



ZGCC

精密耐磨零件

PRECISION WEAR PARTS



自贡硬质合金有限责任公司
Zigong Cemented Carbide Corp., Ltd.



品质成就未来

QUALITY ACCOMPLISHES THE FUTURE

自贡硬质合金有限责任公司

- 世界500强企业中国五矿集团的核心成员
- 中国第一家自主设计建设的大型硬质合金企业
- 国内领先的硬质合金及配套工具制造商
- 世界先进水平的硬面材料及其应用服务提供者
- 国内领先的钨钼制品制造商

ZIGONG CEMENTED CARBIDE CO., LTD.

- Zigong Cemented Carbide Co., Ltd (ZGCC) is a core member of China Minmetals Group which is one of the world 500 top companies.
- ZGCC is the first home-designed and built large scale cemented carbide manufacturing enterprise in China.
- It is one of the leading manufacturers of cemented carbides and related tools at home.
- It is a reliable supplier of the hard-facing materials with advanced world levels and their application services.
- It holds the leadership position in the tungsten and molybdenum product manufacture in China.



ISO 9001
CN-COC-0101/0010
ISO 14001
CN-COC-008/020099



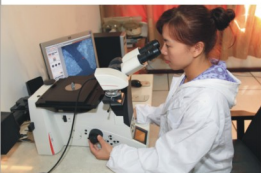
ISO 9001
001882/001796/LA 110
ISO 14001
00109/020099/CL 110



体系认证
CNAS 0011-Q

我们的优势

Our superiority



专业的材质设计研发
完整的生产链—从原材料到成品工具零件
二十年与国际油服公司的合作经验
先进装备和强大的系统保障能力
全过程质量控制

Special design and development of materials
Complete production procedure—from manufacturing of materials to making finished wear parts
Over twenty years cooperation experience with international oil service companies
Advanced equipments and powerful systematic secure capability
Quality control in wide range

精密耐磨零件产品应用领域
Applications of cemented carbide
precision parts

常用合金牌号及物理机械性能
Mechanic properties of common cemented
carbide grades for precision wear parts

潜油泵轴套
Axle sleeve for submerged oil pump

精密密封环
Precision seal-ring

耐腐蚀衬套
Corrosion Resistant Bushing

喷嘴
Nozzle

球阀阀座
Valve ball and seat

精密零件非标产品
Non-standard precision parts



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硬质合金精密耐磨零件产品 应用领域

Applications of cemented
carbide precision parts



硬质合金精密耐磨零件产品：是指具有高耐磨、高耐腐蚀、高尺寸精度和特定表面粗糙度等优越物理性能和特点的硬质合金深加工产品。即将硬质合金毛坯产品通过采用金刚石砂轮磨削（研磨）加工和电火花加工成各种机械零件产品，替代复杂工矿、恶劣环境下工作的金属工件，成倍的提高工作效率及工具的使用寿命。

硬质合金精密耐磨零件产品种类主要有轴套、密封环、螺纹喷嘴、衬套、阀芯、球阀、阀座、异型结构件、机械零附件等。广泛应用于石油、天然气勘探、钻采领域，煤炭采掘、钢铁、船舶、石化配件、化工、泵阀密封、机床附件以及一些新兴行业。产品具有精度高、使用寿命长、耐磨性、耐腐蚀性及抗冲击性能好等特点，主要应用于潜油离心泵、潜油电泵、潜油分离器、潜油保护器、渣浆泵、耐酸泵、污水处理泵、饮用水泵、离心机、抽油泵、PDC钻头、牙轮钻头、压裂工具、随钻测量仪器MWD和LWD、垂直旋转导向和自激振荡旋转冲击钻井工具等产品中。

Cemented carbide precision products mean that deep machined cemented carbide products which have fine mechanical properties and features of high wear and corrosion resistance, high dimension accuracy and specified surface roughness etc. The semifinished cemented carbide products will be finished by diamond wheel grinding and spark machining to various mechanic components to replace the metal parts under the complicated and adverse working conditions in order to double the work efficiency and increase the tool's use life.

The kinds of cemented carbide precision products include mainly axle sleeves, seal-ring, thread nozzles, bushings, valve cores, valve balls, valve seats, non-standard structure parts and mechanic components etc, which will be used widely in many industrial fields, such as oil and drilling and natural gas prospecting, and drilling, coal mining, steel and iron, ship, chemical industry, pump and valve-sealing, mechanic components etc. The products will be mainly utilized for submerged oil centrifugal pump, submerged oil electric pump, submerged oil separator, submerged oil protector, dreg slurry pump, submerged oil centrifuge, submerged oil protector, slurry pump, acidproof pump, waste water treating pump, drink water pump, PDC drill bits, cone roller bits, centrifuge oil raising pump, MWD and LWD, vertical rotating guide and self-activated oscillating-rotating-impact drilling tools etc.



目前我公司生产的硬质合金精密耐磨零件产品主要有潜油泵轴套零件、PDC钻头螺纹喷嘴、压裂喷嘴、水泵密封精密密封环、饮用水泵的耐腐蚀衬套、抽油泵球阀阀座、自激振荡钻井工具和垂直旋转导向工具及随钻测量仪器MWD和LWD用的耐磨异型结构件。

The main cemented carbide precision products which we can produce at present, include axle sleeves of the submerged oil pump, press fracturing nozzles, thread nozzles of PDC drill bits, precision seal-ring of the water-pump, corrosion resistant bushes of drink water pump, valve ball and seat of oil-well pump, self-activated oscillating-rotating-impact drilling tools and vertical rotating guide tools as well as non-standard wear structure components of MWD and LWD.



精密耐磨零件产品 常用合金牌号及物理机械性能

Mechanic properties of common cemented carbide grades for precision wear parts

牌号 grade	硬度 hardness HRA	物力学性能 (典型值) mechanic properties				冲击韧性 impact toughness (N·m/cm ²)	材料特点及推荐用途 Material features and recommended applications
		抗弯强度 transverse rupture strength N/mm ²	热膨胀系数 thermal expansion coefficient (×10 ⁻⁶ /°C)	磨粒磨损 wear of abrasive grain (cm ³ /100000kg)	磨粒磨损 wear of abrasive grain (cm ³ /100000kg)		
YG5	93.1	2500	5.0	0.06	4.7	耐磨性能优异，综合性能良好，适用做耐磨性较高的异型结构零件。 Superior wear resistance, good comprehensive properties suitable for making non-standard structure components with higher wear resistance.	
YG15	87.5	3300	5.5		5.5	强度高及冲击韧性好，适于大应力条件下，做异型产品结构件、机械零部件。 Good strength and impact toughness, suitable for making non-standard structure and mechanic components in working conditions of large stress.	
YG9C	88	3000	5.3	2.2	6.5	耐腐蚀好，强度高，适用于做PDC钻头和牙轮钻头用喷嘴及水雾喷嘴。 Good wear resistance, high strength, suitable for making nozzles and sleeves of water spray hole of PDC drill bits and cone roller bits.	
YG11C	87.3	3100	5.4	2.8	6.8	耐磨性和抗冲击性能好，适合做石油、化工、机械行业的高压喷嘴。 Better wear resistance, good impact resistance, suitable for high pressure nozzles in the petroleum, chemical and mechanic industries.	
YG20C	83.5	2600	6.1		8.5	强度高及冲击韧性佳，适于应力很大条件下，做异型产品结构件、机械零部件。 Optimal strength and impact toughness, suitable for making non-standard structure and mechanic components in working conditions of very large stress.	
ZL10	89.5	2000	—	1.8	5.5	耐磨、耐腐蚀、抗热震性能好，无磁性，比重轻架效高，适用于做抽油泵单向阀的阀球、阀座。 Good wear, corrosion and thermal shock resistance, non-magnetism, light specific gravity, high pumping effect, suitable for making valve ball, valve seat of back pressure valve of oil raising pump.	
ZK30 (YGB)	90.2	3000	5.1	1.4	3.2	耐磨性好，强度高，适于普通应力条件下，做异型产品结构件、机械零部件和阀球。 Good wear resistance and higher strength, suitable for making non-standard structure and mechanic components under working conditions of normal stress.	
ZK35.5	87.3	2900	5.3	4.0	5.2	具有优良的耐腐蚀性及强度，适用于做抗冲击的密封环。 Good corrosion resistance and strength, suitable for impact resistant seal-ring.	
ZN106G	91.5	2500	5.0	1.6	4.8	耐腐蚀和耐磨蚀性能好，适用于做耐腐蚀抽油泵零件、耐腐蚀零件、耐腐蚀密封环和阀球。 Good wear and corrosion resistance, suitable for making parts of corrosion resistant submerged oil pump and acid proof pump.	
ZN109G	90.5	2800	5.4	1.9	5.4	耐腐蚀和耐磨蚀性能好，环保，适用于做饮用水泵零件和耐腐蚀密封环以及其他机械零件。 Good wear and corrosion resistance, suitable for making parts of the drink water pump.	
ZN211G	88.6	3000	5.2	3.2	5.1	耐腐蚀性能好，强度高，适于做耐磨和抗冲击性高的潜油泵零件。 Good corrosion resistance, high strength, suitable for making parts of corrosion and impact resistant submerged oil pump.	
ZK10UF-1	92	2900	5.0	0.9	3.9	耐磨性和强度高，适用于做常规和深海潜油泵零件以及抗冲刷的耐磨结构零件。 Good wear resistance and strength, suitable for making parts of standard and deep-sea submerged oil pump.	
ZK30UF	91.7	3100	5.4	0.6	7.6	耐磨性及强度高，适于做抗冲刷的异型产品结构件、机械零部件。 Higher wear resistance and strength, suitable for making impact resistant non-standard structure and mechanic components.	



