



IDEAL | 理想

石家庄理想汽车零部件有限公司  
SHIJIAZHUANG IDEAL AUTO PARTS CO., LTD.

理想成就未来

Ideal Perfect Future



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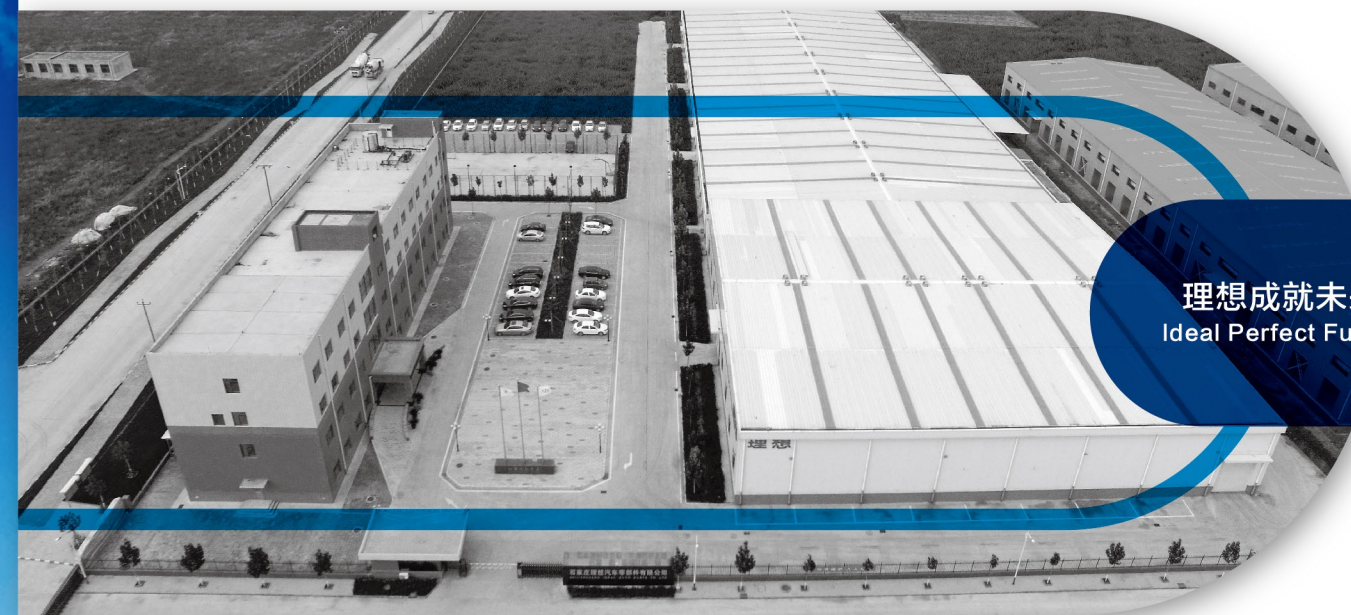






## 造世界上最好的轴套

Ideal Bushings, Better than Best!



理想成就未来  
Ideal Perfect Future

## 公司简介 COMPANY PROFILE

石家庄理想汽车零部件有限公司成立于 2006 年，主要从事工程机械及汽车用轴套、销轴、油缸缓冲零部件、减速机零部件以及泵、阀、马达等高精密零部件的生产和销售。

公司是国家认定的高新技术企业、国家级科技型中小企业、河北省制造业单项冠军。目前拥有多项国家专利，在工程机械轴套 - 销轴摩擦副的研发和制造上处于国际领先地位。可根据顾客使用要求，制订最优设计方案，更好的保证产品的经济性、适用性和可靠性。

公司拥有先进的制造能力和完善的试验、检验能力，从产品设计、制造、检验到交付的每一过程都按照 ISO9001 的要求进行严格控制。

公司坚持“人本、诚信、创新”的经营理念，凭借领先的技术、可靠的产品质量和优质的服务得到了客户的广泛认可，与国内外众多知名企业建立了长期、稳定的合作关系。



Shijiazhuang IDEAL Auto Parts Co., Ltd. was founded in 2006, specialized in manufacturing and marketing of construction machinery and automotive bushings, pins, cylinder buffering parts, reducer parts and pumps, valves, motors and other high-precision parts.

The company is the National Accredited High-tech Enterprise, National Small and Medium-sized Sci-tech Enterprises, Individual Champion of Hebei Province Manufacturing Industry and the Enterprise Technology Center of Shijiazhuang. We have a number of patents granted, and in the leading position in R&D and manufacturing of bushing-pin friction pair of construction machinery. According to the requirements of customers, the optimal design scheme can be formulated to better ensure the economy, applicability and reliability of products.

The company has advanced manufacturing capacity and perfect test and inspection ability. Every step from product design, manufacturing, inspection to delivery is strictly controlled according to the requirements of ISO9001.

The company insist on the management idea of "People oriented, Integrity and Innovation" and our leading technology, reliable product quality and first-rate service has been widely recognized by customers, and the company has established a long-term and stable cooperative relationship with many famous enterprises in China and abroad.



## MANUFACTURING CAPACITY - MACHINING

### 制造能力—机加工

02

公司拥有 300 多台国际先进的精密机械加工设备，为顾客提供高精度、高难度机械加工产品的解决方案。

The company has 300+ of precision machining equipment with international advanced level to provide customers with solutions for high-precision and difficult-machining products.



