



HDB-10/20/30 系列

无给油轴承 / 边界润滑轴承 / 塑料轴承

Oilless Bushings / Boundary-Lubrication Bushings / Plastic bearing

10 无给油轴承

Oilless Bushings

5220

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



P.88

5920

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



P.89

5230

Flange Bushing Specification & Tolerance
翻边轴套规格及公差



P.92

5210

Thrust Washer Specification & Tolerance
垫片规格及公差



P.93

6201

板材规格及公差
Strip Specification & Tolerance



P.93

20 边界润滑轴承

Boundary-Lubrication Bushings

5420

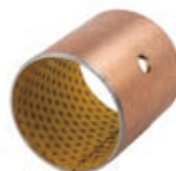
Marginal Pb-free Self-lubricating Bushes
边界无铅自润滑轴套



P.94

5421

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



P.95

5422

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



P.96

5410

Thrust Washer Specification & Tolerance
垫片规格及公差



P.99

6401

板材规格及公差
Strip Specification & Tolerance



P.99

30 塑料轴承

Plastic bearing

7021

Universal bearings
通用型轴承



P.100

7022

Food grade drug bearing
食品药品级轴承



P.101

7023

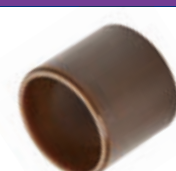
High speed bearing
低速移动轴承



P.102

7024

High dynamic load bearing
高动载荷轴承



P.103



材料组织 Material Structure

- 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
- 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

Standard Size:

Straight sleeves, flanged bushings, thrust washers, plates.

Non-Standard Size:

Stright Bearing, Flange Bearing, Thrust washer, Strip, Bearing bushing, Wear strips, Steel combine units.

可供标准产品:

直套，翻边轴套，止推垫片，板材。

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。

5220 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.

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。

应用特点 Application Feature

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°C~+280°C.

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.

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°C~+280°C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。

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°C~+280°C
摩擦系数 Friction coefficient		0.05~0.20μ
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.PTFE with Fiber 0.01~0.03mm
- 2.Porous bronze 0.2~0.3mm
- 3.Bronze backing 0.7~2.3mm

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

Standard Size:

Straight Bearing, Flange Bearing, Thrust washer, Strip, Bearing bushing, Wear strips, Steel combine units.

Non-Standard Size:

Straight Bearing, Flange Bearing, Thrust washer, Strip, Bearing bushing, Wear strips, Steel combine units.

可供标准产品:

直套, 翻边轴套, 止推垫片, 板材。

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。

5920 is one of high safety factory, and particularly appropriate for high temperature environment where no oil is efficient 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 conveyers 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/mm².

5920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/mm²轴载使用的要求。

应用特点 Application Feature

- 1.PTFE and lipophilic Fiber 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 roller grooves of successive casting machines, cement grouting pumps and screw conveyers of machine.
- 7.It can be composed in steel housing, or fabricated into flanged bushes which result in function for motion both on flange and I.D.

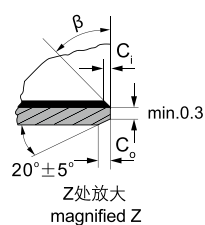
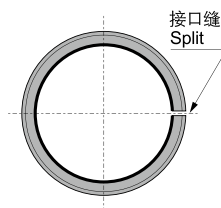
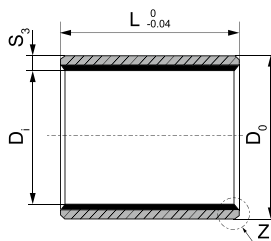
- 1.聚四氟乙烯与亲油性纤维混合物在运动时可形成很好的转移膜保护对磨轴。
- 2.烧结层与铜基板具有良好的导热性, 可迅速转移运作过程中产生的热量。
- 3.铜具有自润滑性能, 可用于长期运作而无法停机检修的部位。
- 4.基体铜具有良好的抗腐蚀能力, 可应用于弱酸、强碱场合。
- 5.具有良好的承载能力。
- 6.产品已广泛应用于冶金钢铁工业、高温炉钢环部位、水泥灌浆泵、螺旋式输送机、港口机械及船舶机械上等。
- 7.可在外部组合钢套; 或制成翻边, 达到内孔、端面同时使用的效果。

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 Rotating 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°C~+280°C
摩擦系数 Friction coefficient		0.03~0.20μ
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

5220
5920

Sleeve Bushing Specification & Tolerance
轴套规格及公差



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	$30^\circ \pm 5^\circ$
1.00	0.6 ± 0.3	0.30 ± 0.2	$30^\circ \pm 5^\circ$
1.50	0.7 ± 0.3	0.50 ± 0.3	$30^\circ \pm 5^\circ$

S_3	C_o	C_i	β
2.00	1.2 ± 0.4	0.50 ± 0.3	$30^\circ \pm 5^\circ$
2.50	1.8 ± 0.6	0.60 ± 0.3	$45^\circ \pm 5^\circ$

