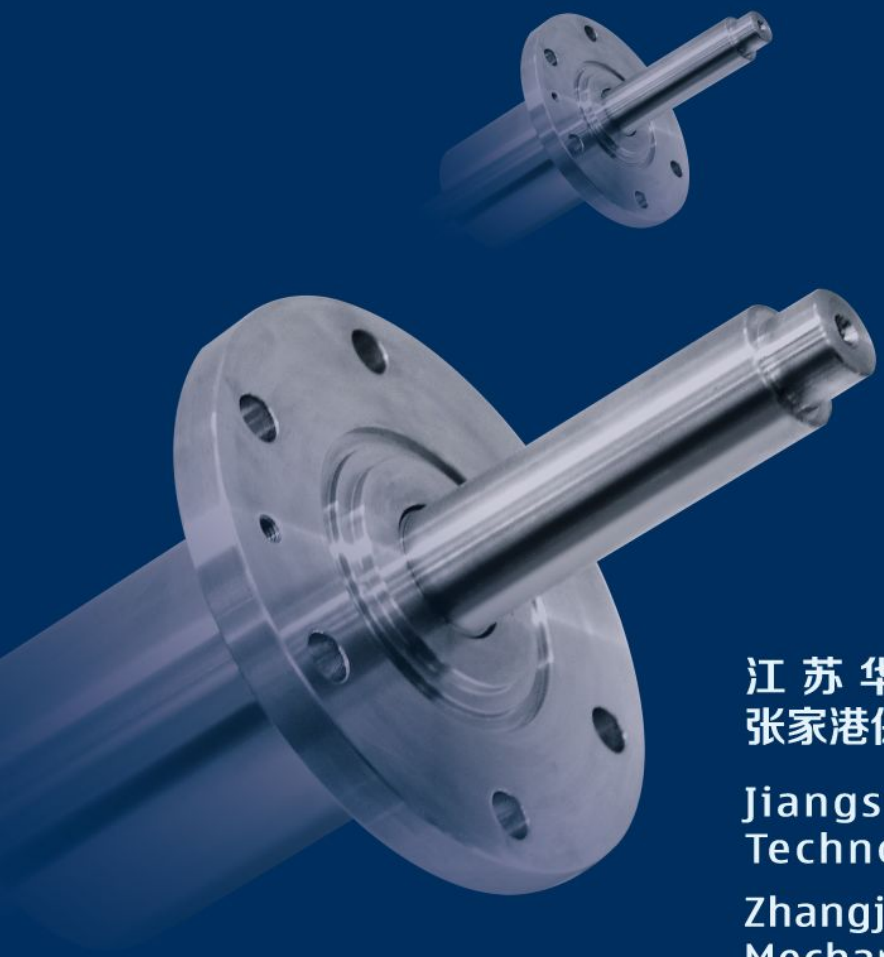
华青科技
Huaqing Technology

华青磁流体密封装置

HUAQING MECHANICAL SEALS MECHANICAL SEALS PIONEER



江苏华青流体科技有限公司
张家港保税区华青机械密封有限公司

Jiangsu Huaqing Fluid Technology Co.,Ltd.

Zhangjiagang Bonded Huaqing Mechanical Seals Co.,Ltd.

Quality magnetic liquid sealing device, Solution provider
优质磁流体密封装置、方案提供商

企业简介 COMPANY PROFILE

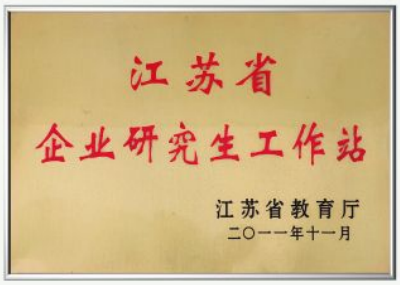
江苏华青流体科技有限公司（张家港保税区华青机械密封有限公司）始建于1993年，主要从事机械密封、磁流体密封、旋转接头密封、船用艉轴密封的研发、生产和销售。是中国液压气动密封件工业协会理事、中国机械工程学会流体分会密封专业委员会委员单位、全国机械密封标准化委员、苏州市军工行业协会会员单位、张家港市密封件商会会长单位。产品注册商标为“ ”。已评为“江苏省著名商标”、“华青”字号已评为苏州企业知名字号。