硬质合金潜油泵轴套

Cemented carbide axle sleeve for submerged oil pump



用途:

硬质合金轴套主要用于采油设备潜水电泵的电机、离心泵、保护器、分离器轴的旋转支撑、扶正、止推和密封,如滑动轴承套、电机轴套、扶正轴承套、止推轴承套和密封轴套等。应用于高速旋转、砂粒冲蚀和腐蚀性气体等恶劣工况环境中。

主要产品:

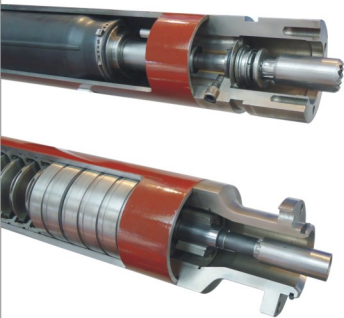
普通直筒轴套、带键槽直筒轴套、凸台轴套、带键槽凸台轴套、异型轴套等。产品的规格型号多,也可根据客户的图纸和使用要求推荐或设计开发材质,生产提供产品。

Applications:

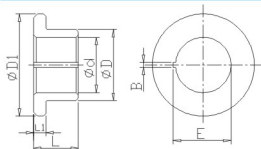
The cemented carbide axle sleeve will be used mainly for rotating support, aligning, anti-thrust and seal of the axle of motor, centrifuge, protector and separator of the submerged electric pump in the adverse working conditions of high speed rotation, sand lash abrasion and gas corrosion in the oil field, such as slide bearing sleeve, motor axle sleeve, aligning bearing sleeve, anti-thrust bearing sleeve and seal axle sleeve.

Main products:

Normal cylindrical axle sleeve, cylindrical axle sleeve with slot, axle sleeve with convex stage, axle sleeve with slot and convex stage, non-standard axle sleeve etc. There is a big choice of sizes and types of products. We can also recommend, design, develop, produce and supply the products according to the drawings and requirements of the customers.

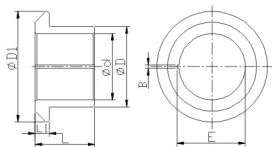


尺寸规格 Dimensions



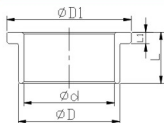
凸台带键槽轴套 (PC类轴套) convex-stage axle sleeve with keyway (PC type)

基本尺寸 basic dimensions (mm)						
ϕD	$\phi D1$	ϕd	L	L1	B	E
20-40	24-63	15-36	11-42	2-7	1.6-3.2	18-31



凸台带键槽轴套 (PC类轴套) convex-stage axle sleeve with keyway (PC type)

基本尺寸 basic dimensions (mm)						
ϕD	$\phi D1$	ϕd	L	L1	B	E
20-36	24-50	14-30	12-27	2.5-6.5	1.6	31



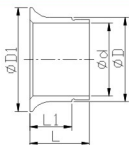
凸台轴套 (PT类轴套) convex-stage axle sleeve (PT type)

基本尺寸 basic dimensions (mm)				
ϕD	$\phi D1$	ϕd	L	L1
41-51	50-55	36-45	5-21	2-5



潜油泵轴套

Axle sleeve for submerged oil pump

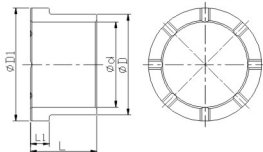


凸台圆弧轴套 (PT类轴套) convex-stage arc axle sleeve (PT type)



基本尺寸 basic dimensions (mm)

ϕD	$\phi D1$	ϕd	L	L1
25-34	28-41	20-29	16-24	13-17

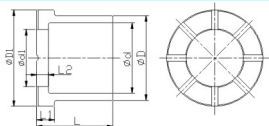


带油槽凸台轴套 (PX类轴套) convex-stage axle sleeve with oil groove (PX type)

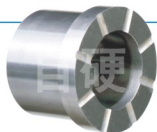


基本尺寸 basic dimensions (mm)

ϕD	$\phi D1$	ϕd	L	L1
46-57	52-64	38-48	26-38	6-10

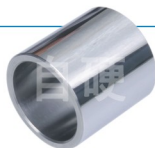
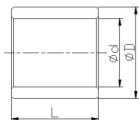


带油槽凸台止推轴套 (PX类轴套) convex-stage axle sleeve with oil groove (PX type)



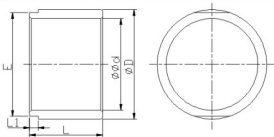
基本尺寸 basic dimensions (mm)

ϕD	$\phi D1$	ϕd	$\phi d1$	L	L1	L2
45-51	52-57	38-43	26-32	36-42	9.5	6.5



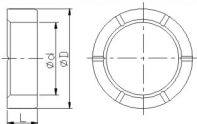
直筒轴套 (PY类轴套) straight tube axle sleeve (PY type)

基本尺寸 basic dimensions (mm)		
ϕD	ϕd	L
24~122	15~114	5~65



直筒轴套 (PY类轴套) straight tube axle sleeve (PY type)

基本尺寸 basic dimensions (mm)				
ϕD	ϕd	L	L ₁	E
57~70	48~58	38~58	4~8	54~67

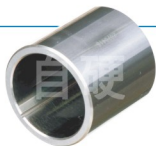
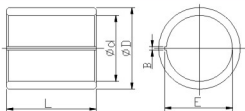


带油槽直筒轴套 (PX类轴套) straight tube axle sleeve with oil groove (PX type)

基本尺寸 basic dimensions (mm)			
ϕD	ϕd	L	R
24~41	15~29	8~15	2.5

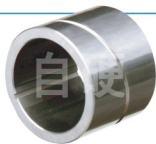
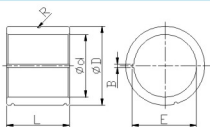
潜油泵轴套

Axle sleeve for submerged oil pump



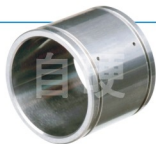
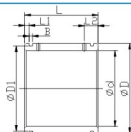
带键槽直筒轴套 (PD类轴套) straight tube axle sleeve with keyway (PD type)

基本尺寸 basic dimensions (mm)					
ϕD	ϕd	L	B	E	R
22-76	15-48	5-76	1.6-3.2	16-49	



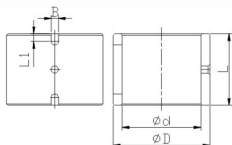
带键槽和螺旋槽直筒轴套 (PD类轴套) straight tube axle sleeve with keyway and spiral groove (PD type)