单位Unit: mm

5920 Sleeve Bushing Specification & Tolerance

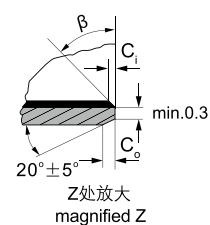
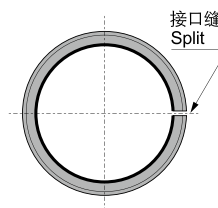
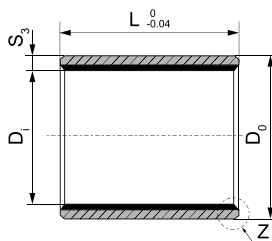
5920 轴套规格及公差

轴径 (f7) Shaft Ds	6	8	10	12	13	14	15	16	17	18	20	22	24	25	28	30	32	35	38	40	45	50	55	60
Ds	-0.010 -0.022	-0.013 -0.028					-0.016 -0.034							-0.020 -0.041				-0.025 -0.050			-0.050 -0.025		-0.060 -0.030	
座孔 (H7) Housing DH	8	10	12	14	15	16	17	18	19	20	23	25	27	28	32	34	36	39	42	44	50	55	60	65
DH	+0.015 +0.000				+0.018 +0.000						+0.021 +0.000							+0.025 +0.000				+0.030 +0.000		
(OD) 外径公差 Tolerance DO	8	10	12	14	15	16	17	18	19	20	23	25	27	28	32	34	36	39	42	44	50	55	60	65
DO	+0.055 +0.025				+0.065 +0.030						+0.075 +0.035							+0.085 +0.045				+0.100 +0.055		
(ID) 压装后 内孔公差 After fixed Di,a	6	8	10	12	13	14	15	16	17	18	20	22	24	25	28	30	32	35	38	40	45	50	55	60
Di,a	+0.055 -0.010				+0.058 -0.010				+0.61 -0.010		+0.071 -0.010				+0.085 -0.010			+0.085 -0.010			+0.105 -0.010		+0.110 -0.010	
壁厚 Wall thick- ness S3	1.0 +0.005 -0.020										1.5 +0.005 -0.025					2.0 +0.005 -0.030					2.5 +0.005 -0.040			
配合间隙 Clearance DD	0.077 0.000	0.083 0.003	0.086 0.003			0.092 0.006				0.095 0.006		0.112 0.010			0.126 0.010			0.135 0.015			0.155 0.015	0.160 0.015	0.170 0.020	
6	●	●	●	●																				
8	●	●	●	●																				
10	●	●	●	●	●	●	●	●	●	●	●	●	●	●										
12		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
15		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
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60															●	●	●	●	●	●	●	●	●	●
70																							●	●
80																								●
100																								●
115																								●

5220
5920

Sleeve Bushing Specification & Tolerance

轴套规格及公差



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	$30^\circ \pm 5^\circ$
1.00	0.6 ± 0.3	0.30 ± 0.2	$30^\circ \pm 5^\circ$
1.50	0.7 ± 0.3	0.50 ± 0.3	$30^\circ \pm 5^\circ$

S_3	C_o	C_i	β
2.00	1.2 ± 0.4	0.50 ± 0.3	$30^\circ \pm 5^\circ$
2.50	1.8 ± 0.6	0.60 ± 0.3	$45^\circ \pm 5^\circ$

单位Unit: mm

5920 Sleeve Bushing Specification & Tolerance

5920 轴套规格及公差

轴径 (F7) Shaft Ds	65	70	75	80	85	90	95	100	105	110	120	125	130	140	150	160	180	190	200	220	250	260	280	300	
	-0.060 -0.030			-0.013 -0.028	-0.000 -0.045	-0.000 -0.054					-0.000 -0.063					-0.000 -0.072					-0.000 -0.081				
座孔 (H7) Housing DH	70	75	80	85	90	95	100	105	110	115	125	130	135	145	155	165	185	195	205	225	255	265	285	305	
	+0.030 +0.000			+0.035 +0.000							+0.040 +0.000					+0.046 +0.000				+0.052 +0.000					
(OD) 外径公差 Tolerance DO	70	75	80	85	90	95	100	105	110	115	125	130	135	145	155	165	185	195	205	225	255	265	285	305	
	+0.100 +0.055			+0.120 +0.070										+0.210 +0.130					+0.260 +0.170						
(ID) 压装后 内孔公差 After fixed Di,a	65	70	75	80	85	90	95	100	105	110	120	125	130	140	150	160	180	190	200	220	250	260	280	300	
	+0.110 -0.010			+0.155 +0.020					+0.155 +0.020		+0.210 +0.070					+0.216 +0.070				+0.222 +0.070					
壁厚 Wall thick- ness S3	2.5 +0.005 -0.040			2.5 -0.01 -0.060							2.5 -0.035 -0.085														
配合间隙 Clearance DD	0.170 0.020			0.201 0.020	0.209 0.020						0.264 0.070	0.273 0.070						0.279 0.070	0.288 0.070			0.294 0.070	0.030 0.070		
6																									
8																									
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12																									
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20																									
25																									
30	●	●	●																						
40	●	●	●	●	●	●																			
50	●	●	●	●	●	●	●	●	●	●															
60	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
70	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
80		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
100				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
115								●	●	●	●	●	●	●	●	●									