五轴、四轴加工中心  
Five-axis, four-axis machining center



双主轴车削中心  
Double spindle turning center



精密数控车床  
Precision CNC lathe



柔性、智能、自动化生产线  
Flexible, intelligent and automated production line

## MANUFACTURING CAPABILITY - HEAT TREATMENT

### 03 AND SURFACE TREATMENT 制造能力—热处理和表面处理

公司拥有多条国际先进水平的热处理和表面处理生产线，可专业进行渗碳、碳氮共渗、软氮化、光亮淬火、精密调质、高频淬火、超音频淬火等热处理加工，以及磷化、喷涂等表面处理加工。

The company has a number of internationally advanced heat treatment and surface treatment production lines, which specialize in carburizing, carbonitriding, nitrocarburizing, bright quenching, precision quenching and tempering, high-frequency quenching, ultrasonic quenching and other heat treatment processes, as well as phosphating, spraying and other surface treatment processes.



法国爱协林5吨可控气氛箱式多用炉  
2221生产线  
5-ton controllable atmosphere box-type  
multipurpose furnace 2221 production  
line(Aichelin,France)



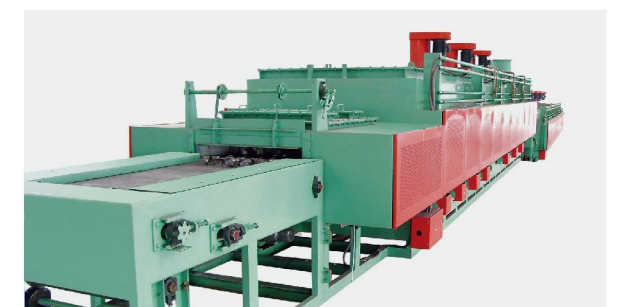
德国益发1.5吨可控气氛箱式多用炉  
221生产线  
1.5-ton controllable atmosphere  
box-type multipurpose furnace 221  
production line(IVA,German)



德国益发箱式氮化炉生产线  
Box-type nitriding furnace production  
line(IVA,German)



韩国汉阳全自动高频淬火生产线  
Automatic high-frequency quenching production line  
(Hanyang, Korea)



可控气氛网带式连续热处理生产线  
Controllable atmosphere mesh belt continuous heat  
treatment production line



全自动磷化生产线  
Automatic phosphating production line



全自动喷涂生产线  
Automatic spraying production line



# INSPECTION AND TESTING CAPABILITY

## 检验和试验能力

04

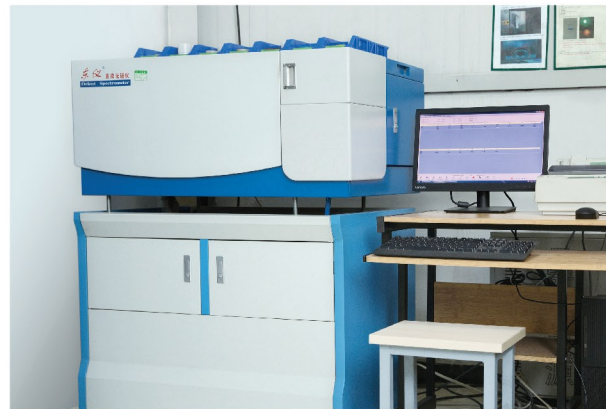
公司拥有国际先进水平的检测设备，可精密检测产品的尺寸、形状、位置精度，可进行各类理化试验，验证产品的各项性能指标。

The company has internationally advanced testing equipment, which can precisely detect the size, shape, and position accuracy of the products, and can conduct various physical and chemical tests to verify the performance of the products.



