

KINTOWE SEALS  
High Quality Supplier

ISO 9001:2000 GB/T 19001-2008



# 泛塞密封方案

FANSAISEAL SYSTEM SOLUTION



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FANSAISEAL系统是一种高性能、低摩擦、全方位密封解决方案。这种广泛使用的从介质兼容性到不同的温度范围内保持着优越的性能。基本设计应用包括一个由惰性热塑性材料特别选择而成的U型护套和增加的金属弹簧，驱动着系统中使用的夹套材料，在较低的系统压力下提供密封。在较高的系统压力下，密封由流体介质施加压力，这是一种密封组合，确保在整个压力范围内都有足够的密封。通过将FANSAISEAL系统与其他特殊部件(如防挤压装置、pakring、v-ring、适配器、衬套和轴承)耦合，用户可以实现更大的作业范围。

FANSAISEAL可加工直径从10mm到600mm不等，可定制高度和特殊几何形状，几乎可以安装在任何硬件设备中，是关键应用密封的理想选择。

The FANSAISEAL system is a high-performance, low-friction, full-spectrum sealing solution. This widely used spring-energized seal offers performance benefits ranging from enhanced media compatibility to superior performance in broad temperature ranges. The basic design consists of a U-shaped jacket made from inert thermoplastic materials specifically selected for the application. The addition of a metal spring actuates the jacket material used in the system, which provides sealing at low system pressures. At higher system pressures, the seal becomes pressure-energized by the fluid media—a sealing combination that ensures adequate sealing throughout the entire pressure range. By coupling the FANSAISEAL system with other specialty components such as anti-extrusion devices, PakRings, V-Rings, adapters, bushings, and bearings, users can achieve an expanded operational envelope.

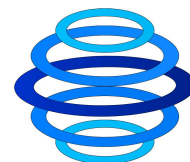
With diameters from 10mm to 600mm, customizable heights and special geometries, the FANSAISEAL system can be configured to fit in almost any hardware, making it the ideal choice for critical-service sealing.

## 产品特点

- 在广泛的温度范围内保持良好的热稳定性
- 低摩擦系数
- 固有的润滑性能
- 优异的耐化学和腐蚀能力
- 减少粘滑运动
- 无限保质期
- 无爆炸性减压
- 无因吸湿肿胀现象
- 在真空条件下安全优异的介电性能
- 在广泛的压力范围内优异的密封性能
- 静态和动态的密封应用
- 法兰和旋转应用

## Features

- Thermal stability across broad temperature range
- Low coefficient of friction
- Inherent lubricating properties
- Excellent chemical and corrosion capabilities
- Reduced stick-slip
- Unlimited shelf life
- No explosive decompression
- No swelling due to moisture absorption
- Safe and excellent dielectric properties under vacuum conditions
- Sealing across broad pressure range
- Static and dynamic applications
- Flanged and rotating applications



KINTOWE SEALS

## 常见PTFE护套材料 COMMON PTFE JACKET MATERIALS

CODE 代号	POLYMER 聚合物	FILLER 填充	COLOR 颜色	ABRASION RESISTANCE 耐磨性	METAL MATING WEAR 金属配合磨损	RELATIVE SEALABILITY 相对密封性能	RELATIVE EXTRUSION RESISTANCE 相对挤压阻力	MEDIA RESISTANCE 介质阻力						OPERATING TEMPERATURES 工作温度 °C
								NORSOK M710 COMPOUND NORSOK M710 化合物	HYDROCARBONS 碳氢化合物	OXYGENATED SOLVENTS 氧化溶剂	STEAM 蒸汽	ACIDS 酸类	BASES 碱类	
700	PTFE	None	White	P	L	E	P	YES	E	E	E	S	S	-184 to 204
701	PTFE	25% Glass	White	E	H	G	E	YES	E	E	E	S	S	-73 to 288
702	PTFE	Glass, MoS2	Gray	E	H	G	G	-	E	E	E	S	S	-73 to 260
711	PTFE	25% Carbon/ Graphite	Black	G	M	G	E	YES	E	E	E	S	S	-73 to 288
777	PTFE	Premium Virgin	White	P	L	E	G	YES	E	E	E	S	S	-184 to 232
HLX	PTFE	Special Bronze	Bronze	G	M	G	G	-	E	E	E	S	S	-73 to 288
HCF	PTFE	Carbon Fiber	Gray/Black	G	M	G	G	-	E	E	E	S	S	-73 to 260

### KEY

**E** = Excellent

**G** = Good

**P** = Poor

**H** = High

**M** = Medium

**L** = Low

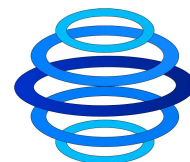
**NR** = Not Recommended

**W** = Resistant to weak acid/base

**S** = Resistant to strong acid/base

所示条件是近似的。实际操作条件取决于介质、压力、设计因素以及聚合物类型。始终建议在组装过程中进行测试，特别是当应用程序接近或超过上述条件时。

Conditions shown are approximate. Actual operating conditions are contingent upon media, pressure, and design factors as well as polymer types. Testing in your assembly is always recommended, especially when applications approach or exceed the conditions shown above.



