



SureSeal®



PRODUCT CATALOG

克萊斯克（深圳）能源科技有限公司

CsTec

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重点市场 The major market

我们的战略重点是为以下关键市场提供工程解决方案
Our strategy is to offer solutions for the following major market



航空航天 Aerospace
航空航天设备
Aerospace Equipment



生命科学 Life Sciences
医疗设备、分析诊断和实验室设备
Medical equipment , Diagnosis and laboratory equipment



军工 Military Industry
生化武器、车辆装备、监控和安全设备
Biochemical Weapon , Vehicle Equipment , Monitor and Safety Equipment



食品制药 Food and Pharmaceutical Industry
食品设备和制药设备
Food machine and pharmaceutical equipment



化学工业 Chemical Industry
生产各种固体、液体、气体物质化学加工过程
Produce all kinds of solid , liquid , gas and the chemical process



自动化 Automatization
涂覆设备及点胶设备、高温模具及设备
Coating machine and dispensing equipment , high temperature mould and equipments, etc



石油与天然气 Oil and Gas
石油天然气勘探、钻井，开采和运输
Oil and natural gas exploration , well drilling , exploitation, transportation



流体动力 Fluid Power
高温或腐蚀性的液压和气动系统或元件
Hydropneumatic system of high temperature or corrosivity



核电 Nuclear Power
核电装置与设备
Nuclear installation and equipment



电子半导体 Electronic Semiconductor
半导体制造设备及生产作业环境、电池技术
Semiconductor manufacturing equipment and working environment , battery technology



造纸业 Paper Industry
造纸机械及设备
Paper making machinery and equipment



表面处理 Surface Treatment
真空镀膜设备及喷涂设备
Vacuum coating equipment and spraying equipment



印染 Printing and Dyeing
印染设备、涂料设备及打印设备
Printing and dyeing equipment , coating equipment and printing equipment



交通设备 Transportation Equipment
铁路、地铁和航海设备
Railway , subway and navigation equipment



水处理 Water Treatment
化学及污水处理装置和设备
Chemical and sewage treatment installation and equipment



汽车 Automobile
车辆及其驱动和制动元件
Vehicle and its drive and brake parts

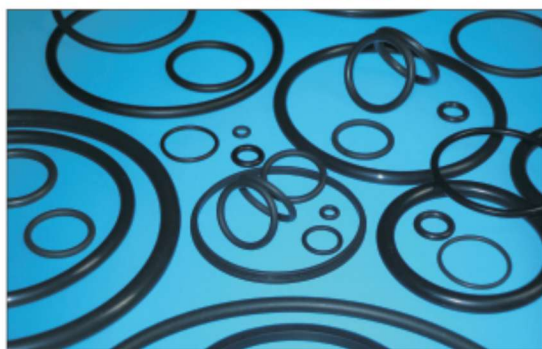


泵管道 Pump Valve and Pipeline
化工泵、化工阀及化工管道
Chemical pump , chemical valve and chemical pipeline



机械工业 Machinery Industry
机械密封、离心机和研磨设备
Mechanical seals , centrifuge and grinding equipment

全氟醚牌号



Perfluoroelastomer Code

通用牌号General Code	2675	2690
硬度 (shoreA) Hardness	75	90
温度范围Temperature Range	-15℃~+260℃	

拥有最光谱的抗化学品性能，可用于包括环氧乙烷、环氧丙烷等在内的多种化学物质单一或混合共存的环境，耐260℃及以下热水和蒸汽性能优异。

Walle Perfluoroelastomer has the most spectrum of chemical resistance. It can be used for a variety of chemical substances, the coexistence of single or mixed environment, including epoxy acetylene, propylene oxide, etc. Excellent resistance to 260 °C or less hot water and steam properties.

高温牌号 High Temperature Code	3075
硬度 (shoreA) Hardness	75
温度范围Temperature Range	-15℃~+325℃

高温等级的最光谱的抗化学性能，杰出的抗酸和胺，可在300℃及以下热水和蒸汽环境中长期可靠工作。

The most widely spectrum of high-temperature grade chemical resistance, excellent acid resistance and amine resistance. It can be worked at reliably 300 °C and less hot water and steam environment for a long term.

白色牌号 Color White Code	B275	B290
硬度 (shoreA) Hardness	75	90
温度范围Temperature Range	-15℃~+260℃	

白色全氟橡胶，避免了炭黑污染的制造工艺。拥有抗强氧化剂、强酸、强碱、醚、酯、酮、各类添加剂等化学品侵蚀的特性，可在多种化学物质单一或混合共存的环境，耐热水和蒸汽性能优异。

Color white perfluoroelastomer, to avoid contamination of the carbon black in manufacturing process. It resists to the chemicals that include strong oxidants, acids, alkalis, ethers, esters, ketones, and other various additives. It can be used in various of working environments single or mixed exist in. Excellent heat water and steam properties.

认证牌号 Certification Code	C275	C290
硬度 (shoreA) Hardness	75	90
温度范围Temperature Range	-15℃~+260℃	

医药食品级的全氟橡胶，可有黑色、白色等颜色。解决了化学品腐蚀，药液溶液侵蚀等密封问题，清洁卫生，安全环保，力学性能优良。

Medicine and food-grade perfluoroelastomer, it has black, white and other colors. Solve the corrosion, erosion of the drug solution chemicals sealing problems, clean, safe environment, excellent physical properties.

抗爆牌号 Anti - explosion Code	E290
硬度 (shoreA) Hardness	90
温度范围Temperature Range	-15℃~+260℃

力学性能极佳，制作工艺严格，专用于密封易燃、易爆、高压气体。优良的抗老化和抗破裂性能。

Excellent mechanical performance and strict production process, dedicating to sealing flammable, explosive, high-pressure gas. Excellent anti-aging and anti-explosion performance.

全氟醚制品

perfluoroelastomer products

利用领域 Property used	领域 Field	用途例子 Application
耐油、耐溶剂、 耐药品性等 Oil, solvent, chemical resistance	分析机器 Analytical instruments	◆ 气体、液体的色谱仪的密封件、阀门、膜片部品。 - Seals, valve parts, diaphragms for gas and liquid chromatographs. ◆ 滴定分析装置的密封部品。 - Seals for titration equipment. ◆ 防污染的分析、监视系统设备的密封制品、软管、阀门、膜片类。 - Seals, tubes, valve parts, diaphragms for pollution prevention analytical and monitoring systems equipment.
耐洗脱、耐提取、 耐挥发性等 Elution, excretion, evaporation resistance	分析、理化学机器 Physical and chemical analytical instruments	◆ 热、质量、NMR、电子线、X线/真空、光学、洗脱、提取等的分析、理化学精密机器中使用的软管、阀门、膜片类。 - Seals, tubes, valve parts, diaphragms for physical and chemical analytical instruments used for heat, mass, NMR, electron beam, X-ray, vacuum, optics, elution, and extraction analysis.
耐溶剂性 solvent resistance	涂料、涂装设备 Painting and coating equipment	◆ 泵、反应器、搅拌机、混合机类的密封、软管、膜片部品。 - Seals, tubes, valve parts, diaphragms for pumps, reactors, mixers, blenders.
	印刷、涂布设备 Printing and coating equipment	◆ 印刷胶辊、涂布胶辊、涂胶刀、软管、膜片部品。 - Printing rolls, coating roll, scrapers, tubes, diaphragms products.
	OA机器 Office automation equipment	◆ 打印机等墨水用胶辊、复印机用滚筒、阀门部品等。 - Printer and other ink rolls, copier rolls, valve parts.
	半导体制造 Semiconductor manufacture	◆ 过滤器、泵等的密封、软管、膜片部品。 - Seals, tubes, valve parts, diaphragms for filter pumps.
耐药品性、耐水蒸汽性 Chemical, steam resistance	化学工业 Chemical industry	◆ 医药、农药制造工程 ◆ 染料合成工程 ◆ 树脂制造工程 ◆ 界面活性剂制造工程 - 等的密封、软管、阀门、膜片类。 - Seals, tubes, valve parts, diaphragms for pharmaceutical and agricultural chemical manufacturing processes, dye synthesis processes, plastics manufacturing, surfactant manufacturing processes.
	食盐电解工业 Salt electrolytic industry	◆ 隔膜密封材、软管部品。 - Membrane seal materials and tube parts.
	燃料电池 Fuel cells	◆ 密封、软管、阀门部品。 - Seal, tube, valve parts.
	其他 Other	◆ 满足极佳的耐腐蚀气体性要求的密封、软管、阀门、膜片类。 - Seals, tubes, valve parts, diaphragms requiring excellent resistance to corrosive gases.