Order 订购

Catalog No. 目录号

D_i

D_o

L

5220
5920

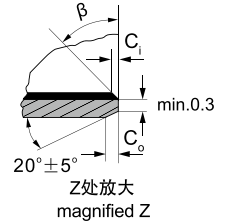
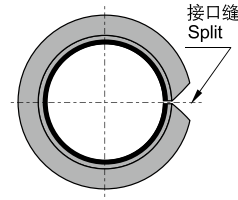
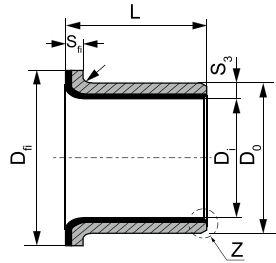
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023
023

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5230

Flange Bushing Specification & Tolerance 翻边轴套规格及公差



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

5230 Flange Bushing Specification & Tolerance 5230 翻边轴套规格及公差

轴径(f7) Shaft D _s	6	8	10	12	14	15	16	18	20	22	25	30	35	40																		
	-0.013 -0.028		-0.016 -0.034						-0.016 -0.034			-0.025 -0.050																				
座孔(H7) Housing D _H	8	10	12	14	16	17	18	20	23	25	28	34	39	44																		
	+0.015 +0.000		+0.018 +0.000					+0.021 +0.000				+0.025 +0.000																				
(OD) 外径公差 Tolerance D _O	8	10	12	14	16	17	18	20	23	25	28	34	39	44																		
	+0.055 +0.025			+0.065 +0.030				+0.075 +0.035					35.085 34.990																			
(ID)压装后 内孔公差 After fixed D _{I,a}	6	8	10	12	14	15	16	18	20	22	25	30	35	40																		
	+0.055 -0.010		+0.058 -0.010					+0.61 -0.010	+0.071 -0.010			+0.085 -0.010																				
Wall thickness 壁厚 S ₃	1.0 +0.005 -0.020								1.5 +0.005 -0.025				2.0 +0.005 -0.030																			
配合间隙 Clearance C _O	0.077 0.000	0.083 0.003	0.086 0.003	0.092 0.006				0.095 0.006	0.112 0.010				0.126 0.010	0.135 0.015																		
D1	6	8	10	12	14	15	16	18	20	22	25	30	35	40																		
D2	8	10	12	14	16	17	18	20	56	58	5/	67	39	55																		
D _H ±0.5	12	15	18	20	22	23	24	26	30	32	35	42	47	53																		
L±0.25	4	7	5.5	7.5	7	9	12	7	9	12	12	17	9	12	17	12	17	20	11.5	16.5	21.5	15	20	11.5	16.5	21.5	16	26	16	26	26	40
S _H -0.2	1								1.5				2																			



Order 订购

Catalog No. 目录号

5230

D_I

020

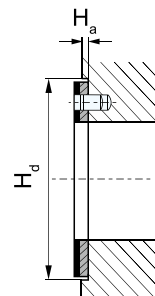
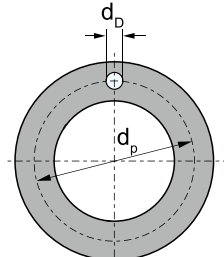
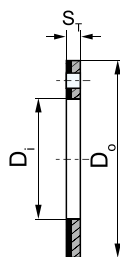
L

020

5210

Thrust Washer Specification & Tolerance

垫片规格及公差



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 _b ±0.125	d _b ^{+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			26
14	W16	16	30		23			30
16	W18	18	32		25	2		32
18	W20	20	36		28			36
20	W22	22	38		30			38
22	W24	24	42		33			42
24	W26	26	44		35	3		44
26	W28	28	48		38			48
30	W32	32	54		43			54
36	W38	38	62		50			62
40	W42	42	66		54	4		66
46	W48	48	74		61			74
50	W52	52	78	65	1.5		78	
60	W62	62	90	76			90	



Order 订购

Catalog No. 目录号

5210

D_i

008

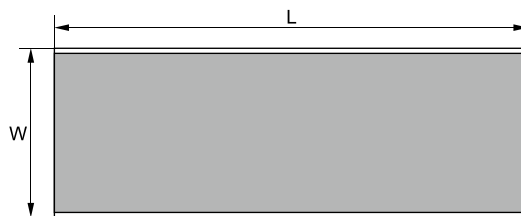
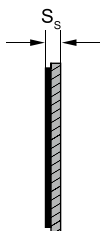
S_t

001.5

6201

Strip Specification & Tolerance

板材规格及公差



单位Unit: mm

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



Order 订购

Catalog No. 目录号

6201

W

150

L

500

S_s

001