基本尺寸 basic dimensions (mm)					
ϕD	ϕd	L	B	E	R
38-48	30-35	25-30	1.6-3.2	31-36	0.5-1



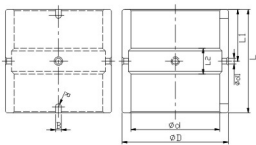
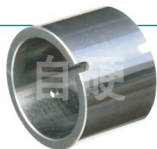
带环槽和油孔轴套 (PX类轴套) axle sleeve with round groove and oil hole (PX type)

基本尺寸 basic dimensions (mm)					
ϕD	$\phi D1$	ϕd	L	L1	B
38-70	36-68	30-58	31-49	2-4	1.5-2.5



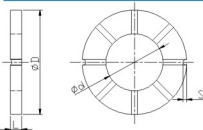
带槽和油孔扶正轴套 (PX类轴套) axle sleeve with aligning groove and oil hole (PX type)

基本尺寸 basic dimensions (mm)					
ϕD	Φd	L	L1	B	
43	35	35	3.5	3.2	



带槽和油孔扶正轴套 (PX类轴套) axle sleeve with aligning groove and oil hole (PX type)

基本尺寸 basic dimensions (mm)						
ϕD	Φd	$\Phi d1$	L	L1	L2	B
57	48	3	56	28	11	3.2



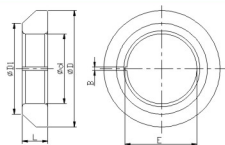
带油槽止推轴套 (PX类轴套) anti-thrust axle sleeve with oil groove (PX type)

基本尺寸 basic dimensions (mm)			
ϕD	Φd	L	S
59-85	22-32	6-12	2-3.5



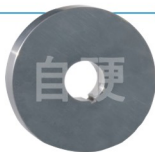
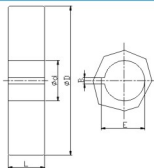
潜油泵轴套

Axle sleeve for submerged oil pump



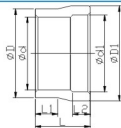
带键槽止推轴套 (PD类轴套) anti-thrust axle sleeve with keyway (PD type)

基本尺寸 basic dimensions (mm)					
ϕD	$\phi D1$	ϕd	L	B	E
52-65	39-52	30-38	13	1.6-3.2	31-40



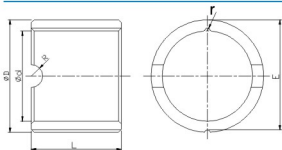
带键槽止推轴套 (PX类轴套) anti-thrust axle sleeve with keyway (PX type)

基本尺寸 basic dimensions (mm)				
ϕD	ϕd	L	B	E
117	32	29	5	34



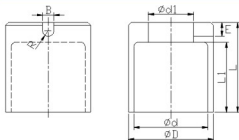
异型轴套 (PX类轴套) nonstandard axle sleeve (PX type)

基本尺寸 basic dimensions (mm)						
ϕD	$\phi D1$	ϕd	$\phi d1$	L	L1	L2
26	25	20	21	15	6	6



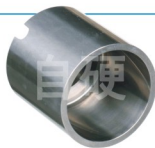
异型轴套 (PX类轴套) nonstandard axle sleeve (PX type)

基本尺寸 basic dimensions (mm)						
ϕD	Φd	L	E	R	r	
32	26	25	31	3.2	0.8	



异型轴套 (PX类轴套) nonstandard axle sleeve (PX type)

基本尺寸 basic dimensions (mm)						
ϕD	Φd	$\Phi d1$	L	L1	B	E
48	42	25	51	40	6.4	8



技术参数 Technic parameters

单位unit: mm

尺寸精度 accuracy of dimensions	圆柱度 cylindricity	平面度 flatness	平行度 parallelism	垂直度 perpendicularity	同轴度 coaxiality	位置度 position deviation	全跳动 total runout	表面粗糙度Ra(μm) surface roughness
≤0.02	≤0.005	≤0.005	≤0.01	≤0.02	≤0.02	≤0.05	≤0.02	1.6-0.1

技术水平 Technic level

产品的材质优良,性能优异,耐磨性和耐腐蚀性能好,长时间运转磨损小,延长旋转轴的使用寿命,保持较高工作精度,常规情况下使用寿命长达2万小时。我公司从1993年开始与贝克休斯公司合作研发生产硬质合金潜油泵轴套零件,开发了3种成熟的潜油泵轴套材质,是中国最早开发生产潜油泵轴套零件的厂家,也是国内最大的潜油泵轴套零件生产商,是贝克休斯公司潜油泵轴套零件的主供应商。

The product which is made of good quality material, and has good wear and corrosion resistance, and outstanding mechanic properties, is weared only slightly through a long time running with higher accuracy. It's service life reaches over twenty thousand hours in the normal case. Since 1993, we have a good cooperation with Bakerhughes to develop and produce cemented carbide axle sleeves of the submerged oil pump, and three materials of submerged electrical oil pump have been developed successfully, so that we become the first and largest manufacturer of the axle sleeves for the submerged oil pump in China and also a master supplier of Bakerhughes.

硬质合金精密密封环

Cemented carbide precision seal-ring



用途:

硬质合金精密密封环动环和静环，与弹簧、橡胶密封圈及钢套组成机械密封，主要应用于污水泵、矿山排水泵、离心泵、离心机、渣浆泵、泥浆泵中，安装在泵体和转动轴上，由动环和静环的端面进行液体或气体的密封。应用于高速旋转、高压、高（低）温和酸、碱腐蚀性气液体等工况环境中。

主要产品:

带防转槽型、带橡胶密封圈型、带齿型、平衡型和非平衡型等动、静环。

产品的规格型号多，也可根据客户的图纸和使用要求，推荐或设计开发材质，生产提供产品。

Applications:

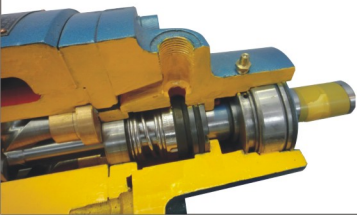
The cemented carbide seal-ring can be divided into both of the kinetic seal-ring and static seal-ring, and constitutes mechanic seal together with the spring, rubber seal-ring and steel jacket.

It will be used mainly for waste water pump, water discharge pump for the mines, centrifugal pump, centrifuge, slag slurry pump and slurry pump in the adverse working conditions of high speed rotation, sand flush abrasion and corrosion. The seal-ring will be installed on the pump body and rotating axle, and forms through the end face of the kinetic and static ring a liquid or gas seal.

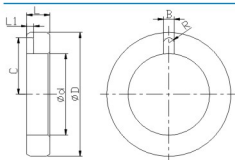
Main products:

Kinetic and static ring types with groove against turning, with rubber seal-ring, with teeth, balancing and non-balancing.

There is a big choice of sizes and types of the products, we can also recommend, design, develop, produce the products according to the drawings and requirements of the customers.