SureSeal

全氟化学耐受性

Chemical resistance

化学品名 Chemical name	温度 (°C) Temperature conditions	天数 Tested days	评价 Rating	化学品名 Chemical name	温度 (°C) Temperature conditions	天数 Tested days	评价 Rating
《有机酸》 《Organic acid》				《有机酸》 《Organic acid》			
盐酸 (10%) Hydrochloric acid 10%	45	100	A	硼酸 Boric acid	40	30	A
盐酸 (20%) Hydrochloric acid 20%	110	14	A	溴 Bromine	60	10	A
盐酸 (35%) Hydrochloric acid 35%	40	21	A	浓硫酸 (98%) Sulfuric acid conc 98%	40	11	A
液态氯 (干燥) Chlorine liquid dry	60	10	A	硝酸 (60%) Nitric acid 60%	40	21	A
干燥氯气 Chlorine gaseous dry	24	150	A	发烟硝酸 Nitric acid fuming	24	120	A
聚氯乙烯 Poly Vinyl Chloride	50	200	A	醋酸 (10%) Acetic acid 10%	50	100	A
氯乙酰氯 Chloro-acetyl chloride	70	90	A	冰醋酸 Acetic acid glacial	24	30	A
氯化氢 (99%) Hydrochloric acid 99%	-7	300	A	乙酸乙烯 Vinyl Acetate	24	180	A
苯甲酸 Benzoic acid	40	30	A	乙酸乙酯 Butyl acetate	45	100	A

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化学品名 Chemical name	温度 (°C) Temperature conditions	天数 Tested days	评价 Rating
《有机酸》 《Organic acid》			
乙酸酐 Acetic anhydride	45	100	B
三氯醋酸 (10%) Trichloroacetic acid 10%	40	30	A
马来酸酐 Maleic Anhydride	100	100	A
乳酸 Lactic acid	70	7	A
磷酸 (60%) Phosphoric acid 60%	100	28	A
甲酸 (88%) Formic acid 88%	40	21	A
《碱类》 《ADcalis》			
氢氧化钠 (30%) Sodium hydroxide 30%	40	21	A
氢氧化钠 (46%) Sodium hydroxide 46%	24	10	A
次氯酸钠 (10%) Sodium hypochlorite 10%	40	21	A
四氯乙烷 Tetrachloroethane	24	21	A
氨水 (28%) Ammonium hydroxide 28%	40	21	A
氨水 (35%) Ammonium hydroxide 35%	45	100	A
无水氨 Ammonia anhydrous	24	200	A
氟化氢酸 (75%) Hydrofluoric acid 75%	100	5	A
过氧化氢 (99%) Hydrogen peroxide 99%	100	10	A
硫化氢 Hydrogen sulfide	100	20	A
《醇类》 《Alcohols》			
戊醇 Amyl Alcohol	100	5	A

化学品名 Chemical name	温度 (°C) Temperature conditions	天数 Tested days	评价 Rating
《醇类》 《Alcohols》			
甲醇 Methyl alcohol	40	21	A
异丙醇 Isopropyl alcohol	24	21	A
乙醇 Ethyl alcohol	40	21	A
丙二醇 Propylene glycol	40	30	A
亚乙基二醇 Ethylidene Glycol	40	21	A
乙二醇 Ethylene glycol	130	10	A
甲基原醇 Methyl carbinol	40	21	A
丙醇 Ethyl carbinol	100	7	A
丁醇 Butanol	45	100	A
环乙醇 Cyclohexanol	40	40	A
《氮化合物》 《Nitrogen compounds》			
乙腈 Acetonitrile	45	100	A
丙烯腈 Acrylonitrile	40	21	A
甲酰胺 Formamide	40	21	A
苯乙烯 Styrene	24	90	A
对苯二胺 Phenylene diamine	200	60	A
乙二胺 Ethylene diamine	40	21	A
二乙胺 Diethylamine	24	28	A
三乙胺 Triethylamine	40	21	A

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化学品名 Chemical name	温度 (℃) Temperature conditions	天数 Tested days	评价 Rating
《氮化合物》 《Nltragen compounds》			
三乙撑二胺 Triethylene Diamine	40	21	A
苯胺 Aniline	40	21	A
氮苯 Pyridine	40	21	A
二甲基甲酰胺 N.N-dimethyl formamide	40	21	A
二甲替乙酰胺 N.N-dimethyl acetamide	40	21	A
N-甲基-2-吡咯烷酮 N-methyl-2-pyrrolidone	100	7	A
苯酚 phenol	150	28	A
《碳氢化合物、卤化氢类》 《Hydrocarbons,Hydrogenation hydrogens》			
四溴化乙炔 Acetylene tetrabromide	24	30	A
N-乙烷 N-hexane	40	21	A
环乙烷 Cyclohexane	40	21	B
三甲基戊烷 Isooctane	40	21	B
萘烷 Decalin	40	21	A
石脑油 Naphtha	70	70	A
丙烯 Propylene	40	200	A
水银 Mercury	90	300	A
苯 Benzene	45	100	A
甲苯 Toluene	24	360	A
丙三醇 Glycerine	120	5	A

化学品名 Chemical name	温度 (℃) Temperature conditions	天数 Tested days	评价 Rating
《碳氢化合物、卤化氢类》 《Hydrocarbons ,Hydrogenation hydrogens》			
二甲苯 Xylene	100	90	A
一氯代苯 Monochloro benzene	24	30	A
乙苯 Ethyl benzene	40	21	A
乙二醛 (40%) Glyoxal 40%	45	100	A
硝基苯 Nitro benzene	24	360	A
氯甲苯 Monochloro toluene	24	30	A
二氯苯 1,2-dichloro benzene	40	21	A
三氯甲烷 Chloroform	40	21	A
三氯丙烯酸 Trichloroacrylic acid	24	28	A
四氯化碳 Carbon tetrachloride	40	7	B
二氯甲烷 Methylene chloride	25	21	A
四氯乙烯 Perchloro ethylene	100	28	A
三氯乙烯 Trichloro ethylene	40	7	A
四氯乙烯 Tetrachloro ethylene	40	21	B
四氯乙烯 Tetrachloro ethylene	100	7	B
1,2-二溴乙烷 1,2-dibromoethane	40	11	A
三氟氯乙烯树脂溶剂5-3 Daiflon solvent (R-113)	25	11	D
三氟氯乙烯树脂溶剂5-2 Daiflon solvent(R-112)	40	11	C
含氟润滑油 #10 (氟素油) Daifoil #10 (fluoro oil)	130	11	C

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《碳氢化合物、卤化氢类》 《Hydrocarbons, Halogenation Hydrogens》			
含氟润滑油 #1 (氟素油) Daifloil #1(fluoro oil)	40	21	C
六氟化铀 Uranium hexafluoride	200	60	A
《呋喃、醛类》 《Furans, Aldehydes》			
四氢呋喃 Tetra hydrofuran	40	21	B
2-甲基四氢呋喃 2-Methyl tetrahydrofuran	40	21	B
丙醛 Propionaldehyde	24	28	A
乙醛 Acetaldehyde	25	21	B
乙基氯乙醇 Ethyl chlorohydrin	45	100	B
丁醛 Butyl aldehyde	40	30	B
糠醛 Furfural	40	21	A
糠醛 Furfural	100	7	A
苯乙酮 Acetophenone	40	21	A
福尔马林 (35%) Formalin 35%	40	21	A
《酮、醚类》 《Ketones, Ethers》			
煤油 Kerosene	45	100	A
丙酮 Acetone	40	21	A
丁酮(M.EK) Methyl ethyl ketone	40	21	A
甲基异丁基酮 Methyl isobutyl ketone	40	21	A
丁基溶剂 Butyl cellosolve	45	100	A

化学品名 Chemical name	温度 (℃) Temperature conditions	天数 Tested days	评价 Rating
《酮、醚类》 《Ketones, Ethers》			
异佛尔酮 Isophorone	40	21	A
双丙酮醇 Diacetone alcohol	40	21	A
丁内酯 γ-Butyrolactone	40	21	A
乙酰丙酮 Acetyl acetone	40	21	A
甲酸甲酯 Methyl formate	40	21	A
乙酸乙酯 Ethyl acetate	40	21	A
乙酸异戊酯 Isoamyl acetate	40	21	A
乙酰乙酸甲酯 Methyl acetoacetate	40	21	A
乙酰乙酸乙酯 Ethyl acetoacetate	40	21	A
丙烯酸 Acrylic acid	40	21	A
丙烯酸甲酯 Methyl acrylate	40	21	A
草酸二乙酯 Diethyl oxalate	40	21	A
马来酸二甲酯 Dimethyl maleate	40	21	A
磷酸三乙酯 Triethyl phosphate	40	21	A
磷酸三甲苯酯 Tricresyl phosphate	100	7	A
(二) 乙醚 Diethyl ether	25	21	B
1,4-二恶烷 1,4-dioxane	40	21	A
甲基丙烯酸甲酯 Methyl methacrylate	100	200	A
甲基-t-丁基醚 Methyl-t-butylether	40	21	B

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《其他、油、蒸汽类》 《Oil, steam etc.》				《其他、油、蒸汽类》 《Oil, steam etc.》			
磷酸酯类难燃性液压油 Fire resistance oil	130	11	A	ASTM标准燃料 B ASTM Ref Fuel B	24	7	A
磷酸酯类难燃性液压油 Fire resistance oil				ASTM标准燃料 C ASTM Ref Fuel C			
磷酸酯类难燃性液压油 Fire resistance oil	175	3	A	灯油 Kerosene	45	100	A
磷酸酯类难燃性液压油 Fire resistance oil				蒸汽 Steam			
DN CUT HS-1 (切削油) DN CUT HS-1	130	11	A	蒸汽 Steam	150	30	A
Esso Uniflo (发动机油) Esso Uniflo (Engine oil)				蒸汽 Steam			
0-148LCT (飞机发动机油) 0-148LCT (Air craft, engine oil)	175	20	A	95℃热水 Hot water	95	21	A
JIS No.1 OIL (润滑油) JIS No.1 oil							
ASTM No.3 OIL ASTM No.3 oil	175	16	A				

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※该技术资料中记载的数据是测定值，并不是保证值。

The data given in the technical information are measured values and not guaranteed values.

在使用时，建议能够在使用前对每个使用条件进行相应的机能测试。特别是在药液中的洗脱、提取等污染存在问题的情况下，请每次都先做测试。

Note: When using this product, we recommend that you conduct functional tests appropriate to individual usage conditions before hand.

Please conduct test on a case-by-case basis when contamination of chemicals through dissolution and extraction are an issue.