公司是江苏省高新技术企业，十佳科技创新企业，民营科技企业。公司重视科技研发投入，先后与江苏大学、沈阳理工大学建立研究生工作站、苏州市机械密封，磁流体密封工程技术研究中心，并成立苏州市企业技术中心。公司申报专利数十件，其中已授权发明专利5件，实用新型专利1 8件，承担了国家火炬计划2项，中小型创新基金1项，1 0项新产品被评为江苏省高科技技术产品。公司作为第一起草人起草了《潜水电泵用机械密封》标准，并已颁布实施。磁流体密封装置是公司众多密封产品中又一类衍生，广泛用于晶体生长设备、高压电气、扩散炉、真空炉、离子镀膜，并承接各种高难度非标产品的设计、制造及咨询、公司有现代化厂房2万余平方米。位于长江之滨的张家港环保产业园区，交通位置便捷，欢迎新老用户、各界人士莅临考察指导！

JJiangsu Huaqing Fluid Technology Ltd. (Huaqing Mechanical Seal Ltd. , Zhangjiagang Free Trade Zone) was founded in 1993, is mainly engaged in research, development and sales of mechanical seals and auxiliary systems, magnetic fluid seals, rotary joint seals, marine stern shaft seal. The company is a member of China Hydraulics Pneumatics & Seals Association, a first-class supplier of market of China Petrochemical Corporation, a member of Chinese Mechanical Engineering Society fluid branch seal professional committee, a member of National Mechanical Seal Technical Committee for Standardization, a member of Suzhou Military Industry Association, the third level secrecy qualification unit, president unit of Zhangjiagang Chamber of Commerce. The registered trademark of our products is “ ”, and has been awarded as “Jiangsu famous trademark”. “Huaqing” has been awarded the well-known enterprise in Suzhou.

Our company is a high-tech enterprise and private-own technical enterprise in Jiangsu Province. We focus on the technical investment, gradually launching graduate workstation and Suzhou Mechanical Seals Engineering Research Center with Jiangsu University, Shenyang University of Technology. We have also established Enterprise Technology Center in Suzhou. The company has declared tens of patents, in which 5 items have been authorized and 18 items are utility model patents, undertaking 2 National Torch Plan projects, 2 fund projects of technological innovation of small and medium-sized enterprises. 10 new products are awarded high-tech products in Jiangsu Province. We company, as the first drafter, drafted the standard of “Mechanical Seal for Submersible Pump” which has went into effect. Magnetic liquid sealing device is another kind of derivative among so many seal products of company, which is widely used in crystal growth equipment, high voltage electrical equipment, diffusion furnace, vacuum furnace, ion plating. Our enterprise with a modern plant of more than 20000 square meters undertakes a variety of non-standard product design with high difficulty, manufacture and consulting. Zhang Jiagang environmental protection industrial park with convenient transportation location in the shore of the Yangtze river welcome the new and old users, people from all walks of life to visit for guidances.

企业荣誉 ENTERPRISE HONOR



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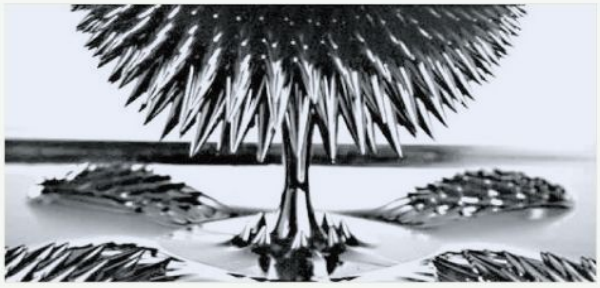
磁性流体密封原理与特点
Magnetic fluid sealing principle and characteristics



磁流体是将带磁性的纳米微粒掺入到载液体中，并用表面活性分散剂使其均匀的分散到载液中，从而形成的一种固液相混的悬浮状胶体。磁流体既具有液体的流动性，又具有磁性，其密封技术就是利用磁性液体对磁场的响应特性而实现的。当我们把这种具有磁性的液体注入到高性能的永久磁铁、导磁良好的极靴、轴所构成的磁回路的间隙中，在磁场的作用下，磁液在间隙中形成数个液体“O”型圈，其数量与设计在非均匀磁场中微略移动，产生了对抗压差的磁力，从而达到新的平衡，起到了密封作用。

“零”泄漏的密封性：磁液在磁力的作用下形成了一个一个的液体“O”型圈，填充了主轴与极靴之间的间隙，严重的阻碍了气体的流通，从而达到了稳定的动、静密封效果，其泄漏微弱到即使是质谱仪在$1X10^{-12}Pa\cdot m^3/sec$的条件下，也测量不到泄漏。