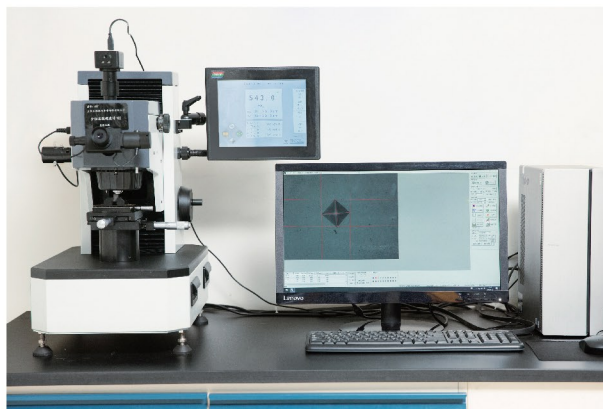
GLOBAL S 07.10.0 桥式三坐标测量机

GLOBAL S 07.10.0 Bridge-type 3-coordinate measuring machine



DF-400 型直读光谱仪

DF-400 direct reading spectrometer



JMHVS-1000AT 数显显微硬度计

JMHVS-1000AT digital hardness tester



MA-100 型金相显微镜

MA-100 metallographic microscope

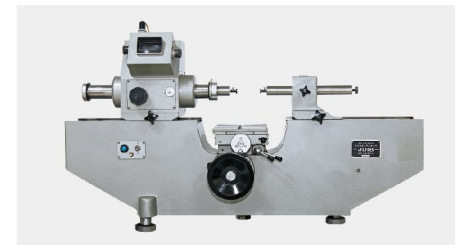
# INSPECTION AND TESTING CAPABILITY

## 检验和试验能力

05

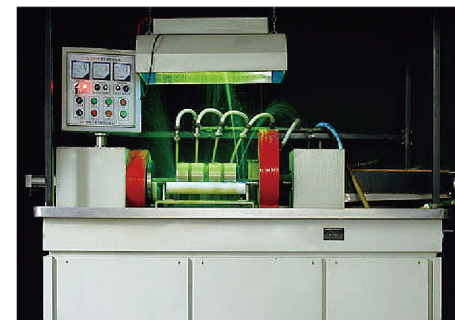
公司拥有国际先进水平的MMH-350微机控制滑动轴承摩擦磨损试验机，能够模拟工程机械工况，对滑动轴承的往复摆动摩擦性能进行测试。

The company has an internationally advanced MMH-350 microcomputer-controlled sliding bearing friction and wear tester, which can simulate the working conditions of construction machinery and test the reciprocating friction performance of sliding bearings.



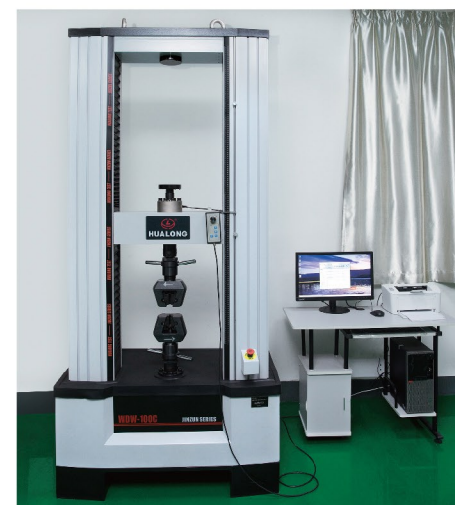
JD18 投影万能测长仪

JD18 projection universal length measuring instrument



MTW-2A 型荧光磁粉探伤机

MTW-2A fluorescent magnetic particle flaw detector



WDW-300C 型电子万能试验机

WDW-300C electronic universal testing machine

主要功能：

- 1、最大载荷可达 80MPa；
- 2、模拟工程机械实际工况进行液压加载；
- 3、通过传感器记录载荷、扭矩、温度、噪音、摆动速度、摆动次数、摆动角度等试验数据，并通过软件形成试验曲线图。

Main Functions:

1. The maximum load can reach 80MPa;
2. Simulate actual working conditions of construction machinery for hydraulic loading;
3. Record test data such as load, torque, temperature, noise, swing speed, swing times, swing angle, etc., and form test curves through software.



MMH-350 微机控制滑动轴承摩擦磨损试验机

MMH-350 microcomputer-controlled sliding bearing friction and wear tester



R & D CAPABILITY

研发能力

06



公司是河北省级工业企业研发机构、石家庄市企业技术中心。研发中心在职人员全部为本科以上学历，研发人员占公司总人数的 15% 以上，其中中高级职称人员占研发人员的 50% 以上。

公司十分重视研发投入，每年的研发费用均占当年销售收入的 5% 以上。

公司常年承担多项省级、市级科研项目，产生多项专有技术，填补多项国内空白，并拥有多项发明、实用新型专利。

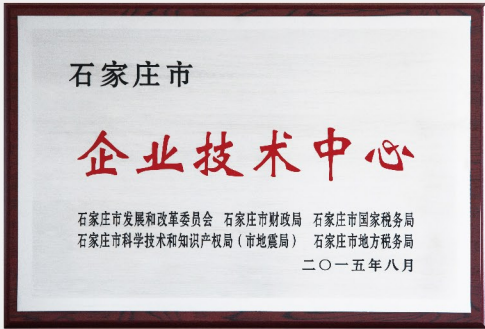
公司致力于高精度、高难度、高附加值的精密机械加工件的研发和制造。

The company is one of the Industrial Enterprise Research and Development Institutions of Hebei province, and the Shijiazhuang Enterprise Technology Center. All the employees in the R&D center, who account for more than 15% of the total number of the company employees, have bachelor's degree or above, and more than 50% of them has middle and senior professional titles.

The company attaches great importance to R&D investment, which accounted for more than 5% of the company' s annual sales revenue.

The company undertook a number of provincial and municipal scientific research projects, produced a number of state-of-the-art technologies, and has a number of patents granted.

The company is committed to the R&D and manufacturing of high-precision, high-difficulty, high-value-added precision machining parts.