常用产品 Common Products



O型圈+挡圈
O-Rings+back up Ring



D型圈
D-Ring



星形圈
X-Ring



方形圈
Square Ring



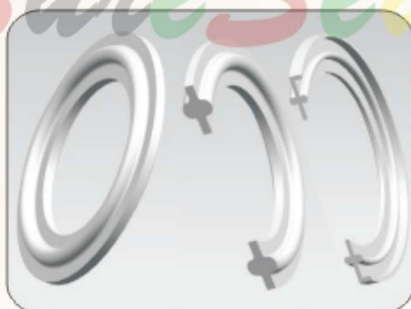
三角形圈
Triangle Ring



鼓形圈
Drum type Ring



V形圈
V-Rings



接头垫圈
Joints Clamp Seals



四氟橡胶膜片
PTFE Rubber Diaphragm



P型圈
P-Seals



H型圈
H-Seals



套管油管悬挂器
Casing Tubing Hanger Packers

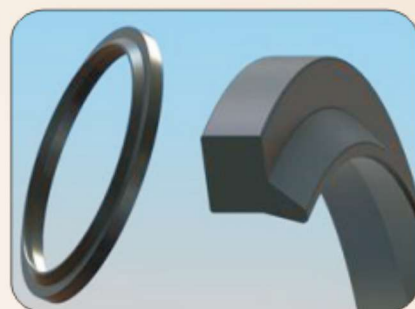
SureSeal®



C形防尘圈
C type Wiper Seals



Y形圈
Y-Ring



J形防尘圈
J type Wiper Seals



FS型圈
FS-Seals



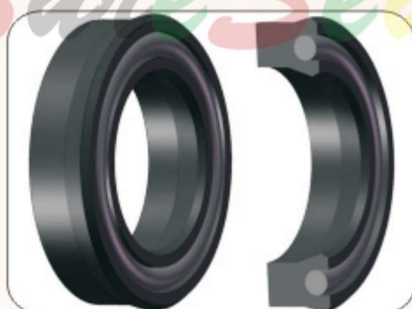
S型圈
S-Seals



BT圈
BT-Seals



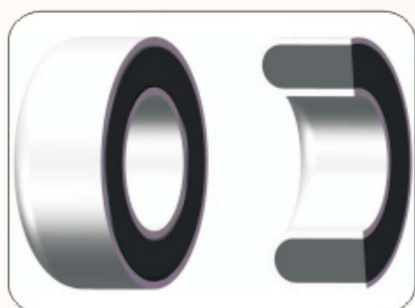
T型圈
T-Seals



U形圈
U-Seals



V型组合圈
Chevron Seals



阀杆密封圈
Valve Rod Seal



金属端盖密封（顶丝密封）
Metal End Cap Seals



格莱圈
Glyd Ring

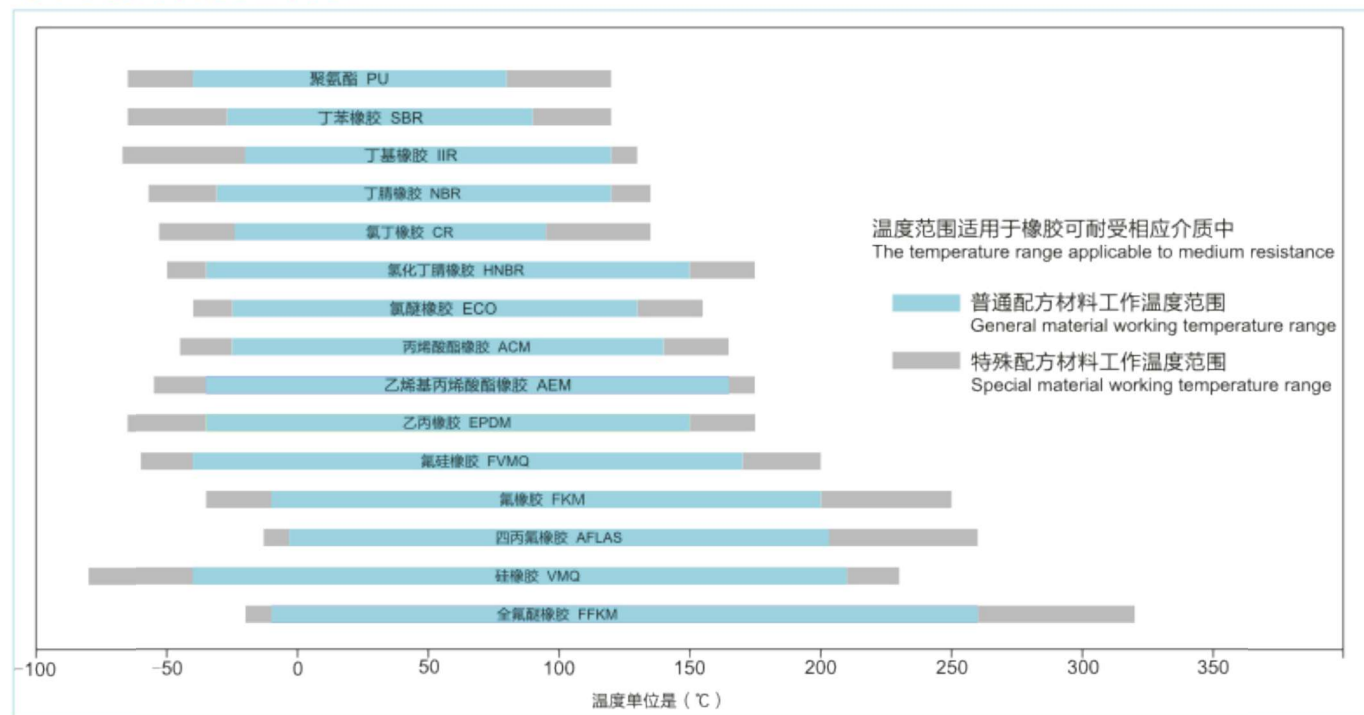
常用材料特性及应用 Properties and Application of Common Materials