性能稳定可靠，使用寿命长：由于磁流体的基液是一种惰性 、稳定、低蒸气压的二脂基的有机材料，其挥发量超低，正常工作寿命一般可在5年以上。

可靠性高，无方向性密封：磁流体密封件在正压情况下产生瞬时过压击穿时，一旦压力降低到磁力可以承受的程度时，磁液在磁场力的作用下迅速恢复密封效果。其使用的可靠性是相当高的，磁流体两端均可任意受压，没有方向性。

低摩擦、低磨损、低发热、低阻碍、无污染，因轴是在磁性液体上转动，其摩擦小，不发热，不阻碍扭矩的传递，功率损耗小，磁流体本身不存在机械磨损，磁性液体饱和，蒸气压极低，因而即使在高真空状态下使用也不会产生污染。运动形式有旋转式和往复式两种，密封轴径范围Φ6-Φ83mm不等。

Magnetic liquid is a kind of suspended colloid with solid and liquid mixed, which is formed by adding magnetic nanoparticles into the carrier liquid and dispersing evenly into the carrier fluid by use of surface active dispersant. Magnetic liquid both has the fluidity of liquid and magnetism, and its sealing technology is realized by taking advantage of the response characteristics of magnetic liquid to the magnetic field. When we inject this magnetic liquid into the gap of the magnetic circuit consisting of permanent magnets with high performance, pole shoe with good magnetic permeability and axis, magnetic fluid in the gap will form some "O" circles of liquid under the the action of magnetic field. Its quantity and design move slightly in the non-uniform magnetic field, forming magnetic force against the differential pressure so as to achieve a new equilibrium and play the role of sealing.

Leakproofness of "zero" leak: under the action of magnetic force, magnetic fluid forms a "O" circle of liquid, filling the gap between the spindle and pole shoe, seriously hindering the flow of gas, so as to achieve the stable dynamic and static sealing effect. Its leakage is so weak that even under the condition of $1X10^{-12}Pa\cdot m^3/sec$, a mass spectrometer can not detect.

Stable and reliable performance, long service life: due to the base fluid of magnetic fluid is an inert, stable aliphatic organic material with low vapor pressure and low volatilization, its normal working life is generally more than five years.

High reliability, non-directional seal: when magnetic liquid seal element produces transient over-voltage breakdown under the condition of positive pressure, once the pressure is reduced to the degree that magnetic force can withstand, magnetic fluid quickly recovers sealing effect under the action of magnetic force. The reliability of its use is quite high and both ends of magnetic fluid can be arbitrarily pressed, so there is no direction.

Low friction, low wear, low fever, low block, no pollution: because the axis rotate in magnetic fluid, there are small friction, no fever, no block for the transmission of torque, small power loss and no mechanical wear in magnetic liquid itself, magnetic fluid saturation, low vapor pressure, and even in the high vacuum condition, the use of it also will not produce pollution. There are two motion forms, that is rotation type and reciprocating movement. Seal size ranges from Φ6 to Φ 83mm.

磁流体密封装置的形式表示代号说明
Said code instructions in the form of magnetic liquid sealing device

轴类型 Shaft type
- S 实心轴 (Solid shaft)
- K 空心轴 (Hollow shaft)
- D 多轴(Multiaxial)

机座类型 Frame type
- F 法兰式 (Flange)
- T 套筒式 (Sleeve)
- X 悬臂式 (Cantilever)

冷却方式 Cooling way
- W 无水冷 (There is no water)
- Z 带水冷 (Water-cooled)

负荷状态 Load state
- P 普通负荷 (Normal load)
- Z 重负荷 (Heavy duty)

运动状态 Motion state
- 旋转（略）(Rotation)
- W往复 (Reciprocating)

示例：SF016WP
- 普通负荷 (Normal load)
- 无水冷 (There is no water)
- 轴径为Φ16mm
- 法兰式 (Flange)
- 实心轴 (Solid shaft)

示例：SF045ZZ
- 重负荷 (Heavy duty)
- 带水冷 (Water-cooled)
- 轴径为Φ45mm
- 法兰式 (Flange)
- 实心轴 (Solid shaft)