STEEL BUSHING

钢套

07



产品特性  
Characteristics

钢套分类 Item	材质 Material	热处理 Heat treatment	表面处理 Surface treatment	润滑型式 Lubricating type	适用范围 Application
高频淬火钢套 High frequency quenching	45、40Cr	基体正火处理 167~229HB、或调质处理 201~269HB，内表面高频淬火，表面硬度 52~60HRC，淬硬层深度 1.0~2.0mm，淬硬层有效硬度 45HRC。Normalizing, hardness 167~229HB, or quenching & tempering, hardness 201~269HB, high-frequency quenching, hardness 52~60HRC, HRC45 min from 1.0~2.0mm depth.	磷化 Phosphatizing	螺旋槽 双 8 字油线 十字油线 三环油线 Spiral grooves, Dual-8 shape oil grooves, Cross shape grooves, trip—circle oil grooves	挖掘机 装载机 起重机 Excavator, Loader, Crane
渗碳淬火钢套 Carburizing and quenching	20、20CrMnTi、20CrMo 等低碳或低碳合金钢 20、20CrMnTi、20CrM etc. Low carbon steel or low carbon alloy steel	表面渗碳淬火，表面硬度 56~62HRC，渗碳层深度 0.8~1.2mm。Surface hardness 56 to 62HRC, and carburizing layer 0.8 to 1.2mm	磷化、喷石墨 Phosphatizing or spraying graphite.	双 8 字油线 十字油线 三环油线 油穴 Dual-8 shape oil grooves, Cross shape grooves, trip—circle oil grooves, oil pits	挖掘机 旋挖钻机 大型装载机 连续墙抓斗 Excavator, Heavy duty Loader
整体淬火钢套 Whole quenching	40Cr 等中碳合金钢 40Cr etc. Middle carbon alloy steel	整体淬火，硬度 40~52HRC。Whole quenching, hardness 40 to 52HRC	磷化 Phosphatizing	8 字油线 十字油线 三环油线 Dual-8 shape oil grooves, Cross shape grooves, trip—circle oil grooves	装载机 Loader

技术参数 Tech. parameters

钢套分类 Item	摩擦系数 Friction factor	最高使用温度 Critical using temperature	极限动载荷 Critical dynamic load	最高滑动速度 Critical sliding speed	耐磨损性能 Wearability	耐冲击性能 Anti-impact ability	耐腐蚀性能 Anti-corrosion ability	注油间隔时间 Oiling interval time
高频淬火 High frequency quenching	0.17	350℃	250N/mm <sup>2</sup>	1.5m/s	+++	++++	+++	+++
渗碳淬火 Carburizing and quenching					++++	++++	+++	++++
整体淬火 Whole quenching			200N/mm <sup>2</sup>		++	+++	+++	++



HONEYCOMB BUSHING

蜂窝轴套

08



现有轴套技术状况  
Existing bushing technical condition

现有轴套的内孔储油和润滑方式一般采用各种形式的油槽来储油、布油，而油槽存在如下缺点：

- 1、在储油、布油的同时破坏了轴套内壁的承载能力，降低了轴套的使用寿命。
- 2、布油不均匀，形成大面积润滑盲区，很容易造成轴套和轴的咬合。
- 3、油槽的储油量有限，在使用过程中需频繁维护。

Oiling grooves is normally used for bearing to reserve oil and lubricate the sliding surface, the disadvantage is:

- 1.The loading ability in reserving and distributing oil process reduced, and service life decreased.
- 2.The oil can not be well-distributed, leading lubricating blind zone and sliding surface easily occlusion together.
- 3.Oil reserve ability is finite, need frequent maintenance in the service life.

蜂窝轴套  
Honeycomb bushing

蜂窝轴套从根本上解决了以上缺点，该产品具有以下特点：

- 1、产品为无缝轴套，在轴套的内壁上均匀地布有截面形状为圆锥状的盲孔。
- 2、轴套内孔研磨过程中自然形成润滑油楔，保证启动时快速形成油膜。
- 3、蜂窝的储油量大，是普通油槽储油量的 3~5 倍，可长时间免维护。
- 4、内壁均布蜂窝，蜂窝在圆周方向的中心距固定，无论多大的轴套，在布油时只需很小的转动角度就可将油布满轴套内表面，没有润滑盲区。
- 5、蜂窝骨架结构大幅提高了承载能力，延长了轴套的使用寿命。
- 6、最新一代工程机械轴套产品，我公司专利产品 ( 专利号 :ZL 2017 2 0260674.6)。

Honeycomb bushing overcomes the above disadvantages, and its distinguishing feature is:

- 1.Seal-less bushing, cone shape blind holes, oil pits, are evenly distributed on the internal surface.
- 2.Lubricating wedge automatically formed with rubbing on the bushing surface, that ensure oil film formed quickly.
- 3.The Honeycomb has perfect oil reserve ability 3~5 times than normal oil grooves, it can last long time without maintenance.
- 4.Honeycomb is evenly distributed in the bearing internal surface, only need a little sliding action, oil can be supplied without lubricating blind zone.
- 5. Honeycomb-skeleton structure provides strong support and prolongs the service life of bushings.
- 6.It is a new generation product used for construction machinery(Patent No.ZL 2017 2 0260674.6).