材料 Material	代号 Abbreviation	特性 Properties	邵氏A硬度范围 Hardness range shore A	应用领域 Application
天然橡胶 Natural Rubber	NR	天然橡胶具有很好的弹性、气密性及绝缘性能，优良的耐屈挠性能，生热低，之后损失小，可以多种橡胶并用。具有良好的加工性能。缺点是耐油、耐碱、耐酸及耐溶剂性能差，不耐强酸。 Advantage: good elasticity, gas tightness and insulating property, excellent flexing resistance, low heat, small hysteresis loss, blend with variety of rubber, good processability. Disadvantage: Oil resistance, acid resistance, alkali resistance, weather resistance and chemical resistance is poor.	40~90	可用于制造胎面、胎体、胎侧、内胎等，还可用于制造胶管、胶带、一般机械密封圈，海面制品、外科医疗制品、胶乳制品等。 Manufacture: tread, tire body, tire sidewall, tire tube, rubber tube, rubber belt, general mechanical seals, sponge product, medical device, latex product, etc.
丁苯橡胶 Styrene Butadiene Rubber	SBR	耐老化、耐热性能和耐磨性优于天然橡胶，但其弹性比天然橡胶低，滞后损失大，硫化胶生热高，收缩变形大，表面不光滑，粘合自粘性差。 Ageing resistance, heat resistance and abrasion resistance is better than that of natural rubber, but its elasticity performance is lower than natural rubber, large hysteresis loss, high heat, large contraction deformation, rough surface, weak Self adhesive bonding.	50~70	可用于制造胎面、胎体、胎侧、内胎等，还可用于制造胶管、胶带、一般机械密封圈，海面制品、外科医疗制品、胶乳制品等。 Manufacture: rubber belt, rubber tube, rubber roller, rubberized fabric, shoe sole, medical device and mechanicals. small amount of used in wires, cables and other rubber products.
顺丁橡胶 Butadiene Rubber	BR	具有耐磨耗性能优异，耐屈挠性好，回弹性高，滞后损失小，生热低，低温性能好。 Advantage: good wear resistance, excellent flexing fatigue resistance, high resilience, small hysteresis loss, low heat, low temperature performance.	35~70	用于制造轮胎胎面，胎侧和胎体等各种部件，也用于制造胶管、胶带、胶鞋以及其他工业制品。 Manufacture: tread, tire sidewall, tire body, rubber belt, rubber tube, rubber shoe and other mechanicals.
丁腈橡胶 Butadiene Acrylonitrile Rubber	NBR	耐油、耐苯、耐烃类及耐老化等优异性能，随着丙烯腈含量的增加，丁腈橡胶的耐油、耐苯、耐腐、耐热性及硬度和拉伸强度等性能提高，而回弹性、耐低温屈挠性、压缩永久变形性等性能则降低。 Oil resistance, benzene resistance, hydrocarbon resistance and ageing resistance is good. Along with increasing content of the acrylonitrile, NBR's oil resistance, benzene resistance, wear resistance, heat resistance, hardness and tensile strength is better, but resilience, low temperature flexing fatigue resistance, compression set is worse.	40~90	制造耐油橡胶制品，也广泛用于模制品、压制品、海绵制品、石棉制品、工业用胶辊、耐油胶鞋、电线电缆包皮、胶皮、胶黏剂和建筑材料等。 Manufacture: oil resistance product, molded product, sponge product, industrial rubber roller, oil resistance rubber shoe, rubber sheath of wire and cable, adhesive and building material, etc.
氢化丁腈橡胶 Hydrogenated butadiene-acrylonitrile rubber	HNBR	丁腈橡胶催化加氢制得。具有优秀的耐热性、耐低温性、耐臭氧性、耐高能辐射、耐油、耐碱、耐氧化剂等性能。力学性能优良。 HNBR is one of the NBR that is catalyzed by hydrogenation, have excellent heat resistance, low-temperature resistance, ozone resistance, high-energy radiation resistance, oil resistance, alkali resistance, oxidant resistance, and it's physical property is very good.	40-90	主要应用于汽车、机械工程、石油等工业。石油工业中，制造泵与发动机固定片，钻杆管保护套，阀门、井口密封件。 Applicable to automobile, mechanical engineering, petroleum industry. In petroleum industry, HNBR can be used to the stators of pump and engine, protective jacket of drill pipe, valve seals, oil-well seals.
乙丙橡胶 Ethylene Propylene Rubber	EPDM	具有较好的耐热性、耐臭氧、耐气候性、化学稳定性、耐低温性、介电性能等。乙丙胶可以耐广泛的介质，包括极性溶剂（如酮、酯类）、热水和200℃水蒸汽（没有空气）。 Heat resistance, ozone resistance, weather resistance, chemical resistance, low temperature resistance and dielectric property is good. EPDM is able to tolerate a range of chemicals, including polar solvent (such as ketone and esters), hot water and 200℃ steam (without air).	40~90	应用于汽车用隔膜、皮碗、防尘胶套、刹车部件和密封条、胶管等。还可制成各种耐化学腐蚀的制品。 Manufacture: automobile diaphragm, rubber cup, rubber dirt-proof boot, brake mechanism, sealing strip, rubber tube and products of the various chemical resistance.
氯丁橡胶 Chloroprene Rubber	CR	有优良的耐溶剂性能和耐油性，还有优良的耐酸碱、耐气候老化、臭氧老化性能，具有结晶性，耐水性良好，耐透气性能比丁基橡胶差。 Solvent resistance, oil resistance, acid-base resistance, weather resistance, ozone resistance and hydrolysis resistance is good. Gas tightness is just worse than IIR.	30~90	制造耐热电线电缆护套，耐油的橡胶制品，建筑用密封条、公路填缝密封胶、桥梁支座，油田用电缆防水帽，汽车用耐油胶管，耐酸碱橡胶制品，耐天候老化橡胶制品，阻燃橡胶制品，各种密封垫片等。 Manufacture: heat-proof sheath of wire and cable, oil-proof rubber product, sealing strip of building, highway caulking sealant, bridge support, water-proof cap of wire in oil field, automobile oil-proof rubber tube, acid-base proof rubber product, rubber product of weather resistance, Flame resistance rubber products, sealing gasket, ect.
丁基橡胶 Butyl Rubber	IIR	耐热老化性能优良，具有良好的耐臭氧老化、耐气候老化和对化学稳定性、耐电晕性能与电绝缘性好，还有耐水性好、水渗透率极低。 Heat ageing resistance, ozone ageing resistance, weather ageing resistance, corona resistance, electric insulating and water resistance is good.	30~80	各种机械制品、振动隔离件，建筑用防水片材，密封及填缝材料。 Manufacture: machinery product, product of vibration and isolation, water-proof sheet in building, seal and gap filling product.
聚氨酯 Polyurethane	PU	优良的耐腐性能，良好的耐臭氧老化性能，杰出的耐油性。聚氨酯橡胶是自补强橡胶，不用加补强材料其拉伸强度就非常高。聚氨酯的耐低温性能良好，有良好的耐磨性能、高硬度、高模量。 Corrosion resistance, ozone ageing resistance and oil resistance is good. PU possess self-reinforcing property, so it has high tensile strength without reinforcing material. Low temperature and wear resistance is good. Hardness and modulus is high.	30~90	用于制造各种耐磨、耐油、耐压的密封件、胶辊、衬里、胶带等。 Manufacture: seals of wear resistance, oil resistance and pressure resistance, rubber roller, rubber belt, ect
氯醚橡胶 Epichloro Hydrin Rubber	ECO	良好的耐热性能、耐油性、耐低温性能、耐气透性能。 Heat ageing resistance, oil resistance, low temperature resistance and gas tightness is good.	40~90	用于O型圈、密封圈、垫圈，也用于耐油衬里，还用于制作耐油胶管、耐油覆盖胶等。 Manufacture: O-ring, sealing ring, gasket oil-proof lining, oil-proof rubber tube, oil-proof rubber cover.
氟橡胶 Fluoroelastomer	FKM	优良的耐高温性能，可在200℃长期使用，300℃下短时期使用。氟橡胶具有卓越的耐真空性能，耐强酸、高浓度过氧化氢和强氧化剂，耐多种有机溶剂和各种油类，耐过热水和蒸汽，耐气候老化和耐臭氧老化，耐中等剂量辐射，阻燃。 FKM has excellent high-temperature resistance, can be used for a long time at 200℃, and can be used for a short time at 300℃. FKM has excellent performance that is vacuum resistance, strong acid resistance, high concentration of hydrogen peroxide resistance, strong oxidant resistance, variety of organic solvents resistance, variety of oil resistance, superheated water and steam resistance, weather resistance, ozone ageing resistance, fire resistance, moderate doses of radiation resistance.	50~90	用于汽车发动机密封、飞机发动机密封，也适用于其他耐高温密封的场合。应用于航空航天飞行器、石油钻井等。 Manufacture: automobile engine seals, aircraft engine seals, high-temperature seals and oil-field seals.
氟硅胶 Fluorinated silicone rubber	FVMQ	含氟基团替代有机硅材料主链上的甲基侧链，既保持了有机硅的耐高低温、耐气候及臭氧老化、电气绝缘、难燃、无毒、生理惰性，又赋予了耐油、耐溶剂和耐化学品等性能，对芳香族、脂肪族、燃料油、润滑油、液压油等耐受性好。 The fluoride group have substituted the side chain of organosilicone's main chain, so FVMQ not only have high and low temperature resistance, weather resistance, ozone resistance, electrical insulation, fire resistance, non-toxic, physiological inertia, but also have oil resistance, solvent resistance and chemical resistance. The resistance to aromatic, aliphatic series, fuel oil, lubricating oil and hydraulic oil is excellent.	30~80	用于军工业、汽车部件、石油化工、医疗卫生、和电气电子等产品。 Applicable to military industry, automobile parts, petrochemical industry, medical and health industry, electrical and electronic industry.
四丙氟橡胶 Four C Fluorine Elastomer	FEPM	具有广阔的耐化学介质性能，在某些特定的化学介质中具有明显的优势，如油、润滑油、多种溶剂、水蒸汽、各种类型液压介质、酸、各种类型的刹车液、碱、传输介质、强氧化剂、动力转向液压介质、漂白剂、酸性石油和天然气、纸浆和造纸液体、胺类防腐剂、杀虫剂、除草剂、臭氧、γ射线、乙醇冷冻剂等，还具有极佳的电绝缘性能。 FEPM has broad-spectrum chemicals resistance and obvious application advantages for certain specific chemicals, such as oil, lubricating oil, variety of solvents, steam, superheated water, various types of, hydraulic medium, acid, various types of brake fluid, alkali, transmission media, strong oxidant, decolorizer, acidic oil and natural gas, paper pulp, amine preservatives, insecticide, herbicide, ozone, γ-ray, etc. FEPM has paragon electrical insulation property.	50~90	应用在食品加工、核电、电气、石油采掘、化工厂、汽车、机械以及其他多种行业。制作耐热、耐化学品性的密封圈，发动机垫片，电线护套，轴密封，薄膜，海绵胶，乳胶等。 Applied to food processing, nuclear power, electrical, oil mining, chemical plant, automobile, machinery and other various of industries. Manufacture heat-proof seals, chemical-proof seals, engine gasket, wire sheath, shaft seals, thin film, sandwich rubber, rubber latex, ect.

我们还生产这些材料的密封产品
We also produce seals of these materials.

Viton A, Viton B, Viton F, Viton GF, GLT, GFLT, ETP, Aflas, ACM, AEM, VMQ

常用材料耐温特性 Heat Resistance



原料性能指标对密封的影响 Material Property have an effect on the seal

技能指标 Performance indicator	意义 Significance
硬度 Hardness	胶料硬度对于密封件的耐压和抗挤出是至关重要的，随橡胶硬度增加，橡胶的模量增大，可以避免高压流体将密封件从根部挤出，高硬度橡胶密封件可以在介质压力相当高的范围内，不加挡圈也可使用。所以，密封件的工作压力越高，所需橡胶材料硬度也要求越高。 Rubber hardness for pressure resistance and resistance to squeeze out is of vital importance. With the increase of rubber hardness, rubber's modulus increasing, can avoid the high pressure fluid squeezing the root of seals out. High hardness rubber seals can be used within the scope of the high pressure mediums, can be also used without retaining ring. So the higher working pressure of seals, the hardness of rubber is higher.
耐介质性能 Medium resistance	密封介质对密封件的化学影响是至关重要的。密封介质有可能改变密封件的工作性能或明显地降低密封件的使用寿命。密封件体积的过分收缩或膨胀常常导致泄漏。所以，针对不同的密封介质，选择与介质不相容橡胶是首要的。 Chemical resistance of seals is of vital importance for sealing. Working performance and service life of seals will not be reduced by chemicals. Excessive shrinkage or swell of seals often cause leakage. So choosing the incompatible rubber for chemicals is most important.
压缩变形 Compression set	橡胶压缩变形是硫化胶应力松弛的具体表现，是在恒定压力和温度条件下，硫化胶试样发生的结构流变行为，是在应力出去后呈现的永久变形。压缩变形的增大，意味着密封力在减小。当这种永久变形积累到一定程度，密封力将丧失殆尽，导致密封泄漏。所以压缩变形较小的橡胶材料对密封性能是有利的。 Compression set of rubber is the specific performance of vulcanized rubber stress relaxation, is the structural rheological behavior of vulcanized rubber at constant pressure and temperature, is a permanent deformation after removing stress. The increase of compression set means the reducing of sealing force. When the deformation accumulates a certain degree, sealing force will be completely lost, that cause sealing leakage. So small compression set is good for sealing property.
拉伸强度 Tensile strength	胶料拉伸强度表征的是材料的抗拉伸能力，同时是反映胶料混炼均匀度的一项重要性能指标，也是评价对橡胶性能影响的有效指标。如果橡胶与介质接触一段时间后，其拉伸强度下降很小，则密封件的使用寿命就会相对较长；反之，若拉伸强度下降很大，则密封件的使用寿命就会相对较短。 Tensile strength represent the ability of material tensile resistance and reflect the uniformity of rubber compound. Tensile strength is a effective indicator that materials swell rubber seals. While the rubber is in the chemicals after a long time, if its tensile strength reduce a little, so the working life of rubber seals will be long. Otherwise, the working life of rubber seals will be short.
扯断伸长率 Elongation at break	扯断伸长率表征材料扯断时的伸长率，也是橡胶的一项重要性能指标。 Elongation at break is a rate of the rubber original length and its broken length.
脆性温度 Brittleness temperature	规定条件下，试样受冲击产生破坏时的最高温度，是硫化胶的特性温度，不代表硫化橡胶及其制品工作温度的下限。利用脆性温度，可以比较不同橡胶材料或不同配方的硫化橡胶低温性能的优劣。无论在科学研究、橡胶材料及其制品质量检验、生产过程控制等方面，都有一定实用价值。 Brittleness temperature is the highest temperature when the rubber sample is broken by the impact under a certain condition, and is not the lower temperature that rubber works at. According to brittleness temperature, you can know which rubber formula is better.