## 特殊PTFE护套材料 SPECIALTY PTFE JACKET MATERIALS

KINTOWE SEALS

CODE 代号	POLYMER 聚合物	FILLER 填充	COLOR 颜色	ABRASION RESISTANCE 耐磨性	METAL MATING WEAR 金属配合磨损	RELATIVE SEALABILITY 相对密封性能	RELATIVE EXTRUSION RESISTANCE 相对挤出阻力	MEDIA RESISTANCE 介质阻力						OPERATING TEMPERATURES 工作温度
								NORSOK M710 COMPOUND NORSOK M710 化合物	HYDROCARBONS 碳氢化合物	OXYGENATED SOLVENTS 氧化溶剂	STEAM 蒸汽	ACIDS 酸类	BASES 碱类	°C
703	PTFE	PPS,Carbon,MoS2	Black黑色	E	M	G	E	-	E	E	E	S	S	-73 to 288
712	PTFE	5% MoS2	Gray灰色	A	L	E	A	-	E	E	E	S	S	-129 to 232
716	PTFE	15% Graphite	Black黑色	A	M	E	G	YES	E	E	E	S	S	-73 to 260
720	PTFE	2% Carbon	Black黑色	A	L	E	A	-	E	E	E	S	S	-129 to 260
733	PTFE	15% Carbon/ Graphite	Black黑色	G	M	G	G	-	E	E	E	S	S	-73 to 260
734	PTFE	10% Carbon/ Graphite	Black黑色	G	M	G	G	-	E	E	E	S	S	-73 to 260
780	PTFE	None	turquoise 蓝绿色	A	L	E	A	-	E	E	E	S	S	-184 to 232
728	Acetal	None	Gray灰色	A	M	A	G	-	E	E	E	W	W	-56 to 149
745	PEEK	None	Black黑色	A	M	G	G	YES	E	E	E	S	S	-56 to 260
748	UHMWPE	UHMWPE	Translucent 透明色	E	L	E	G	-	E	E	E	S	S	-184 to 82
HLA	PTFE	Mineral	Gray/Black 灰色/黑色	G	M	G	G	-	E	E	E	W	S	-73 to 260
HCV	PTFE	Carbon Fiber	Gray/Black 灰色/黑色	G	M	G	G	-	E	E	E	S	S	-73 to 260
7HP	UHMWPE	None	Translucent 透明色	E	L	E	G	-	E	E	E	S	S	-30 to 135

### KEY

**E** =  
Excellent

**G** = Good

**A** = Average

**P** = Poor

**H** = High

**M** = Medium

**L** = Low

**NR** = Not Recommended

**W** = Resistant to weak acid/base

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## 填充料 FILLERS

To enhance performance capabilities, a range of fillers and additives can be added to materials. Reinforcing fibers, conductive fillers, and colorants are the additives available.  
为了提高性能，可以在材料中添加一系列的填料和添加剂。增强纤维、导电材料和着色剂是可用的添加剂。

## 常见填充料 COMMON FILLERS

### Glass Fibers 玻璃纤维

The most common filler. Minor effect on electrical properties. Increased abrasion on mating metal surfaces.  
最常规的填充，良好的绝缘性能。增强与金属配合面的耐磨性。

### Carbon/Carbon Fibers 碳/碳纤维

Low abrasion and wear. Good deformation and extrusion resistance. 磨损小，良好的抗变形和抗挤压性能。

### Graphite 石墨

Non-abrasive. Low friction. Minor effect on deformation properties. 不耐磨，低摩擦，对变形性能影响较小

### MoS<sub>2</sub> 二硫化钼

Lowers break-in wear and starting friction. 降低磨合磨损和启动摩擦。

### Bronze 青铜

Very high wear resistance and load-bearing capability. Poor chemical resistance. 具有很高的耐磨性和承载能力，耐化学性差。

### Stainless Steel 不锈钢

High wear resistance and load-bearing capability. Wider chemical resistance than bronze. 高耐磨性和承载力，比青铜更耐化学腐蚀。

### PPS 聚苯硫醚

Low wear and abrasion. Excellent deformation and extrusion resistance. Large reduction in tensile and elongation values.  
磨损小。优良的变形和挤压性能。大幅度降低拉伸和伸长率值。