磁流体密封装置安装使用注意事项
Magnetic liquid sealing device installation considerations

◆磁流体密封件用于真空密封时，应注意不要将丙酮、乙醇、酸、碱、水、非真空用油和其它溶剂滴入磁流体密封件内，以免引起密封失效。

◆高度强调磁流体密封装置内部机械结构的形状位置精度。

◆当磁流体密封件有故障时，请及时将信息传递给生产厂家、由厂家来判定和处理故障。

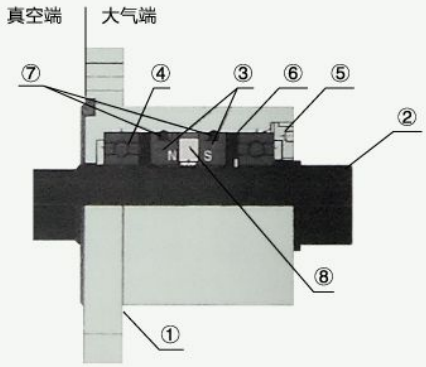
◆磁流体密封件第一次工作时，抽真空的时间须长一点并在开机前先将磁流体密封件的主轴转动几下，带水冷装置的磁流体密封件，应先将冷却水接通，避免因温度过热（温度超过80摄氏度）造成密封失效。

When magnetic liquid seal element is used for vacuum seal, please pay attention not to dripping acetone, ethanol, acid, alkali, water, non-vacuum oil and other solvents into the magnetic liquid seal to avoid causing the seal failure.

The shape and location accuracy of the internal mechanical structure in magnetic liquid sealing device is highly emphasized .

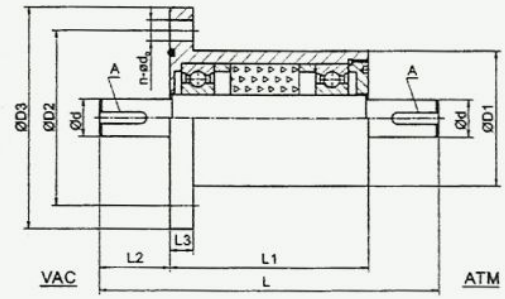
When there is wrong with magnetic liquid seal, please pass the information to the manufacturer in time and let manufacturer to define and handle failure.

When magnetic liquid seal elements work for the first time, vacuum time should be longer and rotate spindle of magnetic liquid seal a few times before turning on. Magnetic liquid seal with water cooling device should firstly get through the cooling water to avoid the seal failure caused by overheating temperature (temperature over 80 degrees Celsius).



⑧	永磁 The permanent magnet
⑦	O型圈 O-rings
⑥	隔套 Spacer
⑤	旋盖 Screw cover
④	轴承 Bearing
③	极靴 Pole shoe
②	主轴 The spindle
①	壳体 Shell

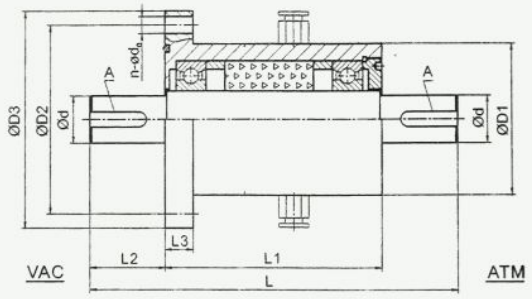
实心轴法兰式磁流体密封传动装置
Solid shaft sealing flange magnetic transmission device



公称尺寸 Nominal size / 型号 Model	d	D1	D2	N-Φd0	D3	L	L1	L2	L3	A(宽X深X长)
SF006WP	6h7	35	50	4-Φ7	65	100	60	20	8	2x1.2x1.2
SF010WP	10h7	45	60	4-Φ7	75	120	70	25	8	3x1.8x15
SF012WP	12h7	48	65	4-Φ9	85	125	75	25	10	4x2.5x15
SF016WP	16h7	58	75	4-Φ9	95	145	85	30	10	5x3x20
SF020WP	20h7	65	85	6-Φ9	105	160	90	35	10	6x3.5x25
SF025WP	25h7	75	95	6-Φ9	115	185	105	40	12	8x4x30
SF030WP	30h7	85	105	6-Φ9	125	210	110	50	12	8x4x30
SF035WP	35h7	95	120	6-Φ11	145	235	115	60	15	10x5x50
SF040WP	40h7	100	125	6-Φ11	145	260	120	70	15	12x5x60
SF045WP	45h7	105	130	8-Φ11	155	285	125	80	15	14x5.5x70
SF050WP	50h7	115	140	8-Φ11	165	290	130	80	15	14x5.5x70

技术参数 Technical Parameter / 规格 Specs	真空度 Pa vacuum	耐压差 mpa Pressure difference	允许氦泄漏量 Allow the helium leakage	密封介质 Sealing medium	适用温度范围 Suitable temperature range	壳体材料 Shell material	轴(套)材料 Axis (set) materials	轴承型号 Bearing type
006	$1x10^{-6}$	0.2mpa	$<1x10^{-12}$	活性或非活性气体 Active or inert gases	-20~80℃	非导磁不锈钢 The permeability of stainless steel	导磁不锈钢 Permeability of stainless steel	627
010								6201
012								6202
016								6204
020								6205
025								6206
030								6207
035								6208
040								6209
045								6210
050								6211