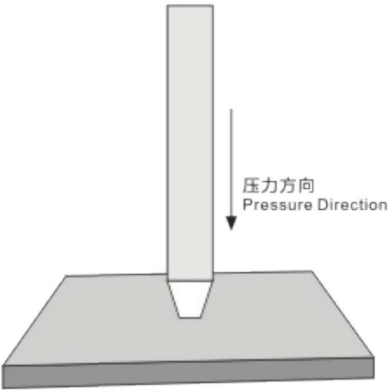
制品颜色 Seals Color

大部分产品是黑色，但我们可以添加其他成分使制品具有多种颜色。这会降低原材料的机械性能。一般配方中都有炭黑，炭黑是导电体，绝缘特性密封件需要特殊配方。
Most of seals is black , but we can change the seals color by adding something that will reduce the mechanical property of rubber .General formula has carbon black that processes electro-conductibility . Insulating seal need a specific rubber formula .

材料硬度 Material Hardness

硬度是指一个物体在特定的压力和特定的时间范围内，承受另外一个特定形状的，更坚硬的物体穿透能力。我司采用单位是邵氏硬度A单位。邵氏硬度A单位是对不同材料的标准样本测试后列出的比较值。
Hardness is a ability that one object resists the penetration of a hard specific object in the specific range of pressure and time . Our unit is shore A , it's a comparison value by testing different materials .

硬度检测示意图 Hardness Testing



制品硬度与挤出缝隙之间的关系 The Relation between Hardness and Extrusion gap

工作压力Pressure 线径id	硬度Hardness shore A	35 Kg/cm ³	70 Kg/cm ³	105 Kg/cm ³	140 Kg/cm ³	175 Kg/cm ³	210 Kg/cm ³	350 Kg/cm ³
1.78	70	0.15	0.10	0.05				
	80	0.20	0.15	0.10	0.05	0.03		
	90	0.25	0.20	0.13	0.10	0.08	0.06	0.03
2.62	70	0.18	0.13	0.08				
	80	0.25	0.18	0.13	0.08	0.04		
	90	0.30	0.25	0.18	0.13	0.10	0.08	0.04
3.53	70	0.20	0.15	0.10				
	80	0.30	0.20	0.15	0.10	0.05		
	90	0.40	0.30	0.20	0.15	0.13	0.10	0.05
5.33	70	0.25	0.18	0.13				
	80	0.35	0.25	0.18	0.13	0.08		
	90	0.45	0.35	0.25	0.18	0.15	0.13	0.08
7.00	70	0.30	0.20	0.15				
	80	0.40	0.30	0.20	0.15	0.07		
	90	0.50	0.40	0.30	0.20	0.18	0.15	0.07

硫化特性测定 Vulcanization Property

对任何橡胶来说，硫化时不只是产生交联，还由于热及其它因素的作用产生联链和分子链的断裂。这一现象贯穿整个硫化过程。在过硫阶段，如果交联仍占优势，橡胶就发硬，定伸强度继续上升，反之，橡胶发软，即出现返原。

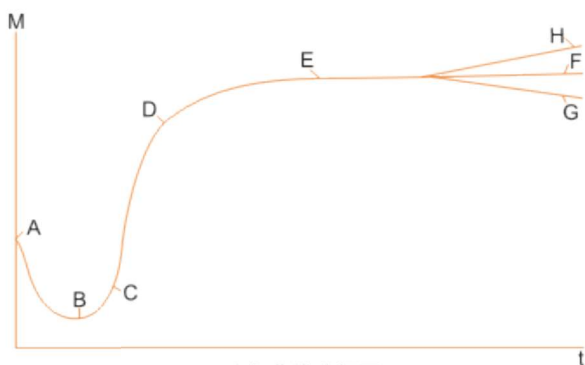
整个硫化过程可分为硫化诱导，预硫，正硫化和过硫（对天然胶来说是硫化返原）四个阶段。到达正硫化阶段后，硫化胶的各项物理性能分别达到或接近最佳点，或达到性能的综全平衡。

硫化特性一般都是运用硫化仪在进行检测。我司使用最先进的无转子硫化仪，可以精确的测出焦烧时间、正硫化时间、硫化指数、最大最小转矩等，是橡胶行业控制胶料质量，快速检验及橡胶基础研究用的最理想设备。

Vulcanization of rubber has not only crosslinking, but also has molecular chain rupture because of heat and other factors. And these phenomena penetrate the whole of a vulcanization. In a vulcanization, if the crosslinking dominates, the rubber will be hard and stretching strength will be upward, otherwise, the rubber will be soft.

The whole of vulcanization divide into four stages that include induction, prevulcanization, optimum cure and over cure. The property of rubber has the best performance arriving at the optimum cure time.

Vulcanization property is detected by rheometer. Our moving die rheometer is the most advanced, it can detect accurately scorch time, optimum cure time, curing rate index, mix and max torque, etc. It is a optimal equipment for controlling rubber quality, fast detection and rubber fundamental research.



硫化曲线分析图
Vulcanization Curve Analysis Diagram



物理性能测定 Physical Property Determination

橡胶常规物流性能，包括：拉伸强度、扯断伸长率、撕裂强度、弹性模量等。测试仪器为橡胶用电脑伺服精密拉力试验机。通过机密仪器测试材料性能真实数据。

Conventional physical property of rubber includes tensile strength, elongation at break, tear strength, elasticity modulus, etc. The test equipment is the servo precise tensile testing machine with a computer. We can obtain the real data from tensile machine testing.



服务 Service

如您需要,我们可以根据您的要求提供相应的原料或者解决方案及我们材料可以的认证。

If you need, we can provide rubber or solution that is based on your demands.

认证 Certification

国家 Nation

WRAS	England
FDA	USA
KTW	Germany
UL	USA
ACS	France
DVGW	Germany
NSF	USA



密封圈的挡圈的应用 Application of Back-up Ring

挡圈材料 Material of Back-up Ring	应用 Application	挡圈 Back-up Ring	图例 Graphical modal
一般采用：聚四氟乙烯、尼龙、聚甲醛、聚氨酯、聚乙烯、聚醚醚酮。 General materials、PTFE、PA、POM、PU、PE、PEEK	气动密封和转动密封的工作压力一般较低，所以沟槽中一般不加挡圈 Working force of pneumatic sealing and rotating sealing is low. So there is no back-up ring .	无 no	
	凡是有可能发生挤隙现象的橡胶 O 形圈 There is possibility to extrude o-ring .	单挡圈 Single	
	流体压力大于10MPa 时，应加装挡圈 Liquid pressure is greater than 10 Mpa.	双挡圈 Double	

O型圈沟槽尺寸 Size of Sealing Groove

断面 Section d ₂	沟槽宽度 Groove Width					沟槽宽度 Groove Width 单位 unit: mm (+0.2/0)			半径 Radius r ₂ mm	
	mm	静态 Static	动态 Dynamic	液压 Hydraulic	动态 Dynamic	气动 Pneumatic	无挡圈 no back-up ring	1个挡圈 one back-up ring	2个挡圈 two back-up rings	
							b	b ₁	b ₂	
1.00	0.65	±0.05	0.75	±0.02	0.80	±0.02	1.4	2.4	3.4	0.2-0.4
1.50	1.05		1.20		1.25		2.0	3.0	4.0	0.2-0.4
1.80	1.30		1.45		1.55		2.4	3.4	4.4	0.2-0.4
2.00	1.50		1.65		1.75		2.7	3.7	4.7	0.2-0.4
2.50	1.95		2.10		2.20		3.4	4.9	6.4	0.2-0.4
2.65	2.05	±0.07	2.25	±0.05	2.35	±0.05	3.6	5.1	6.6	0.2-0.4
3.00	2.40		2.55		2.70		4.2	5.7	7.2	0.2-0.4
3.50	2.80		3.05		3.20		4.8	6.3	7.8	0.3-0.6
3.55	2.85		3.10		3.25		4.8	6.3	7.8	0.3-0.6
4.00	3.25		3.50		3.65		5.4	6.9	8.4	0.3-0.6
5.00	4.15	±0.10	4.45		4.65		6.8	8.8	10.8	0.3-0.6
5.30	4.40		4.70		4.90		7.2	9.2	11.2	0.6-1.0
7.00	5.85		6.25		6.55		9.6	12.1	14.6	0.6-1.0
A面					静态 Static R _s =1.6 um and R _{max} =6.3 um 承载面积 Bearing Area: t _p > 50%			动态 Dynamic R _s =0.4 um and R _{max} =1.6 um 承载面积 Bearing Area: t _p > 50%		
B面					静态 Static R _s =3.2 um and R _{max} =12.5 um 承载面积 Bearing Area: t _p > 50%			动态 Dynamic R _s =1.6 um and R _{max} =6.3 um 承载面积 Bearing Area: t _p > 50%		

