HLDB-10F12090					9	
					HLDB-10F12120					12	
14 -0.016 -0.034	16 +0.018	16 +0.065 +0.030	14.058 13.990		HLDB-10F14120		14	16	22	12	
					HLDB-10F14170					17	
15 -0.016 -0.034	17 +0.018	17 +0.065 +0.030	15.058 14.990		HLDB-10F15090		15	17	23	9	
					HLDB-10F15120					12	
					HLDB-10F15170					17	
16 -0.016 -0.034	18 +0.018	18 +0.065 +0.030	16.058 15.990		HLDB-10F16120		16	18	24	12	
					HLDB-10F16170					17	
18 -0.016 -0.034	20 +0.021	20 +0.075 +0.035	18.061 17.990	0.095 0.006	HLDB-10F18120		18	20	26	12	
					HLDB-10F18170					17	
					HLDB-10F18200					20	
20 -0.020 -0.041	23 +0.021	23 +0.075 +0.035	20.071 19.990	0.112 0.010	HLDB-10F20115	1.505 1.475	20	23	30	11.5	1.5
					HLDB-10F20165					16.5	
					HLDB-10F20215					21.5	
22 -0.020 -0.041	25 +0.021	25 +0.075 +0.035	22.071 21.990		HLDB-10F22150		22	25	32	15	
					HLDB-10F22200					20	
25 -0.020 -0.041	28 +0.021	28 +0.075 +0.035	25.071 24.990		HLDB-10F25115		25	28	35	11.5	
					HLDB-10F25165					16.5	
					HLDB-10F25215					21.5	
30 -0.025 -0.050	34 +0.025	34 +0.075 +0.035	30.085 29.990	0.126 0.010	HLDB-10F30160	2.005 1.970	30	34	42	16	2
					HLDB-10F30260					26	
35 -0.025 -0.050	39 +0.025	39 +0.085 +0.045	35.085 34.990	0.135 0.015	HLDB-10F35160		35	39	47	16	
					HLDB-10F35260					26	
40 -0.025 -0.050	44 +0.025	44 +0.085 +0.045	40.085 39.990		HLDB-10F40260		40	44	53	26	
					HLDB-10F40400					40	

HLDB-1WC 垫片规格及公差
HLDB-1WC Thrust Washer Specification & Tolerance





单位Unit: mm

轴径 Shaft D_s	型号规格 Standard No.	垫片尺寸 Washer size				安装尺寸 Assemble size		H_d+0.12
		D_i+0.25	D_o-0.25	S_T-0.05	d_p ± 0.125	d_D $^{+0.4}_{+0.1}$	H_a ± 0.2	
8	W10	10	20	1.5	15	1.5	1	20
10	W12	12	24		18			24
12	W14	14	26		20	2		26
14	W16	16	30		23			30
16	W18	18	32		25			32
18	W20	20	36		28	3		36
20	W22	22	38		30			38
22	W24	24	42		33			42
24	W26	26	44		35			44
26	W28	28	48		38	4		48
30	W32	32	54		43			54
36	W38	38	62		50			62
40	W42	42	66		54			66
46	W48	48	74	2	61		1.5	74
50	W52	52	78		65			78
60	W62	62	90		76			90

HLDB-1SP 板材规格及公差
HLDB-1SP Strip Specification & Tolerance





单位Unit: mm

型号规格 Standard No.	长度 L ± 1	宽度 W ± 1	厚壁 Wall thickness S_s-0.05
SP	500	150	1.0
SP	500	150	1.5
SP	500	150	2.0
SP	500	150	2.5



HLDB-20 边界自润滑轴承
Marginal Self-lubricating Bearings

HLDB-2Y 边界无铅自润滑轴套
HLDB-2Y Marginal Pb-free Self-lubricating Bushes

该产品与HLDB-20具有相同结构和使用性能，在边界润滑条件下可长期使用而不加油，耐磨层表面有储油坑。产品广泛应用于冶金机械、矿山机械、水利机械、汽机车、建筑机械、农用机械、轧钢行业等。

HLDB-2Y has the same structure and functional performance with HLDB-20. It can work for certain long time without oil in the condition of prelubricated with lubrication indents. Widely applied in metallurgy machinery, Mining machinery, water conservancy machinery, automobile, building machinery, agriculture machinery, rolling steel industry etc.



应用特点 Application Feature

1.承载好，耐磨性能良好。 2.适用于高载低速下的旋转运动、摇摆运动及经常在载荷下启闭频繁而不易形成流体动力润滑的场合。 3.在边界润滑条件下可长期不加油保养，而在过层中加油使轴承使用寿命更长。 4.表面塑料层在加工成型时可留一定的余量，装配压入座孔后可自行加工，以达到更好的装配尺寸。 5.产品主要应用于汽车底盘、冶金机械、矿山机械、水利机械、建筑机械、农用机械、轧钢设备等。 6.因其不含铅，故可广泛应用于无铅领域。

1.Good load capacity and anti-wear. 2.It is used in high load capacities and low speed with rotational, oscillating or frequent stop-start motion. 3.It can work for a long time without oil in the condition of boundary lubrication, under oil or grease lubrication interval, the working-life will be longer. 4.It is machinable for the thicker of POM. 5.The bushes can be applied in auto chassis, forging machine, metallurgical, civil engineering, power station, strip rolling industries etc. 6.HLDB-2Y is widely used in the machine where Lead is unacceptable.

技术参数 Technical Data

最大承载 Max.load	静承载 Static	250N/mm^2
	低速运转 Very low speed	140N/mm^2
	旋转、摇摆运动 Roatating oscillating	70N/mm^2
最大PV值（干摩擦）Max. PV (dry running)		3N/mm^2·m/s
使用温度 Temp. limit		-40℃～+110℃
摩擦系数 Friction coefficient		0.05～0.20 μ
最大线速度 Max. speed	脂润滑 Grease Lubrication	2m/s
	持续给油 Oil continued to	>2m/s
导热系数 Thermal conductivity		50W(m·k)$^{-1}$
线胀系数 Coefficient of thermal expansion		11 × 10^{-6}·K^{1}
最初装配时必须在油穴中涂满润滑油脂 Initial pre-lubrication at assembly is strongly recommended		

材料组织 Material Structure



1.聚甲醛与纤维混合物0.3-0.5mm
2.球形青铜粉0.2-0.3mm
3.钢背0.4-2.2mm
4.电镀层：镀锡层厚0.005mm
或镀铜层厚0.008mm

1.POM with fiber 0.3~0.5mm
2.Porous bronze 0.2~0.3mm
3.Steel backing 0.4~2.2mm
4.Plated coating: Tin plating 0.005mm or Copper plating 0.008mm

可供标准产品：
直套P11，止推垫片P13，板材P13。

可供非标产品：
直套，止推垫片，板材，轴瓦，滑板，钢套组合件。

Standard Size:
Stright Bearing P11, Thrust washer P13, Strip P13.

Non-Standard Size:
Stright Bearing, Thrust washer, Strip, Bearing bushing, Wear strips, Steel combine units.

HLDB-2S 边界无铅自润滑轴套
HLDB-2S Marginal Pb-free Self-lubricating Bushes

该产品以优质低碳钢为基体，中间烧结球形青铜层，表面轧制以缩醛树脂/亲油性纤维的特殊树脂。具有摩擦系数低、耐磨性能好、无油条件下润滑的特点。产品广泛应用于卷场机、推土机、印染机、采煤机、冲床、吊车/行车高空作业等领域。

HLDB-2S Marginal Pb-free self-lubricating bearing based on low carbon steel backing, sintered porous bronze as its interlayer, surface rolled by acetal resin and polymer material constaining oleophylicity fiber and perform well on low friction factor, well wear performance and oil free condition lubrication. It has been widely applied to winding engines, printing and dyeing machinery, coal-cutters, punch, winch truck, traveling crane etc.



应用特点 Application Feature

1.承载好，耐磨性能良好。 2.适用于高载低速下的旋转运动、摇摆运动及经常在载荷下启闭频繁而不易形成流体动力润滑的场合。 3.在边界润滑条件下可长期不加油保养，而在过层中加油使轴承使用寿命更长。 4.表面塑料层在加工成型时可留一定的余量，装配压入座孔后可自行加工，以达到更好的装配尺寸。 5.产品主要应用于汽车底盘、冶金机械、矿山机械、水利机械、建筑机械、农用机械、轧钢设备等。 6.因其不含铅，故可广泛应用于无铅领域。

1.Good load capacity and anti-wear. 2.It is used in high load capacities and low speed with rotational,oscillating or frequent stop-start motion. 3.It can work long time without oil in the condition of boundary lubrication,under oil or grease lubrication interval, the work is longer. 4.It is machinable for the thicker of POM. 5.The bushes can be applied in auto chassis,forging machine, metallurgical, civil engineering, power station, strip rolling industries etc. 6.HLDB-2S is widely used in the machine where Lead is unacceptable.

技术参数 Technical Data

最大承载 Max.load	静承载 Static	250N/mm^2
	低速运转 Very low speed	140N/mm^2
	旋转、摇摆运动 Roatating oscillating	70N/mm^2
最大PV值（干摩擦）Max. PV (dry running)		3N/mm^2·m/s
使用温度 Temp. limit		-40℃~+110℃
摩擦系数 Friction coefficient		0.05~0.20 μ
最大线速度 Max. speed	脂润滑 Grease Lubrication	2m/s
	持续给油 Oil continued to	>2m/s
导热系数 Thermal conductivity		50W(m·k)$^{-1}$
线胀系数 Coefficient of thermal expansion		11×10^{-6}·K^{-1}
最初装配时必须在油穴中涂满润滑油脂 Initial pre-lubrication at assembly is strongly recommended		

材料组织 Material Structure



1.聚甲醛与纤维混合物0.3-0.5mm
2.球形青铜粉0.2-0.3mm
3.钢背0.4-2.2mm
4.电镀层：镀锡层厚0.005mm
或镀铜层厚0.008mm

1.POM with fiber 0.3~0.5mm
2.Porous bronze 0.2~0.3mm
3.Steel backing 0.4~2.2mm
4.Plated coating: Tin plating 0.005mm or Copper plating 0.008mm

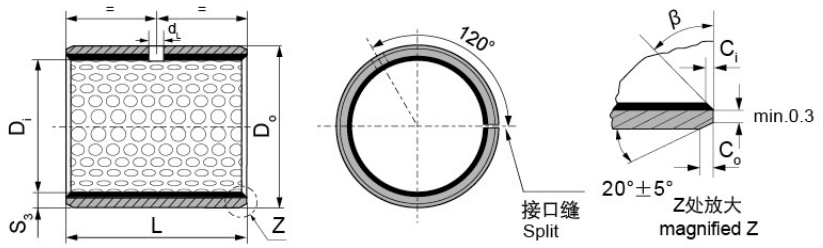
可供标准产品：
直套P11，止推垫片P13，板材P13。

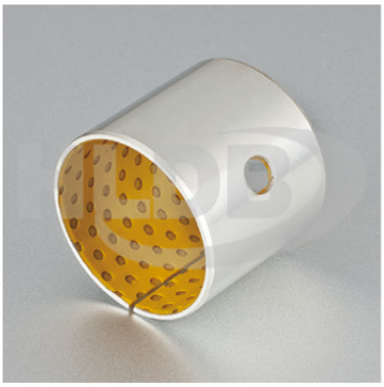
可供非标产品：
直套，止推垫片，板材，轴瓦，滑板，钢套组合件。

Standard Size:
Stright Bearing P11, Thrust washer P13, Strip P13.

Non-Standard Size:
Stright Bearing, Thrust washer, Strip, Bearing bushing, Wear strips, Steel combine units.

HLDB-20 轴承规格及公差
HLDB-20 Sleeve Bushing Specification & Tolerance





内外倒角 ID and OD chamfers

S_3	C_o	C_i	β
1.0	0.6 ± 0.3	0.30 ± 0.2	30° ± 5°
1.5	0.7 ± 0.3	0.50 ± 0.2	30° ± 5°

S_3	C_o	C_i	β
2.00	1.2 ± 0.4	0.50 ± 0.3	30° ± 5°
2.50	1.8 ± 0.6	0.80 ± 0.3	45° ± 5°

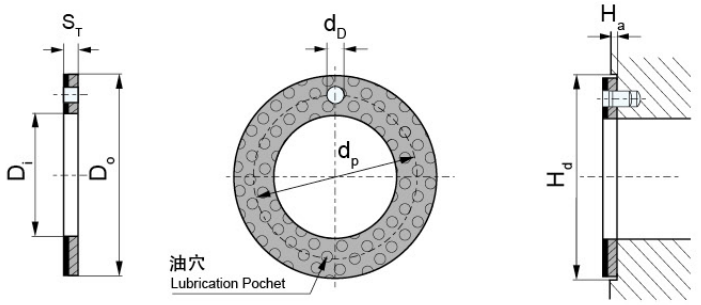
单位Unit: mm

轴径 Shaft D_s h8	座孔 Housing H7 D_H	(OD) 外径公差 Tolerance D_O	(ID)压装后 内孔公差 After fixed $D_{i,a}$	配合间隙 Clearance D_D	壁厚 Wall thickness S_3	油孔 Oil hole d_L	长度 L $^{0}_{-0.40}$									
							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	0.135 0.040			1210	1215	1220							
14 $^{}_{-0.027}$	16 $^{+0.018}$	16 $^{+0.065}_{+0.030}$	14.108 14.040					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	0.164 0.050	1.475 1.445			2015	2020	2025	2030					
22 $^{}_{-0.033}$	25 $^{+0.021}$	25 $^{+0.075}_{+0.035}$	22.131 22.050					2215	2220	2225	2230					
25 $^{}_{-0.033}$	28 $^{+0.021}$	28 $^{+0.075}_{+0.035}$	25.131 25.050			6		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				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			8			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	2.460 2.415				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							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

HLDB-20 轴承规格及公差
HLDB-20 Sleeve Bushing Specification & Tolerance

轴径 Shaft D_s h8	座孔 Housing H7 D_H	(OD) 外径公差 Tolerance D_O	(ID)压装后 内孔公差 After fixed $D_{i,a}$	配合间隙 Clearance D_D	壁厚 Wall thick-ness S_3	油孔 Oil hole d_L	长度 L $^{0}_{-0.40}$								
							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	2.450 2.385	9.5	8040	8050	8060	8080					
85 -0.054	90 +0.035	90 +0.120 +0.070	85.265 85.100	0.321 0.100			8540	8550	8560	8580					
90 -0.054	95 +0.035	95 +0.120 +0.070	90.265 90.100				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			9.5		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	0.339 0.110				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			9.5		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

HLDB-2WC 垫片规格及公差
HLDB-2WC Thrust Washer Specification & Tolerance

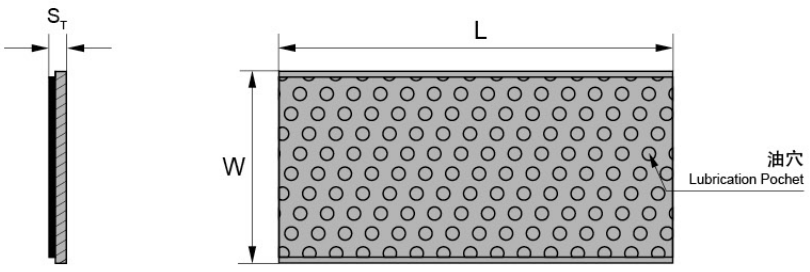




单位Unit: mm

轴径 Shaft D_S	型号规格 Standard No.	垫片尺寸 Washer size				安装尺寸 Assemble size		
		D_i+0.25	D_o-0.25	S_T -0.05	d_p ± 0.125	d_D $^{+0.4}_{+0.1}$	H_a ± 0.2	H_d+0.12
8	W10	10	20	1.5	15	1.5	1	20
10	W12	12	24		18			24
12	W14	14	26		20	2		26
14	W16	16	30		23			30
16	W18	18	32		25			32
18	W20	20	36		28	3		36
20	W22	22	38		30			38
22	W24	24	42		33			42
24	W26	26	44		35			44
26	W28	28	48		38	4		48
30	W32	32	54		43			54
36	W38	38	62		50			62
40	W42	42	66		54			66
46	W48	48	74	2	61		1.5	74
50	W52	52	78		65			78
60	W62	62	90		76			90

HLDB-2SP 板材标准公制尺寸
HLDB-2SP Strip Standard Metric Size





单位Unit: mm

型号规格 Standard No.	长度 L ± 1	宽度 W ± 1	厚壁 Wall thickness S_s -0.05
P	500	150	1.0
P	500	150	1.5
P	500	150	2.0
P	500	150	2.5



HLDB-090 青铜卷制轴承
Bronze – Wrapped Bearings

HLDB-090 系列青铜卷制轴套
HLDB-090 Bronze-Wrapped Bushes

HLDB-090系列青铜卷制轴承套是我公司在钢-铜铅双金属轴套产品基础上开发设计的新一代轴套。该产品在国外应用十分普遍，随着我国引进机械的设备新机种的日益增多，设计师们寻找新型摩擦材料、轴套的要求也日益需要，因此该产品在我们机械制造中有着宽广应用领域和实用价值。

HLDB-090系列轴套最大特点是薄壁结构，不占据很大的装配空间。轴套材料采用特殊配方高密度铜合金带材。它与传统的铺型铜套相比，具有密度高，无气缩孔、承载能力大，又有耐磨耐疲劳等优点。轴套制造采用先进的工装模具，可在带材摩擦面上加工出适用各种工程条件的油穴、油坑、油槽，从而使轴套在使用可储存大量润滑油脂，延长加油间隔时间，有效的提高了使用寿命。

HLDB-090系列轴承广泛应用于农业机械、建筑机械、工程机械、汽车行业等。

HLDB-090 serie bronze rolled bushing is our new generation bushing based upon steel-bronze lead double metal bushings. This product is widely applied overseas. With the increase of our country's bring-in of foreign machineries, designers requirement on new abrasive materials and bushings are accordingly increasing. Therefore, our products have a wide application scope and practical value in machinery production.