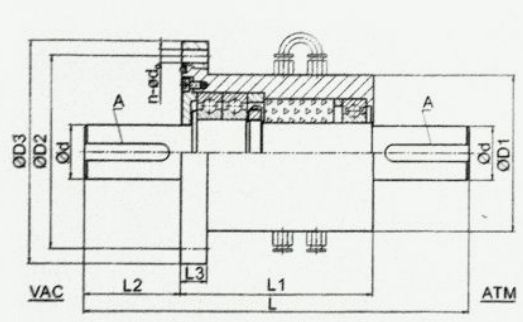
实心轴法兰式带水冷磁流体密封传动装置
Solid shaft sealing flange of water-cooled magnetic transmission device



公称尺寸 Nominal size / 型号 Model	d	D1	D2	N-Φd0	D3	L	L1	L2	L3	A(宽X深X长)
SF010ZP	10h7	50	70	4-Φ9	85	135	85	25	8	3x1.8x15
SF012ZP	12h7	55	75	4-Φ9	95	135	85	25	10	4x2.5x15
SF016ZP	16h7	65	85	6-Φ9	105	165	105	30	10	5x3x20
SF020ZP	20h7	70	90	6-Φ9	105	180	110	35	10	6x3.5x25
SF025ZP	25h7	80	100	6-Φ9	115	195	115	40	12	8x4x30
SF030ZP	30h7	90	110	6-Φ9	125	220	120	50	12	8x4x40
SF035ZP	35h7	100	125	6-Φ11	145	245	125	60	15	10x5x50
SF040ZP	40h7	105	130	6-Φ11	150	270	130	70	15	12x5x60
SF045ZP	45h7	110	135	8-Φ11	155	295	135	80	15	14x5.5x70
SF050ZP	50h7	120	145	8-Φ11	165	300	140	80	15	14x5.5x70

技术参数 Technical Parameter / 规格 Specs	真空度 Pa vacuum	耐压差 mpa Pressure difference	允许氦泄漏量 Allow the helium leakage	密封介质 Sealing medium	适用温度范围 Suitable temperature range	壳体材料 Shell material	轴(套)材料 Axis (set) materials	轴承型号 Bearing type
010	$1x10^{-6}$	0.2mpa	$<1x10^{-12}$	活性或非活性气体 Active or inert gases	-20~80℃	非导磁不锈钢 The permeability of stainless steel	导磁不锈钢 Permeability of stainless steel	6201
012								6202
016								6204
020								6205
025								6206
030								6207
035								6208
040								6209
045								6210
050								6211

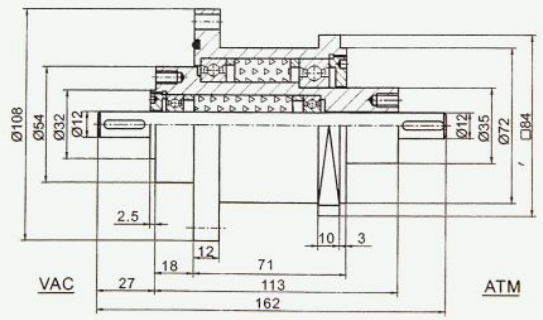
实心轴法兰式带水冷重负荷磁流体密封装置
Solid shaft flange of water-cooled heavy-duty magnetic liquid sealing device

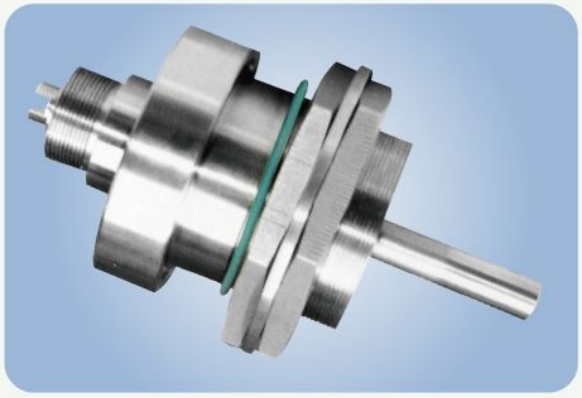


公称尺寸 Nominal size / 型号 Model	d	D1	D2	N-Φd0	D3	L	L1	L2	L3	A(宽X深X长)
SF020ZZ	20h7	80	115	6-Φ11	135	205	135	35	10	6x3.5x25
SF025ZZ	25h7	95	130	8-Φ11	155	220	140	40	20	8x4x30
SF030ZZ	30h7	105	135	8-Φ11	155	245	145	50	20	8x4x40
SF035ZZ	35h7	115	140	8-Φ11	165	270	150	60	20	10x5x50
SF040ZZ	40h7	120	145	8-Φ11	170	295	155	70	20	12x5x60
SF045ZZ	45h7	130	160	8-Φ11	185	320	160	80	22	14x5.5x70
SF050ZZ	50h7	140	170	8-Φ13	195	325	165	80	20	14x5.5x70