贮存 Storage

- A、贮存在干燥处
C、避光保存，特别是避免在阳光或荧光灯下直接照射
A、keeping in dry place
C、keeping out of sun ,don't be irradiated by sun shine and fluorescent lamp

- B、温度在+5℃~+25℃之间，避免和热源直接接触
D、置于原始装箱或气密容器内以防止氧化
B、temperature is +5℃~+25℃,don't touch directly the heat source
D、Being kept in the original box or hermetic container not to be oxidated

O型圈的规格标准 (美标 AS568A)

AS 568A-0xx 规格 standard: 截面直径section diameter d _s =1.78mm							
AS 568A 编号 NO.	内径 ID d _i (mm)		截面直径 section diameter d _s (mm)	AS 568A 编号 NO.	内径 ID d _i (mm)		截面直径 section diameter d _s (mm)
	尺寸 size	公差tolerance(±)			尺寸 size	公差tolerance(±)	
AS568-001	0.74	0.10	1.02 ±0.08	AS568-026	31.47	0.28	1.78 ±0.08
AS568-002	1.07	0.10	1.27 ±0.08	AS568-027	33.05	0.33	
AS568-003	1.42	0.10	1.53 ±0.08	AS568-028	34.65	0.33	
AS568-004	1.78	0.13	1.78 ±0.08	AS568-029	37.82	0.33	
AS568-005	2.57	0.13		AS568-030	41.00	0.33	
AS568-006	2.90	0.13		AS568-031	44.17	0.38	
AS568-007	3.69	0.13		AS568-032	47.35	0.38	
AS568-008	4.47	0.13		AS568-033	50.52	0.46	
AS568-009	5.28	0.13		AS568-034	53.70	0.46	
AS568-010	6.07	0.13		AS568-035	56.87	0.46	
AS568-011	7.65	0.13		AS568-036	60.05	0.46	
AS568-012	9.25	0.13		AS568-037	63.22	0.46	
AS568-013	10.82	0.13		AS568-038	66.40	0.51	
AS568-014	12.42	0.13		AS568-039	69.57	0.51	
AS568-015	14.00	0.18		AS568-040	72.75	0.61	
AS568-016	15.60	0.23		AS568-041	75.92	0.61	
AS568-017	17.17	0.23		AS568-042	82.27	0.61	
AS568-018	18.77	0.23		AS568-043	88.62	0.61	
AS568-019	20.35	0.23		AS568-044	94.97	0.69	
AS568-020	21.95	0.23		AS568-045	101.32	0.69	
AS568-021	23.52	0.23		AS568-046	107.67	0.76	
AS568-022	25.12	0.25		AS568-047	114.02	0.76	
AS568-023	26.70	0.25		AS568-048	120.37	0.76	
AS568-024	28.30	0.25		AS568-049	126.72	0.94	
AS568-025	29.87	0.28		AS568-050	133.07	0.94	

AS 568A-1xx 规格 standard: 截面直径section diameter $d_s=2.62\text{mm}$							
AS 568A 编号 NO.	内径 ID $d_i(\text{mm})$		截面直径 section diameter $d_s(\text{mm})$	AS 568A 编号 NO.	内径 ID $d_i(\text{mm})$		截面直径 section diameter $d_s(\text{mm})$
	尺寸 size	公差tolerance($\pm$)			尺寸 size	公差tolerance($\pm$)	
AS568-102	1.24	0.10	2.62 ± 0.08	AS568-141	58.42	0.51	2.62 ± 0.08
AS568-103	2.06	0.13		AS568-142	59.99	0.51	
AS568-104	2.84	0.13		AS568-143	61.60	0.51	
AS568-105	3.63	0.13		AS568-144	63.17	0.51	
AS568-106	4.42	0.13		AS568-145	64.77	0.51	
AS568-107	5.23	0.13		AS568-146	66.34	0.51	
AS568-108	6.02	0.13		AS568-147	67.95	0.56	
AS568-109	7.59	0.13		AS568-148	69.52	0.56	
AS568-110	9.19	0.13		AS568-149	71.12	0.56	
AS568-111	10.77	0.13		AS568-150	72.69	0.56	
AS568-112	12.37	0.13		AS568-151	75.87	0.61	
AS568-113	13.94	0.18		AS568-152	82.22	0.61	
AS568-114	15.54	0.23		AS568-153	88.57	0.61	
AS568-115	17.12	0.23		AS568-154	94.92	0.71	
AS568-116	18.72	0.23		AS568-155	101.27	0.71	
AS568-117	20.29	0.25		AS568-156	107.62	0.76	
AS568-118	21.89	0.25		AS568-157	113.97	0.76	
AS568-119	23.47	0.25		AS568-158	120.32	0.76	
AS568-120	25.07	0.25		AS568-159	126.67	0.89	
AS568-121	26.64	0.25		AS568-160	133.02	0.89	
AS568-122	28.24	0.25		AS568-161	139.37	0.89	
AS568-123	29.82	0.30		AS568-162	145.72	0.89	
AS568-124	31.42	0.30		AS568-163	152.07	0.89	
AS568-125	32.99	0.30		AS568-164	158.42	1.02	
AS568-126	34.59	0.30		AS568-165	164.77	1.02	
AS568-127	36.17	0.30		AS568-166	171.12	1.02	
AS568-128	37.77	0.30		AS568-167	177.47	1.02	
AS568-129	39.34	0.38		AS568-168	183.82	1.14	
AS568-130	40.94	0.38		AS568-169	190.17	1.14	
AS568-131	42.52	0.38		AS568-170	196.52	1.14	
AS568-132	44.12	0.38		AS568-171	202.87	1.14	
AS568-133	45.69	0.38		AS568-172	209.22	1.27	
AS568-134	47.29	0.43		AS568-173	215.57	1.27	
AS568-135	48.90	0.43		AS568-174	221.92	1.27	
AS568-136	50.47	0.43		AS568-175	228.27	1.27	
AS568-137	52.07	0.43		AS568-176	234.62	1.40	
AS568-138	53.64	0.43		AS568-177	240.97	1.40	
AS568-139	55.25	0.43		AS568-178	247.32	1.40	
AS568-140	56.82	0.43					

AS 568A-2xx 规格 standard: 截面直径section diameter $d_2=3.53\text{mm}$

AS 568A 编号 NO.	内径 ID $d_1(\text{mm})$		截面直径 section diameter $d_2(\text{mm})$	AS 568A 编号 NO.	内径 ID $d_1(\text{mm})$		截面直径 section diameter $d_2(\text{mm})$
	尺寸 size	公差 tolerance($\pm$)			尺寸 size	公差 tolerance($\pm$)	
AS568-201	4.34	0.13	3.53 ± 0.10	AS568-243	104.37	0.71	3.53 ± 0.10
AS568-202	5.94	0.13		AS568-244	107.54	0.76	
AS568-203	7.52	0.13		AS568-245	110.72	0.76	
AS568-204	9.12	0.13		AS568-246	113.89	0.76	
AS568-205	10.69	0.13		AS568-247	117.07	0.76	
AS568-206	12.29	0.13		AS568-248	120.24	0.76	
AS568-207	13.87	0.18		AS568-249	123.42	0.89	
AS568-208	15.47	0.23		AS568-250	126.59	0.89	
AS568-209	17.04	0.23		AS568-251	129.77	0.89	
AS568-210	18.64	0.25		AS568-252	132.94	0.89	
AS568-211	20.22	0.25		AS568-253	136.12	0.89	
AS568-212	21.82	0.25		AS568-254	139.29	0.89	
AS568-213	23.39	0.25		AS568-255	142.47	0.89	
AS568-214	24.99	0.25		AS568-256	145.64	0.89	
AS568-215	26.57	0.25		AS568-257	148.82	0.89	
AS568-216	28.17	0.30		AS568-258	151.99	0.89	
AS568-217	29.74	0.30		AS568-259	158.34	1.02	
AS568-218	31.34	0.30		AS568-260	164.69	1.02	
AS568-219	32.92	0.30		AS568-261	171.04	1.02	
AS568-220	34.52	0.30		AS568-262	177.39	1.02	
AS568-221	36.09	0.30		AS568-263	183.74	1.14	
AS568-222	37.69	0.38		AS568-264	190.09	1.14	
AS568-223	40.87	0.38		AS568-265	196.44	1.14	
AS568-224	44.04	0.38		AS568-266	202.79	1.14	
AS568-225	47.22	0.46		AS568-267	209.14	1.27	
AS568-226	50.39	0.46		AS568-268	215.49	1.27	
AS568-227	53.57	0.46		AS568-269	221.84	1.27	
AS568-228	56.74	0.51		AS568-270	228.19	1.27	
AS568-229	59.92	0.51		AS568-271	234.54	1.40	
AS568-230	63.09	0.51		AS568-272	240.89	1.40	
AS568-231	66.27	0.51		AS568-273	247.24	1.40	
AS568-232	69.44	0.61		AS568-274	253.59	1.40	
AS568-233	72.62	0.61		AS568-275	266.29	1.40	
AS568-234	75.79	0.61		AS568-276	278.99	1.65	
AS568-235	78.97	0.61		AS568-277	291.69	1.65	
AS568-236	82.14	0.61		AS568-278	304.39	1.65	
AS568-237	85.32	0.61		AS568-279	329.79	1.65	
AS568-238	88.49	0.61		AS568-280	355.19	1.65	
AS568-239	91.67	0.71		AS568-281	380.59	1.65	
AS568-240	94.84	0.71		AS568-282	405.26	1.91	
AS568-241	98.02	0.71		AS568-283	430.66	2.03	
AS568-242	101.19	0.71		AS568-284	456.06	2.16	