HONEYCOMB BUSHING

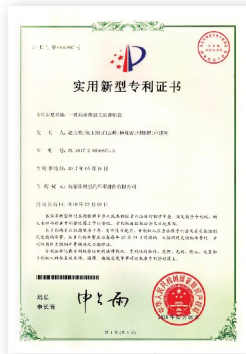
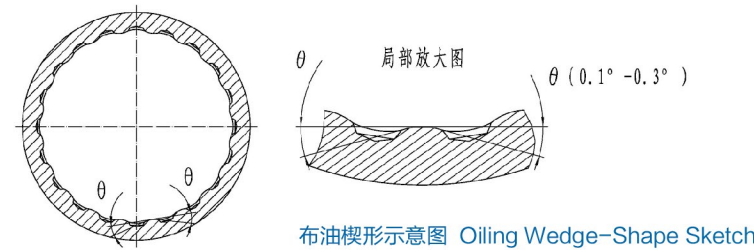
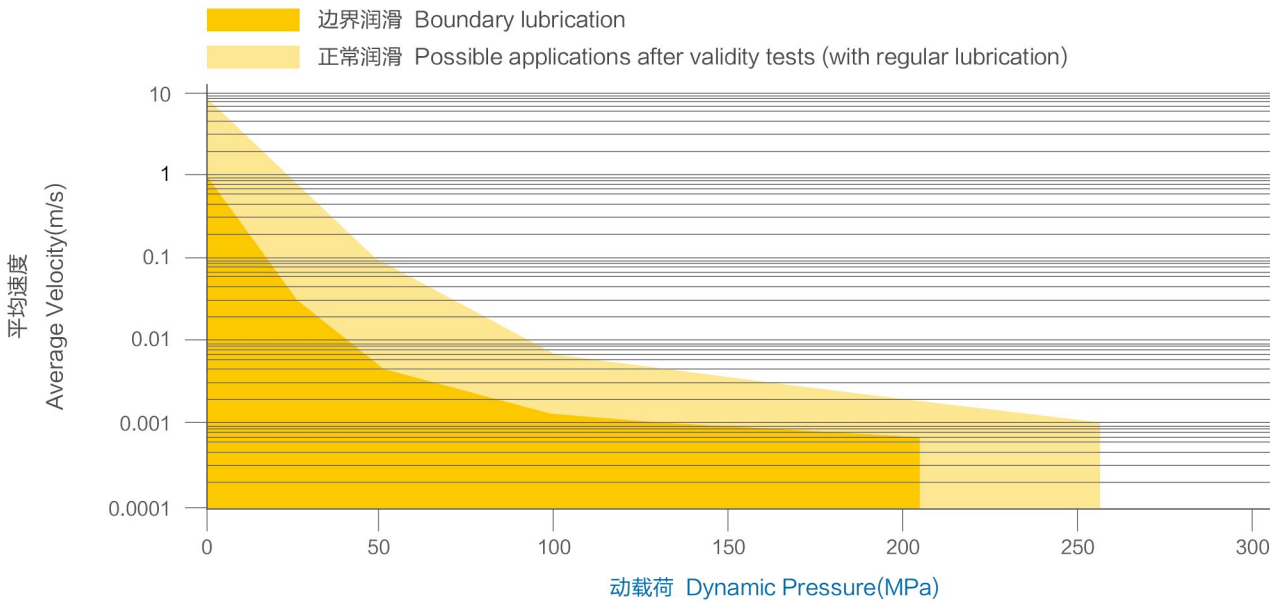
蜂窝轴套

09

材料、热处理及表面处理 Material , heat and surface treatment

材质	Material	20CrMnTi、20CrMo 等低碳合金钢 Low carbon alloy steel
热处理	HT	表面渗碳淬火或 QPQ 处理 Carburizing and quenching, or QPQ
表面处理	ST	双层复合减磨处理 Double friction reduce treatment
润滑型式	Lubricating Type	蜂窝 Honeycomb
适用范围	Application	挖掘机、旋挖钻机、大型装载机、连续墙抓斗 Excavator,rotary drilling machine,heavy duty loader,diaphragm wall grab
摩擦系数	Friction Factor	<0.1
最高使用温度	Critical Using Temp	350℃
极限动载荷	Critical Dynamic Load	250N/mm²
最高滑动速度	Critical Speed.	1.5m/s
耐磨性能	Wearability	++++
耐冲击性能	Anti-impact Ability	++++
耐腐蚀性能	Anti-corrosion Ability	+++
注油间隔时间	Oiling Interval Time	+++++

PV曲线 PV factor curve





COPPER ALLOY BUSHING

铜套

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技术参数及应用特点  
Tech. parameters and characteristics

中国牌号 CN Code	ZCuZn25Al6Fe3Mn3	ZCuAl10Fe3Mn2	ZCuAl10Fe4Ni4	ZCuSn5Zn5Pb5
美国牌号 USA Code	C86300	C95400	C95800	C83600
日本牌号(旧) JP Code (old)	HBsC4	ALBC2	ALBC3	BC6
日本牌号(新) JP Code (now)	CAC304C	CAC702C	CAC703	CAC406
抗拉强度 Tensile strength	≥755N/mm²	≥540N/mm²	640~690 N/mm²	200 N/mm²
屈服强度 Yield strength	≥500N/mm²	≥216N/mm²	275~345 N/mm²	100 N/mm²
硬度 Hardness	≥220HB	≥135HB	160~180HB	68~95HB
延伸率 Extensibility	≥12%	≥20%	≥15%	≥14%
特点 Characteristic	强度和硬度特别高，耐磨性好 Excellent strength and hardness, good wearability.	强度高，耐磨性和耐腐蚀性好 Good strength and wearability, Good Anti-corrosion ability.	强度比较高，耐磨性和耐腐蚀性好 Fine strength, good wearability and Anti-corrosion ability.	耐压性、耐磨性、切削性、铸造性均好 Good toughness, wearability and good cutting , casting performance.
用途 Application	适用于低速、高承载的滑动轴承，应用于挖掘机、注塑机、旋挖钻机等工程机械及塑料机械行业 For low speed and heavy duty bushings, used for excavator, injection molding machine , rotary drilling machine etc.	适用于较高承载的滑动轴承，船用小型螺旋桨、齿轮、轴瓦、阀座、叶轮等 For heavy loading bushings, used for propeller for boat, gears,bushing,valves,i mpeller etc.	适用于较高承载的滑动轴承，化学工业机械零件等 For heavy loading bushings, used for chemical industry machine.	适用于中高速、低承载的滑动轴承，轴瓦等 For medium to high speed, low loading bushings and bearing.