The major feature of HLDB-090 serie bushing is their thin-wall structure, which doesn't take up too large assembly space. Specially formulated high-density bronze alloy bands are used for the building of the bushing, which compared with traditional bushings, is featured in the high density, no shrinkage blowholes, high load sustainability and anti-wearing and anti-fatigue. The production of the bushing is by means of advanced fixture and molds, able to make oil holes, hole dents and grooves on the frication surfaces of the bands to suit various engineering applications, making it possible for the bushing to store large amount of lubricating grease when working. Therefore, the lubrication interval is prolonged and the service hours are effectively lengthened.

HLDB-090 serie bearings are widely used in applications such as agricultural machineries, construction machineries, engineering machineries and automobile industry.



可供标准产品：
直套P20，翻边轴套P22。

可供非标产品：
直套，翻边轴套，止推垫片，板材，轴瓦，滑板，钢套组合件。

Standard Size:
Stright Bearing P20, Flange Bearing P22.

Non-Standard Size:
Stright Bearing, Flange Bearing, Thrust washer, Strip, Bearing bushing, Wear strips, Steel combine units.

产品优点 Product Benefits

1. 节约大量铜材、节省车制铜套工时；
2. 与车制轴套、滚动轴承相比其重量轻、成本低；
3. 可在摩擦面加工出各种有穴、有坑、储存一定油脂，延长加油的时间是铜套的5倍；
4. 极高的承载能力，特别是适用于粗糙的摩擦面；

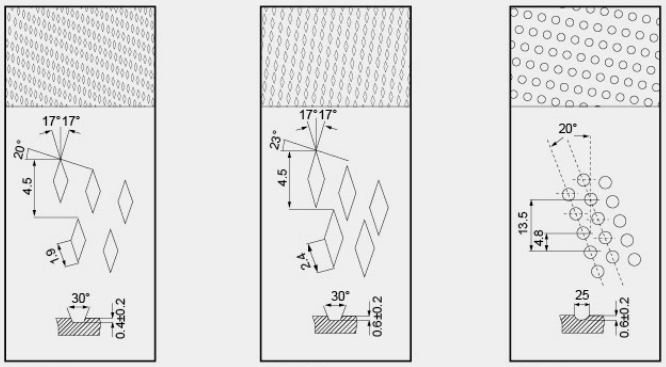
1. Saving large amount of bronze material and save the working hours normally spent for lathing the bronze bushing.
2. Compared with lathed bushings and roller bearings, it is light in weight and more cost-effective.
3. Various holes and dents can be made on the frication surface for grease storage, prolonging the lubrication interval to 5 times as long as required by the bronze bushing.
4. Extremely high load sustainability, especially suitable for coarse abrasion surfaces.

HLDB-090 系列青铜卷制轴套
HLDB-090 Bronze-Wrapped Bushes

材料结构 Material Structure

采用高密度青铜卷制成形或球形油袋、油穴特殊合成内部表面以减少磨损延长使用时间并且很好的做到防腐功能。

High-density bronze is rolled into shape or oil bags and oil holes specially integrated into the inner surface to reduce the wearing and prolong the service hours. Besides, it has excellent anti-corrosion functions.



轴衬套内
Inside the bush of the shaft
菱形油穴r≤φ22
Rhomb oil holes r≤φ22

轴衬套内
Inside the bush of the shaft
菱形油穴r>φ22
Rhomb oil holes r>φ22

形成圆形
Forming a circle

应用范围 Application scope

此系列轴承广泛应用于农用、建设机械以及工程机械等。

This serie of bearing is widely applied to agricultural, construction and engineering machineries, etc.

油穴类别(依据 DIW1494/ISO3457)。

Categories of oil holes (As per to DIW1494/ISO3457)。

化学成分 Chemical Composition

材料 Material: CuSn8P	铜 Cu	锡 Sn	磷 P

物理特性 Physical Property

型号 Type	密度 Density	散热热涨 Heat Emission and Expansion	热传导 Heat Conducting	硬度 Hardness	抗压强度 Compression strength	延伸率 Extensile
HLDB090	8.8g/cm^3	18.5×10^{-6}×K^1	58W(m·k)	90~150HB	470N/mm^2	40%

标准衬套公差 (依据 DIW W91/1503547)
Standard tolerance for bushes (As per to DIW W91/1503547)

标准直径 Standard Dia.	衬套外径尺寸 O.D.Size	相配座孔 Housing Bore	衬套内径尺寸 I.D.Size	相配轴径 Axle
10~18	+0.065 +0.030	+0.018 0	+0.046 0	- 0.016 - 0.043
18~30	+0.075 +0.035	+0.021 0	+0.052 0	- 0.020 - 0.020
30~50	+0.085 +0.045	+0.025 0	+0.062 0	- 0.025 - 0.064
50~80	+0.100 +0.055	+0.030 0	+0.074 0	- 0.030 - 0.076
80~120	+0.120 +0.070	+0.035 0	+0.087 0	- 0.036 - 0.090
120~180	+0.170 +0.100	+0.400 0	+0.100 0	- 0.043 - 0.106
180~250	+0.210 +0.130	+0.046 0	+0.115 0	- 0.050 - 0.122
250~315	+0.260 +0.170	+0.052 0	+0.130 0	- 0.056 - 0.137

HLDB-092 系列青铜卷制轴套
HLDB-092 Bronze-Wrapped Bushes

HLDB-092系列青铜卷制轴承是与HLDB-090材料结构相同，我单位根据国外同类产品基础上开发出的新一代产品轴套，能改良产品设计、替代原有铜套,能降低采购成本，因此产品在我们机械制造中有着广泛实用价值和应用领域。

HLDB-092系列轴套最大特点是薄壁结构，不占据很大的装配空间。轴套材料采用特殊配方高密度铜合金带材。它与传统的铺型铜套相比，可在带材摩擦面上加工出适用各种工程条件的油穴、油坑、油槽，排列润滑通孔，从而使轴套在使用可储存大量润滑油脂，延长加油间隔时间，有效的提高了使用寿命。

HLDB-092系列轴承广泛应用于农业机械、建筑机械、工程机械、高载低速场合等。

HLDB-092 serie bronze rolled bushing is our new generation bushing based upon steel-bronze lead double metal bushings. It has same structure with HLDB-090. We based on the same type of overseas products and make further development to produce. The design has be improved and can make a replacement of original one and cut down the cost. Therefore, our products have a wide application scope and practical value in machinery production.

The major feature of HLDB-092 serie bushing is their thin-wall structure, which doesn't take up too large assembly space. Specially formulated high-density bronze alloy bands are used for the building of the bushing, which compared with traditional bushings, is featured in the high density, no shrinkage blowholes, high load sustainability and anti-wearing and anti-fatigue. The production of the bushing is by means of advanced fixture and molds, able to make oil holes, hole dents and grooves on the frication surfaces of the bands to suit various engineering applications, making it possible for the bushing to store large amount of lubricating grease when working. Therefore, the lubrication interval is prolonged and the service hours are effectively lengthened.

HLDB-092 serie bearings are widely used in applications, such as agricultural machineries, construction machineries, engineering machineries and automobile industry.



可供标准产品：
直套P23，翻边轴套P25。

可供非标产品：
直套，翻边轴套，止推垫片，板材，轴瓦，滑板，钢套组合件。

Standard Size:
Stright Bearing P23, Flange Bearing P25.

Non-Standard Size:
Stright Bearing, Flange Bearing, Thrust washer, Strip, Bearing bushing, Wear strips, Steel combine units.

产品优点 Product Benefits

1. 节约大量铜材、节省车制铜套工时；
2. 与车制轴套、滚动轴承相比其重量轻、成本低；
3. 可在摩擦面加工出各种有穴、有坑、储存一定油脂，延长加油的时间是铜套的5倍；
4. 极高的承载能力，特别是适用于粗糙的摩擦面；

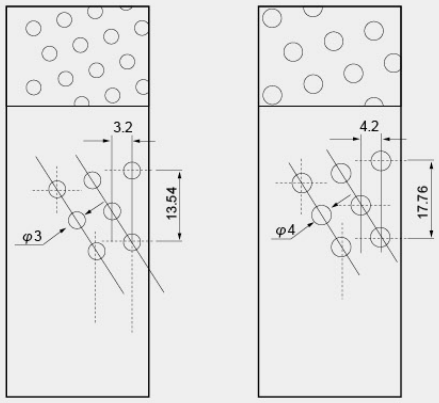
1. Saving large amount of bronze material and save the working hours normally spent for lathing the bronze bushing.
2. Compared with lathed bushings and roller bearings, it is lights and more cost-effective.
3. Various holes and dents can be made on the frication surface for grease storage, prolonging the lubrication interval to 5 times as long as required by the bronze bushing.
4. Extremely high load sustainability, especially suitable for coarse abrasion surfaces.

HLDB-092 系列青铜卷制轴套
HLDB-092 Bronze-Wrapped Bushes

材料结构 Material Structure

采用高密度青铜卷制成形或球形油袋、油穴特殊合成内部表面以减少磨损延长使用时间并且很好的做到防腐功能。

High-density bronze is rolled into shape or oil bags and oil holes, specially integrated into the inner surface to reduce the wearing and prolong the service hours. Besides, it has excellent anti-corrosion functions.



轴承内径r≤φ25
Inside Dia r≤φ25

轴承内径r＞φ25
Inside Dia r＞φ25

应用范围 Application scope

此系列轴承广泛应用于农用、建设机械以及工程机械等。

This series of bearing is widely applied to agricultural, construction and engineering machineries, etc.

化学成分 Chemical Composition

材料 Material: CuSn8P	铜 Cu	锡 Sn	磷 P

物理特性 Physical Property

型号 Type	密度 Density	散热热涨 Heat Emission and Expansion	热传导 Heat Conducting	硬度 Hardness	抗压强度 Compression strength	延伸率 Extensile
HLDB092	8.8g/cm^3	$18.5\times10^{-6}\times K^{-1}$	58W(m·k)	90~150HB	470N/mm^2	40%

标准衬套公差 (依据 DIW W91/1503547)
Standard tolerance for bushes (As per to DIW W91/1503547)

标准直径 Standard Dia.	衬套外径尺寸 O.D.Size	相配座孔 Housing Bore	衬套内径尺寸 I.D.Size	相配轴径 Axle
10~18	+0.065 +0.030	+0.018 0	+0.046 0	- 0.016 - 0.043
18~30	+0.075 +0.035	+0.021 0	+0.052 0	- 0.020 - 0.020
30~50	+0.085 +0.045	+0.025 0	+0.062 0	- 0.025 - 0.064
50~80	+0.100 +0.055	+0.030 0	+0.074 0	- 0.030 - 0.076
80~120	+0.120 +0.070	+0.035 0	+0.087 0	- 0.036 - 0.090
120~180	+0.170 +0.100	+0.400 0	+0.100 0	- 0.043 - 0.106
180~250	+0.210 +0.130	+0.046 0	+0.115 0	- 0.050 - 0.122
250~315	+0.260 +0.170	+0.052 0	+0.130 0	- 0.056 - 0.137

HLD-B09G 系列青铜卷制轴套
HLD-B09G Bronze-Wrapped Bushes

与HLDB-090具有相同的生产工艺及使用场合，其基体为青铜基板，在其菱形油穴内填充了以石墨为主的固体润滑剂，使产品在起始运用阶段及过程中能有更低的摩擦系数，在短时间断油的情况下任能保持良好的工作状态。因此被广泛使用在工程机械、齿轮箱传动部件、汽机车离合器等高载中速部位、户外高空设备的转动部位。

The same produce process and application with HLDB-090, except overlay the solid lubricants into the diamond shaped lubrication indents on the bearing surface, which will offer good friction at the start and process works and keep good condition even no oil giving at short time. So it can be used in construction machines, gears, automotive clutch pads etc.



技术参数 Technical Data

最大承载 Max.load	静承载 Static	120N/mm^2
	动承载 Dynamic	40N/mm^2
最大PV值（干摩擦） Max. PV (dry running)		2.8N/mm^2·m/s
使用温度 Temp. limit		-100℃～+200℃
摩擦系数 Friction coefficient		0.05～0.25 μ
最大线速度 Max. speed	脂润滑 Grease Lubrication	2.5m/s
导热系数 Thermal conductivity		58W(m·k)$^{-1}$
线胀系数 Coefficient of thermal expansion		18.5 × 10^{-6}·K^{-1}
硬度 Hardness		HB > 110
抗拉强度 Tensile strength		450N/mm^2
伸长 Elongation		40%

可供标准产品：
直套P20，翻边轴套P22。

可供非标产品：
直套，翻边轴套，止推垫片，板材，轴瓦，滑板，钢套组合件。

Standard Size:
Stright Bearing P20, Flange Bearing P22.

Non-Standard Size:
Stright Bearing, Flange Bearing, Thrust washer, Strip, Bearing bushing, Wear strips, Steel combine units.

公差 Tolerance

一般推荐座孔公差为H7，轴径公差为f7。
Recommend housing tolerance H7 and the shaft as f7.

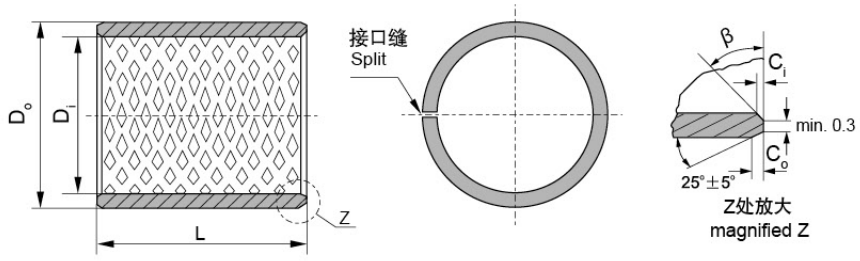
HLDB-091 系列黄铜卷制轴承
HLDB-091 Warpped Bronze Bearing

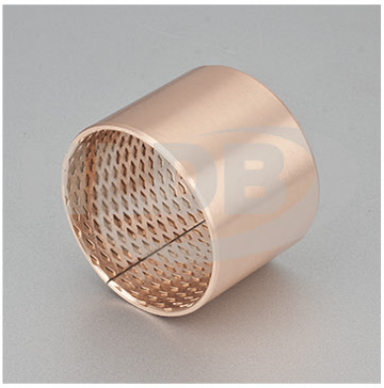
性能指标 Performance Index	有关数据 Data
密度 Y Density Y	8.4 g/cm^3
抗压强度 α_c Compression Strength	440N/mm^2
导热系数 Coefficient of Heat Conduction	71W/m・K
线膨胀系数 α_1 Coefficient of Linear Expansion	19.2 × 10^{-6}/K
硬度 Hardness	80~110HB
延伸率 Elongation	30%
材料名称 Alloy Material	CuZn31Si



该产品是以特殊配方的黄铜材料为基体，表面可根据客户要求轧制油穴或油槽等，它有较高的承载压力，很好的耐磨性，产品运用于建筑机械、机床工业等。
It is based on high density bronze material of special formula. The alloy surface is rolled to oil grooves or hole according to customer require. It has good load capacity and wear-resistant. The product is applied to construction machinery and machine tool etc.