AS 568A-3xx 规格 standard: 截面直径section diameter $d_2=5.33\text{mm}$

AS 568A 编号 NO.	内径 ID $d_1(\text{mm})$		截面直径 section diameter $d_2(\text{mm})$	AS 568A 编号 NO.	内径 ID $d_1(\text{mm})$		截面直径 section diameter $d_2(\text{mm})$
	尺寸 size	公差 tolerance($\pm$)			尺寸 size	公差 tolerance($\pm$)	
AS568-309	10.46	0.13	5.33 ± 0.13	AS568-353	126.37	0.94	5.33 ± 0.13
AS568-310	12.07	0.13		AS568-354	129.54	0.94	
AS568-311	13.64	0.18		AS568-355	132.72	0.94	
AS568-312	15.24	0.23		AS568-356	135.89	0.94	
AS568-313	16.81	0.23		AS568-357	139.07	0.94	
AS568-314	18.42	0.25		AS568-358	142.24	0.94	
AS568-315	19.99	0.25		AS568-359	145.42	0.94	
AS568-316	21.59	0.25		AS568-360	148.59	0.94	
AS568-317	23.16	0.25		AS568-361	151.77	0.94	
AS568-318	24.77	0.26		AS568-362	158.12	1.02	
AS568-319	26.34	0.26		AS568-363	164.47	1.02	
AS568-320	27.94	0.30		AS568-364	170.82	1.02	
AS568-321	29.51	0.30		AS568-365	177.17	1.02	
AS568-322	31.12	0.30		AS568-366	183.52	1.14	
AS568-323	32.69	0.30		AS568-367	189.87	1.14	
AS568-324	34.29	0.30		AS568-368	196.22	1.14	
AS568-325	37.47	0.38		AS568-369	202.57	1.14	
AS568-326	40.64	0.38		AS568-370	208.92	1.27	
AS568-327	43.82	0.38		AS568-371	215.27	1.27	
AS568-328	46.99	0.38		AS568-372	221.62	1.27	
AS568-329	50.17	0.46		AS568-373	227.97	1.27	
AS568-330	53.34	0.46		AS568-374	234.32	1.40	
AS568-331	56.52	0.46		AS568-375	240.67	1.40	
AS568-332	59.69	0.46		AS568-376	247.02	1.40	
AS568-333	62.87	0.51		AS568-377	253.37	1.40	
AS568-334	66.04	0.51		AS568-378	266.07	1.52	
AS568-335	69.22	0.51		AS568-379	278.77	1.52	
AS568-336	72.39	0.51		AS568-380	291.47	1.65	
AS568-337	75.57	0.61		AS568-381	304.17	1.65	
AS568-338	78.74	0.61		AS568-382	329.57	1.65	
AS568-339	81.92	0.61		AS568-383	354.97	1.78	
AS568-340	85.09	0.61		AS568-384	380.37	1.78	
AS568-341	88.27	0.61		AS568-385	405.26	1.91	
AS568-342	91.44	0.71		AS568-386	430.66	2.03	
AS568-343	94.62	0.71		AS568-387	456.06	2.16	
AS568-344	97.79	0.71		AS568-388	481.46	2.29	
AS568-345	100.97	0.71		AS568-389	506.86	2.41	
AS568-346	104.14	0.71		AS568-390	532.26	2.41	
AS568-347	107.32	0.76		AS568-391	557.66	2.54	
AS568-348	110.49	0.76		AS568-392	582.68	2.67	
AS568-349	113.67	0.76		AS568-393	608.08	2.79	
AS568-350	116.84	0.76		AS568-394	633.48	2.92	
AS568-351	120.02	0.76		AS568-395	658.88	3.02	
AS568-352	123.19	0.76					

AS 568A-4xx 规格 standard: 截面直径section diameter $d_2=6.99\text{mm}$

AS 568A 编号 NO.	内径 ID $d_1(\text{mm})$		截面直径 section diameter $d_2(\text{mm})$	AS 568A 编号 NO.	内径 ID $d_1(\text{mm})$		截面直径 section diameter $d_2(\text{mm})$
	尺寸 size	公差 tolerance($\pm$)			尺寸 size	公差 tolerance($\pm$)	
AS568-425	113.67	0.84	6.99 ± 0.15	AS568-451	278.77	1.52	6.99 ± 0.15
AS568-426	116.84	0.84		AS568-452	291.47	1.52	
AS568-427	120.02	0.84		AS568-453	304.17	1.52	
AS568-428	123.19	0.84		AS568-454	316.87	1.52	
AS568-429	126.37	0.94		AS568-455	329.57	1.52	
AS568-430	129.54	0.94		AS568-456	342.27	1.78	
AS568-431	132.72	0.94		AS568-457	354.97	1.78	
AS568-432	135.89	0.94		AS568-458	367.67	1.78	
AS568-433	139.07	0.94		AS568-459	380.37	1.78	
AS568-434	142.24	0.94		AS568-460	393.07	1.78	
AS568-435	145.42	0.94		AS568-461	405.26	1.91	
AS568-436	148.59	0.94		AS568-462	417.96	1.91	
AS568-437	151.77	0.94		AS568-463	430.66	2.03	
AS568-438	158.12	1.02		AS568-464	443.36	2.16	
AS568-439	164.47	1.02		AS568-465	456.06	2.16	
AS568-440	170.82	1.02		AS568-466	468.76	2.16	
AS568-441	177.17	1.02		AS568-467	481.46	2.29	
AS568-442	183.52	1.14		AS568-468	494.16	2.29	
AS568-443	189.87	1.14		AS568-469	506.86	2.41	
AS568-444	196.22	1.14		AS568-470	532.26	2.41	
AS568-445	202.57	1.14		AS568-471	557.66	2.54	
AS568-446	215.27	1.40		AS568-472	582.68	2.67	
AS568-447	227.97	1.40		AS568-473	608.08	2.79	
AS568-448	240.67	1.40		AS568-474	633.48	2.92	
AS568-449	253.37	1.40		AS568-475	658.88	3.05	
AS568-450	266.07	1.52					

AS 568A-9xx 规格 standard: 接头和管路用O型圈 O-ring used for joint and pipeline

AS 568A 编号 NO.	内径 ID $d_1(\text{mm})$		截面直径 section diameter $d_2(\text{mm})$	AS 568A 编号 NO.	内径 ID $d_1(\text{mm})$		截面直径 section diameter $d_2(\text{mm})$
	尺寸 size	公差 tolerance($\pm$)			尺寸 size	公差 tolerance($\pm$)	
AS568-901	4.70	0.13	1.42 ± 0.08	AS568-911	21.92	0.23	2.95 ± 0.10
AS568-902	6.07	0.13	1.63 ± 0.08	AS568-912	23.47	0.23	
AS568-903	7.65	0.13	1.83 ± 0.08	AS568-913	25.04	0.25	
AS568-904	8.93	0.13	1.98 ± 0.08	AS568-914	26.59	0.25	
AS568-905	10.52	0.13	2.08 ± 0.08	AS568-916	29.74	0.25	
AS568-906	11.89	0.13	2.21 ± 0.08	AS568-918	34.42	0.30	
AS568-907	13.46	0.18	2.46 ± 0.08	AS568-920	37.47	0.36	3.00 ± 0.10
AS568-908	16.36	0.23	2.21 ± 0.08	AS568-924	43.69	0.36	
AS568-909	17.93	0.23	2.46 ± 0.08	AS568-928	53.09	0.46	
AS568-910	19.18	0.23		AS568-932	59.36	0.46	

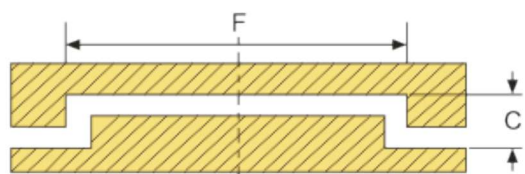
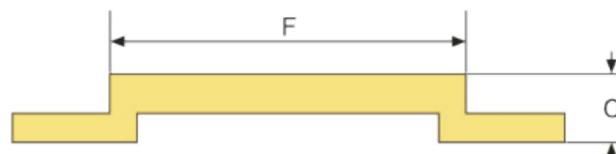
ISO3302非标件公差 ISO3302 dimensional tolerance of non-standard seals

1. 非标O型圈的线径公差 Line diameter tolerance of the non-standard o-ring

线径 Line diameter	公差 tolerance	线径 Line diameter	公差 tolerance	线径 Line diameter	公差 tolerance
≥ 0.00	± 0.08	≥ 12.00	± 0.23	≥ 20.75	0.35
≥ 2.62	± 0.09	≥ 12.75	± 0.24	≥ 21.50	0.36
≥ 3.00	± 0.10	≥ 13.50	± 0.25	≥ 22.25	0.37
≥ 3.55	± 0.12	≥ 14.25	± 0.26	≥ 23.00	0.38
≥ 5.00	± 0.13	≥ 15.00	± 0.27	≥ 23.50	0.39
≥ 5.70	± 0.14	≥ 15.75	± 0.28	≥ 24.25	0.40
≥ 8.40	± 0.15	≥ 16.50	± 0.29	≥ 25.00	0.41
≥ 8.75	± 0.18	≥ 17.25	± 0.30	≥ 25.75	0.42
≥ 9.25	± 0.19	≥ 17.75	± 0.31	≥ 26.25	0.43
≥ 10.00	± 0.20	≥ 18.50	± 0.32	≥ 27.00	0.44
≥ 10.75	± 0.21	≥ 19.25	± 0.33	≥ 30.00	0.45
≥ 11.25	± 0.22	≥ 20.00	± 0.34		