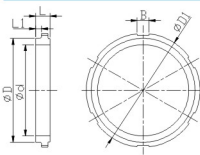
尺寸规格 Dimensions



密封环 precision seal-ring

基本尺寸 basic dimensions (mm)

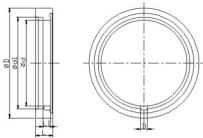
ϕD	ϕd	L	L1	B
35	23	7	2	3



密封环 precision seal-ring

基本尺寸 basic dimensions (mm)

ϕD	$\phi D1$	ϕd	L	L1	B
105	115	92	15	6	12



密封环 precision seal-ring

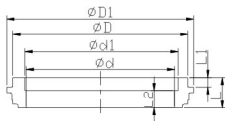
基本尺寸 basic dimensions (mm)

ϕD	ϕd	$\phi d1$	L	L1	B
96	75	80	15	7	6



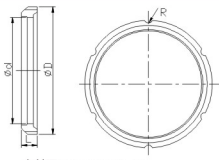
精密密封环

Precision seal-ring



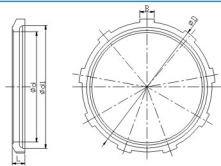
密封环 precision seal-ring

基本尺寸 basic dimensions (mm)						
ϕD	$\phi D1$	ϕd	$\phi d1$	L	L1	L2
145-175	155-185	123-159	127-163	22-25	8-10	12-15



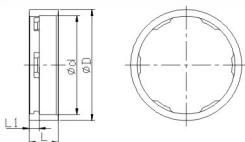
密封环 precision seal-ring

基本尺寸 basic dimensions (mm)				
ϕD	ϕd	R	L	
144	120	5	18	



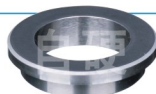
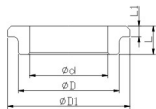
密封环 precision seal-ring

基本尺寸 basic dimensions (mm)				
ϕD	ϕd	$\phi d1$	L	B
111	90	100	11	12



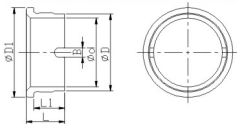
密封环 precision seal-ring

基本尺寸 basic dimensions (mm)				
ϕD	ϕd	L	L1	
55	49	15	5	



密封环 precision seal-ring

基本尺寸 basic dimensions (mm)				
ϕD	$\phi D1$	ϕd	L	L1
29	35	20	8	3

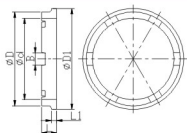


密封环 precision seal-ring

基本尺寸 basic dimensions (mm)					
ϕD	$\phi D1$	ϕd	L	L1	B
41	48	36	21	17	5

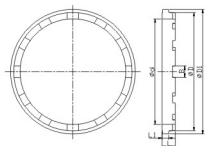
精密密封环

Precision seal-ring



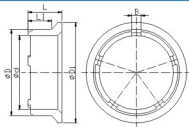
密封环 precision seal-ring

基本尺寸 basic dimensions (mm)					
ϕD	$\phi D1$	ϕd	L	L1	B
41-53	46-57	36-46	7-9	3	5-7



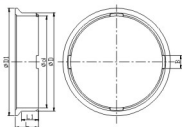
密封环 precision seal-ring

基本尺寸 basic dimensions (mm)					
ϕD	$\phi D1$	ϕd	L	L1	B
68-103	73-109	61-92	10-12	4-6	8-10



密封环 precision seal-ring

基本尺寸 basic dimensions (mm)					
ϕD	$\phi D1$	ϕd	L	L1	B
28-34	34-39	23-29	14	9	7



密封环 precision seal-ring

基本尺寸 basic dimensions (mm)					
ϕD	$\Phi D1$	Φd	L	L1	B
90-92	97-100	82-86	22-30	16-19	12



密封环 precision seal-ring

基本尺寸 basic dimensions (mm)				
ϕD	Φd	$\Phi d1$	L	L1
65	55	60	5.6	0.8



密封环 precision seal-ring

基本尺寸 basic dimensions (mm)				
ϕD	$\Phi D1$	Φd	L	L1
61	65	55	5	0.8

精密密封环

Precision seal-ring



密封环 precision seal-ring

基本尺寸 basic dimensions (mm)		
ϕD	ϕd	L
26~150	20~120	6~15

技术参数 Technic parameters

单位unit: mm

平面度 flatness	表面粗糙度Ra surface roughness Ra	表面粗糙度Rz surface roughness Rz	密封面形状 shape of seal face
≤ 0.6	0.03~0.06	0.5	平面、凹/凸球面 plane, concave/convex sphere

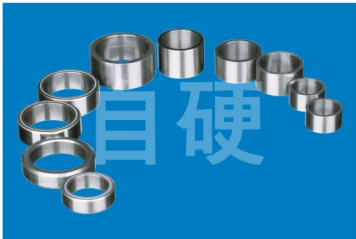
技术水平 Technic level

精密密封环产品形状复杂、精度高，产品材质优良、生产工艺先进（拥有多项国家专利技术），机械性能稳定，具有较高的耐磨和耐腐蚀性能，常规情况下使用寿命达2万小时，是世界500强企业ITT赛莱默公司的主供应商。

The precision seal-ring is made of high quality materials by an advanced process with several patented technologies, have very complicated shapes, high accuracy, stable mechanic properties, much higher wear and corrosion resistance, and a service life of more than twenty thousand hours in the normal case. We are the approved major supplier of ITT, which is one of the Fortunes Globle 500 companies.

硬质合金耐腐蚀衬套

Cemented Carbide corrosion resistant bushing



用途:

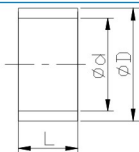
硬质合金耐腐蚀衬套产品应用于饮用水行业，主要用于饮水泵的轴向密封和旋转支持。

Applications:

The cemented carbide corrosion resistant bushings are mainly to be used for axial sealing and rotating support of the drink water pump.



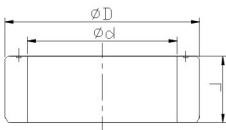
尺寸规格 Dimensions



衬套 bushing



基本尺寸 basic dimensions (mm)		
ϕD	ϕd	L
14~27	10~16	7~13



衬套 bushing



基本尺寸 basic dimensions (mm)		
ϕD	ϕd	L
20~35	14~27	6~12

技术参数 Technic parameters

单位unit: mm

尺寸精度 accuracy of dimensions	圆柱度 cylindricity	平行度 parallelism	垂直度 perpendicularity	同轴度 coaxiality	全跳动 total runout	表面粗糙度Ra(μm) surface roughness
≤ 0.025	≤ 0.01	≤ 0.01	≤ 0.025	≤ 0.025	≤ 0.025	1.6~0.1

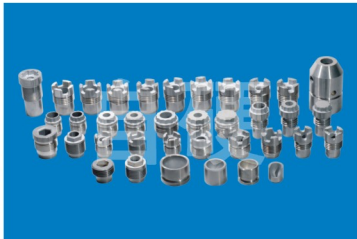
技术水平 Technic level

耐腐蚀性能和环保性优良（材质拥有国家专利技术），材质通过了ROHS（中国质量检测中心）的安全认证及WRAS（英国水务中心BS6920:2000）的耐腐蚀性和环保检测认证。

The products have excellent corrosion resistance and enviromental protection character. The material of products is patented from China National Patent Bureau and has been certified by ROHS (China Quality Test Center) and WARS (Water service Center of United Kingdom BS 6920:2000). We are now the approved main supplier of PTT company(Italy).

硬质合金喷嘴

Cemented carbide nozzle



用途:

硬质合金喷嘴也称水眼, 主要用于石油、天然气钻探用PDC钻头、牙轮钻头等工作时, 钻井液通过其冲刷清洗、冷却、润滑钻齿, 辅助破岩以及清洁井底岩屑。应用于高压、振动和泥砂高速冲刷的工况环境中。

主要产品:

十字槽型螺纹喷嘴、梅花齿型螺纹喷嘴、外六方型螺纹喷嘴、内六方型螺纹喷嘴和Y字型(三槽)螺纹喷嘴、牙轮钻喷嘴以及压裂喷嘴。产品的规格型号多, 也可根据客户的图纸和使用要求, 推荐或设计开发材质和产品结构, 生产提供产品。

Applications:

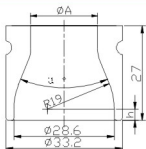
The cemented carbide nozzles will be used mainly to PDC drill bits and cone roller bits for flushing, cooling and lubricating drill bit tips and cleaning stone chips in the well bottom with drilling liquid in the working conditions of high pressure, vibration, sand and slurry impacting during oil and natural gas prospecting.

Main products:

Cross groove thread nozzles, plum blossom type thread nozzles, outer hexagonal thread nozzles, internal hexagonal thread nozzles, Y type (three grooves) thread nozzles, cone roller bit nozzles and press fracturing nozzles. There are various sizes and types of the products. We can recommend, design, develop, produce and supply the products according to the drawings and requirements of the customers.