HLDB-090 青铜轴套规格及公差
HLDB-090 Bronze Sleeve Bushing Specification & Tolerance





内外倒角 ID and OD chamfers

S_3	C_o	C_i	β
0.75	0.5 ± 0.3	0.25 ± 0.2	35° ± 5°
1.00	0.6 ± 0.3	0.30 ± 0.2	35° ± 5°
1.50	0.7 ± 0.3	0.50 ± 0.3	35° ± 5°

S_3	C_o	C_i	β
2.00	1.2 ± 0.4	0.50 ± 0.3	35° ± 5°
2.50	1.8 ± 0.6	0.60 ± 0.3	45° ± 5°

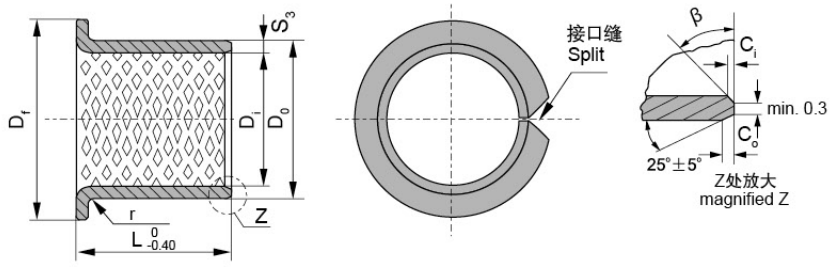
单位Unit: mm

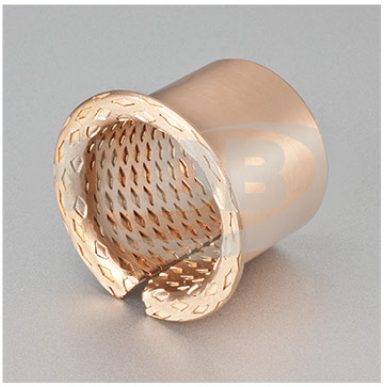
内径 D_i ϕd	外径 D_O ϕD	长度 L $^{0}_{-0.40}$												
		10	15	20	25	30	35	40	50	60	70	80	90	100
10	12	1010	1015	1020										
12	14	1210	1215	1220										
14	16	1410	1415	1420	1425									
15	17	1510	1515	1520	1525									
16	18	1610	1615	1620	1625									
18	20	1810	1815	1820	1825									
20	23	2010	2015	2020	2025									
22	25	2210	2215	2220	2225	2230								
24	27		2415	2420	2425	2430								
25	28		2515	2520	2525	2530								
28	31		2815	2820	2825	2830								
30	34		3015	3020	3025	3030	3035	3040						
32	36		3215	3220	3225	3230	3235	3240						
35	39		3515	3520	3525	3530	3535	3540						
40	44			4020	4025	4030	4035	4040	4050					
45	50			4520	4525	4530	4535	4540	4550					
50	55			5020	5025	5030	5035	5040	5050	5060				
55	60			5520	5525	5530	5535	5540	5550	5560				
60	65				6025	6030	6035	6040	6050	6060	6070			
65	70					6530	6535	6540	6550	6560	6570			
70	75					7030	7035	7040	7050	7060	7070	7080		
75	80					7530	7535	7540	7550	7560	7570	7580		
80	85					8030	8035	8040	8050	8060	8070	8080		
85	90					8530	8535	8540	8550	8560	8570	8580	8590	
90	95					9030	9035	9040	9050	9060	9070	9080	9090	
95	100							9540	9550	9560	9570	9580	9590	95100

HLDB-090 青铜轴套规格及公差
HLDB-090 Bronze Sleeve Bushing Specification & Tolerance

内径 D_i ϕd	外径 D_O ϕD	长度 $L\ ^{0}_{-0.40}$									
		25	30	35	40	50	60	70	80	90	100
100	105					10050	10060	10070	10080	10090	100100
105	110					10550	10560	10570	10580	10590	105100
110	115					11050	11060	11070	11080	11090	110100
115	120					11550	11560	11570	11580	11590	115100
120	125						12060	12070	12080	12090	120100
125	130						12560	12570	12580	12590	125100
130	135						13060	13070	13080	13090	130100
135	140						13560	13570	13580	13590	135100
140	145						14060	14070	14080	14090	140100
145	150						14560	14570	14580	14590	145100
150	155						15060	15070	15080	15090	150100
155	160						15560	15570	15580	15590	155100
160	165						16060	16070	16080	16090	160100
165	170						16560	16570	16580	16590	165100
170	175						17060	17070	17080	17090	170100
175	180						17560	17570	17580	17590	175100
180	185						18060	18070	18080	18090	180100
185	190						18560	18570	18580	18590	185100
190	195						19060	19070	19080	19090	190100
195	200						19560	19570	19580	19590	195100
200	205						20060	20070	20080	20090	200100
205	210						20560	20570	20580	20590	205100
215	220						21560	21570	21580	21590	215100
225	230						22560	22570	22580	22590	225100
230	235						23060	23070	23080	23090	230100
240	245						24060	24070	24080	24090	240100
250	255						25060	25070	25080	25090	250100
260	265						26060	26070	26080	26090	260100
270	275						27060	27070	27080	27090	270100
280	285						28060	28070	28080	28090	280100
290	295						29060	29070	29080	29090	290100
300	305						30060	30070	30080	30090	300100

HLDB-090F 青铜翻边轴套规格及公差
HLDB-090F Bronze Flange Bushing Specification & Tolerance



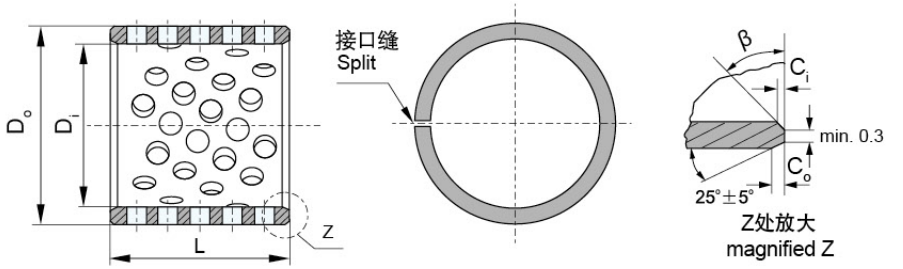


S_3	1.0	1.5	2.0	2.5
r	$1^{-0.5}$	1±0.5	1.5±0.5	2±0.5

单位Unit: mm

内径 D_i φd	外径 D_O φD	法兰外径 D_{fl}	长度 L $^{0}_{-0.40}$										
			15	20	25	30	35	40	50	60	70	80	90
25	28	35	25150	25200	25250								
30	34	45		30200	30250	30300							
35	39	50		35200	35250	35300	35350						
40	44	55			40250	40300	40350	40400					
45	50	60				45300	45350	45400	45500				
50	55	65				50300	50350	50400	50500				
55	60	70				55300	55350	55400	55500				
60	65	75				60300	60350	60400	60500	60600			
65	70	80				65300	65350	65400	65500	65600			
70	75	85					70350	70400	70500	70600	70700		
75	80	90					75350	75400	75500	75600	75700		
80	85	100					80350	80400	80500	80600	80700	80800	
90	95	110							90500	90600	90700	90800	90900
100	105	120							100500	100600	100700	100800	100900
110	115	130							110500	110600	110700	110800	110900
120	125	140							120500	120600	120700	120800	120900
130	135	155								130600	130700	130800	130900
140	145	165								140600	140700	140800	140900
150	155	180								150600	150700	150800	150900
160	165	190								160600	160700	160800	160900
170	175	200								170600	170700	170800	170900
180	185	215								180600	180700	180800	180900
190	195	225								190600	190700	190800	190900
200	205	235								200600	200700	200800	200900
225	230	260								225600	225700	225800	225900
250	255	290								250600	250700	250800	250900
265	270	305								265600	265700	265800	265900
285	290	325								285600	285700	285800	285900
300	305	340								300600	300700	300800	300900

HLDB-092 青铜轴套规格及公差
HLDB-092 Bronze Sleeve Bushing Specification & Tolerance





内外倒角 ID and OD chamfers

S_3	C_o	C_i	β
0.75	0.5 ± 0.3	0.25 ± 0.2	35° ± 5°
1.00	0.6 ± 0.3	0.30 ± 0.2	35° ± 5°
1.50	0.7 ± 0.3	0.50 ± 0.3	35° ± 5°

S_3	C_o	C_i	β
2.00	1.2 ± 0.4	0.50 ± 0.3	35° ± 5°
2.50	1.8 ± 0.6	0.60 ± 0.3	45° ± 5°

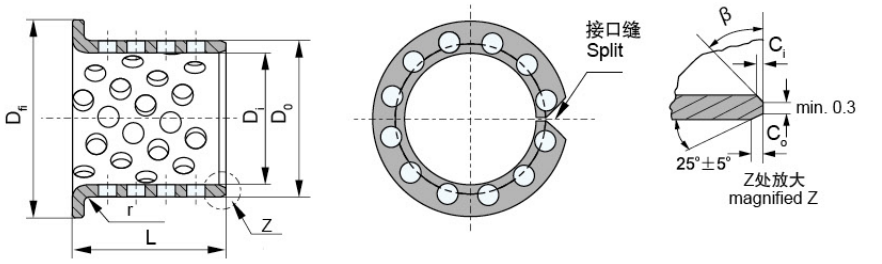
单位Unit: mm

内径 D_i ϕd	外径 D_O ϕD	长度 L $^{0}_{-0.40}$												
		10	15	20	25	30	35	40	50	60	70	80	90	100
10	12	1010	1015	1020										
12	14	1210	1215	1220										
14	16	1410	1415	1420	1425									
15	17	1510	1515	1520	1525									
16	18	1610	1615	1620	1625									
18	20	1810	1815	1820	1825									
20	23	2010	2015	2020	2025									
22	25	2210	2215	2220	2225	2230								
24	27		2415	2420	2425	2430								
25	28		2515	2520	2525	2530								
28	31		2815	2820	2825	2830								
30	34		3015	3020	3025	3030	3035	3040						
32	36		3215	3220	3225	3230	3235	3240						
35	39		3515	3520	3525	3530	3535	3540						
40	44			4020	4025	4030	4035	4040	4050					
45	50			4520	4525	4530	4535	4540	4550					
50	55			5020	5025	5030	5035	5040	5050	5060				
55	60			5520	5525	5530	5535	5540	5550	5560				
60	65				6025	6030	6035	6040	6050	6060	6070			
65	70					6530	6535	6540	6550	6560	6570			
70	75					7030	7035	7040	7050	7060	7070	7080		
75	80					7530	7535	7540	7550	7560	7570	7580		
80	85					8030	8035	8040	8050	8060	8070	8080		
85	90					8530	8535	8540	8550	8560	8570	8580	8590	
90	95					9030	9035	9040	9050	9060	9070	9080	9090	
95	100							9540	9550	9560	9570	9580	9590	95100

HLDB-092 青铜轴套规格及公差
HLDB-092 Bronze Sleeve Bushing Specification & Tolerance

内径 D_i ϕd	外径 D_O ϕD	长度L $^{0}_{-0.40}$									
		25	30	35	40	50	60	70	80	90	100
100	105					10050	10060	10070	10080	10090	100100
105	110					10550	10560	10570	10580	10590	105100
110	115					11050	11060	11070	11080	11090	110100
115	120					11550	11560	11570	11580	11590	115100
120	125						12060	12070	12080	12090	120100
125	130						12560	12570	12580	12590	125100
130	135						13060	13070	13080	13090	130100
135	140						13560	13570	13580	13590	135100
140	145						14060	14070	14080	14090	140100
145	150						14560	14570	14580	14590	145100
150	155						15060	15070	15080	15090	150100
155	160						15560	15570	15580	15590	155100
160	165						16060	16070	16080	16090	160100
165	170						16560	16570	16580	16590	165100
170	175						17060	17070	17080	17090	170100
175	180						17560	17570	17580	17590	175100
180	185						18060	18070	18080	18090	180100
185	190						18560	18570	18580	18590	185100
190	195						19060	19070	19080	19090	190100
195	200						19560	19570	19580	19590	195100
200	205						20060	20070	20080	20090	200100
205	210						20560	20570	20580	20590	205100
215	220						21560	21570	21580	21590	215100
225	230						22560	22570	22580	22590	225100
230	235						23060	23070	23080	23090	230100
240	245						24060	24070	24080	24090	240100
250	255						25060	25070	25080	25090	250100
260	265						26060	26070	26080	26090	260100
270	275						27060	27070	27080	27090	270100
280	285						28060	28070	28080	28090	280100
290	295						29060	29070	29080	29090	290100
300	305						30060	30070	30080	30090	300100

HLDB-092F 青铜翻边轴套规格及公差
HLDB-092F Bronze Flange Bushing Specification & Tolerance





S_3	1.0	1.5	2.0	2.5
r	$1^{-0.5}$	1±0.5	1.5±0.5	2±0.5

单位Unit: mm

内径 D_i φd	外径 D_O φD	法兰外径 D_{fl}	长度 L $^{0}_{-0.40}$										
			15	20	25	30	35	40	50	60	70	80	90
25	28	35	25150	25200	25250								
30	34	45		30200	30250	30300							
35	39	50		35200	35250	35300	35350						
40	44	55			40250	40300	40350	40400					
45	50	60				45300	45350	45400	45500				
50	55	65				50300	50350	50400	50500				
55	60	70				55300	55350	55400	55500				
60	65	75				60300	60350	60400	60500	60600			
65	70	80				65300	65350	65400	65500	65600			
70	75	85					70350	70400	70500	70600	70700		
75	80	90					75350	75400	75500	75600	75700		
80	85	95					80350	80400	80500	80600	80700	80800	
90	95	110							90500	90600	90700	90800	90900
100	105	120							100500	100600	100700	100800	100900
110	115	130							110500	110600	110700	110800	110900
120	125	140							120500	120600	120700	120800	120900
130	135	165								130600	130700	130800	130900
140	145	165								140600	140700	140800	140900
150	155	180								150600	150700	150800	150900
160	165	190								160600	160700	160800	160900
170	175	200								170600	170700	170800	170900
180	185	215								180600	180700	180800	180900
190	195	225								190600	190700	190800	190900
200	205	235								200600	200700	200800	200900
225	230	260								225600	225700	225800	225900
250	255	290								250600	250700	250800	250900
265	270	305								265600	265700	265800	265900
285	290	325								285600	285700	285800	285900
300	305	340								300600	300700	300800	300900



HLDB-800 双金属自润滑轴承
Bimetallic Self-lubricating Bearings

HLDB-800 双金属自润滑轴套
HLDB-800 Bimetallic Self-lubricating Bushes

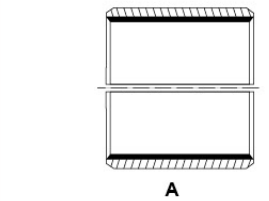
HLDB-800系列双金属轴套、轴瓦、止推垫片，以优质低碳钢为基体，表面烧结青铜粉，适用于高载低速下的旋转，摇摆运动。具有摩擦系数低、耐磨性能好、使用寿命长、抗咬合性能好等特点，铜合金层可根据要求加工出各种类型的油穴、油槽。产品被广泛应用于矿山机械、汽机车、建筑机械、农用机械、轧钢机械等。

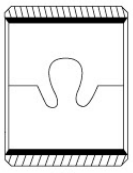
HLDB-800 Bimetallic self-lubricating bearing used high quality low-carbon steel plate as base, sintered porous bronze as its surface, suitable for rotatory oscillating, reciprocating movements on the conditions of high load.low speed, low friction, well wear resistance, long lifetime and better prevent from holding-on.The bronze layer surface can be machined with various of grooves, oil pockets in terms of different work condition. The product is widely used in mining machinery, automobile, building machinery, agriculture equipment, rolling steel industry etc.