### CAF<sub>2</sub> 氟化钙

Hydrofluoric acid service. 氢氟酸服务。

### Mineral 矿物质

Properties similar to glass, but less abrasive. 性能与玻纤相似，但研磨性较差。

填料和它们对PTFE的相关影响 FILLERS AND THEIR RELATIVE EFFECTS ON PTFE	耐磨性 WEAR RESISTANCE	摩擦力 FRICTION	蠕变强度 CREEP RESISTANCE	导热系数 THERMAL CONDUCTIVITY	金属配合磨损 METAL MATING WEAR	电阻 ELECTRICAL RESISTANCE
GLASS FIBERS 玻璃纤维	😊😊😊😊	😊😊	😊😊	😊	😊😊😊😊	😊
CARBON 碳粉	😊😊😊😊	😊	😊😊😊😊	😊😊😊	😊	😞
GRAPHITE 石墨	😊😊😊	◇	😊😊😊	😊😊😊	◇	😞😞
MoS <sub>2</sub> 二硫化钼	😊	◇	◇	😊	◇	😞
BRONZE	😊😊😊😊	😊😊😊	😊😊😊	😊😊😊😊	😊	😞😞😞
CARBON FIBERS 碳纤维	😊😊😊😊	😊	😊😊😊	😊😊😊	😊	😞
MINERAL 矿物	😊😊😊😊	😊😊😊	😊😊😊	😊😊😊	😊😊😊	◇
STAINLESS STEEL 不锈钢	😊😊😊😊	😊😊😊	😊😊😊	😊😊😊😊	😊😊😊	😞😞😞
HIGH-TEMPERATURE POLYMERS 耐高温聚合物	😊😊😊😊	😊	😊😊😊😊	◇	◇	◇

#### KEY

◇	= No Effect	😞	= Not Recommended
😊	= Slight Increase	😞😞	= Moderate Decrease
😊😊😊	= Moderate Increase	😞😞😞	= Significant Decrease
😊😊😊😊	= Significant Increase		

## 护套材料建议 JACKET MATERIAL SUGGESTIONS

The Kintowe material portfolio contains additional compounds that are not mentioned in this listing. Our specialists can work with you to provide the ideal engineering solution for your specific needs. If your application requires a custom compound or material that is not listed, you can submit an inquiry at [sales@kintowe.com](mailto:sales@kintowe.com), or contact your kintowe representative.

金泰材料组合包含了本清单中没有提到的其他化合物。我们的专家可与您合作，为您的特定需求提供理想的工程解决方案。如果您的申请需要未列出的定制化化合物或材料，您可以在[sales@kintowe.com](mailto:sales@kintowe.com)提交查询，或联系您的金泰代表。

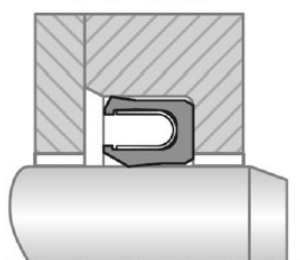
APPLICATIONS 应用	静态 STATIC														
	LOW PRESSURE 低压	MEDIUM PRESSURE 中压	HIGH PRESSURE 高压	旋转 ROTATING				振荡 OSCILLATING				往复 RECIPROCATING			
				低速 LOW SPEED		高速 HIGH SPEED		低速 LOW SPEED		高速 HIGH SPEED		低速 LOW SPEED		高速 HIGH SPEED	
				低压 LOW PRESSURE	高压 HIGH PRESSURE	低压 LOW PRESSURE	高压 HIGH PRESSURE	低压 LOW PRESSURE	高压 HIGH PRESSURE	低压 LOW PRESSURE	高压 HIGH PRESSURE	低压 LOW PRESSURE	高压 HIGH PRESSURE	低压 LOW PRESSURE	高压 HIGH PRESSURE
碳氢油及润滑 通常是石油产品的燃料和润滑剂 Hydrocarbon Oils and Lubrication Typically fuels and lubricants of petroleum-based products	700	777 711	703 745 701	716 720 780	HLX HCF	755 HCF	HLX HCF	716 720 780	HLX HCF 711	755 HCF	HLX HCF	780 720 712	HLX 702 7HP 711 748	HLX 711	HLX 7HP 748
气动和气体 主要用于空气和其他气体Pneumatic and Gases Primarily for air and other gases	700 777 7HP 748	777 7HP 748	777 7HP 745 748	777 780	755 HCF	711 755 HCF	HCF 756	780 777	755 HCF	755 HCF	756 HCF	777 780	7HP 777 PS3 748	711 HCF	HLX 711
化学处理 典型的服务包括处理和分配酸性和产品 Chemical Processing Typical service includes the handing and dispensing of acidic and products	700 711	777 7HP 748	703 745 701	716 720	HCF 711	755 HCF	711 703	716 720 712	HCF 711	HCF 755	703 711	712 720	7HP 711 748	711 703	7HP 703 748

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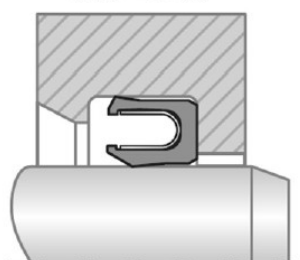
Conditions shown are approximate. Actual operating conditions are contingent upon media, pressure, and design factors as well as polymer types. Testing in your assembly is always recommended, especially when applications approach or exceed the conditions shown above.