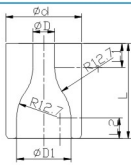


尺寸规格 Dimensions



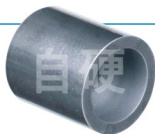
牙轮钻头喷嘴 cone roller bit nozzle

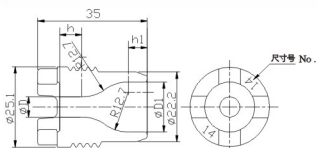
产品型号 type	尺寸号 No.	基本尺寸 basic dimensions (mm)		
		ϕA	h	α°
PZ-0101-20	20	15.9	1.6	58
PZ-0101-24	24	19.1	3.2	44
PZ-0101-26	26	20.6	3.2	44



牙轮钻头喷嘴 cone roller bit nozzle

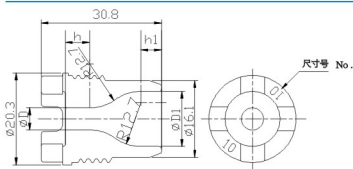
产品型号 type	尺寸号 No.	基本尺寸 basic dimensions (mm)					
		ϕD	$\phi D1$	ϕd	L	L1	L2
PZ-FG10	10	7.9	9	16	20	6.4	3.2
PZ-FG11	11	8.7	9	16	20	6.4	3.2
PZ-FG12	12	9.5	9.5	16	20	-	-
PZ-FG13	13	10.3	10.3	16	20	-	-
PZ-FG14	14	11.1	15.9	20.4	22.2	6.8	4.7
PZ-FG15	15	11.9	15.9	20.4	22.2	6.8	4.7
PZ-FG16	16	12.7	15.9	20.4	22.2	6.8	4.7
PZ-FG18	18	14.3	15.9	20.4	22.2	6.8	4.7
PZ-FE14	14	11.1	16	21	22.6	-	3.4
PZ-FE16	16	12.7	16	21	22.6	-	3.4
PZ-FE18	18	14.3	16	21	22.6	-	3.4
PZ-FE20	20	15.9	16	21	22.6	-	3.4
PZ-FH14	14	11.1	28.6	32.9	27	7.1	-
PZ-FH16	16	12.7	28.6	32.9	27	7.1	-
PZ-FH18	18	14.3	28.6	32.9	27	7.1	-
PZ-FH19	19	15.1	28.6	32.9	27	7.1	-
PZ-FH20	20	15.9	28.6	32.9	27	7.1	-
PZ-FH21	21	16.7	28.6	32.9	27	7.1	-
PZ-FH22	22	17.5	28.6	32.9	27	7.1	-





PDC钻头硬质合金螺纹喷嘴-十字槽扳手系列 thread nozzles of PDC drilling bit-cross groove wrench series

产品型号 type	尺寸号 No.	基本尺寸 basic dimensions (mm)			螺纹规格 thread specification
		ϕD	$\phi D1$	h	
PZ-12326-M	08	6.4	15.9	6.0	1.0-12UNF-2A
PZ-12327-M	09	7.1	15.9	6.4	
PZ-12328-M	10	7.9	15.9	7.1	
PZ-12329-M	11	8.7	15.9	7.7	
PZ-12330-M	12	9.5	15.9	8.4	
PZ-12331-M	13	10.3	15.9	9.1	
PZ-12332-M	14	11.1	15.9	10.0	
PZ-12333-M	15	11.9	15.9	10.9	
PZ-12334-M	16	12.7	15.9	11.9	
PZ-12335-M	18	14.3	15.9	14.4	
PZ-12336-M	20	15.9	15.9	-	
PZ-12337-M	22	17.5	17.5	-	

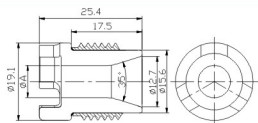


PDC钻头硬质合金螺纹喷嘴-十字槽扳手系列 thread nozzles of PDC drilling bit-cross groove wrench series

产品型号 type	尺寸号 No.	基本尺寸 basic dimensions (mm)			螺纹规格 thread specification
		ϕD	$\phi D1$	h	
PZ-12342-M	08	6.4	12.7	5.1	M20 x 2-6h 或3/4-12UN-2A
PZ-12343-M	09	7.1	12.7	5.8	
PZ-12344-M	10	7.9	12.7	6.6	
PZ-12345-M	11	8.7	12.7	7.5	
PZ-12346-M	12	9.5	12.7	8.5	
PZ-12347-M	13	10.3	12.7	9.7	
PZ-12348-M	14	11.1	12.7	11.1	
PZ-12349-M	15	11.9	12.7	-	
PZ-12350-M	16	12.7	12.7	-	

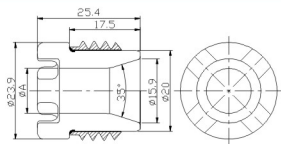
硬质合金喷嘴

Cemented carbide nozzle



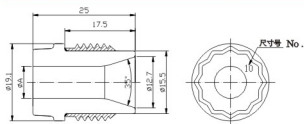
PDC钻头硬质合金焊接螺纹喷嘴Y字形(3槽)扳手系列 thread nozzle of PDC drilling bit-Y type (three grooves) wrench series

产品型号 type	尺寸号 No.	ϕA	螺纹规格 thread specification
PZ-11503-M	08	6.4	3/4-16UNF-2A
PZ-11504-M	09	7.1	
PZ-10514-M	10	7.9	
PZ-10515-M	11	8.7	
PZ-10516-M	12	9.5	
PZ-10517-M	13	10.3	
PZ-10512-M	14	11.1	
PZ-11505-M	15	11.9	
PZ-10513-M	16	12.7	



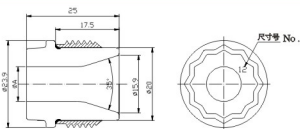
PDC钻头硬质合金焊接螺纹喷嘴十字槽扳手系列 thread nozzle of PDC drilling bit-plum blossom teeth wrench series

产品型号 type	尺寸号 No.	ϕA	螺纹规格 thread specification
PZ-10501-M	00	0	15/16-16UN-2A
PZ-10502-M	07	5.6	
PZ-10503-M	08	6.4	
PZ-10504-M	09	7.1	
PZ-10505-M	10	7.9	
PZ-10506-M	11	8.7	
PZ-10507-M	12	9.5	
PZ-10508-M	13	10.3	
PZ-10509-M	14	11.1	
PZ-10510-M	15	11.9	
PZ-10511-M	16	12.7	
PZ-H4-17	17	13.5	
PZ-H4-18	18	14.3	
PZ-H4-19	19	15.1	
PZ-H4-20	20	15.9	



PDC钻头硬质合金焊接螺纹喷嘴-梅花齿扳手系列 thread nozzle of PDC drilling bit-plumblossom teeth wrench series

产品型号 type	尺寸号 No.	ϕA	螺纹规格 thread specification
PZ-12512-M	00	0	3/4-16UNF-2A
PZ-12513-M	06	4.8	
PZ-12514-M	08	6.4	
PZ-12515-M	09	7.1	
PZ-12508-M	10	7.9	
PZ-12509-M	11	8.7	
PZ-12510-M	12	9.5	
PZ-12511-M	13	10.3	
PZ-11521-M	14	11.1	
PZ-12516-M	15	11.9	
PZ-11522-M	16	12.7	

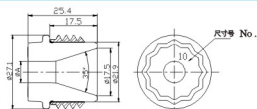


PDC钻头硬质合金焊接螺纹喷嘴-梅花齿扳手系列 thread nozzle of PDC drilling bit-plumblossom teeth wrench series

产品型号 type	尺寸号 No.	ϕA	螺纹规格 thread specification
PZ-12517-M	00	0	15/16-16UN-2A
PZ-12518-M	07	5.6	
PZ-12519-M	08	6.4	
PZ-12520-M	09	7.1	
PZ-12521-M	10	7.9	
PZ-12522-M	11	8.7	
PZ-12523-M	12	9.5	
PZ-12524-M	13	10.3	
PZ-12501-M	14	11.1	
PZ-12525-M	15	11.9	
PZ-12502-M	16	12.7	
PZ-12526-M	17	13.5	
PZ-12503-M	18	14.3	
PZ-12527-M	19	15.1	
PZ-12504-M	20	15.9	