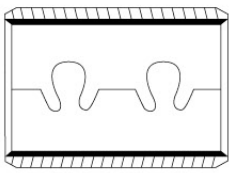
材料特性 Material Characterisitc

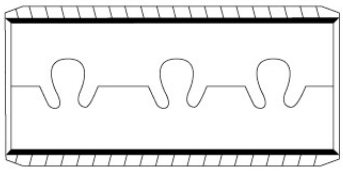
材料牌号 Material Trademark	合金成份 Alloy Composition	合金硬度 Alloy Hardness	国际标准 International Standard
HLDB-800	CuPb10Sn10	70～100HB	SAE-797. DIN CuPb10Sn. JIS-LBC3. UNS C93700. Clevite F100. Daido L10. D. A. B. D57. Federal Mogul HF2. Glacier SY. Glyco66. Miba2. 1010.Taiho HF2. Kar I Schmiat KS940SSAE-797. DIN CuPb10Sn. JIS-LBC3. UNS C93700. Clevite F100. Daido L10. D. A. B D57. Federal Mogul HF2 Glacier SY. Glyco66. Miba2. 1010. Taiho HF2. Karl Schmiat Ks940s
HLDB-720	CuPb24Sn4	45～70HB	SAE=799. GLYCO 68. JIS-LBC6. DAIDO L23. Claciersx. ACLF250
HLDB-700	CuPb30	30～45HB	SAE-783. GLYCO74. JIS-AJL
HLDB-20	AlSn20Cu	30～40HB	SAE-48. JIS-KJ3
HLDB-930	CuPb6.5P0.1	69～90HB	

卷制轴承搭口形式 Material Characterisitc


A

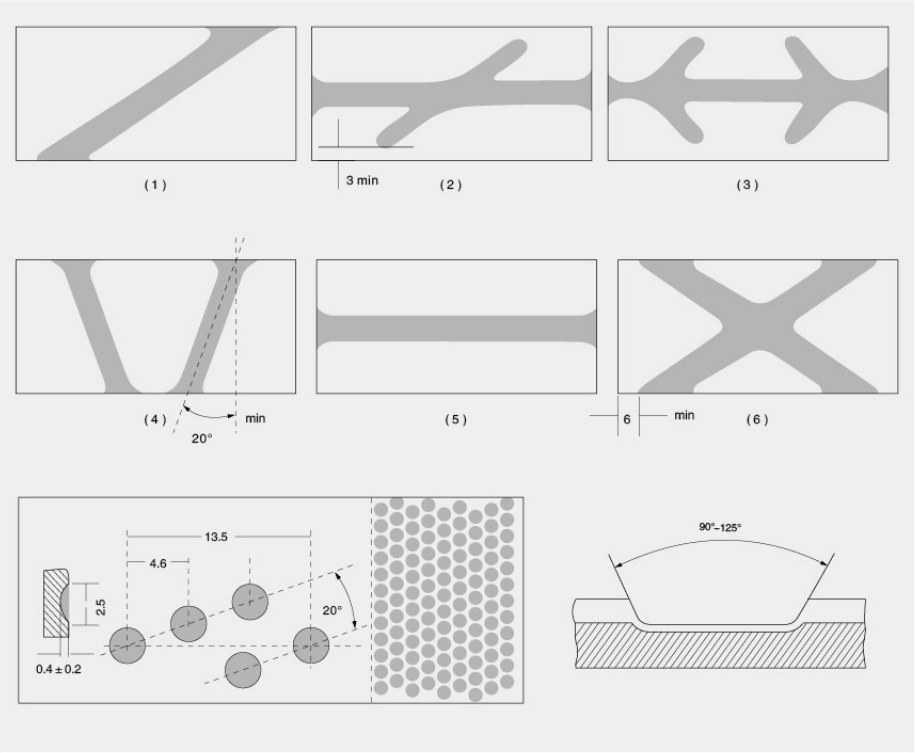

B


C


D

HLDB-800 双金属自润滑轴套
HLDB-800 Bimetallic Self-lubricating Bushes

双金属自润滑轴承的油槽形状
Bi-metal self lubricating bearings tank shape





可供标准产品：
直套P31，翻边轴套P33。

可供非标产品：
直套，翻边轴套，止推垫片，板材，轴瓦，滑板，钢套组合件。

Standard Size:
Stright Bearing P31, Flange Bearing P33.

Non-Standard Size:
Stright Bearing, Flange Bearing, Thrust washer, Strip, Bearing bushing, Wear strips, Steel combine units.

双金属轴套表面粗糙度
Surface Roughness of Bimetal Bushes:

项目 List	精密轴套(尺寸到位) Bronze Surface	轴套钢合金面 Bronze Surface
轴套钢合金面 Bronze Surface	R20.8	R26.3
钢背面 Steel Backing	R21.6	R210
其它表面 Other Surfaces	R22.5	R2100

根据DIN4768第一部分 According to DIN4768, Part1

HLDB-800 双金属自润滑轴套
HLDB-800 Bimetallic Self-lubricating Bushes

技术参数 Technical Data

性能指标 Performance index / 型号 Type		HLDB-800	HLDB-720	HLDB-700	HLDB-20	HLDB-930
最大承载 P (N/mm^2) Max Load Capacity		150	130	120	100	150
拉伸强度（N/mm^2） Tensile Strength		185	150	200	200	185
最大线速度（油润滑）V(m/s) Max Sliding Speed (Oil Lubrication)		5	10	15	25	5
摩擦系数 μ Friction coefficient		0.05～0.20	0.06～0.16	0.08～0.16	0.08～0.17	0.06～0.16
最高PV值 $N/mm^2 \cdot m/s$ Max PV Value Limit	脂润滑 Grease lubrication	2.8	2.8	2.5	–	2.8
	油润滑 Oil lubrication	10	10	8	6	-

应用特性 Application Characteristics

材料牌号 Material Trademark	适用条件 Using Conditions	适用场合 Use Occasions
HLDB-800	很高的耐疲劳强度和承载能力，抗冲击能力强，耐磨性、耐腐蚀性好 High resistance to fatigue strenth and load capacity, with high shock resistance good wearing and good corrosion resisitance.	中速、高冲击载荷的衬套，内燃机连杆活塞销衬套 Fit for middle load, high speed, bushes,washer and connecting rod bearing in internal combustion engine used in machinical equipment and high shock bushing.
HLDB-720	较高的耐疲劳强度和承载能力、较好的滑动性能，易受润滑油腐蚀 Good resistance to fatigue strength and high load capacity,good performance of sliding, liable to be corrupted by lubricationg oil.	中载中速、高速内燃机主轴套和连杆轴套 middle load middle speed, principle axis of internal combustion engine.
HLDB-700	较高的耐疲劳强度、承载能力、抗冲击能力 Good resistance to fatigue strength, load capacity, shock resistance.	用于内燃机主轴和连杆轴承、止推垫片 Principle axis of internal combustion engine, connecting rod bushing.
HLDB-20	良好的抗咬性、异物埋没性，工作表面镀软合金层 Good performance of anti-seizing, covering eyewinker, soft alloy be plated on working surface.	高速中低载荷的内燃机主轴套，连杆轴套 High speed, middle or low load, principle axis internal combustion engine
HLDB-930	中等的耐疲劳强度和承载能力，良好的抗腐蚀性能，较好轴承滑动性能。 Moderate fatigue strength, and load capacity, good wrrosion resistance good performance of bearing sliding.	高速低载的内燃机轴瓦、气压机、制冷机轴套 High speed, low load, internal combustion engine half bearing, bushing used in compressing and refrigerating machine.

HLDB-08G 固体润滑轴套
HLDB-08G Solid-lubricant Bushes

HLDB-08G固体润滑轴承是以HLDB-800双金属材料为基体，再埋入特殊固体润滑剂制作成的新型滑动轴承。由于高强度承载的合金材料作基体，并经过严格选择的高分子填充材料为耐磨剂，合理的螺旋角度菱形块状均布的润滑面，润滑面积达25%，因此，能发挥超群的低摩擦，良好的润滑性和抗磨耗性免除加油。该产品已广泛应用于起重起、微型电机、升降机、吊车及冶金机械等行业。

HLDB-08G is a kind of steel-lead bronze alloys based bearing, which is embedded with particular formulation of solid lubricants. Owing to the high strength, high load capacity and the spirally distributed diamond type of the embedded solid lubricant, the high temperature resistant action as extraordinary exploited. The lubrication area of the bearing surface is being about 25%. This type of bearing is particularly applied in starting motor for automobiles, generators cranes and those machines inmetallurgical industry.



可供标准产品：
直套P34，翻边轴套P33。

可供非标产品：
直套，翻边轴套，止推垫片，板材，轴瓦，滑板，钢套组合件。

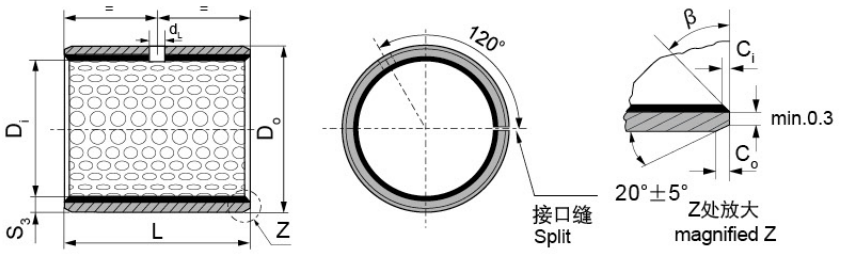
Standard Size:
Stright Bearing P34, Flange Bearing P33.

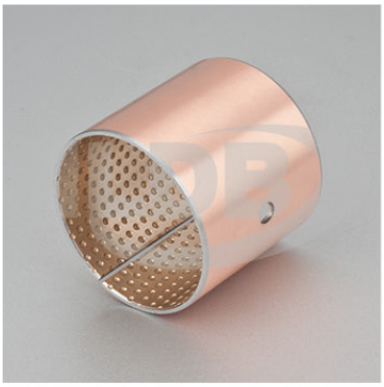
Non-Standard Size:
Stright Bearing, Flange Bearing, Thrust washer, Strip, Bearing bushing, Wear strips, Steel combine units.

技术参数 Technical Data

最大承载 Max.load	静承载 Static	150N/mm^2
	动承载 Dynamic	40N/mm^2
最大PV值（干摩擦） Max. PV (dry running)		2.8N/mm^2·m/s
使用温度 Temp. limit		-100℃~+200℃
摩擦系数 Friction coefficient		0.06~0.25 μ
最大线速度 Max. speed	脂润滑 Grease Lubrication	1.5m/s
导热系数 Thermal conductivity		58W(m·k)$^{-1}$
线胀系数 Coefficient of thermal expansion		18 × 10^{-6}·K^{-1}
硬度 Hardness		HB110-150
抗拉强度 Tensile strength		450N/mm^2
伸长 Elongation		40%

HLDB-800 双金属轴承规格及公差
HLDB-800 Bimetal Sleeve Bushing Specification & Tolerance





内外倒角 ID and OD chamfers

S_3	C_o	C_i	β
0.75	0.5 ± 0.3	0.25 ± 0.2	35° ± 5°
1.00	0.6 ± 0.3	0.30 ± 0.2	35° ± 5°
1.50	0.7 ± 0.3	0.50 ± 0.3	35° ± 5°

S_3	C_o	C_i	β
2.00	1.2 ± 0.4	0.50 ± 0.3	35° ± 5°
2.50	1.8 ± 0.6	0.60 ± 0.3	45° ± 5°

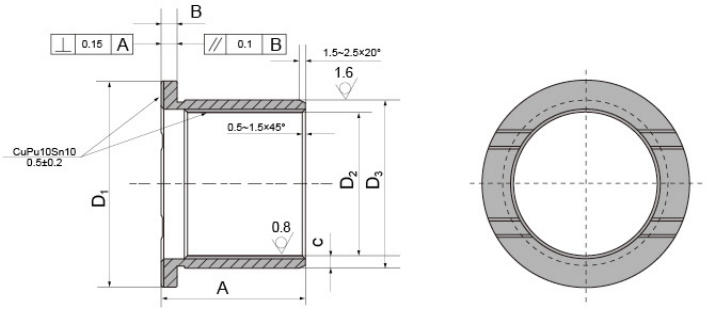
单位unit:mm

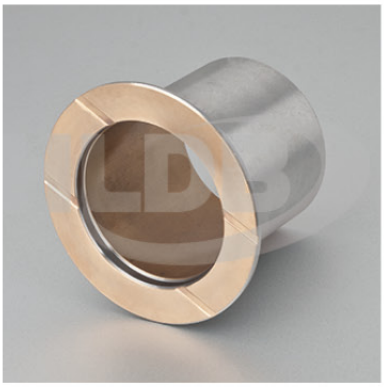
内径 D_i ϕ d	外径 D_O ϕ D	轴径(h8) Shaft D_s	座孔(H7) Housing D_H	压装后内孔公差 Arter fixed $D_{i,a}$	配合间隙 Clearance C_D	壁厚 Wall thickness S_3	油孔 Oil hole d_L	长度 L $^{0}_{-0.40}$						
								10	15	20	25	30	40	50
10	12	10 $^{}_{-0.022}$	12 $^{+0.018}$	+0.148 +0.010	0.170 0.010	0.995 0.935	4	1010	1015	1020				
12	14	12 $^{}_{-0.027}$	14 $^{+0.018}$		0.175 0.010			1210	1215	1220				
14	16	14 $^{}_{-0.027}$	16 $^{+0.018}$					1410	1415	1420				
15	17	15 $^{}_{-0.027}$	17 $^{+0.018}$					1510	1515	1520				
16	18	16 $^{}_{-0.027}$	18 $^{+0.018}$					1610	1615	1620				
18	20	18 $^{}_{-0.027}$	20 $^{+0.021}$	+0.151 +0.010	0.178 0.010			1810	1815	1820	1825			
20	23	20 $^{}_{-0.033}$	23 $^{+0.021}$	+0.161 +0.020	0.194 0.020	1.490 1.430		2010	2015	2020	2025			
22	25	22 $^{}_{-0.033}$	25 $^{+0.021}$				6	2210	2215	2220	2225			
24	27	24 $^{}_{-0.033}$	27 $^{+0.021}$					2410	2415	2420	2425	2430		
25	28	25 $^{}_{-0.033}$	28 $^{+0.021}$						2515	2520	2525	2530		
26	30	26 $^{}_{-0.033}$	30 $^{+0.021}$	+0.181 +0.040	0.214 0.040	1.980 1.920			2615	2620	2625	2630		
28	32	28 $^{}_{-0.033}$	32 $^{+0.025}$	+0.185 +0.040	0.218 0.040				2815	2820	2825	2830	2840	
30	34	30 $^{}_{-0.033}$	34 $^{+0.025}$						3015	3020	3025	3030	3040	
32	36	32 $^{}_{-0.039}$	36 $^{+0.025}$		0.224 0.040				3215	3220	3225	3230	3240	
35	39	35 $^{}_{-0.039}$	39 $^{+0.025}$							3520	3525	3530	3540	3550
38	42	38 $^{}_{-0.039}$	42 $^{+0.025}$				8			3820	3825	3830	3840	3850
40	44	40 $^{}_{-0.039}$	44 $^{+0.025}$							4020	4025	4030	4040	4050

HLDB-800 双金属轴承规格及公差
HLDB-800 Bimetal Sleeve Bushing Specification & Tolerance

内径 D_i ϕd	外径 D_O ϕD	轴径(h8) Shaft D_s	座孔(H7) Housing D_H	压装后内孔公差 Arter fixed $D_{i,a}$	配合间隙 Clearance C_D	壁厚 Wall thickness S_3	油孔 Oil hole d_L	长度 L $^{0}_{-0.40}$							
								25	30	40	50	60	80	90	100
45	50	45 $^{-0.039}$	50 $^{+0.025}$	+0.225 +0.080	0.264 0.080	2.460 2.400	8	4525	4530	4540	4550				
50	55	50 $^{-0.039}$	55 $^{+0.030}$	+0.230 +0.080	0.269 0.080				5030	5040	5050	5060			
55	60	55 $^{-0.046}$	60 $^{+0.030}$		0.276 0.080				5530	5540	5550	5560			
60	65	60 $^{-0.046}$	65 $^{+0.030}$						6030	6040	6050	6060			
65	70	65 $^{-0.046}$	70 $^{+0.030}$						6530	6540	6550	6560			
70	75	70 $^{-0.046}$	75 $^{+0.030}$						7030	7040	7050	7060	7080		
75	80	75 $^{-0.046}$	80 $^{+0.030}$				9.5		7530	7540	7550	7560	7580		
80	85	80 $^{-0.046}$	85 $^{+0.035}$	+0.235 +0.080	0.281 0.080				8030	8040	8050	8060	8080	8090	
85	90	85 $^{-0.054}$	90 $^{+0.035}$		0.289 0.080				8530	8540	8550	8560	8580	8590	85100
90	95	90 $^{-0.054}$	95 $^{+0.035}$							9040	9050	9060	9080	9090	90100
95	100	95 $^{-0.054}$	100 $^{+0.035}$								9550	9560	9580	9590	95100
100	105	100 $^{-0.054}$	105 $^{+0.035}$								10050	10060	10080	10090	100100
105	110	105 $^{-0.054}$	110 $^{+0.035}$								10550	10560	10580	10590	105100
110	115	110 $^{-0.054}$	115 $^{+0.035}$								11050	11060	11080	11090	110100
115	120	115 $^{-0.054}$	120 $^{+0.035}$								11550	11560	11580	11590	115100
120	125	120 $^{-0.054}$	125 $^{+0.040}$	+0.240 +0.080							12050	12060	12080	12090	120100
125	130	125 $^{-0.063}$	130 $^{+0.040}$		0.303 0.080							12560	12580	12590	125100
130	135	130 $^{-0.063}$	135 $^{+0.040}$									13060	13080	13090	130100
135	140	135 $^{-0.063}$	140 $^{+0.040}$									13560	13580	13590	135100
140	145	140 $^{-0.063}$	145 $^{+0.040}$									14060	14080	14090	140100
150	155	150 $^{-0.063}$	155 $^{+0.040}$									15060	15080	15090	150100