BUFFERING SLEEVE AND COMPONENTS

11

缓冲套及组件



产品特性 Characteristics

产品分类 Product Category	材质 Material	机械性能 Mechanical Property
缓冲套 Buffer bushing	45	外表面高频淬火，表面硬度 52~60HRC，淬硬层深度 1.0~2.0mm Surface high-frequency quenching, hardness 52 to 60HRC, hardening depth 1.0 to 2.0mm
	40Cr、42CrMo	整体淬火，表面硬度：40~52HRC Quenching,hardness 45 to 52HRC
	HBsC4 等铜合金	硬度 220~270HB
	球墨铸铁 Spheroidal graphite cast iron	硬度≥170HB
缓冲柱塞 Buffer piston	15CrMo 、20CrMo 等低碳合金钢	渗碳淬火，表面硬度 56~62HRC Carburizing and quenching , hardness 56 to 62HRC
导向套 Guide sleeves	HBsC4	硬度 220~270HB    Hardness 220~270HB
	QT400	正火处理，硬度 130~190HB    Normalizing, hardness 130~190HB

应用特点 Using features

- 高速、高压油缸缓冲区的重要部件，设置独特的浮动缓冲区，能够在油缸行程终端有效吸收冲击。
- 外表面满足 ABBOTT 曲线要求。
- 缓冲斜面采用独特的磨削工艺，严格保证长度和角度的要求。
- 缓冲套与导向部件配组，保证最优间隙。
- 应用于挖掘机油缸。
- To efficiently absorb impact from hydro-cylinder with special designed floating buffer zone. It is a important part for high-speed and High pressure buffer zone.
- Surface fulfill the requirement of ABBOTT curve.
- Distinctive grinding process used for machining of buffer bevel, to guarantee the requirement of the dimensions and angle.
- Selective Assembly of buffering sleeves and guiding parts to insure the optimal clearances.
- Application to hydro-cylinder for digger.



12

HIGH PRECISION PARTS IN PUMPS AND VALVES

精密泵阀零件



产品特性 Characteristics

类别 Product Category	材质 Material	前处理 Pretreatment	热处理 Heat treatment	内表面粗糙度 Surface finish of Internal Surface
变量衬套 Variable displacement bushes 回位衬套 Return bushes 先导阀套 Sleeves of pilot valves 活塞导套 Guide sleeves of pistons	20CrMo	基体正火处理 160~207HB  Normalizing , hardness 160~207HB	渗碳淬火, 表面硬度 60~64HRC, 渗层深度 0.3~0.6mm  Carburizing and quenching, surface hardness 60~64HRC, depth 0.3~0.6mm.	Ra0.15、Rmax2、 Rmr ref.5% Rmr 0.25 50%

应用特点 Using features

- 内表面珩磨处理，外表面超精磨加工，保证极低的表面粗糙度。
- 保证液压系统的持续稳定。
- 应用于泵、阀及精密马达。
- Excellent surface finish by honing(internal surface) and grinding(external surface).
- To ensure sustainable stability of the hydraulic system.
- Used in pumps, valves and precision motors.

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PLANETARY PINION SHAFTS AND ASSEMBLY

行星轴及组件

产品特性 Characteristics

类别 Product Category	材质 Materials	前处理 Pretreatment	热处理 Heat Treatment	应用 Application
行星轴 Planetary pinion shafts	20CrMnTiH、 15CrMo	基体正火处理 170~210HB Normalizing , hardness 170~210HB	渗碳淬火,表面硬度 58~62HRC, 渗层深度 0.6~0.9mm Carburizing and quenching, surface hardness 58~62HRC, depth 0.6~0.9mm	减速机内高精度零部件 High precision parts in speed-reducer
行星轴组件 Planetary pinion shaft assembly	45&KMS-7	基体调质处理 240~270HB Normalizing , hardness 170~210HB		



应用特点 Using features

- 高精度自动在线测量外圆磨床，严格保证行星轴外圆尺寸及形位公差。
- 应用于工程机械各类减速机机构。
- Automatic on-line measurement high precision cylindrical grinders are used to manufacture the parts, which insures the OD and geometric tolerance of the planetary pinion shaft.
- The parts are used in all kinds of speed-reducing mechanism in construction machinery.