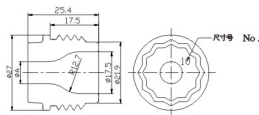
硬质合金喷嘴

Cemented carbide nozzle



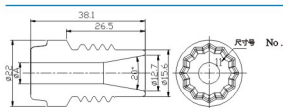
PDC钻头硬质合金焊接螺纹喷嘴-梅花齿扳手系列 thread nozzle of PDC drilling bit-plumblossom teeth wrench series

产品型号 type	尺寸号 No.	φA	螺纹规格 thread specification
PZ-09502-M	00	0	1-1/16-12UN-2A
PZ-07511-M	07	5.6	
PZ-07512-M	08	6.4	
PZ-07513-M	09	7.1	
PZ-07514-M	10	7.9	
PZ-07515-M	11	8.7	
PZ-07516-M	12	9.5	
PZ-07517-M	13	10.3	
PZ-07518-M	14	11.1	
PZ-07519-M	15	11.9	
PZ-07520-M	16	12.7	
PZ-07521-M	17	13.5	
PZ-07522-M	18	14.3	
PZ-07523-M	19	15.1	
PZ-07524-M	20	15.9	
PZ-07525-M	21	16.7	
PZ-07526-M	22	17.5	



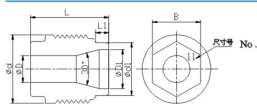
PDC钻头硬质合金焊接螺纹喷嘴-梅花齿扳手系列 thread nozzle of PDC drilling bit-plumblossom teeth wrench series

产品型号 type	尺寸号 No.	φA	螺纹规格 thread specification
PZ-M12-07	07	5.6	1-1/16-12UN-2A
PZ-M12-08	08	6.4	
PZ-M12-09	09	7.1	
PZ-M12-10	10	7.9	
PZ-M12-11	11	8.7	
PZ-M12-12	12	9.5	
PZ-M12-13	13	10.3	
PZ-M12-14	14	11.1	
PZ-M12-15	15	11.9	
PZ-11523-M	16	12.7	
PZ-12505-M	17	13.5	
PZ-11524-M	18	14.3	
PZ-12506-M	19	15.1	
PZ-11525-M	20	15.9	
PZ-12507-M	21	16.7	
PZ-11526-M	22	17.5	



PDC钻头硬质合金螺纹喷嘴—内梅花齿扳手系列 thread of PDC drilling bit—internal plumblossom teeth wrench series

产品型号 type	尺寸号 No.	φA	螺纹规格 thread specification
PZ-09501-M	00	0	3/4-10UNC-3A
PZ-07501-M	06	4.8	
PZ-07502-M	08	6.4	
PZ-07503-M	09	7.1	
PZ-07504-M	10	7.9	
PZ-07505-M	11	8.7	
PZ-07506-M	12	9.5	
PZ-07507-M	13	10.3	
PZ-07508-M	14	11.1	
PZ-07509-M	15	11.9	
PZ-07510-M	16	12.7	

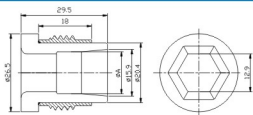


PDC钻头硬质合金螺纹喷嘴—六角扳手系列 thread nozzle of PDC drilling bit—hexagonal wrench series

产品型号 type	尺寸号 No.	基本尺寸 basic dimensions (mm)							螺纹规格 thread specification
		φD	φD1	φd	φd1	L	L1	B	
PZ-55-07	07	5.6	12.7	22.2	17.15	25.4	4.3	15.6	7/8-14UNF-2A
PZ-55-08	08	6.4	12.7	22.2	17.15	25.4	4.3	15.6	
PZ-55-09	09	7.1	12.7	22.2	17.15	25.4	4.3	15.6	
PZ-55-10	10	7.9	12.7	22.2	17.15	25.4	4.3	15.6	
PZ-08501-M	11	8.7	12.7	22.2	17.15	25.4	4.3	15.6	
PZ-08502-M	12	9.5	12.7	22.2	17.15	25.4	4.3	15.6	
PZ-08503-M	13	10.3	12.7	22.2	17.15	25.4	4.3	15.6	
PZ-55-14	14	11.1	12.7	22.2	17.15	25.4	4.3	15.6	
PZ-55-15	15	11.9	12.7	22.2	17.15	25.4	4.3	15.6	
PZ-55-16	16	12.7	12.7	22.2	17.15	25.4	4.3	15.6	
PZ-65-07	07	5.6	15.9	25.4	20.4	28.6	4.8	18.7	1-14UNF-2A
PZ-65-08	08	6.4	15.9	25.4	20.4	28.6	4.8	18.7	
PZ-65-09	09	7.1	15.9	25.4	20.4	28.6	4.8	18.7	
PZ-65-10	10	7.9	15.9	25.4	20.4	28.6	4.8	18.7	
PZ-65-11	11	8.7	15.9	25.4	20.4	28.6	4.8	18.7	
PZ-65-12	12	9.5	15.9	25.4	20.4	28.6	4.8	18.7	
PZ-65-13	13	10.3	15.9	25.4	20.4	28.6	4.8	18.7	
PZ-65-14	14	11.1	15.9	25.4	20.4	28.6	4.8	18.7	
PZ-65-15	15	11.9	15.9	25.4	20.4	28.6	4.8	18.7	
PZ-65-16	16	12.7	15.9	25.4	20.4	28.6	4.8	18.7	
PZ-65-17	17	13.5	15.9	25.4	20.4	28.6	4.8	18.7	
PZ-65-18	18	14.3	15.9	25.4	20.4	28.6	4.8	18.7	
PZ-65-19	19	15.1	15.9	25.4	20.4	28.6	4.8	18.7	
PZ-65-20	20	15.9	15.9	25.4	20.4	28.6	4.8	18.7	

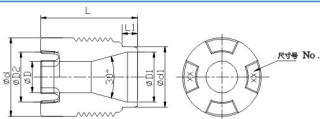
硬质合金喷嘴

Cemented carbide nozzle



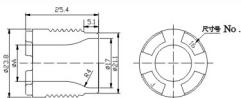
PDC钻头硬质合金焊接螺纹喷嘴——内六角扳手系列 thread nozzle of PDC drilling bit—internal hexagonal wrench series

产品型号 type	尺寸号 No.	φA	螺纹规格 thread specification
PZ-13303-M	16	12.7	1-14UNS-2A
PZ-13304-M	18	14.3	
PZ-13305-M	20	15.9	
PZ-13306-M	22	17.5	



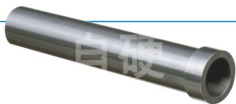
PDC钻头硬质合金螺纹喷嘴——十字槽扳手系列 thread nozzles of PDC drilling bit—cross groove wrench series

产品型号 type	尺寸号 No.	基本尺寸 basic dimensions (mm)							螺纹规格 thread specification
		φD	φD1	φd	φd1	L	L1		
PZ-1104-09	09	7.1	17.5	25.4	20.4	30.8	3.9	1-14UNS-2A	
PZ-1104-10	10	7.9	17.5	25.4	20.4	30.8	3.9		
PZ-1104-11	11	8.7	17.5	25.4	20.4	30.8	3.9		
PZ-1104-12	12	9.5	17.5	25.4	20.4	30.8	3.9		
PZ-1104-13	13	10.3	17.5	25.4	20.4	30.8	3.9		
PZ-1104-14	14	11.1	17.5	25.4	20.4	30.8	3.9		
PZ-1104-15	15	11.9	17.5	25.4	20.4	30.8	3.9		
PZ-1104-16	16	12.7	17.5	25.4	20.4	30.8	3.9		
PZ-1104-17	17	13.5	17.5	25.4	20.4	30.8	3.9		
PZ-1104-18	18	14.3	17.5	25.4	20.4	30.8	3.9		
PZ-1104-19	19	15.1	17.5	25.4	20.4	30.8	3.9		
PZ-1104-20	20	15.9	17.5	25.4	20.4	30.8	3.9		
PZ-1104-21	21	16.7	17.5	25.4	20.4	30.8	3.9		
PZ-1104-22	22	17.5	17.5	25.4	20.4	30.8	3.9		
PZ-1103-09	09	7.1	14.3	22.4	17.1	27.5	3.9	7/8-14UNF-2A	
PZ-1103-10	10	7.9	14.3	22.4	17.1	27.5	3.9		
PZ-1103-11	11	8.7	14.3	22.4	17.1	27.5	3.9		
PZ-1103-12	12	9.5	14.3	22.4	17.1	27.5	3.9		
PZ-1103-13	13	10.3	14.3	22.4	17.1	27.5	3.9		
PZ-1103-14	14	11.1	14.3	22.4	17.1	27.5	3.9		
PZ-1103-15	15	11.9	14.3	22.4	17.1	27.5	3.9		
PZ-1103-16	16	12.7	14.3	22.4	17.1	27.5	3.9		
PZ-1103-17	17	13.5	14.3	22.4	17.1	27.5	3.9		
PZ-1103-18	18	14.3	14.3	22.4	17.1	27.5	3.9		