HLDB-800 双金属翻边轴承规格及公差
HLDB-800 Bimetal Flange Bushing Specification & Tolerance



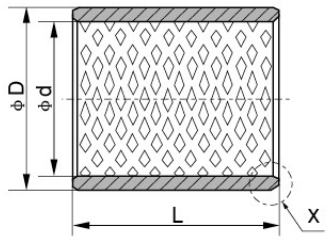


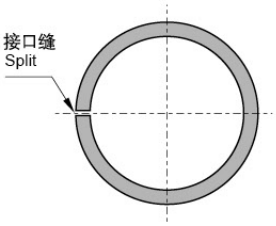
单位unit:mm

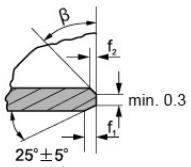
D_1	B	D_3	D_2	A	C
42	3.5	37	30	30	3.5
43	2	34	30	28	2
44	3.5	39	32	35	3.5
47	3.5	39	32	50	3.5
48	2	39	35	37	2
52	3	41	35	35	3
55	3.5	42	35	35	3.5
55	3.5	45	38	35	3.5
55	3.5	45	38	40	3.5
60	3	41	35	42	3
60	3	46	40	62	3
63	3.5	47	40	40	3.5
65	3.5	52	45	40	3.5
68	3.5	54	47	35	3.5
70	3.5	54	47	40	3.5
70	3.5	57	50	48	3.5
72	3.5	57	50	45	3.5
72	3.5	57	50	50	3.5
75	3.5	57	50	50	3.5
77	3	60	54	55	3
83	3.5	66	59	53	3.5
85	3.5	65	58	60	3.5
87	3.5	67	60	53	3.5
87	3.5	67	60	60	3.5

D_1	B	D_3	D_2	A	C
87	3.5	67	60	65	3.5
87	4	68	60	60	4
94	3.5	72	65	60	3.5
87	3.5	72	65	65	3.5
87.5	1.95	69.12	65.22	64.5	2
88	3.5	67	60	60	3.5
88	3.5	72	65	65	3.5
92	3.5	77	70	67	3.5
93	3.5	75	68	60	3.5
94	3.5	77	70	70	3.5
95	3.5	77	70	65	3.5
95	4	78	70	70	4
97	3.48	77.14	70.18	62	3.5
97	3.5	82	75	74	3.5
100	5	85	75	70	5
103	3.525	70.8	63.75	73	3.5
105	3.5	82	75	75	3.5
105	3.5	87	80	70	3.5
107	4	83	75	74	4
115	5	100	90	75	5
128	3.8	92.6	85	103	4
108	3.5	72	65	75	3.5
108	3.5	77	70	98	3.5
108	5	80	70	90	5

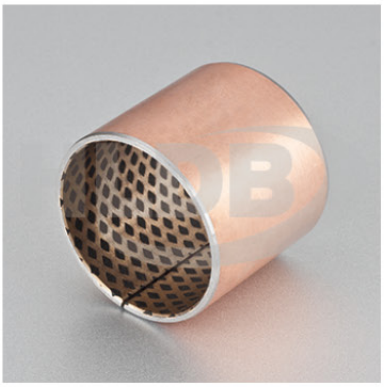
HLDB-08G 固体润滑轴承规格及公差
HLDB-08G Solid-lubricant Bushing Specification & Tolerance







X处放大
magnified X



单位Unit: mm

d	D	f_1	f_2	$L^{0}_{-0.40}$												
				10	15	20	25	30	35	40	50	60	70	80	90	100
10	12	0.3	0.5	1010	1015	1020										
12	14			1210	1215	1220										
14	16			1410	1415	1420	1425									
15	17			1510	1515	1520	1525									
16	18			1610	1615	1620	1625									
18	20			1810	1815	1820	1825									
20	23	0.8	0.4	2010	2015	2020	2025									
22	25			2210	2215	2220	2225	2230								
24	27				2415	2420	2425	2430								
25	28				2515	2520	2525	2530								
28	32	1.0	0.6		2815	2820	2825	2830								
30	34				3015	3020	3025	3030	3035	3040						
32	36				3215	3220	3225	3230	3235	3240						
35	39				3515	3520	3525	3530	3535	3540						
40	44					4020	4025	4030	4035	4040	4050					
45	50	1.2	0.8			4520	4525	4530	4535	4540	4550					
50	55					5020	5025	5030	5035	5040	5050	5060				
55	60					5520	5525	5530	5535	5540	5550	5560				
60	65						6025	6030	6035	6040	6050	6060	6070			
65	70							6530	6535	6540	6550	6560	6570			
70	75							7030	7035	7040	7050	7060	7070	7080		
75	80							7530	7535	7540	7550	7560	7570	7580		
80	85	1.4						8030	8035	8040	8050	8060	8070	8080		
85	90									8540	8550	8560	8570	8580	8590	
90	95									9040	9050	9060	9070	9080	9090	
95	100										9550	9560	9570	9580	9590	95100
100	105										10050	10060	10070	10080	10090	100100
105	110										10550	10560	10570	10580	10590	105100
110	115										11050	11060	11070	11080	11090	110100
115	120										11550	11560	11570	11580	11590	115100
120	125											12060	12070	12080	12090	120100
125	130											12560	12570	12580	12590	125100
130	135											13060	13070	13080	13090	130100
135	140											13560	13570	13580	13590	135100
140	145											14060	14070	14080	14090	140100
145	150											14560	14570	14580	14590	145100
150	155											15060	15070	15080	15090	150100
155	160											15560	15570	15580	15590	155100
160	165											16060	16070	16080	16090	160100



HLDB-JDB 固体润滑轴承
Solid-lubricating Bearings

HLDB-JDB 固体润滑轴承
HLDB-JDB Solid-Lubricant Bearings

应用特点 Application

HLDB-JDB-10是在以高力黄铜的基体上镶嵌固体润滑剂的一新产品，它突破了一般轴承依靠油膜润滑的界限。适用于高温，高载，耐腐蚀或无法加油等场合条件下使用。它的硬度比一般铜套高一倍，耐磨性能也高出一倍。目前广泛应用于冶金连铸机、轧钢设备、矿山机械、船舶、汽轮机、注塑机以及设备生产流水线中。

HLDB-JDB-20主要适应低载高温中速的使用场合，例如壁炉门铰链。烘炉滚道、轻工机械、机床工业等。

HLDB-JDB-30的内材与HLDB-JDB-20同样，除了具有HLDB-JDB-20的功能外，还体现了节省成本，提高抗压强度和可以端面与基体焊接安装的作用，适用于建筑机械、冶金机械和输送机械中的不加油润滑部位。

HLDB-JDB-40是一种加强型的产品，它具有极高的抗压性能，在起重机械的支撑部位特别适应，例：挖土机支撑、卷扬机支撑、吊车支撑等。但由于基体为钢材，所以不宜在水中或酸、碱的场合使用。

HLDB-JDB-50是一种典型的省材产品。在机械性能要求不是很高的地方，可作取HLDB-JDB-10替代材料使用，能大大地降低成本，满足使用要求，例：模具导柱、注塑机模架等。







HLDB-JDB-10 solid lubricant embedded bushing is a new type made from strong brass and homogeneously embedded with solid lubricant in its body. It breaks through the limit of general bearing whose lubrication depends on oil film. So it is suitable for high temperature, heavy load, anti-corrosion, or where oil is hard to be introduced. It is performance doubles both on hardness and wear-friction. It is now widely applied in successive casting machines, steel rollers in metallography, mineral machine, ships, steam turbine, and injection molding machines for plastics.

HLDB-JDB-20 suitable for low load position, wear performance worsens greatly when under middle or high load, it can be applied in furnace door linage, furnace, conveyor, tool machines, light industries, etc.

HLDB-JDB-30 suitable for low load position, wear performance worsens when under middle or high load. The mating layer is same as HLDB-JDB-20 so that more cost-saving than HLDB-JDB-2 whereas compression strength increases and weldable. Most suitable for dry position in construction machinery, metallurgical machines, conveyor machines etc.

HLDB-JDB-40 can be used under low speed rotation, middle and high load. Due to its super high hardness, when under high load, it over performs than other JDB type. Not suitable for water. Acid, alkali circumstances. Most suitable for the supporting position of hoisting machine,e,g. Bulldozer supporter, hoister supporter, Crane supporter etc.

HLDB-JDB-50 is a typical material product. It can instead of material of HLDB-JDB-10 when the machanical preformance requirement not very high. It can reduct the cost and meet the operation requiremert. Such as dieguider, plastrc in jection machines ect.

HLDB-JDB 固体润滑轴承
HLDB-JDB Solid-Lubricant Bearings

合金材料 Alloy Material

型号 Type / 对应牌号 Corresponding Brands	HLDB-JDB-10	HLDB-JDB-20	HLDB-JDB-30	HLDB-JDB-40	HLDB-JDB-50
国际牌号 GB1776-87 China Brands GB1776-87	ZCuZn25 Al6Fe3Mn3	ZCuSn6 Zn6Pb3	钢 (steel)+ ZCuSn6 Zn6Pb3	GCr15	HT250
国际 ISO1338 International ISO1338	GCuZn25 Al6Fe3Mn3	GCuSn6 Zn6Pb3	钢 (steel)+ CuSn6Zn6Pb3 Fe3Ni5	B1	-
德国 DIN Germany DIN	G-CuZn25 Al5	GB-CuSn5 Zn5Pb5	钢 (steel)+ CuSn6Zn6 Pb3Ni	100Cr6	-
日本JIS Japan JIS	HBsC4	BC6	BC6	SUJ2	FC250
美国 ASTM/UNS America ASTM/UNS	C86300	C83600	C83600	52100	Class40
英国标准 (BS) England Standard	HTB2	LG2	LG2	-	-





技术参数 Technical Data

型号 Type / 性能指标 Performance index	HLDB-JDB-10	HLDB-JDB-20	HLDB-JDB-30	HLDB-JDB-40	HLDB-JDB-50
最大动承载 P (N/mm^2) Max Move Load Capacity	100	60	70	250	60
最大滑动速度 V (m/s) Max Sliding Speed	干(dry) 0.4 油(oil) 0.5	2	2	0.1	0.5
最高PV值 ($N/mm^2 \cdot m/s$) Max PV Value Limit	3.8	0.5	0.6	2.5	0.8
密度 ρ (g/cm^3) Density	8.0	8.0	7.6	7.8	7.3
抗拉强度 (N/mm^2) Tensile Strength	＞600	＞250	＞500	＞1500	＞250
延伸率 (%) Elongation	＞10	＞4	＞10	-	-
硬度 (HB) Hardness	＞210	＞80	＞80	HRC＞55	＞160
最高使用温度℃ Max Working Temperature	300	350	300	350	400
摩擦系数 μ Friction coefficient	油润滑：0.03 Oil Lubrication:0.03			干摩擦：0.16 Dry Friction:0.16	

HLDB-JDB 固体润滑轴承
HLDB-JDB Solid-Lubricant Bearings

材料合金化学成份 Alloy Chemical Compositions

化学元素 Chemical elements	HLDB-JDB-10	HLDB-JDB-20	HLDB-JDB-30	HLDB-JDB-40	HLDB-JDB-50
Cu (%)	Rest	Rest	Rest	-	-
Sn (%)	-	6	6	-	-
Zn (%)	25	6	6	-	-
Ni (%)	-	-	-	-	-
Al (%)	6	-	-	-	-
Fe (%)	3	-	-	Rest	Rest
Mn (%)	3	-	-	0.20 ~ 0.40	0.905 ~ 1.3
Cr (%)	-	-	-	1.30 ~ 1.65	-
C (%)	-	-	-	0.95 ~ 1.05	2.5 ~ 4
Si (%)	-	-	-	0.15 ~ 0.35	1.0 ~ 1.3
Pb (%)	-	3	3	-	-





固体润滑剂 Solid Lubricants

固体润滑剂 Lubricant	高纯石墨+添加剂 SL1 Graphite	SL4+MoS_2 PTFE+MoS_2+CF
特性 Features	很好的耐磨性和化学稳定性，使用温度＜400℃ Good wear performance and chemical stability, temperature limit 400℃	极低的摩擦系数和很好的水润滑性，使用温度＜300℃ Lowest friction coefficient and good water lubrication, temperature limit 300℃
典型用途 Typical application	应用于一般机械，在大气中使用 Suit for general machines and under atmosphere	应用于水、海水润滑、如船舶 Suit for water and seawater lubricant, such as ship

镶嵌式固体润滑轴承的优点
The Advantages of the Solid-lubricant-Embedded Bearings

1、无给油可使用
Dry operation.

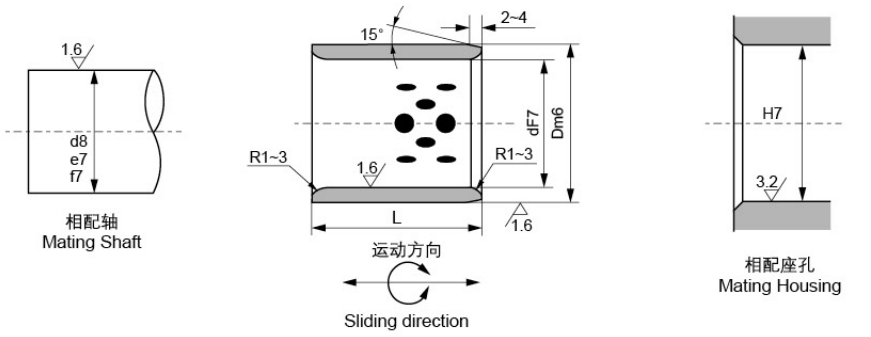
2、高载荷、低转速的情况，仍可发挥优越的性能
Can be Performed well with high load and low speed.

3、往返运动、摇摆运动、起动停止频繁等油膜形成困难的场所，仍可发挥优越的耐磨性
Rreciprocating motion, wagging motion, start and stop frequently are difficulty for keeping oil film. It still may play advantageous of wear-resistance.

4、优越的耐药品性及耐蚀性
Excellent chemical resistance and anti-corrosion.

5、设计灵活、简单、方便，丰富的标准品，可配标准轴心使用
Flexible, simple, convenient and abundant designing of standard, can be choosed by standard axes.

HLDB-JDB 自润滑直套轴承标准公制尺寸
HLDB-JDB Self-lubricating Straight Bearings Standard Metric Size





单位Unit: mm

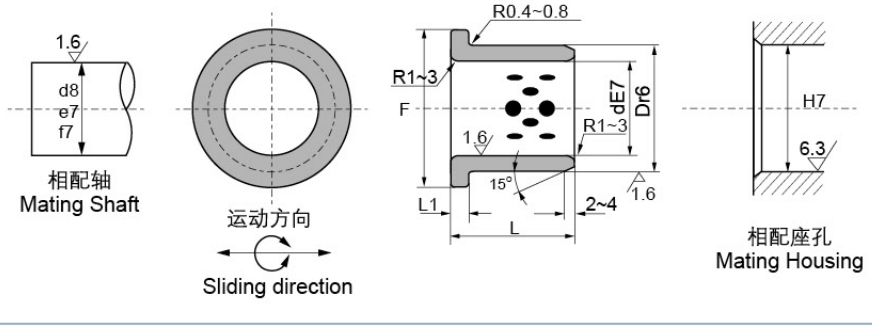
d	D	d F7		D m6		L $^{-0.10}_{-0.30}$												
						8	10	12	15	16	20	25	30	35	40	50	60	70	80
8	12	8	+0.028 +0.013	12	+0.018 +0.007	081208	081210	081212	081215										
10	14	10		14		101408	101410	101412	101415	101416	101420								
12	18	12	+0.034 +0.016	18			121810	121812	121815	121816	121820	121825	121830						
13	19	13		19	+0.021 +0.008		131910	131912	131915	131916	131920	131925	131930						
14	20	14		20			142010	142012	142015	142016	142020	142025	142030						
15	21	15		21			152110	152112	152115	152116	152120	152125	152130	152135					
16	22	16		22			162210	162212	162215	162216	162220	162225	162230	162235	162240				
18	24	18		24			182410	182412	182415	182416	182420	182425	182430	182435	182440				
20	28	20	+0.041 +0.020	28			202810	202812	202815	202816	202820	202825	202830	202835	202840	202850			
22	32	22		32				223212	223215	223216	223220	223225	223230	223235	223240	223250			
25	33	25		33	+0.025 +0.009			253312	253315	253316	253320	253325	253330	253335	253340	253350	253360		
30	38	30		38				303812	303815	303816	303820	303825	303830	303835	303840	303850	303860		
35	45	35	+0.050 +0.025	45							354520	354525	354530	354535	354540	354550	354560	354570	
40	50	40		50							405020	405025	405030	405035	405040	405050	405060	405070	405080
45	55	45		55									455530	455535	455540	455550	455560	455570	455580
50	60	50		60									506030	506035	506040	506050	506060	506070	506080