## 常见径向沟槽类型 Common Types Of Radial Grooves

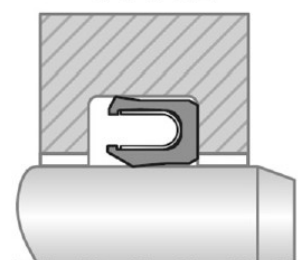
分体式沟槽



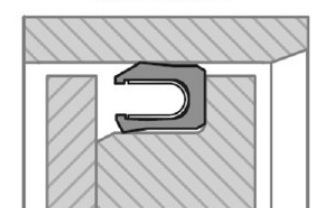
阶梯式沟槽



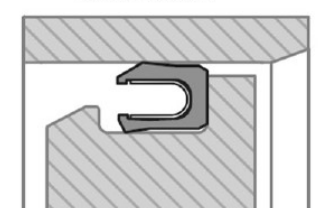
封闭式沟槽



分体式活塞



阶梯式活塞



封闭式活塞



附加的金属弹簧或弹性体会驱动系统中使用的护套材料。密封件安装后，弹簧向外施力响应，从而赋能护套材料并提供正向能量密封。在给定的应用中，载荷值、挠度范围和耐腐蚀性等特性是影响密封性能的主要弹簧因素。The addition of a metal spring or elastomer actuates the jacket material used in the system. Upon seal installation, the spring energizer responds with an outward force, thereby energizing the jacket material and providing positive sealing. Characteristics such as load value, deflection range, and corrosion resistance are among the primary spring factors that affect seal performance in a given application.

## "VS" Type

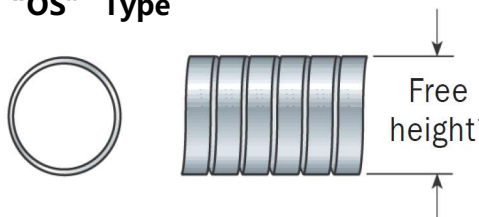


V-spring  
V型弹簧

V型弹簧是所有弹簧类型中最通用的，其设计适用于广泛的应用和服务，从静态应用到旋转或往复运动。这种设计中使用的材料在不降低材料性能的情况下提高了密封性能。在我们的内部和外部压力面密封设计，V型弹簧泛塞封具有广泛的偏转范围，可以设计为中型或重型弹簧负载。这种弹簧对于应对密封压盖所需的更大的公差变化，是一个很好的选择。

The most versatile of all the spring types, the V-Spring design is suited for use in a wide range of applications and services, from static applications to those with rotary or reciprocating motion. The materials used in this design option enhance sealing performance without degradation of material properties. Available in our internal and external pressure face seal design, the V-Spring energizer features a wide deflection range and can be designed with medium or heavy spring loads. This spring is a good choice for glands with wide tolerance variations.

## "OS" Type



O-Helical spring  
O型扁带螺旋弹簧

对于动态操作条件较差的应用，扁带螺旋弹簧设计是理想的选择，因为其挠度范围小。这种高单位负荷的泛塞设计使其成为磨损和摩擦不太重要的静态应用的最佳解决方案。此外，它是低温服务的首选设计。For applications with less dynamic operating conditions, the flat band helical spring design is an ideal choice because of its small deflection range. The high unit load of this spring-energized design makes it the optimal solution for static applications where wear and friction are not great concerns. In addition, it is the preferred design for cryogenic services.

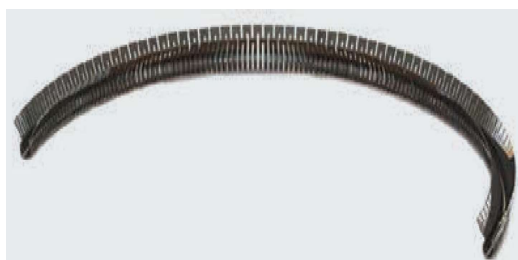
## "CS" Type



CANTED COIL  
卷曲螺旋针式弹簧

这种弹簧在较大的偏转范围内提供较轻的恒定载荷，减少摩擦阻力和密封磨损。通常，应用包括测量和仪表，高速低压和单密封应用。This spring offers light constant loading over a wide deflection range, reducing frictional drag and seal wear. Typically, applications include measurement and instrumentation, high-speed/low pressure, and single-seal applications.

## "JS" Type

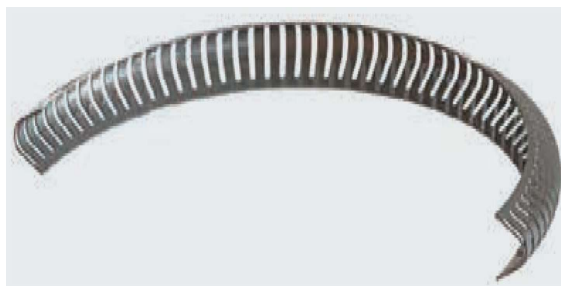


J-SPRING J型弹簧

J型弹簧的设计允许高灵活性，同时也提供高负载。J型弹簧主要用于大型旋转设备，如FPSO旋转装置，它具有更坚固、更重的横截面设计，能够承受数十年的极端高压应用。The J-spring has been designed to allow for high flexibility while also providing high loads. Primarily used in large rotating equipment such as FPSO swivels, the J-spring allows for a more robust, heavy cross-section design that can withstand the extremes of high pressure in applications for decades.