PINS

销轴

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产品特性 Characteristics

材质 Material	45、40Cr	42CrMo
基体调质硬度	201~269HB	220~270HB
表面淬火 Surface quenching	高频淬火， 表面硬度：52~60HRC， 淬硬层深度：1.5~2.5mm High-frequency quenching, surface hardness 52~60HRC, hardening depth 1.5~2.5mm	高频淬火， 表面硬度：56~62HRC， 淬硬层深度：1.5~2.5mm High-frequency quenching, surface hardness 56~62HRC, hardening depth 1.5~2.5mm
表面处理 Surface treatment	表面可做镀铬硬化处理，硬铬层厚度 0.03~0.05mm，硬度≥900HV Surface hard chrome plating treatment is available and chrome layer thickness can be 0.03~0.05mm,hardness greater than 900HV	

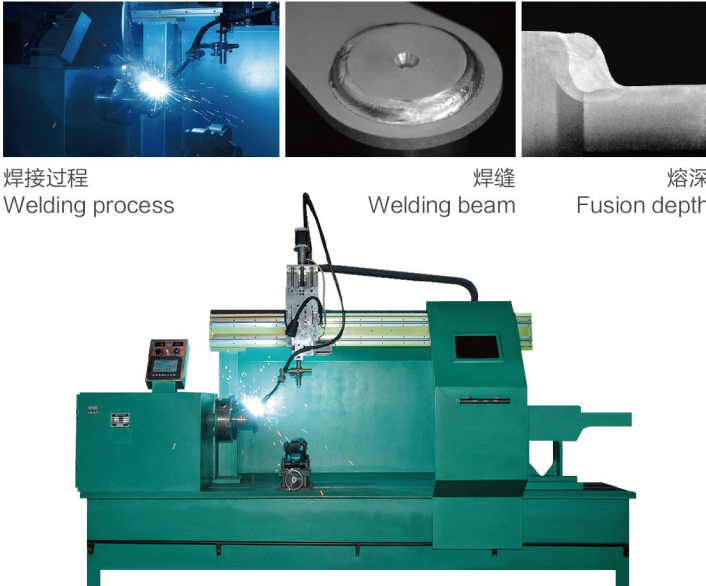
应用特点 Using features

- 芯部调质处理，具有高强度和冲击韧性，外表  
面高频淬火，具有高硬度和耐磨性。
  - 油路设计独特，加油顺畅。
  - 法兰采用环缝自动焊机焊接。
  - 和各种形式轴套配合使用，应用于挖掘机、装  
载机、旋挖钻机工程机械的动臂等回转部位。
- After quenching and tempering heat treatment binding with surface high  
frequency quenching process, giving product high strength and  
toughness,high hardness and wearability.
  - Unique oil channel, oiling smooth.
  - Girth automatic welding machine is used for flange welding process.
  - Mating with for any kind bearing sleeves, the pins are largely used for  
rotation position of excavator, loader, rotary drilling machine and other  
engineering machine.

GIRTH AUTOMATIC WELDING MACHINE

环缝自动焊机

- 环缝自动焊机采用 PLC 控制系统，工作过程中工件旋  
转、焊枪固定，焊枪配置微型调整机构、二轴角度调节  
装置可调节不同焊接角度，采用步进电机控制焊枪升降，  
步进电机驱动焊枪摆动；尾座顶紧装置采用气压控制，  
可实现销轴和法兰的自动焊接，通过调整电流、电压、  
旋转速度、位移等参数实现焊缝大小、熔深、热影响区  
硬度控制。
- The machine adopts PLC control system, workpiece  
turning and the welding pistol fixed. Weelding angle of  
the pistol is controlled by fine turning structure and  
dual-axle device. Swing and up/down action of the  
welding pistol is controlled by stepping motor. Fixture  
is controlled by pneumatic system.  
The machine is qualified on pins and flange welding,  
controlling the welding beam, fusion depth and HAZ  
hardness by adjusting Voltage, Current, Turning  
speed and Displacement factor etc.



焊接过程 Welding process

焊缝 Welding beam

熔深 Fusion depth

GEAR PARTS

轮齿类零件

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产品特性 Characteristics

类别 Product Category	材质 Materials	前处理 Pretreatment	热处理 Heat treatment
齿轮轴 Gear shafts	20CrMnTiH	基体正火处理 150~190HB Normalizing , Hardness 150~190HB	渗碳淬火，表面硬度 58~62HRC， 渗层深度 1.2~2.0mm 芯部硬度 35~42HRC Carburizing and quenching, surface hardness 58~62HRC, depth 1.2~2.0mm, core hardness 35~42HRC
花键轴 Spline shafts			
齿轮 Gears			
	42CrMo	基体调质处理 270~300HB Quenching and tempering , Hardness 270~300HB	氮化处理，表面硬度 > 600HV， 氮化层深度 0.15~0.4mm Nitriding treatment, surface hardness > 600HV, depth 0.15~0.4mm



应用特点 Using features

- 经过精密加工后，可稳定传输动力和扭矩。
- 应用于各型精密传动装置。
- The parts can transmit power and torque stably.
- The parts are used in all kinds of high-precision transmission devices.

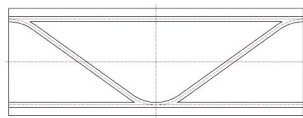


OILING GROOVES TYPE AND ITS CHARACTERISTICS

轴套内孔的润滑油线形式和特点

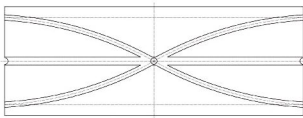
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螺旋型油线



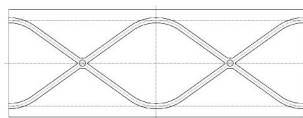
内孔加工出大螺距螺纹来储油、布油。加工工艺简单但效率低，适用于轴向运动场合。  
Spiral grooves, big pitch of screw is made on the internal surface to reserve and distribute lubricating oil, easy to manufacture and apply to axial movement mechanism.