HLDB-JDB 自润滑直套轴承标准公制尺寸
HLDB-JDB Self-lubricating Straight Bearings Standard Metric Size

单位Unit: mm

d	D	d F7		Dm6		L $^{-0.10}_{-0.30}$											
						30	35	40	50	60	70	80	100	120	130	140	150
50	62	50	+0.050 +0.025	62	+0.030 +0.011	506230	506235	506240	506250	506260	506270						
50	65	50		65		506530	506535	506540	506550	506560	506570	506580	5065100				
55	70	55	+0.060 +0.030	70		557030	557035	557040	557050	557060	557070	557080	5570100				
60	74	60		75		607430	607435	607440	607450	607460	607470	607480	6074100				
60	75	60		75		607530	607535	607540	607550	607560	607570	607580	6075100				
63	75	63		75			637535	637540	637550	637560	637570	637580	6375100				
65	80	65		80			658035	658040	658050	658060	658070	658080	6580100				
70	85	70		85	+0.035 +0.013		708535	708540	708550	708560	708570	708580	7085100				
70	90	70		90			709035	709040	709050	709060	709070	709080	7090100				
75	90	75		90				759040	759050	759060	759070	759080	7590100				
75	95	75		95				759540	759550	759560	759570	759580	7595100	7595120			
80	96	80		96				809640	809650	809660	809670	809680	8096100	8096120	8096130		
80	100	80		100				8010040	8010050	8010060	8010070	8010080	80100100	80100120	80100130	80100140	
90	110	90	+0.071 +0.036	110					9011050	9011060	9011070	9011080	90110100	90110120	90110130	90110140	
100	120	100		120						10012060	10012070	10012080	100120100	100120120	100120130	100120140	
110	130	110		130	+0.040 +0.015							11013080	110130100	110130120	110130130	110130140	
120	140	120		140								12014080	120140100	120140120	120140130	120140140	
125	145	125	+0.083 +0.043	145									125145100	125145120	125145130	125145140	
130	150	130		150									130150100	130150120	130150130	130150140	130150150
140	160	140		160									140160100	140160120	140160130	140160140	140160150
150	170	150		170									150170100	150170120	150170130	150170140	150170150
160	180	160		180									160180100	160180120	160180130	160180140	160180150

HLDB-JFB 自润滑翻边轴承标准公制尺寸
HLDB-JFB Self-lubricating Flange Bearings Standard Metric Size

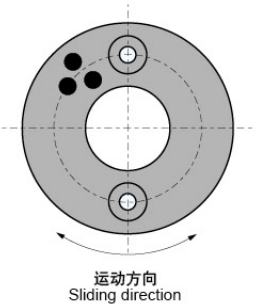


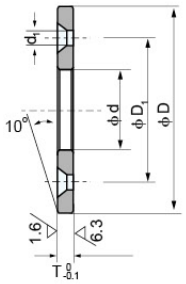


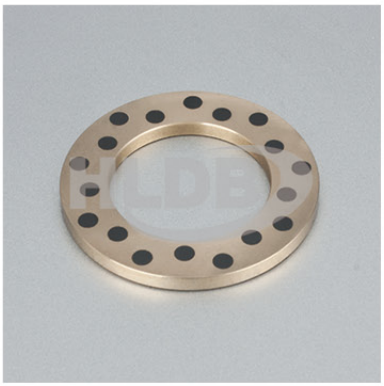
单位Unit: mm

d	D	d E7		D r6		F	L_1	$L^{-0.10}_{-0.30}$									
								15	20	25	30	35	40	50	60	80	100
10	14	10	+0.040 +0.025	14	+0.034 +0.023	22	2	1015	1020								
12	18	12		18		25		1215	1220								
13	19	13		19		26		1315	1320								
14	20	14	+0.050 +0.032	20		27	3	1415	1420	1425							
15	21	15		21	+0.041 +0.028	28		1515	1520	1525	1530						
16	22	16		22		29		1615	1620	1625	1630						
20	30	20		30		40			2020	2025	2030	2035					
25	35	25	+0.061 +0.040	35		45			2520	2525	2530	2535	2540				
30	40	30		40	+0.050 +0.034	50			3020	3025	3030	3035	3040	3050			
35	45	35		45		60				3525	3530	3535	3540	3550			
40	50	40	+0.075 +0.050	50		65	5				4030	4035	4040	4050			
45	55	45		55		70					4530	4535	4540	4550	4560		
50	60	50		60	+0.060 +0.041	75						5035	5040	5050	5060		
55	65	55		65		80							5540	5550	5560		
60	75	60		75	+0.062 +0.043	90							6040	6050	6060	6080	
70	85	70	+0.090 +0.060	85		105	7.5							7050	7060	7080	
75	90	75		90	+0.073 +0.051	110								7550	7560	7580	75100
80	100	80		100		120									8060	8080	80100
90	110	90		110	+0.076 +0.054	130	10								9060	9080	90100
100	120	100	+0.107 +0.072	120		150									10060	10080	100100
120	140	120		140	+0.088 +0.063	170									12060	12080	120100

HLDB-JTW 自润滑止推垫片标准公制尺寸
HLDB-JTW Self-lubricating Thrust Washer Standard Metric Size



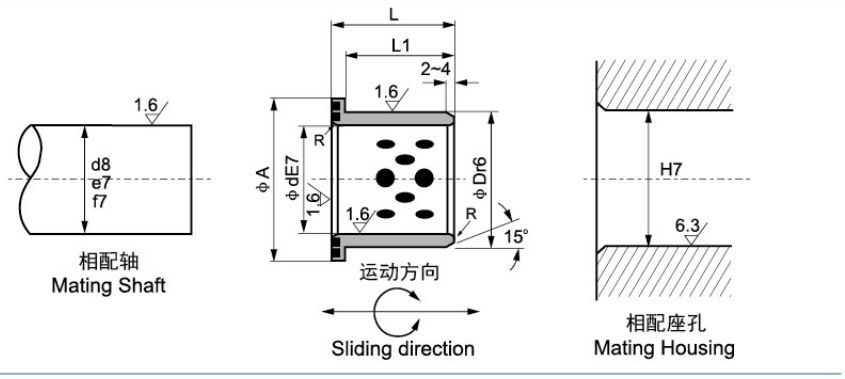




单位Unit: mm

型号规格 Standard No.	ϕd	ϕD	T 0 -0.10	螺孔 Bolt Hole			
				ϕD1	平头螺钉 Crop Bolt	ϕd1	孔数 Bore Number
HLDB-JTW-10	10.2	30	3	20	M3	3.5	2
HLDB-JTW-12	12.2	40		28			
HLDB-JTW-13	13.2						
HLDB-JTW-14	14.2						
HLDB-JTW-15	15.2	50		35			
HLDB-JTW-16	16.2						
HLDB-JTW-18	18.2						
HLDB-JTW-20	20.2		5		M5	6	
HLDB-JTW-25	25.2	55		40			
HLDB-JTW-30	30.2	60		45			
HLDB-JTW-35	35.2	70		50	M6	7	
HLDB-JTW-40	40.2	80	7	60			
HLDB-JTW-45	45.3	90		70			
HLDB-JTW-50	50.3	100	8	75			4
HLDB-JTW-55	55.3	110		85			
HLDB-JTW-60	60.3	120		90	M8	9	
HLDB-JTW-65	65.3	125		95			
HLDB-JTW-70	70.3	130	10	100			
HLDB-JTW-75	75.3	140		110			
HLDB-JTW-80	80.3	150		120			
HLDB-JTW-90	90.5	170		140	M10	11	
HLDB-JTW-100	100.5	190		160			
HLDB-JTW-120	120.5	200		175			

HLDB-JDBB 自润滑翻边轴套标准公制尺寸
HLDB-JDBB Self-lubricant Flange Bushings Standard Metric Size

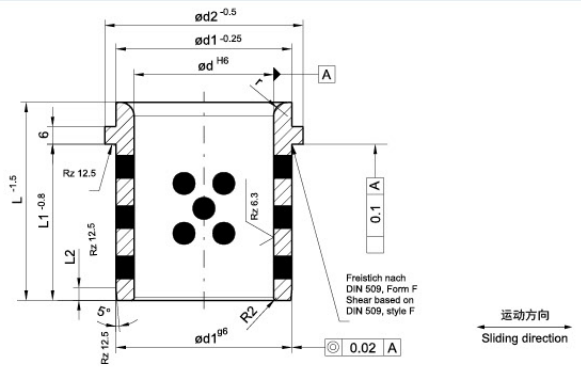




单位unit:mm

型号规格 Standard No.	ϕd E7		ϕD r6		ϕA	L1	L
HLDB-JDBB-12×15	12	+0.050 +0.032	18	+0.034 +0.023	25	11	15
HLDB-JDBB-16×20	16		22	+0.041 +0.028	30	15	20
HLDB-JDBB-20×25	20	+0.061 +0.040	28		36	20	25
HLDB-JDBB-25×30	25		33	+0.050 +0.034	43	25	30
HLDB-JDBB-30×35	30	+0.075 +0.050	38		48	30	35
HLDB-JDBB-40×45	40		50		60	40	45
HLDB-JDBB-50×55	50		62	+0.060 +0.041	75	49	55
HLDB-JDBB-60×65	60	+0.090 +0.060	74	+0.062 +0.043	90	58	65

DIN9834 自润滑导向套标准公制尺寸
DIN9834 Self-lubricant Guide Post Bushings Standard Metric Size

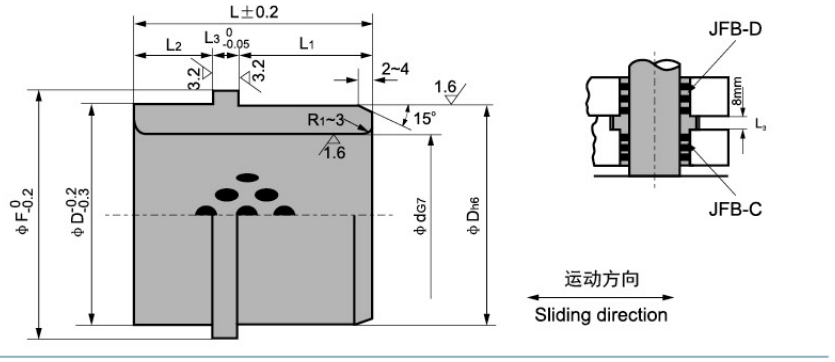




单位unit:mm

型号规格 Standard No.	d	L	d1	d2	L1	L2	L3	r
DIN9834-789	25	32	32	40	22	6,3	4	3
DIN9834-799	25	40	32	40	30		4	3
DIN9834-797	25	40	32	40	32		4	3
DIN9834-796	24	40	32	40	32		4	3
DIN9834-800	32	50	40	50	40		4	3
DIN9834-801	40	63	50	63	50		5	3
DIN9834-802	50	71	63	71	56		6,3	5
DIN9834-803	63	80	80	90	63	10	8	6
DIN9834-804	80	100	100	112	80		10	8
DIN9834-808	100	125	125	140	100		12,5	10
DIN9834-805	100	125	125	140	106		12,5	10
DIN9834-806	125	160	160	180	132		16	12
DIN9834-807	160	200	200	220	170		16	18

HLDB-JOSG 自润滑导向套标准公制尺寸
HLDB-JOSG Self-lubricant Guide Ejector Bushings Standard Metric Size



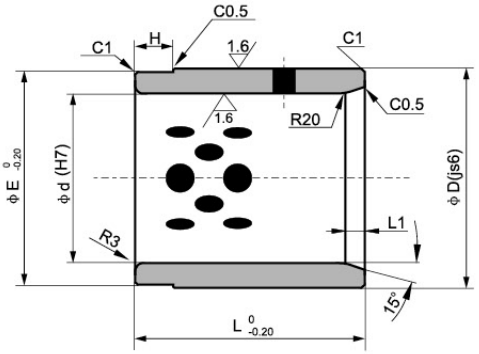


单位unit:mm

型号规格 Standard No.	φd G7		φD h6		φF	L	L_1	L_2	L_3
HLDB-JOSG-10×24	10	+0.020 +0.005	16	0 -0.011	21	24	10	10	4
HLDB-JOSG-10×28						28	14		
HLDB-JOSG-12×26	12	+0.024 +0.006	18			26	12		
HLDB-JOSG-12×28						28	14		
HLDB-JOSG-13×26	13		22		25	26	12		
HLDB-JOSG-13×28						28	14		
HLDB-JOSG-13×33						33	18		
HLDB-JOSG-13×38						38	24		
HLDB-JOSG-16×26	16		25	0 -0.013	30	26	12		
HLDB-JOSG-16×28						28	14		
HLDB-JOSG-16×33						33	19		
HLDB-JOSG-16×38						38	24		
HLDB-JOSG-20×26	20	+0.028 +0.007	30		35	26	12		
HLDB-JOSG-20×28						28	14		
HLDB-JOSG-20×33						33	19		
HLDB-JOSG-20×38						38	24		
HLDB-JOSG-25×26	25		35	0 -0.016	40	26	12		
HLDB-JOSG-25×28						28	14		
HLDB-JOSG-25×33						33	19		
HLDB-JOSG-25×38						38	24		
HLDB-JOSG-30×33	30		40		45	33	14	15	
HLDB-JOSG-30×38						38	19		
HLDB-JOSG-30×43						43	24		

型号规格 Standard No.	φd G7		φD h6		φF	L	L_1	L_2	L_3
HLDB-JOSG-32×38	32	+0.034 +0.009	42	0 -0.016	47	38	19	15	4
HLDB-JOSG-32×43						43	24		
HLDB-JOSG-32×48						48	29		
HLDB-JOSG-35×38	35		46	0 -0.019	50	38	19		
HLDB-JOSG-35×43						43	24		
HLDB-JOSG-35×48						48	29		
HLDB-JOSG-40×48	40		52		57	48	24	20	
HLDB-JOSG-40×53						53	29		
HLDB-JOSG-50×48	50		62		67	48	24		
HLDB-JOSG-50×53						53	29		
HLDB-JOSG-30×37	30	+0.028 +0.007	42	0 -0.016	47	37	14	15	8
HLDB-JOSG-30×42						42	19		
HLDB-JOSG-30×47						47	24		
HLDB-JOSG-30×52						52	29		
HLDB-JOSG-40×53	40	+0.034 +0.009	55	0 -0.019	60	53	20	25	
HLDB-JOSG-40×57						57	24		
HLDB-JOSG-40×60			50	0 -0.016	55	60	32	20	
HLDB-JOSG-40×67			55	0 -0.019	60	67	29	30	
HLDB-JOSG-40×70			50		55	70	42	20	
HLDB-JOSG-50×67	50		62		67	67	29	30	
HLDB-JOSG-50×87						87	39	40	
HLDB-JOSG-60×67	60	+0.040 +0.010	74		82	67	29	30	
HLDB-JOSG-60×87						87	39	40	

HLDB-JPBW 自润滑导向套标准公制尺寸
HLDB-JPBW Self-lubricant Guide Post Bushings Standard Metric Size

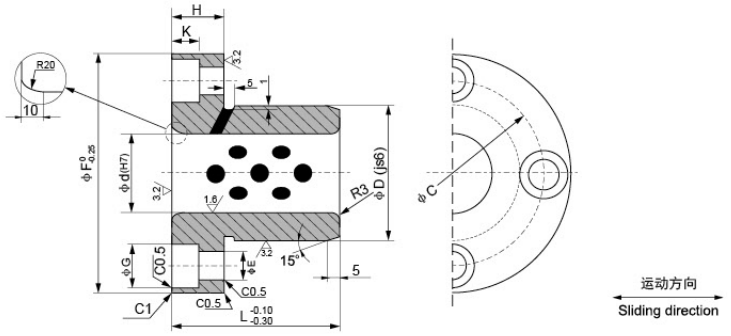




单位unit:mm

型号规格 Standard No.	尺寸 Specification	ΦD (js6)	Φd (H7)	L	ΦE	H	L1
HLDB-JPBW-30	50×30×50	50	30	50	49	10	5
HLDB-JPBW-40	60×40×60	60	40	60	59	10	
HLDB-JPBW-50	70×50×75	70	50	75	69	15	
HLDB-JPBW-60	80×60×90	80	60	90	79	20	10
HLDB-JPBW-80	100×80×120	100	80	120	99	25	
HLDB-JPBW-100	120×100×150	120	100	150	119	25	
HLDB-JPBW-120	140×120×180	140	120	180	139	25	
HLDB-JPBW-30	50×30×50	50	30	50	49	10	5
HLDB-JPBW-40	60×40×60	60	40	60	59	10	
HLDB-JPBW-50	70×50×75	70	50	75	69	15	
HLDB-JPBW-60	80×60×90	80	60	90	79	20	10
HLDB-JPBW-80	100×80×120	100	80	120	99	25	
HLDB-JPBW-100	120×100×150	120	100	150	119	25	
HLDB-JPBW-120	140×120×180	140	120	180	139	25	