技术参数 Technical Parameter / 规格 Specs	真空度 Pa vacuum	耐压差 mpa Pressure difference	允许氦泄漏量 Allow the helium leakage	密封介质 Sealing medium	适用温度范围 Suitable temperature range	壳体材料 Shell material	轴(套)材料 Axis (set) materials	轴承型号 Bearing type
020	$1x10^{-6}$	0.2mpa	$<1x10^{-12}$	活性或非活性气体 Active or inert gases	-20~80℃	非导磁不锈钢 The permeability of stainless steel	导磁不锈钢 Permeability of stainless steel	6205
025								6206
030								6207
035								6208
040								6209
045								6210
050								6211

同心双轴磁流体密封传动装置
Concentric biaxial magnetofluid seal transmission device



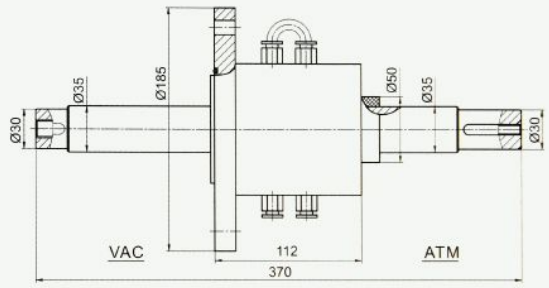


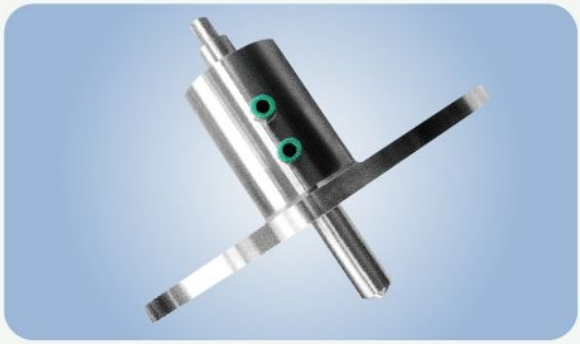
技术参数 Technical Parameter / 规格 Specs	真空度 Pa vacuum	耐压差 mpa Pressure difference	允许氦泄漏量 Allow the helium leakage	密封介质 Sealing medium	适用温度范围 Suitable temperature range	轴(套)材料 Axis (set) materials	轴承型号 Bearing type	
							内 Within	外 outside
DF012WP	$1x10^{-6}$	0.2mpa	$<1x10^{-12}$	活性或非活性气体 Active or inert gases	-20~80℃	不锈钢 stainless steel	6001	6007