2. 非标件公差等级 Tolerance grade of the non-standard product

额定尺寸 Nominal size		M1 级 M1 Level		M2 级 M2 Level		M3 级 M3 Level		M4 级 M4 Level
$>$	$\leq$	F $\pm$	C $\pm$	F $\pm$	C $\pm$	F $\pm$	C $\pm$	F&C $\pm$
0	4.0	0.08	0.10	0.10	0.15	0.25	0.40	0.50
4.0	6.3	0.10	0.12	0.15	0.20	0.30	0.50	0.70
6.3	10	0.10	0.15	0.20	0.25	0.40	0.60	0.80
10	16	0.15	0.20	0.20	0.25	0.50	0.80	1.00
16	25	0.20	0.20	0.25	0.35	0.50	0.80	1.00
25	40	0.20	0.25	0.35	0.40	0.60	1.00	1.30
40	63	0.25	0.35	0.40	0.50	0.80	1.30	1.60
63	100	0.35	0.40	0.50	0.70	1.00	1.60	2.0
100	160	0.40	0.50	0.70	0.80	1.30	2.0	2.5
160	-	0.3%	0.4%	0.5%	0.7%	0.8%	1.3%	1.5%

示意图
Sketch diagram

中国国家标准 (GB3452.1_2005)

内径 ID d ₁ (mm)		截面直径 section diameter d ₂ (mm)				
尺寸 size	公差 tolerance(±)	1.8 ±0.08	2.65 ±0.09	3.55 ±0.10	5.3 ±0.13	7 ±0.15
1.8	0.13	x				
2.0	0.13	x				
2.24	0.13	x				
2.5	0.13	x				
2.8	0.13	x				
3.15	0.14	x				
3.55	0.14	x				
3.75	0.14	x				
4	0.14	x				
4.5	0.15	x				
4.75	0.15	x				
4.87	0.15	x				
5	0.15	x				
5.15	0.15	x				
5.3	0.15	x				
5.6	0.16	x				
6	0.16	x				
6.3	0.16	x				
6.7	0.16	x				
6.9	0.16	x				
7.1	0.16	x				
7.5	0.17	x				
8	0.17	x				
8.5	0.17	x				
8.75	0.18	x				
9	0.18	x				
9.5	0.18	x				
9.75	0.18	x				
10	0.19	x				
10.6	0.19	x	x			
11.2	0.20	x	x			
11.6	0.20	x	x			
11.8	0.19	x	x			
12.1	0.21	x	x			
12.5	0.21	x	x			
12.8	0.21	x	x			
13.2	0.21	x	x			
14	0.22	x	x			
14.5	0.22	x	x			
15	0.22	x	x			
15.5	0.23	x	x			
16	0.23	x	x			
17	0.24	x	x			
18	0.25	x	x	x		
19	0.25	x	x	x		
20	0.26	x	x	x		
20.6	0.26	x	x	x		
21.2	0.27	x	x	x		
22.4	0.28	x	x	x		
23	0.29	x	x	x		
23.6	0.29	x	x	x		
24.3	0.30	x	x	x		
25	0.30	x	x	x		
25.8	0.31	x	x	x		
26.5	0.31	x	x	x		

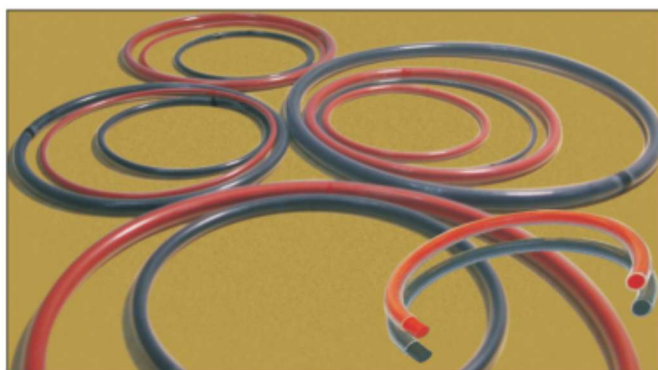
内径 ID d ₁ (mm)		截面直径 section diameter d ₂ (mm)				
尺寸 size	公差 tolerance(±)	1.8 ±0.08	2.65 ±0.09	3.55 ±0.10	5.3 ±0.13	7 ±0.15
27.3	0.32	x	x	x		
28	0.32	x	x	x		
29	0.33	x	x	x		
30	0.34	x	x	x		
31.5	0.35	x	x	x		
32.5	0.36	x	x	x		
33.5	0.36	x	x	x		
34.5	0.37	x	x	x		
35.5	0.38	x	x	x		
36.5	0.38	x	x	x		
37.5	0.39	x	x	x		
38.7	0.40	x	x	x		
40	0.41	x	x	x	x	
41.2	0.42	x	x	x	x	
42.5	0.43	x	x	x	x	
43.7	0.44	x	x	x	x	
45	0.44	x	x	x	x	
46.2	0.45	x	x	x	x	
47.5	0.46	x	x	x	x	
48.7	0.47	x	x	x	x	
50	0.48	x	x	x	x	
51.5	0.49		x	x	x	
53	0.50		x	x	x	
54.5	0.51		x	x	x	
56	0.52		x	x	x	
58	0.54		x	x	x	
60	0.55		x	x	x	
61.5	0.56		x	x	x	
63	0.57		x	x	x	
65	0.58		x	x	x	
67	0.60		x	x	x	
69	0.61		x	x	x	
71	0.63		x	x	x	
73	0.64		x	x	x	
75	0.65		x	x	x	
77.5	0.67		x	x	x	
80	0.69		x	x	x	
82.5	0.71		x	x	x	
85	0.72		x	x	x	
87.5	0.74		x	x	x	
90	0.76		x	x	x	
92.5	0.77		x	x	x	
95	0.79		x	x	x	
97.5	0.81		x	x	x	
100	0.82		x	x	x	
103	0.85		x	x	x	
106	0.87		x	x	x	
109	0.89		x	x	x	x
112	0.91		x	x	x	x
115	0.93		x	x	x	x
118	0.95		x	x	x	x
122	0.97		x	x	x	x
125	0.99		x	x	x	x
128	1.01		x	x	x	x
132	1.04		x	x	x	x

内径 ID d ₁ (mm)		截面直径 section diameter d ₂ (mm)				
尺寸 size	公差 tolerance(±)	1.8 ±0.08	2.65 ±0.09	3.55 ±0.10	5.3 ±0.13	7 ±0.15
136	1.07		x	x	x	x
140	1.09		x	x	x	x
142.5	1.11		x	x	x	x
145	1.13		x	x	x	x
147.5	1.14		x	x	x	x
150	1.16		x	x	x	x
152.5	1.18			x	x	x
155	1.19			x	x	x
157.5	1.21			x	x	x
160	1.23			x	x	x
162.5	1.24			x	x	x
165	1.26			x	x	x
167.5	1.28			x	x	x
170	1.29			x	x	x
172.5	1.31			x	x	x
175	1.33			x	x	x
177.5	1.34			x	x	x
180	1.36			x	x	x
182.5	1.38			x	x	x
185	1.39			x	x	x
187.5	1.41			x	x	x
190	1.43			x	x	x
195	1.46			x	x	x
200	1.49			x	x	x
203	1.51				x	x
206	1.53				x	x
212	1.57				x	x
218	1.61				x	x
224	1.65				x	x
227	1.67				x	x
230	1.69				x	x
236	1.73				x	x
239	1.75				x	x
243	1.77				x	x
250	1.82				x	x
254	1.84				x	x
258	1.87				x	x
261	1.89				x	x
265	1.91				x	x
268	1.92				x	x
272	1.96				x	x
276	1.98				x	x
280	2.01				x	x
283	2.03				x	x
286	2.05				x	x
290	2.08				x	x
295	2.11				x	x
300	2.14				x	x
303	2.16				x	x
307	2.19				x	x
311	2.21				x	x
315	2.24				x	x
320	2.27				x	x
325	2.30				x	x
330	2.33				x	x

内径 ID d ₁ (mm)		截面直径 section diameter d ₂ (mm)				
尺寸 size	公差 tolerance(±)	1.8 ±0.08	2.65 ±0.09	3.55 ±0.10	5.3 ±0.13	7 ±0.15
335	2.36				x	x
340	2.40				x	x
345	2.43				x	x
350	2.46				x	x
355	2.49				x	x
360	2.52				x	x
365	2.56				x	x
370	2.59				x	x
375	2.62				x	x
379	2.64				x	x
383	2.67				x	x
387	2.70				x	x
391	2.72				x	x
395	2.75				x	x
400	2.78				x	x
406	2.82					x
412	2.85					x
418	2.89					x
425	2.93					x
429	2.96					x
433	2.99					x
437	3.01					x
443	3.05					x
450	3.09					x
456	3.13					x
462	3.17					x
466	3.19					x
470	3.22					x
475	3.25					x
479	3.28					x
483	3.30					x
487	3.33					x
493	3.36					x
500	3.41					x
508	3.46					x
515	3.50					x
523	3.55					x
530	3.60					x
538	3.65					x
545	3.69					x
553	3.74					x
560	3.78					x
570	3.85					x
580	3.91					x
590	3.97					x
600	4.03					x
608	4.08					x
615	4.12					x
623	4.17					x
630	4.22					x
640	4.28					x
650	4.34					x
660	4.40					x
670	4.47					x



O型圈
O-Ring



包覆O型圈
PTFE Envelope O-Ring



橡胶垫片
Rubber Gasket



接头垫圈
Joints Clamp Seals



大直径密封圈
Large Diameter Seals



真空阀门密封件
Bonded Door Seals



O形密封条和橡胶板
O Ring Cord and Rubber Sheet



水封
V-Ring