HLDB-HGB 自润滑导向套标准公制尺寸
HLDB-HGB Self-lubricant Guide Bushes Standard Metric Size

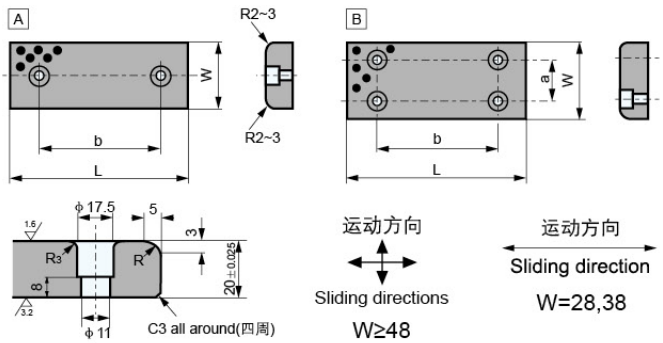




单位Unit: mm

项目 NO.	代号 Code	尺寸 Spcification	ΦF	ΦD (js6)	Φd (H7)	H	L	ΦC	ΦE	ΦG	K
1	30	90×50×30×50	90	50	30	20	50	70	11	17.5	10.8
2	40	100×60×40×65	100	60	40	20	65	80	11	17.5	10.8
3	50	125×75×50×80	125	75	50	20	80	100	11	17.5	10.8
4	60	135×85×60×100	135	85	60	20	100	110	11	17.5	10.8
5	80	170×110×80×130	170	110	80	25	130	140	14	20	13
6	100	190×130×100×160	190	130	100	25	160	160	14	20	13

HLDB-JESW 滑块标准公制尺寸
HLDB-JESW Wear Plate Standard Metric Size

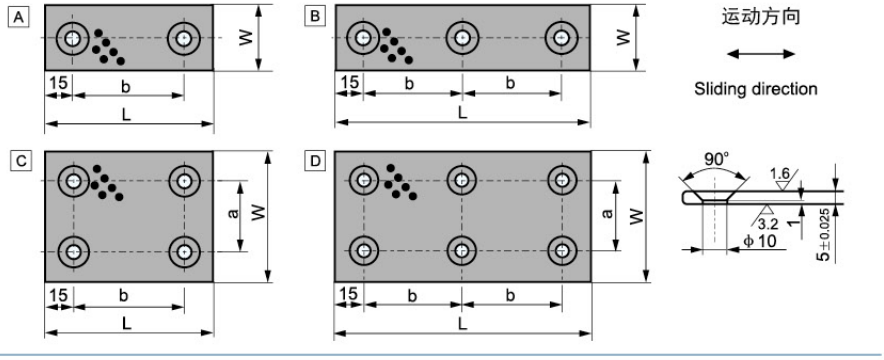




单位Unit: mm

型号规格 Standard No.	W	L	a	b	图示 Sketch
HLDB-JESW-28×75	28	75	-	45	A
HLDB-JESW-28×100		100		50	
HLDB-JESW-28×150		150		100	
HLDB-JESW-38×75	38	75	-	45	
HLDB-JESW-38×100		100		50	
HLDB-JESW-38×150		150		100	
HLDB-JESW-48×75	48	75	- -	45	
HLDB-JESW-48×100		100		50	
HLDB-JESW-48×125		125		75	
HLDB-JESW-48×150		150		100	
HLDB-JESW-48×200		200		150	
HLDB-JESW-58×75	58	75	-	45	
HLDB-JESW-58×100		100		50	
HLDB-JESW-58×150		150		100	
HLDB-JESW-75×75	75	75	-	25	
HLDB-JESW-75×100		100		50	
HLDB-JESW-75×125		125		75	
HLDB-JESW-75×150		150		100	
HLDB-JESW-75×200		200		150	
HLDB-JESW-100×100	100	100	50	50	B
HLDB-JESW-100×125		125		75	
HLDB-JESW-100×150		150		100	
HLDB-JESW-100×200		200		150	
HLDB-JESW-100×250		250		200	
HLDB-JESW-100×300		300		200	
HLDB-JESW-125×125	125	125	50	75	
HLDB-JESW-125×150		150		100	
HLDB-JESW-125×200		200		150	
HLDB-JESW-125×250		250		200	
HLDB-JESW-125×300		300		200	
HLDB-JESW-125×350		350		200	
HLDB-JESW-150×150	150	150	100	100	
HLDB-JESW-150×200		200		150	
HLDB-JESW-150×250		250		200	

HLDB-JUWP 滑板标准公制尺寸
HLDB-JUWP Wear Plates Standard Metric Size

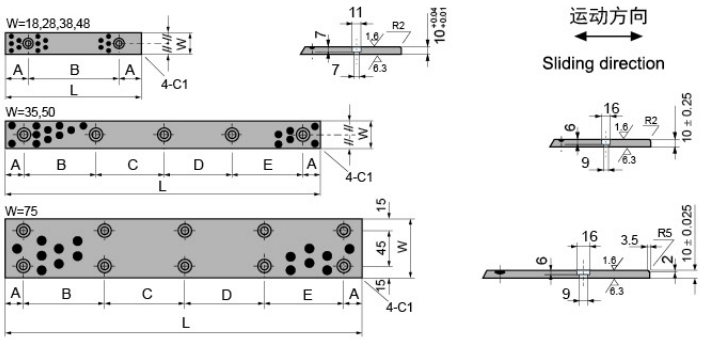




单位unit:mm

型号规格 Standard No.	W	L	a	b	图示 Sketch
HLDB-JUWP-18×50	18	50	-	20	A
HLDB-JUWP-18×75		75		45	
HLDB-JUWP-18×100		100		70	
HLDB-JUWP-18×150		150		60	B
HLDB-JUWP-28×50	28	50	-	20	A
HLDB-JUWP-28×75		75		45	
HLDB-JUWP-28×100		100		70	
HLDB-JUWP-28×150		150		60	B
HLDB-JUWP-38×50	38	50	-	20	A
HLDB-JUWP-38×75		75		45	
HLDB-JUWP-38×100		100		70	
HLDB-JUWP-38×150		150		60	B
HLDB-JUWP-48×75	48	75	-	45	A
HLDB-JUWP-48×100		100		70	
HLDB-JUWP-48×125		125		95	
HLDB-JUWP-48×150		150		60	B
HLDB-JUWP-75×75	75	75	45	45	C
HLDB-JUWP-75×100		100		70	
HLDB-JUWP-75×125		125		95	
HLDB-JUWP-75×150		150		60	D
HLDB-JUWP-100×100	100	100	70	70	C
HLDB-JUWP-100×125		125		95	
HLDB-JUWP-100×150		150		60	D

HLDB-JSP 滑板标准公制尺寸
HLDB-JSP Wear Plates Standard Metric Size

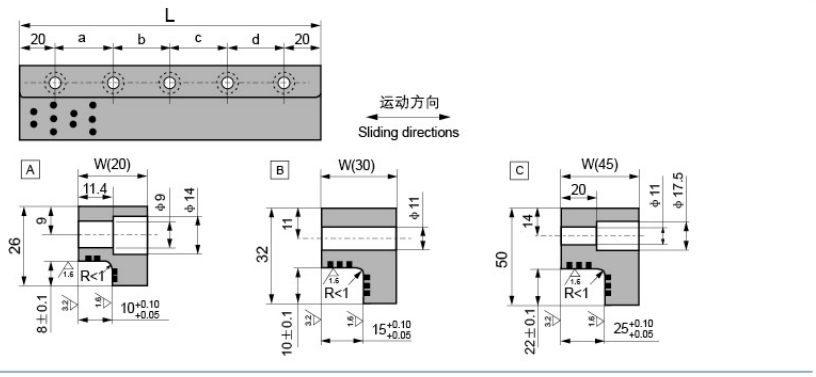




单位Unit: mm

型号规格 Standard No.	W	L	A	B	C	D	E	平头螺钉尺寸 Flat Head Screw Size	孔数 Q'ty of holes
HLDB-JSP-1875	18	75	15	45				M6	2
HLDB-JSP-18100		100	25	50					
HLDB-JSP-18125		125		75					
HLDB-JSP-18150		150		100					
HLDB-JSP-2875	28	75	15	45					
HLDB-JSP-28100		100	25	50					
HLDB-JSP-28125		125		75					
HLDB-JSP-28150		150		100					
HLDB-JSP-35100	35	100	20	60				M8	3
HLDB-JSP-35150		150		55	55				4
HLDB-JSP-35200		200		55	50	55			4
HLDB-JSP-35250		250		70	70	70			5
HLDB-JSP-35300		300		65	65	65	65		5
HLDB-JSP-35350		350		80	75	75	80		
HLDB-JSP-3875	38	75	15	45				M6	2
HLDB-JSP-38100		100	25	50					
HLDB-JSP-38125		125		75					
HLDB-JSP-38150		150		100					
HLDB-JSP-4875	48	75	15	45					
HLDB-JSP-48100		100	25	50					
HLDB-JSP-48125		125		75					
HLDB-JSP-48150		150		100					
HLDB-JSP-50100	50	100	20	60				M8	3
HLDB-JSP-50150		150		55	55				4
HLDB-JSP-50200		200		55	50	55			4
HLDB-JSP-50250		250		70	70	70			5
HLDB-JSP-50300		300		65	65	65	65		5
HLDB-JSP-50400		400		90	90	90	90		4
HLDB-JSP-75150	75	150		110					6
HLDB-JSP-75200		200		80	80				6
HLDB-JSP-75250		250		105	105				8
HLDB-JSP-75300		300		85	90	85			8
HLDB-JSP-75400		400		120	120	120			10
HLDB-JSP-75500		500		115	115	115	115		

HLDB-JSL 滑板标准公制尺寸
HLDB-JSL Wear Plate Standard Metric Size





单位Unit: mm

型号规格 Standard No.	W	L	螺孔 Bolt Hole						图示 Sketch
			a	b	c	d	螺孔 Size	数量 Q'ty	
HLD-JSL-20×100	20	100	60	——	——	——	M8	2	A
HLD-JSL-20×150		150	55	55	——	——		3	
HLD-JSL-20×200		200	55	50	55	——		4	
HLD-JSL-30×100	30	100	60	——	——	——	M10	2	B
HLD-JSL-30×150		150	55	55	——	——		3	
HLD-JSL-30×200		200	55	50	55	——		4	
HLD-JSL-30×250		250	70	70	70	——		4	
HLD-JSL-45×200	45	200	55	50	55	——		4	C
HLD-JSL-45×250		250	70	70	70	——		4	
HLD-JSL-45×300		300	65	65	65	65		5	
HLD-JSL-45×350		350	80	75	75	80		5	

卷制类轴承尺寸公差检测方法
Wrapped Bushing Dimensional Inspection

卷制类产品的制造工艺决定了开口缝的存在，使得产品在自由状态下没有很好的圈整度，同时轴套外径和座孔之间为过盈配合，轴套要最大限度地适应座孔的形状，因此不能在自由状态下直接测量产品的内外经而必须使用特殊的测量仪和设备才能检测；ISO3547标准第2部分中对卷制类产品的公差检验作了明确的规定，包括：

检验方法A：哈夫规检验外径；

检验方法B：止通规检验外径；

检验方法C：止通规检验内径；

检验方法D：测量尺检验大规格产品外径

以及替代检验方法C的壁厚检验方法，壁厚检验方法和检验方法C不能同时使用。

Rolled products in the manufacturing process determine the existence of open joints, making products in the free state not habe a good whole circle shape, while sleeve diameter and the seat for the interference fit between the holes, sleeve adapted to maximize Block hole shape can not be directly measured in the free state the inner/outside diameter of the product only can be by a special measuring instrument; In ISO3547 standards measured Part 2 of the rolled products made clear tolerance test requirements, including :

Test Method A: Huff regulatory test outside diameter;

Test method B: use stop-pass gauge to test the outside diameter;

Test method C: use stop-pass gauge to test the inside diameter;

Test method D: Measure the outer diameter of large scale product and use wall-thickness test to replace test method C. (Wall-thickness test and test method C can not be used at the same time.)

外径检验方法 External diameter test methods

检验方法A (ISO3547-2: Test A)

采用如右视图的上下两哈夫规对外径进行检验，检验时产品的开口缝朝上哈夫规相向施加检验载荷Fch，该载荷使卷制轴套能够按符合要求的方式就位于检验模。检验中，由于弹性变形卷制轴套外径会变小但不会产生永久变形。产品的外径可以通过检验模之间的距离Z的变化量△Z来计算。

Test A of ISO 3547 Part 2

Check the outside diameter of a wrapped bush using measuring equipment as shown to the right, with a checking block consisting of upper and lower halves and setting plugs, at a determined checking load of Fch, during the test the outside diameter of the bush is made smaller by the elastic reduction, however it is not a permanent deformation. The bushes outside diameter can be calculated from the difference in the value of z (⊿Z)

检验方法B (ISO3547-2: Test B)

检验采用两个环规即通规和止规，用手以最大力250N可将轴套推入并通过通规；在相同情况下无法进入和通过止规。在某些情况下检验精度可能受到影响，比如轴套不圆或闭合开口缝的力本身已超过250N，此时建议采用检验方法A或测压入力或壁厚相结合的检验方法。

Test B of ISO 3547 Part 2

The test is carried out with two ring gauggs, a Go gauge and a No Go gauge whose diameter Shall be chosen empirically from with Table 6 of ISO3547-1:1999 and agreed upon. It shall be possible to press the bushes into the GO gauge and then push them through with hand pressure (maximum force 250N). On the other hand with the same force, it shall not be possible for them to go into and through the NO GO gauge (See ISO 12307-1)

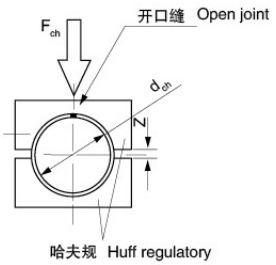
检验方法D (ISO3547-2: Test D)

采用精确的测量尺来测量外径，一般针对大规格的轴套外径检测。

Test D (ISO 3547-2)

The test is carried out by means of a precision measuring tape.

检验方法A Test A of ISO



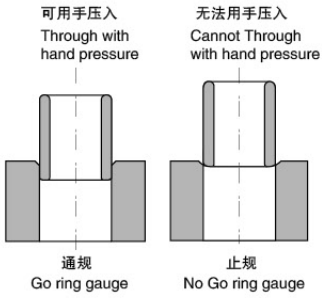
哈夫规和芯棒 Checking block and setting mandrel d_{ch}=_____mm

检验压力 Torce test F_{ch}=_____N

极限值 Limiting value $\triangle_z$=____and____mm

外径公差 OD tolerance D_o=____to____mm

检验方法B Test B of ISO



卷制类轴承尺寸公差检测方法
Wrapped Bushing Dimensional Inspection

内径检验方法 Internal diameter test methods

检验方法C (ISO3547-2: Test C)

将轴套压入基准环规后检查轴套的内径，内径的检测可以采用三点测量装置或通、止塞规检验。从实际使用考虑一般建议采用通、止塞规检验，此时在用手最大推力不超过250N时通端塞规可以通过轴套内孔，在相同情况下止端塞规应当无法通过轴套内孔。当轴套压入基准环规后，轴套外径可能会引起永久变形而无法正常使用。

Test C (ISO3547-2: Test C)

To check the inside diameter, the bush is to be pressed into a ring gauge, whose nominal diameter corresponds to the dimension specified in ISO3547-1:1999. The inside diameter shall be measured with a 3-point measuring instrument or checked with a GO and NO GO plug gauge. The GO plug gauge shall be inserted by a minimum effort; the NO GO plug gauge shall not be inserted by manual pressure(maximum force 250N). In order to enable the manufacturer and the customer to compare results of this test it should be agreed whether results should be obtained by measuring or by gauging.