Quality magnetic liquid sealing device,
Solution provider

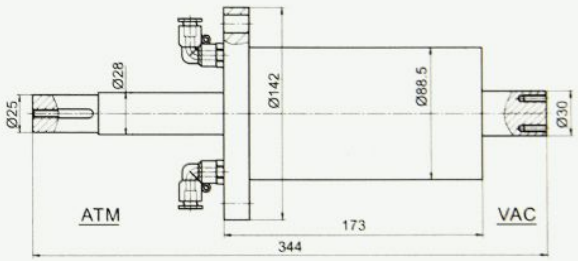
优质磁流体密封装置、
方案提供商

镀膜设备密封传动装置示例
Coating equipment sealed sample of transmission device



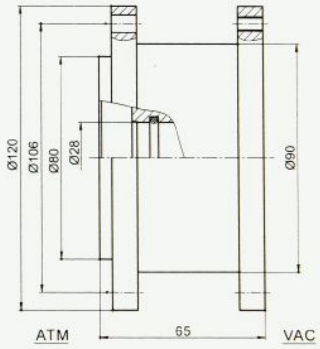


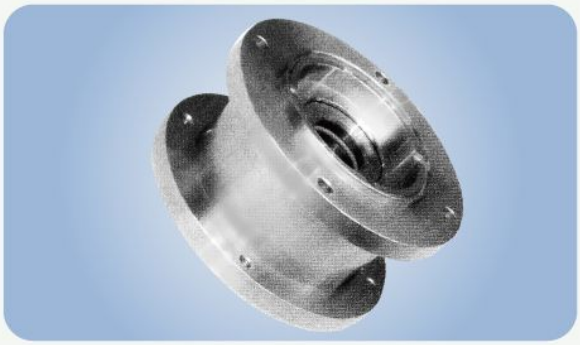
技术参数 Technical Parameter / 规格 Specs	真空度 Pa vacuum	耐压差 mpa Pressure difference	允许氦泄漏量 Allow the helium leakage	密封介质 Sealing medium	通水冷却后适用温度范围 Suitable temperature range	材质 Materials	备注 Note
SF050ZP	$1x10^{-6}$	0.2mpa	$<1x10^{-12}$	空气 Air	-20~80℃	不锈钢 stainless steel	1.主轴通电，外壳不带电 2.有约150kg轴向力 1. Spindle electricity, no charge 2. About 150 kg axial force



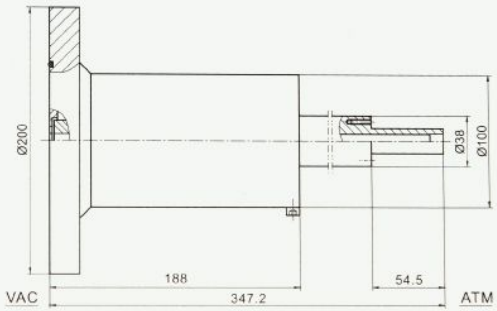
技术参数 Technical Parameter / 规格 Specs	真空度 Pa vacuum	耐压差 mpa Pressure difference	允许氦泄漏量 Allow the helium leakage	密封介质 Sealing medium	通水冷却后适用温度范围 Suitable temperature range	材质 Materials
SF030ZP	$1x10^{-6}$	0.2mpa	$<1x10^{-12}$	空气 Air	-20~80℃	不锈钢 stainless steel

晶体生长炉磁流体密封传动装置
Crystal growth furnace magnetofluid seal transmission device





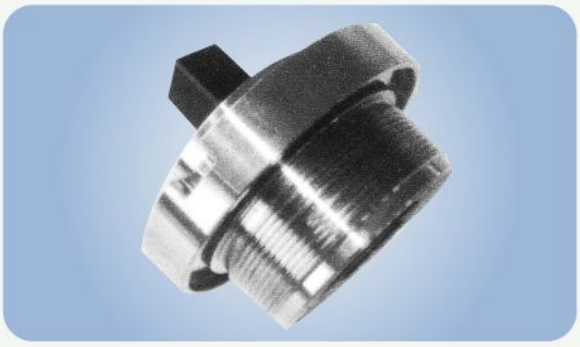
技术参数 Technical Parameter / 规格 Specs	真空度 Pa vacuum	耐压差 mpa Pressure difference	允许氦泄漏量 Allow the helium leakage	密封介质 Sealing medium	通水冷却后适用温度范围 Suitable temperature range	材质 Materials
KF028WP	$1x10^{-6}$	0.2mpa	$<1x10^{-12}$	空气 Air	-20~80℃	不锈钢 stainless steel



技术参数 Technical Parameter / 规格 Specs	真空度 Pa vacuum	耐压差 mpa Pressure difference	允许氦泄漏量 Allow the helium leakage	密封介质 Sealing medium	通水冷却后适用温度范围 Suitable temperature range	材质 Materials
SF038WP	$1x10^{-6}$	0.2mpa	$<1x10^{-12}$	空气 Air	-20~80℃	不锈钢 stainless steel

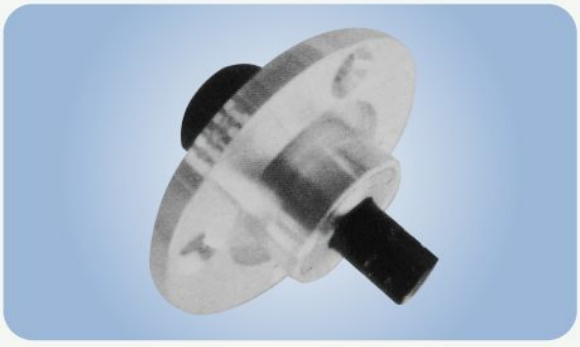
磁流体密封技术在SF6负荷开关气室的应用

Magnetic liquid sealing technology in the application of air chamber of SF6 load switch