## 弹簧类型 SPRING TYPES

### “FS” Type



这种重型弹簧在整个密封唇上提供恒定的超高负载。可在内部或外部表面密封配置，这种弹簧提供高密封负载所需的低温流体，严密的气体密封，和超高真空应用。

This heavy-duty spring provides a constant ultra high load over the entire sealing lip. Available in either internal or external face seal configurations, this spring provides the high sealing loads needed for cryogenic fluids, tight gas sealing, and ultra-high vacuum applications.

FULL CONTACT SPRING — 全面接触式弹簧

## 弹簧材料 SPRING MATERIALS

MATERIAL	APPLICATION DESCRIPTION	MEDIA RESISTANCE					OPERATING TEMPERATURES °C	SPRING TYPE	
		HYDROCARBONS 碳氢化合物	OXYGENATED SOLVENTS	STEAM 蒸汽	ACIDS 酸类	BASES			
301 Stainless Steel* 301不锈钢	General Service Hydraulics 通用液压服务	E	E	E	W	S	-184 to 204	Yes	Yes
Elgiloy Alloy 特种金属	Harsh Service, NACE MR-01-75 恶劣的服务	E	E	E	S	S	-184 to 427	Yes	Yes
301SS/Silicone Filled 301SS/硅胶填充	Food and Pharmaceuticals 食品和药品	P	E	E	W	W	-184 to 204	Yes	No
Hastalloy 镍基耐蚀高温合金		E	E	E	S	S	-184 to 427	Yes	Yes

### KEY

E=Excellent

W=Resistant to weak acid/base

P=Poor

S=Resistant to strong acid/base

\*某些应用需要更高等级的不锈钢，例如300，304，316等。

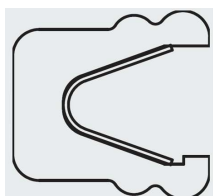
\*Certain applications require higher grades of stainless steel,  
Grades such as 300,304,316 are available.



## V型弹簧泛塞唇口轮廓 V-SPRING LIP PROFILES

密封特性如密封性、磨损和摩擦极大的影响唇形结构和密封几何形状。除了我们的标准形式，唇形轮廓可以定制特定的压盖配置，如高度磨蚀环境和粗糙的表面抛光。

Seal characteristics such as seal ability, wear, and friction are greatly affected by lip-profile construction and seal geometry. In addition to our standard forms, lip profiles can be customized for specific gland configurations such as highly abrasive environments and rough surface finishes.



### S 型 双半径唇

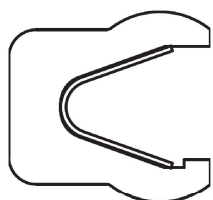
S型唇口是标准唇形设计。它提供备用双密封面，具有放射状接触面积，适用于中等单位负载。这种设计特点提供了最佳的磨损和密封能力的组合，使S型唇适合最广泛的应用范围。

密封性能 = 中等    磨损 = 中等    摩擦 = 中等

SEALABILITY = Medium    WEAR = Medium    FRICTION = Medium

### S LIP DOUBLE RADIUS LIP

The S lip is the standard lip profile design. It offers redundant sealing surfaces with radiused contact areas for medium unit loading. This design feature provides the best combination of wear and seal ability, making the S lip suitable for the widest range of applications.



### A 型 单半径唇

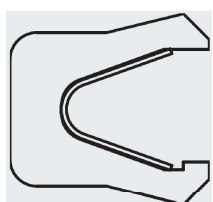
A型唇口设计采用大半径，因此单位负载低，从而产生低摩擦和低磨损。这种唇型建议应用于高表面速度或那些需要低摩擦的应用。该型号便于安装在引入倒角不足的压盖上。

密封性能 = 低    磨损 = 低    摩擦 = 低

SEALABILITY = Low    WEAR = Low    FRICTION = Low

### A LIP SINGLE RADIUS LIP

The A lip employs a large radius, and therefore low unit loading, resulting in low friction and low wear. This lip profile is recommended for applications with high surface speeds or those that require low friction. The profile also facilitates installation in glands with insufficient lead-in chamfers.



### B 型 斜唇

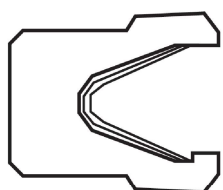
B型唇是金泰提供的所有唇型中单位负荷最高的。建议在静态应用中使用B型唇，当泛塞封直径较小时需使用B型唇口设计。

密封性能 = 高    磨损 = 高    摩擦 = 高

SEALABILITY = High    WEAR = High    FRICTION = High

### B LIP BEVEL LIP

The B lip profile produces the highest unit loading of all of the lip profiles offered by Kintowe. The B lip is recommended for use in static applications and is required when the FanSaiSeal component diameter is less than 3/16" (4.7mm).