止推片检验方法 Thrust washer test method

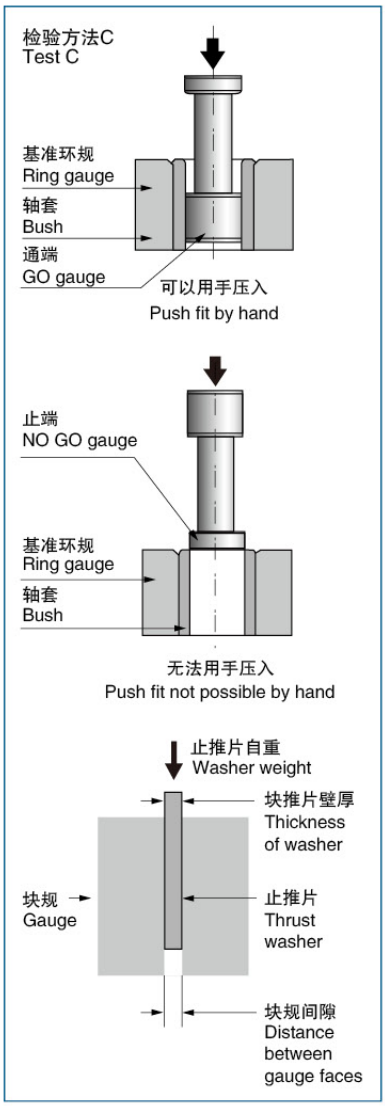
除了厚度公差以外，垫片的平行度对于垫片和对磨件的使用寿命同样重要。我们使用比较有效的检验方法来检测垫片的平行度，让垫片依靠自重来通过两个平行块；当然平行块必须大于垫片本身的规格。

Beside the thickness, the flatness of washer is also important for washer and grinding parts' usage age. We use very helpful test in which the washer falls through the gap between two plain parallel plates of a gauge under its dead weight. The plates must be big enough to cover the whole washer.

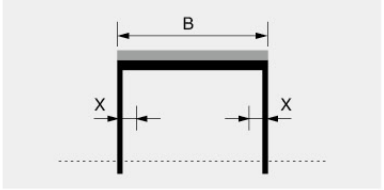
壁厚检测方法 Wall Thickness test method

作为检验方法C的替代方案两则不能同时使用，壁厚根据轴套尺寸在轴向进行测量。

The wall thickness is measured at once,two or three positions axially according to the bearing dimensions.The wall thickness and the inside diameter shall not be specified together on the same drawing.



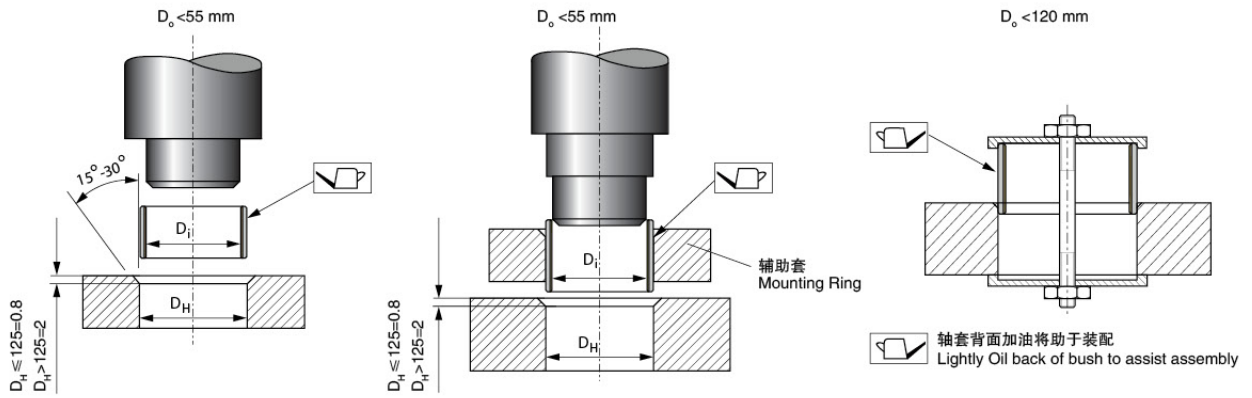
B[mm]	X[mm]	测量点 measurement position
B≤15	B/2	1
15＜B≤50	4	2
50＜B≤90	6 and B/2	3
B＞90	8 and B/2	3



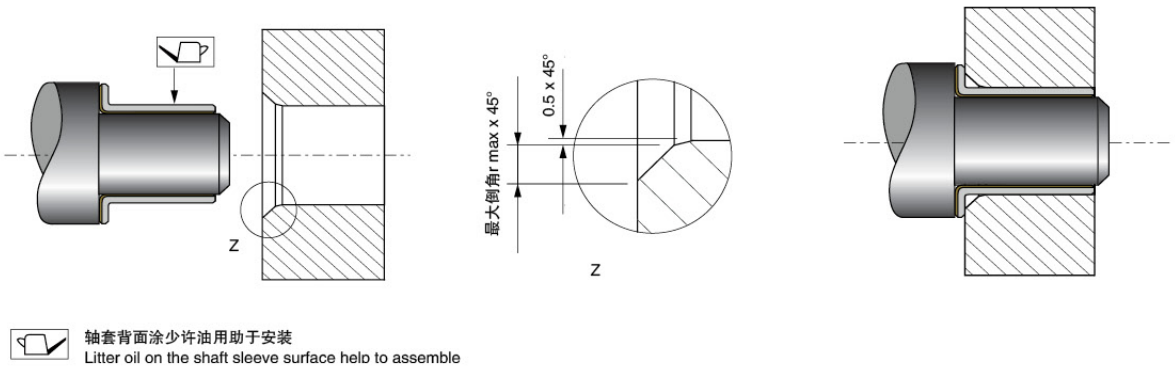
测量点
Measurement position

卷制类轴承的安装
Wrapped Bushing Installation

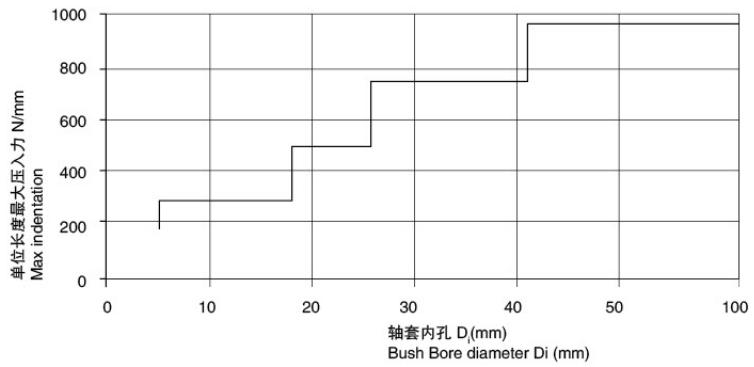
直套安装 Straight set of installation



翻边套安装 Flange set of installation



压入力计算 Indentation Calculation



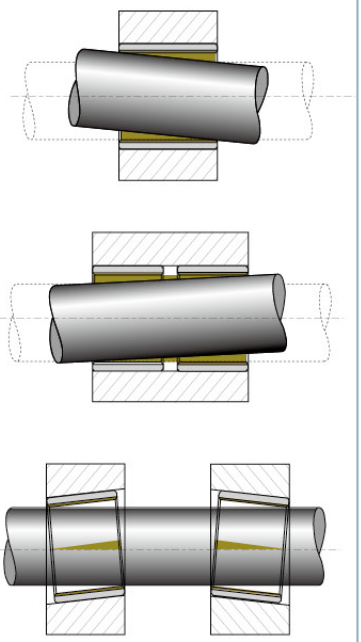
卷制类轴承的安装
Wrapped Bushing Installation

同轴度 Concentricity

精确的同轴度对于轴承的正常使用非常重要，要求轴套在一个或者两个长度内的不同轴度以及在翻边或止推片直径内的不同轴度控制在0.02mm内。

Degree of precision coaxial bearing the normal use for a very important requirement sleeve length in one or two degrees of the different axes and in the flange or thrust washer diameter of the different degree of control shaft within 0.02mm.

同轴度要求
Concentricity requirements

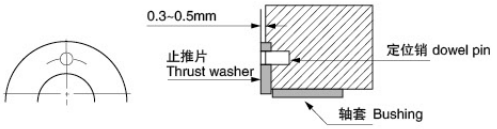


垫片和滑板的安装 Thrust washers and sliding plates installation

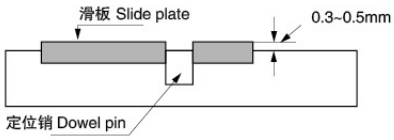
建议垫片和滑板安装在凹陷的座孔内，为了避免移动，同时建议采用定位销加以固定。

It is reconmmended to install the thrust washers and sliding plates with the hollow indented housing.To avoid the moving of such parts,a Dowel pins is recommended to be installed.

1. 定位销在垫片上的使用 Dowel pin application (thrust waher)

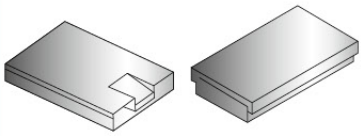


2. 定位销在滑板上的使用 Dowel pin used on slide plate



3. 平头螺丝的使用 Flat head screw application





其他固定方法 Other fixation methods

当无法使用定位销时，可以采用激光焊接，粘结剂和钎焊（温度<320℃）的方法加以固定；此时必须主意使用的温度不能超过轴承材料本身能够承受的范围，轴套工作面防止与粘合剂等接触。

When the pin is not available, you can use laser welding, adhesives and brazing (temperature < 320 ℃) method to be fixed; while do in this way, temperature used must not higher then the bearing material itself can be standed, the cleeve face should be prevent from contacting with adhesives.

卷制类轴承的安装
Wrapped Bushing Installation

PTFE基轴承的加工和安装注意事项
Processing and installation considerations of PTFE-based bearing

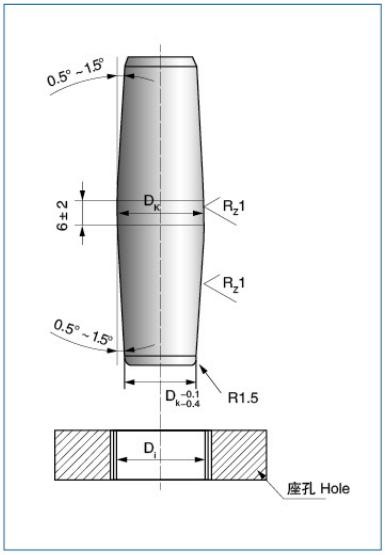
PTFE基轴承一般都是成品零件，组装后内孔不再进行铰、镗等加工，若座孔按推荐的尺寸加工时，卷制类轴承内径的真圆度完全能满足使用要求；

如果客户可以接受干摩擦性能大幅度降低，可以对PTFE基轴承在安装后进行内孔挤压以达到更高的精度，强烈建议对挤压芯棒表面进行热处理(深度0.6mm，HRC＞55)并抛光处理至Rz1；

当轴承的比压力小或摆动小而要求运行平稳时，可以增大工作间隙，在高温下使用时，每升高100℃时建议轴径减少0.008mm；

若轴承座材质是青铜、铝或锌合金时，建议减少轴承座孔以增加轴承装配过盈量；为保证轴承座的刚性，轴承座外径通常为轴承外径的1.5倍，薄壁座孔使用时需要考虑压装和使用过程的产生的变形；

PTFE轴承需要加工时，为了避免毛刺的产生建议从PTFE一侧进行加工或钻孔，在钻孔过程中轴套应当有足够的支撑已确保不会由于钻孔压力导致变形；带材的加工方法可以通过剪切、水切割、激光切割等方法。



内孔D_i Bore D_i	挤压芯棒D_k Extrusion Mandrel D_k	使用寿命 Life
D_i	—	100%
D_i +0.02	D_i +0.06	80%
D_i+0.03	D_i+0.08	60%
D_i+0.04	D_i+0.10	30%

PTFE-based bearings are generally finished parts, assembled in the hole without the hinge, and other processing, if the bore size of the recommended process, the rolling type bearings with bore roundness can meet the requirements;

If the client can accept a significant reduction of dry friction, extruding the inner holes on the PTFE-based bearing after the compression to achieve higher accuracy, we strongly recommend the extrusion mandrel surface treatment (depth of 0.6mm, HRC＞55) and polished to Rz1;

When the bearing's specific pressure is small and required to run a smooth swing, you can increase the working space, when used at high temperatures, it is increased by 100 ℃, the proposed reduction of shaft diameter 0.008mm;

If the material of bearing is bronze, aluminum or zinc alloy, it is recommended to reduce the bearing hole to increase the amount of interference bearing assembly; to ensure the bearing rigidity, The base of bearing's diameter is usually 1.5 times to the bearing's diameter, thin-walled bore with pressure to consider when installed and used in the process of the deformation;

PTFE bearings need processing, in order to avoid the generation of burrs from the PTFE side of the proposed processing or drilling in the drilling process should have sufficient support sleeve has been to ensure that no pressure leads to deformation of the borehole; processing methods strip can cut, water jet cutting, laser cutting and other methods.

卷制类轴承的安装
Wrapped Bushing Installation

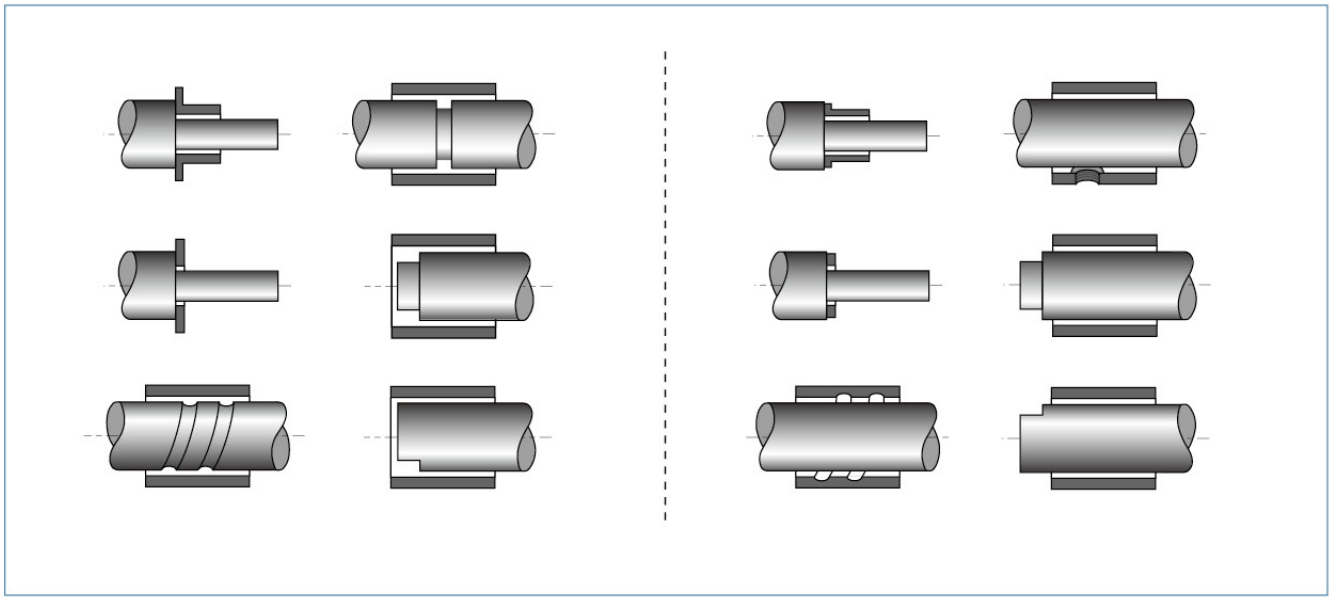
对磨轴 The shaft

对磨件的材料、表面硬度、表面粗糙度以及表面处理方式对于轴承的使用寿命的影响很大，一般情况下我们建议轴的硬度在HRC＞50，表面粗糙度Ra0.4以下；在潮湿或易腐蚀的场合建议使用不锈钢、硬质铬镀层。

Grinding pieces of material, surface hardness, surface roughness and surface treatments have a great impact on the life of bearing, in general, we recommend that the hardness of the shaft HRC＞50, surface roughness below Ra0.4; We suggest using stainless steel, hard chrome plating in the wet or corrosive place.

不正确的设计
Incorrect design

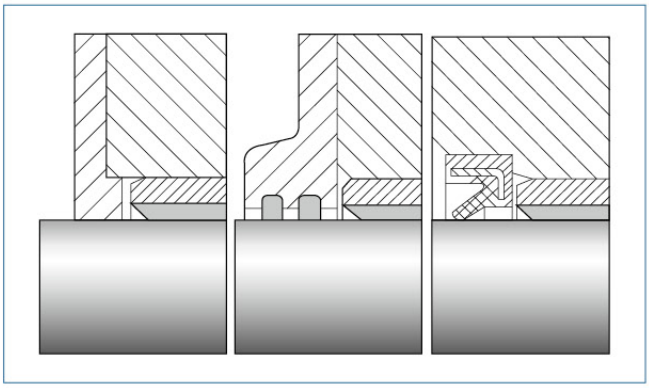
正确的设计
Correct design



密封 Seal

金属塑料基自润滑轴承允许一些不会损害轴承表面材料的异物进入，但当异物的侵入增加或高踝磨型物质进入时应当安装核实的密封圈以提高轴承的使用寿命。

If increased levels of contamination occur or the bearing is used in an aggressive environment, the bearing section should be protected from dust and containment. The normal solution is to re-design the surrounding structure so that the contamination cannot reach the bearing section. If the contamination is critical, a collar of grease or a shaft seal is recommended.



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