SF6气体具有优异的灭弧性和绝缘性能，在开断感性电流，容性电流及开断寿命等诸多方面都有一系列优点，因而被广泛用于各类高压电气开关设备中，而高压开关设备的各项性能指标（如灭弧、绝缘性能等），全靠SF6气体来保证，如何保证SF6负荷开关气室的动、静，密封就成了科研和生产的关键技术。

磁流体密封技术，以旋转轴无泄漏密封、超低磨损和长寿命的独特优势，与SF6负荷开关在动、静密封的整体配合上达到最佳境界的匹配，现已被众多的电气设备厂广泛应用。



Because magnetic liquid sealing technology with excellent arc extinguishing and insulating property has a series of advantages in many aspects of breaking reactive current, capacitative current and breaking life, it is widely used in all kinds of high voltage electrical switch gears. What's more, the various performance indicators(such as arc extinguishing and insulating property) of high voltage electrical switch gear are guaranteed by SF6 gas. Therefore, how to ensure that SF6 bear the dynamic and static seal of switch chamber is the key technology of scientific research and production.

Magnetic liquid sealing technology with the unique advantages of the axis rotation without leak sealing, low wear and long life, which can be the best match with SF6 load switch on the dynamic and static seal in overall coordination, has been widely used in numerous electrical equipment factories.

磁流体密封装置使用工况调查表
The working condition of magnetic liquid sealing device using questionnaires

单位名称 Name of the Company：_____

电话 Tel：_____ 传真 Fax：_____ E-mail：_____

单位地址 Address：_____

联系人 Contact With：_____ 所属部门 Department：_____

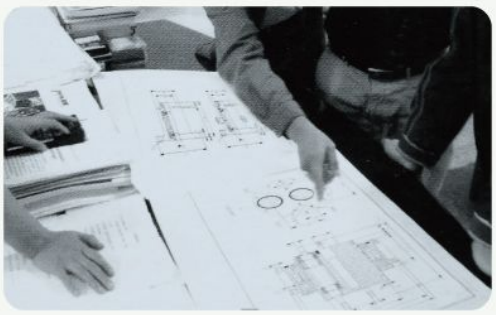
设备名称 Name of Equipment		设备型号 Type of Equipment		应用行业 Applied Industry	
密封介质及状态 Sealing Medium and State					
真空度(Pa) Degree of Vacuum(Pa) 极限真空度Limit Degree of Vacuum：		常用真空度： Common Use Degree of Vacuum			
允许氦泄漏量（$Pa·m^3/Sec$）： Leakage Rate (He) ($Pa·m^3/Sec$)		耐正压值（MPa）： Pressure Capacity (MPa)			
轴径(mm)： Shaft Diameter (mm)		轴的材料（有特殊要求时请指明）： Materials of Shaft (please designate if there are practical requirements.)			
密封装置处温度（℃） Position Temperature Range of Device (℃)	最大值： Max		最低值： Min		常用值： Common
转速（rpm）： Rotate Speed(rpm)	最大值： Max		最低值： Min		常用值： Common
安装方向： Direction of Installation	竖向 Vertical		横向 Horizontal		
负荷条件：Load Condition 径向负载(Kg)：Radial Load (Kg)		轴向负载（Kg）： Axial Load (Kg)			
传输扭距(N·m)或功率(KW)： Torque Transmission (N·m) or Power (KW)					
密封部位是否有以下物质： Any Materials Existing in Sealing	油 Oil	□有 Yes	□无 No		
	水 Water	□有 Yes	□无 No		
	粉尘 Powder	□有 Yes	□无 No		
	腐蚀性物质及其他 Caustic Substances or else	□有 Yes	□无 No		

相关的安装尺寸及连接简图 Related Size for Installation and Diagram for Connection：

其他需注意事项 Other Items for Notice：

地址：张家港市环保产业园华达路南段 邮编(P.C.)：215631 Add：Huada Road southern section, Environmental Protection Industrial Park, Zhangjiagang City
电话/Tel：+86-512-58332071 58310398 58932769 58339185 传真/Fax：+86-512-58931519 58330155

品质流程 QUALITY PROCESS



方案设计 Project design

机械加工 Machining

机械加工 Machining

质量检验 Quality Inspection

组装及检漏 Assembly and leak

快递 Express delivery

售后跟踪服务 Sale tracking service

售后跟踪服务 Sale tracking service

华青科技
Huaqing Technology

江苏华青流体科技有限公司 Jiangsu Huaqing Fluid Technology Co.,Ltd.

张家港保税区华青机械密封有限公司 Zhangjiagang Bonded Huaqing Mechanical Seals Co.,Ltd.

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