PDC钻头硬质合金螺纹喷嘴-十字槽扳手系列 thread nozzle of PDC drilling bit-cross groove wrench series

产品型号 type	尺寸号 No.	φA	螺纹规格 thread specification
PZ-13307-M	16	12.7	15/16-16UN-2A
PZ-13308-M	18	14.3	
PZ-13309-M	20	15.8	
PZ-13310-M	22	17.5	



PDC钻头用硬质合金喷嘴 水喷嘴孔套 PDC drilling bit water nozzle hole jacket of PDC drilling bit

产品型号 type	基本尺寸 basic dimensions (mm)				
	φD	φD1	φd	L	L1
PG-018	15	17	10.3	49	4.1
PG-019	19	22	14.3	25	3.2
PG-020	19	22	14.3	38	3.2
PG-021	19	22	14.3	51	3.2
PG-022	19	22	14.3	57	3.2
PG-023	19	22	14.3	70	3.2
PG-024	21	22	17.5	31	2.9
PG-025	21	23.4	14.8	51	4.1
PG-026	21	23.4	14.8	63	4.1
PG-027	21	23.4	14.8	71	4.1
PG-11501-M	21	24.2	17.5	127	9.5
PG-11502-M	21	24.2	17.5	146	9.5
PG-13501-M	14.5	17	11.1	76	9.5
PG-14301-M	21	24.2	17.5	40	9.5
PG-14302-M	21	24.2	17.5	50	9.5
PG-14303-M	21	24.2	17.5	60	9.5
PG-14304-M	21	24.2	17.5	70	9.5
PG-14305-M	21	24.2	17.5	80	9.5
PG-14306-M	21	24.2	17.5	95	9.5

技术参数 Technic parameters

单位:unit: mm

尺寸精度 accuracy of dimensions	垂直度 perpendicularity	同轴度 coaxiality	位置度 position deviation	圆跳动 circular runout	表面粗糙度Ra(μm) surface roughness	螺纹精度 thread accuracy
≤0.05	≤0.05	≤0.05	≤0.05	≤0.05	1.6-0.4	美标2-3级、公制6级 ASTM class 3, Metric class 6

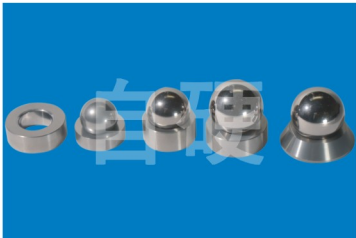
技术水平 Technic level

产品耐磨性和抗冲刷(击)性能好,螺纹可采用整体硬质合金、焊接工艺和镶套工艺,拥有多项国家专利技术,是哈里伯顿公司的主供应商。

The products have good wear and impact resistance. The thread can be made of solid cemented carbide or used brazing and setting technology. We possess many patented techniques and are the approved major supplier of Halliburton.

硬质合金球阀阀座

Cemented carbide valve ball and seat



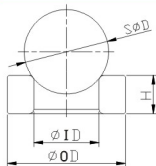
用途:

硬质合金球阀、阀座因其硬度高、耐磨性、耐腐蚀性和抗压及抗热震性能好，泵效高、检泵周期长，被广泛应用于各类管式和杆式抽油泵中作固定和游动单向阀，用于油田含砂、含气、含蜡、稠油、斜井的油井采油。根据工作环境不同分别选用钛基、镍基和钴基材质的硬质合金球阀和阀座。

Applications:

The cemented carbide valve ball and seat will be used widely to the stationary and moving unidirectional valve in various tube-type and rod-type oil suction pump due to their high hardness, wear and corrosion resistance as well as good anti-compression and thermal shock characters with a high pumping effect and a long pump check cycle for raising of sand, gas and wax containing thick oil from tilted wells.





项目 item	API代号 API code	V-106	V11-125	V11-150	V11-175	V11-200	V11-225	V11-250	V11-375
SφD±0.025		15.88	19.05	23.83	28.58	31.75	34.93	42.88	57.15
H+0.51-0.25		12.70	12.70	12.70	12.70	12.70	12.70	12.70	19.05
OD0-0.13		20.14	23.32	29.67	35.26	37.54	43.69	51.05	78.03
ID±1.27		11.68	13.97	17.02	20.96	24.38	26.92	33.27	43.18

注：SφD阀球的圆度最大误差为0.003mm，表面粗糙度最大为Ra0.1μm。
note: the maximum error of the roundness of SφD is 0.003mm, and to the surface roughness, the maximum error is Ra 0.1 μm.

技术参数 Technic parameters

按API Spec 11AX:2006和GB/T18607-2008标准生产和检验，球阀、阀座的尺寸精度达IT6-IT7级，形位精度达IT5-IT6级，其中球阀的圆度达0.002 μm，表面粗糙度Ra0.8~Ra0.05 μm。

The valve ball and seat will be produced and checked according to API Specification 11 AX:2006 and GB/T18607-2008 (China national standard). Their dimension reaches an accuracy of class IT6-IT7, their shape and position reach an accuracy of class IT5-IT6, their roughness reaches Ra 0.8-Ra 0.05 μm, and the roundness of valve ball reaches 0.002 μm, respectively.

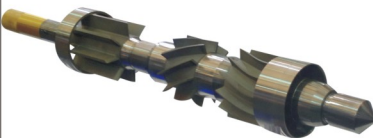
技术水平 Technic level

产品的材质性能优异，耐磨性和耐腐蚀性能好、抗压和抗热震能力强，产品精度较高，密封性能好（真空度85MPa下5s不泄露），其生产技术工艺水平达到国内领先水平。

The material of products has excellent properties, such as good wear and corrosion resistance, good ability of anti-compression and thermal shock. The products have not only a higher accuracy and also a good sealing character (5 seconds without leakage under a vacuum of 85 Mpa), and their production technology reaches an advanced level in China.

精密零件非标产品

Cemented carbide non-standard precision parts



用途:

产品主要应用于石油、天然气钻探垂直钻井工具、自激振荡旋转冲击钻井工具、随钻测量仪器MWD和LWD上,用于钻井液泥浆的导流、冲刷、密封及泥浆压力脉冲钻井和脉冲信号的反馈。用于高压、高速泥砂冲刷、高温、抗疲劳磨损和气液腐蚀等恶劣工况环境中。

主要产品:

垂直钻井工具液体流量控制及自动推力装置上的上盘阀总成、下盘阀、活塞、衬套、喷嘴;自激振荡旋转冲击钻井工具自激振荡器上的导流体、叶轮、叶轮轴、叶轮箱、水眼;随钻仪器MWD和LWD脉冲发生器上的蘑菇头(主阀芯)、限流环、限流腔、阀杆、阀座、喷嘴、提升阀、鼻帽、分流器、隔套、脉冲孔阀、上、下轴承套、衬套、耐磨套;井下工具上的喷嘴、TC轴承、耐磨套等。

Applications:

The products will mainly be used to the vertical well drilling tools, self-activated oscillating-rotating impact drilling tools and MWD and LWD with the functions of flow diversion, flush and seal of the slurry and feed back of the slurry pressure and pulse signal in the adverse working conditions of high pressure, high speed flushing of sand and slurry, high temperature, fatigue wear, gas and liquid corrosion in oil and natural gas prospecting.