### C 型 平唇

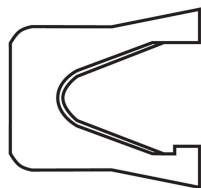
C唇提供了一个平坦的密封面，允许在整个密封寿命内保持恒定的磨损率。使其非常适合以延长密封寿命为主要目标的旋转应用。

密封性能 = 高    磨损 = 高    摩擦 = 高

SEALABILITY = High    WEAR = High    FRICTION = High

### C LIP FLAT LIP

The C lip provides a flat sealing surface which allows for a constant wear rate over the life of the seal, making it ideal for rotary applications where extending seal life is the primary goal.



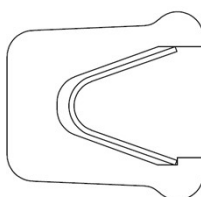
## D 型 刮唇器

D型唇的低单位载荷特性提供了长时间的磨损，与高单位载荷密封相比，密封效果略差。这种设计特别适合往复应用。

密封性能 = 中等 **SEALABILITY** = Medium  
 磨损 = 低 **WEAR** = Low  
 摩擦 = 中等 **FRICTION** = Medium

## D LIP SCRAPER LIP

The D lip profile's low unit loading characteristics offer long wear, with somewhat less effective sealing than higher unit loaded seals. This design is particularly well-suited for reciprocating applications.



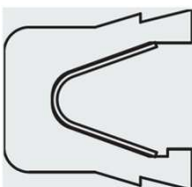
## E 型 半径端唇

E型唇是与S型唇相似的放射状唇型，但只有一个接触点。这种唇形在V型弹簧密封中产生的摩擦最小，并具有极高的密封能力。该设计唇口最适合于静态密封应用和轻载振动应用等需要紧密密封的地方。

密封性能 = 中等 **SEALABILITY** = Medium  
 磨损 = 低 **WEAR** = Low  
 摩擦 = 中等 **FRICTION** = Medium

## E LIP RADIUS END LIP

The E lip profile is a radiused lip profile similar to the S lip, but with a single point of contact. This lip profile generates the lowest friction of any V-Spring FanSeal and has extremely high seal ability. This lip is best suited for static sealing applications and light oscillating applications where tight sealing is required.



## F 型 双刮唇

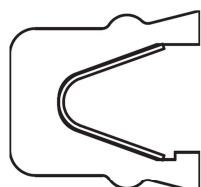
F型唇的特点是适合被磨料污染的系统。较低的单元负载延长了旋转应用中的密封寿命。

密封性能 = 中等  
 磨损 = 中等  
 摩擦 = 低

## F LIP DUAL SCRAPER LIP

The F lip features a profile suitable for systems contaminated with abrasives. Lower unit loadings offer extended seal life in rotary applications.

**SEALABILITY** = Medium  
**WEAR** = Medium  
**FRICTION** = Low



## J 型 刮刀&半径唇

J型唇也是双唇口密封设计，锋利的第一道唇口保护着第二道半径副唇密封免受来自磨料介质的影响。除了用于刮除应用，这种设计也适用于分段式压盖，是用于高粘度介质的首选。

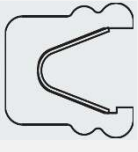

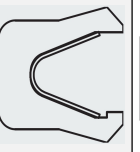
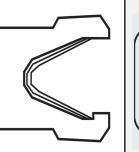
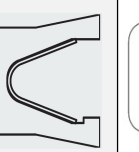
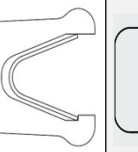
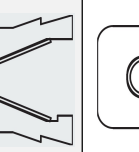
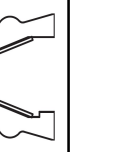
密封性能 = 中等  
 磨损 = 中等  
 摩擦 = 中等

## J LIP SCRAPER RADIUS LIP

The J lip also has redundant sealing surfaces, with the sharp front edge protecting the secondary, radiused surface from abrasive media. Besides use in scraping applications, this lip is also used with step-cut glands and is the preferred profile for use with high-viscosity media.

**SEALABILITY** = Medium  
**WEAR** = Medium  
**FRICTION** = Medium

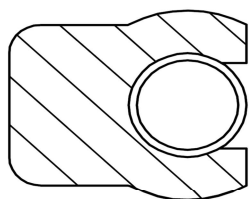
## V型弹簧泛塞截面选型指南 V-SPRING PROFILE USAGE GUIDE