8字形油线



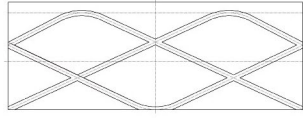
该种油线目前已在装载机行业和部分挖掘机行业普遍采用多年，能达到较好的布油效果。  
8-shape oiling grooves, has been used for loader and some excavator for long time, and has good oiling effects.

十字形油线



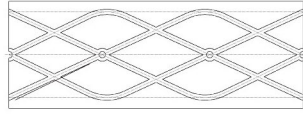
该种油线布油均匀，储油能力和使用效果大大优于8字油线，目前在挖掘机行业普遍采用。  
Cross-shape oiling grooves, its oil reserving ability and using effects is better than 8-shape oiling grooves, now it is largely used in excavator industry.

双环油线



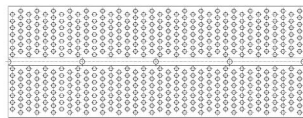
我公司独创，储油能力和使用效果相当于两条8字油线，且承载面积大于两条8字油线轴套。  
Dual-circle oiling grooves, invented by our company, its oil reserving ability and using effects and loading area is two times as 8-shape oiling grooves'.

三环油线



我公司独创，其储油能力和使用效果相当于四条十字油线，承载面积要大于四条十字油线轴套。能够满足对轴套内壁布油和承载要求都很高的中、大型挖掘机的使用要求。  
Trip-circle oiling grooves, invented by our company, its oil reserving ability and using effects and loading area is better than four cross-shape oiling grooves'. It fulfills the heavy duty machine' requirements.

蜂窝



蜂窝轴套具有以下优点：1、储油量是其它形式的3-5倍，可长时间免维护；2、蜂窝的储油方式几乎不损失轴套内壁的承载力，大大提高了轴套的使用寿命；3、每排蜂窝自然形成布油的楔形角（见P5油穴布油楔形示意图），布油快捷；4、摆动很小的角度即可使润滑油布满轴套整个内表面。  
Honeycomb, its advantages is,  
1.Oil reserve ability is 3-5 times as other type oiling grooves and last long time without maintenance.  
2.The bearing's loading ability has almost not reduced with the Honeycomb, so the bearing's service life is improved.  
3.Every row Honeycomb naturally forms wedge-shape oiling angle to fast oil contact surface(See oiling wedge-shape sketch).  
4.It can lubricate all the contact surface with a little turning action

BUSHING DESIGNING MANUAL

轴套设计指南

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适用范围 Application area

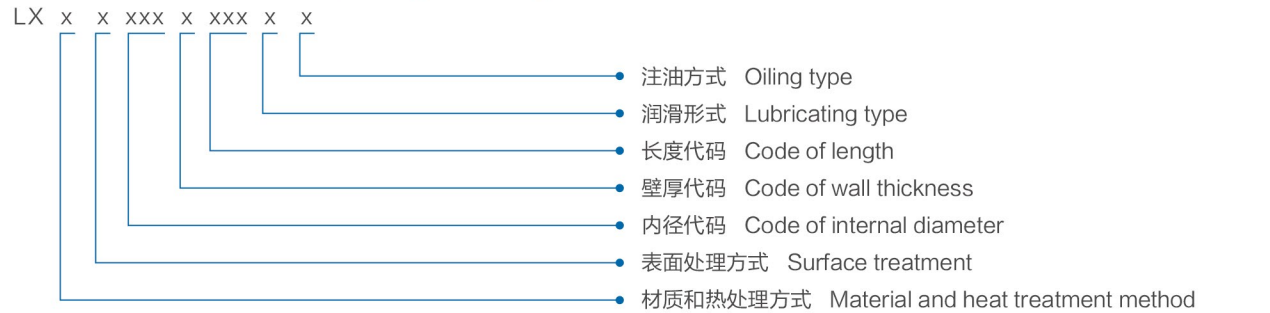
- 适用于石家庄理想汽车零部件有限公司生产的各类轴套，顾客有特殊要求的按顾客特殊要求执行。
- Applying to the various bushings' design of Shijiazhuang Ideal Auto Parts Company Ltd. , Also can design the products according to the requirement of customers.

轴套设计步骤 Bushing Designing Steps

- 轴套产品的设计应遵循以下设计流程步骤：
  - 选择材质和热处理方式
  - 选择表面处理方式
  - 确定内径
  - 确定壁厚
  - 确定长度
  - 选择润滑形式
  - 选择注油方式经过以上步骤完成轴套的设计。
- Bushing designing procedure follow hereafter steps:
  - Choice of material and heat treatment method
  - Choice of surface treatment
  - Determine internal diameter
  - Determine wall thickness
  - Determine bushing length
  - Choice lubricating type
  - Choice oiling type

编码规则 Coding rule

轴套产品按以下示例编码 Bushing coding as following



轴套示例 Example



更多内容请向公司索取《轴套设计标准》  
More information please contact us for 《Bushings Design Codes》