Main products:

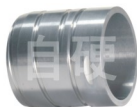
The products will be used to upper pan valve complete, lower pan valve, piston, bushing, nozzle of the liquid flow control and automatic push device of vertical drilling tools, flow deflector, vane wheel, vane wheel axle, vane wheel box, nozzle of the self-activated oscillating-rotating impact drilling tools, Mushroom head(main valve core), flow limitation ring, flow limitation chamber, nose cap, flow divider, flow spacer sleeve, pulse hole valve, oscillator of self-activated, upper and lower bearing sleeve and wear sleeve of the pulse generator of MWD and LWD. And nozzle, TC bearing and wear sleeve of the under well tools.

随钻测量仪器耐磨零件（一）

Wear parts of MWD and LWD instrument(I)



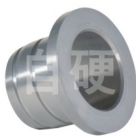
隔套
spacer sleeve



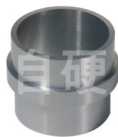
轴承套
bearing sleeve



上轴承套
upper bearing sleeve



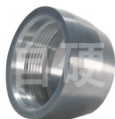
下轴承套
lower bearing sleeve



上磨套
upper wear sleeve



分流器
flow separator



鼻帽
nose cap

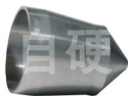


衬套
bush raising valve

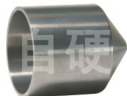
提升阀（蘑菇头） Lift valve (mushroom head)



350型
type 350



650型
type 650



1200型
type 1200



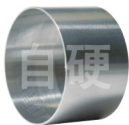
3#磨套
wear sleeve No.3



1#磨套
wear sleeve No.1



2~4#磨套
wear sleeve No.2~4



磨套1
wear sleeve I



磨套2
wear sleeve II



磨套3
wear sleeve III



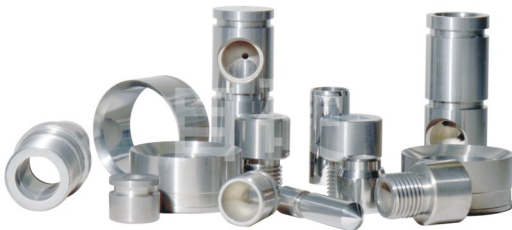
350限流环
flow limitation ring 350

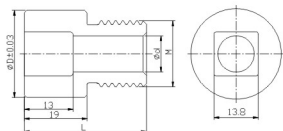


650限流环
flow limitation ring 650

随钻测量仪器耐磨零件（二）

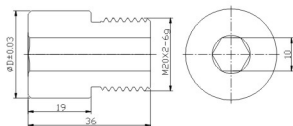
Wear parts of MWD and LWD instrument(II)





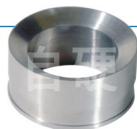
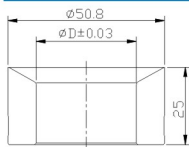
主阀芯（四方） main valve core (hexagonal)

产品型号 type	尺寸号 No.	基本尺寸 basic dimensions (mm)			
		ϕD	ϕd	L	M
FX-12395-M	1.04	26.4	13.2	36.8	7/8-14UNF-2A
FX-12396-M	1.086	27.6	13.2	36.8	
FX-12397-M	1.122	28.5	13.2	36.8	
FX-13321-M	1.2	30.5	13.2	36.8	
FX-13307-M	26.4	26.4	11	36	M20 x 2-6g
FX-13308-M	27.6	27.6	11	36	
FX-13309-M	28.5	28.5	11	36	
FX-13310-M	30.5	30.5	11	36	



主阀芯（六方） main valve core (hexagonal)

产品型号 type	尺寸号 No.	ϕD
FX-13366-M	1.04	26.4
FX-13367-M	1.086	27.6
FX-13368-M	1.122	28.5
FX-13369-M	1.2	30.5



限流环 flow limitation ring

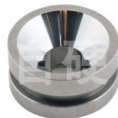
产品型号 type	尺寸号 No.	$\varnothing D$
FX-12452-M	1.28	32.51
FX-12453-M	1.35	34.29
FX-12454-M	1.4	35.56
FX-12455-M	1.5	38.10
FX-12456-M	1.55	39.37
FX-12346-M	1.7	43.18
FX-12347-M	1.6	40.64
FX-13332-M	1.25	31.75
FX-13345-M	1.58	40.13
FX-13346-M	1.2	30.5



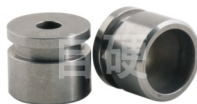
限流腔
flow limitation chamber



阀杆
valve rod

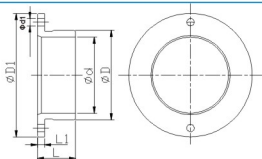


阀座
valve seat

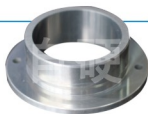


喷嘴
nozzle

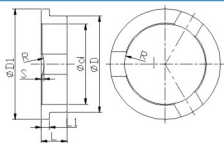
随钻测量仪器耐磨零件 (三) Wear parts of MWD and LWD instrument(III)



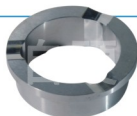
Tc轴套1 TC axle sleeve 1



产品型号 type	基本尺寸 basic dimensions (mm)					
	ϕD	$\phi D1$	ϕd	$\phi d1$	L	L1
FX-0550B-M	44	60	37	4	19	4



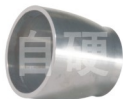
Tc轴套2 TC axle sleeve 2



产品型号 type	基本尺寸 basic dimensions (mm)					
	ϕD	$\phi D1$	ϕd	L	L1	R
FX-05509-M	52	60	44	14	5	16



主阀
main valve



护套
protecting sleeve



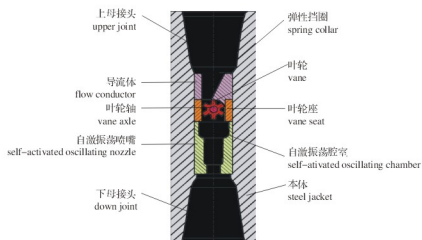
导套
guide sleeve

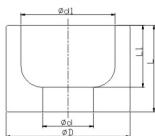


轴套
axle sleeve

自激振荡旋转冲击钻井工具耐磨零件

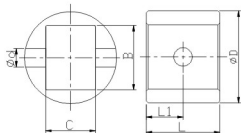
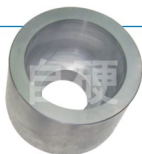
Wear parts for self-activated oscillating-rotating impact drilling tools





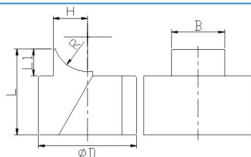
水眼 nozzle (water hole)

产品型号 type	基本尺寸 basic dimensions (mm)				
	ϕD	ϕd	$\phi d1$	L	L1
FX-10038-M	100	41	76	70	50



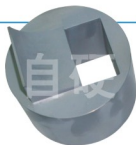
叶轮腔 vane box

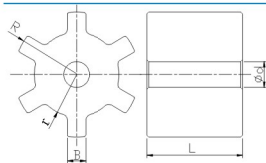
产品型号 type	基本尺寸 basic dimensions (mm)				
	ϕD	ϕd	B	C	L
FX-10039-M	100	20	70	54	80



导流体 flow conductor

产品型号 type	基本尺寸 basic dimensions (mm)			
	ϕD	L	B	R
FX-10040-M	100	88	54	35





叶轮 vane

型号 type	基本尺寸 basic dimensions (mm)				
	ϕd	R	r	L	B
FX-10042-M	14	34	23	52	10

技术参数 Technic parameters

单位unit: mm

尺寸精度 accuracy of dimensions	圆柱度 cylindricity	平面度 flatness	平行度 parallelism	垂直度 perpendicularity	同轴度 coaxiality	位置度 position deviation	全跳动 total runout	表面粗糙度Ra(μm) surface roughness
≤ 0.025	≤ 0.01	≤ 0.005	≤ 0.01	≤ 0.025	≤ 0.025	≤ 0.05	≤ 0.025	1.6~0.1

技术水平 Technic level

产品的耐磨性和耐腐蚀性能好，抗压和抗冲刷能力强，产品形状结构复杂、精度较高。可根据客户的图纸和使用要求进行材质和结构设计，生产提供各种异型产品。

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