型号&代码 PROFILE & CODE								
往复 RECIPROCATING	首选 Preferred	首选 Preferred	首选 Preferred	首选 Preferred	首选 Preferred	首选 Preferred	首选 Preferred	首选 Preferred
旋转 ROTATING	首选 Preferred	首选 Preferred	中性 Neutral	首选 Preferred	中性 Neutral	中性 Neutral	首选 Preferred	首选 Preferred
静态 STATIC	首选 Preferred	中性 Neutral	首选 Preferred	中性 Neutral	中性 Neutral	中性 Neutral	中性 Neutral	中性 Neutral
振荡 OSCILLATING	首选 Preferred	首选 Preferred	中性 Neutral	首选 Preferred	中性 Neutral	中性 Neutral	首选 Preferred	首选 Preferred
高密封能力 HIGH SEALABILITY	首选 Preferred	中性 Neutral	首选 Preferred	中性 Neutral	中性 Neutral	中性 Neutral	中性 Neutral	中性 Neutral
排斥 EXCLUSION	中性 Neutral	中性 Neutral	中性 Neutral	中性 Neutral	首选 Preferred	首选 Preferred	首选 Preferred	首选 Preferred
低摩擦 LOW-FRICTION	中性 Neutral	首选 Preferred	中性 Neutral	中性 Neutral	首选 Preferred	首选 Preferred	中性 Neutral	中性 Neutral
梯级压盖 STEP GLAND	请勿使用 Do Not Use	中性 Neutral	中性 Neutral	中性 Neutral	首选 Preferred	首选 Preferred	首选 Preferred	首选 Preferred
<4.8mm ID <3/16" ID	请勿使用 Do Not Use	请勿使用 Do Not Use	首选 Preferred	请勿使用 Do Not Use	首选 Preferred	首选 Preferred	请勿使用 Do Not Use	请勿使用 Do Not Use

## 泛塞唇型截面 LIP PROFILES

密封特性，如密封性、磨损和摩擦，在很大程度上受到唇型结构和密封几何形状的影响。除了我们的标准形式，唇型可以定制特定的压盖配置，如高磨蚀环境和粗糙表面饰面。

Seal characteristics such as seal ability, wear, and friction are greatly affected by lip-profile construction and seal geometry. In addition to our standard forms, lip profiles can be customized for specific gland configurations such as highly abrasive environments and rough surface finishes.



### K 型 单半径唇

K型单半径唇与V型弹簧的A型唇相似，但设计初衷是为O形弹簧设计的。径向唇形提供了较低的单位负荷，从而产生较低的摩擦。该半径圆唇可以在引入倒角不足的腔体中更容易安装。典型应用包括高速旋转、气体密封和低温的工况。

密封性能 = 中等

磨损 = 中等

摩擦 = 中等

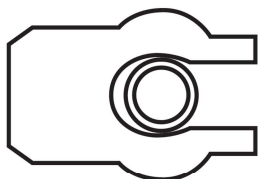
### K LIP SINGLE RADIUS LIP

The K lip is similar to the A lip for V-Springs but designed for circular springs in mind. The radiused lip profile provides low unit loading which results in low friction. The radius also allows for easy installation in glands with insufficient lead-in chamfers. Typical applications include high-speed rotary, gas sealing, and cryogenics.

SEALABILITY = Medium

WEAR = Medium

FRICTION = Medium



### L 型 用于背压的单半径唇

L型密封唇适用于需要单密封和明显背压的应用场合。当压力反向时，这种密封的延伸唇保护密封面不受损害。一旦压力恢复，通过唇部的径向槽可以使压力重新激活密封，防止流体漏气。

密封性能 = 低

磨损 = 低

摩擦 = 低

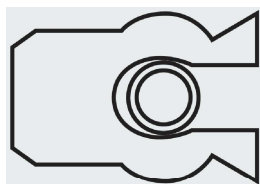
### L LIP SINGLE RADIUS LIP FOR BACK PRESSURE

The L lip is designed for applications where a single seal is desired and significant back pressure will be seen. The extended lips of this seal protect the sealing surfaces from damage as pressure is reversed. Radial slots through the lips allow pressure to reenergize the seal once normal pressure is restored, preventing fluid blow-by.

SEALABILITY = Low

WEAR = Low

FRICTION = Low



## M 型 刮唇器半径唇

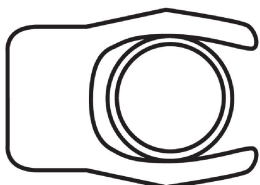
M型唇在功能上与J型唇相似，但设计用于圆形弹簧。刮唇作为一个备用密封，有助于保护半径唇免受磨料介质的损坏。此外，该密封唇的刮板部分可以安装在阶梯切割的腔体。

密封性能 = 高  
磨损 = 高  
摩擦 = 高

SEALABILITY = High  
WEAR = High  
FRICTION = High

## M LIP SCRAPER RADIUS LIP

The M lip is similar in function to the J lip but designed for use with circular springs. The scraper lip helps to protect the radius lip from damage by abrasive media and acts as a redundant sealing surface. Additionally, the scraper portion of the lip allows this seal to be installed in step cut glands.



## N 型 点接触唇

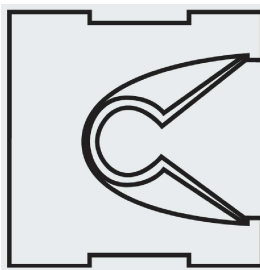
N型轮廓具有一个尖接触面，确保最小的接触面和“最大的单位负载”。当与螺旋弹簧结合使用时，这种配置可以在静态应用中对气体和低粘度液体进行紧密密封。

密封性能 = 中  
磨损 = 低  
摩擦 = 中

SEALABILITY = Medium  
WEAR = Low  
FRICTION = Medium

## N LIP POINT CONTACT LIP

The N lip profile features a pointed contact surface, ensuring minimal contact area and maximum unit loading. This profile, when used in conjunction with a helical coil spring, allows for tight sealing of gas and low viscosity liquids in static applications.



## P 型 支撑脚平唇

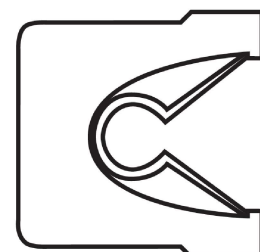
P唇利用一个平坦的密封面，确保在密封的生命周期内保持恒定的磨损率。大型旋转设备中重载几何截面密封配合高负荷弹簧是最理想的。后跟的支撑设计确保更柔软的材料制成的密封件（如PTFE）保持与压盖壁平行而不变形。

密封性能 = 中  
磨损 = 中  
摩擦 = 低

SEALABILITY = Medium  
WEAR = Medium  
FRICTION = Low

## P LIP SUPPORTED HEEL FLAT LIP

The P lip utilizes a flat sealing surface, allowing for a constant wear rate over the life of the seal. The high load Spring is ideal for heavy cross-section geometries used in large rotating equipment. The heel support ensures that seals made from softer materials like PTFE remain parallel to gland walls without distortion.



## R 唇 平唇

R型唇与P型唇相似，但没有额外的后跟支撑。当使用更坚硬的材料如UHMW-PE时，这种几何结构是理想的。此外，缺乏后跟支持使这个几何截面拥有比P唇更低的摩擦。

密封性能 = 中  
磨损 = 中  
摩擦 = 中

SEALABILITY = Medium  
WEAR = Medium  
FRICTION = Medium

## R LIP FLAT LIP

The R lip is similar to the P lip, but does not have the additional heel support. This geometry is ideal when used with more rigid materials like UHMW-PE. Additionally, the lack of heel support makes this geometry lower friction than the P lip.



# 泛塞唇形截面使用指南 LIP PROFILE USAGE GUIDE

型号&代码 PROFILE & CODE						
往复 RECIPROCATING	中性 Neutral	首选 Preferred	首选 Preferred	中性 Neutral	首选 Preferred	首选 Preferred
旋转 ROTATING	中性 Neutral	中性 Neutral	中性 Neutral	中性 Neutral	首选 Preferred	首选 Preferred
静态 STATIC	首选 Preferred	中性 Neutral	首选 Preferred	首选 Preferred	首选 Preferred	首选 Preferred
振荡 OSCILATING	首选 Preferred	首选 Preferred	首选 Preferred	中性 Neutral	首选 Preferred	首选 Preferred
高密封能力 HIGH SEALABILITY	中性 Neutral	中性 Neutral	中性 Neutral	首选 Preferred	中性 Neutral	中性 Neutral
排斥 EXCLUSION	中性 Neutral	中性 Neutral	中性 Neutral	中性 Neutral	中性 Neutral	中性 Neutral
低摩擦 LOW-FRICTION	首选 Preferred	首选 Preferred	首选 Preferred	中性 Neutral	中性 Neutral	中性 Neutral
梯级压盖 STEP GLAND	中性 Neutral	中性 Neutral	首选 Preferred	请勿使用 Do Not Use	中性 Neutral	中性 Neutral

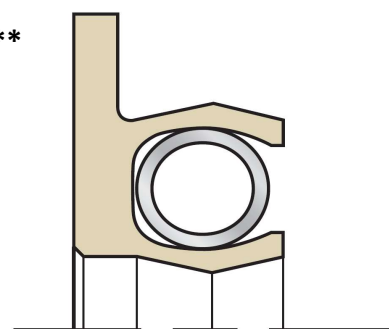
## 其它特殊类型 Other Special Types

VFSM\*\*\*\*\*S\*\*\*



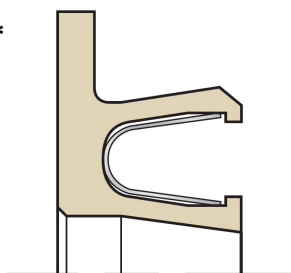
法兰泛塞  
Flanged FansaiSeal-S

ONFM\*\*\*\*\*S\*\*\*



法兰泛塞  
Flanged FansaiSeal-N

VBFM\*\*\*\*\*S\*\*\*



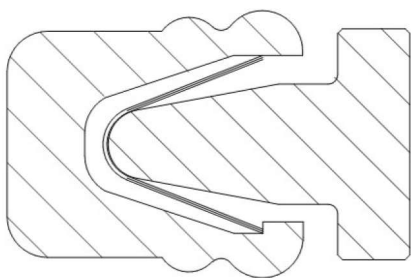
法兰泛塞  
Flanged FansaiSeal-B

VBSM\*\*\*\*\*S\*\*\*



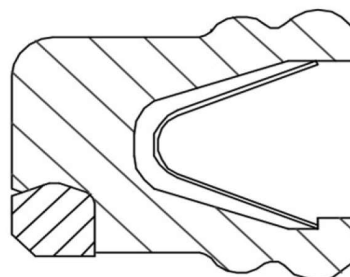
端面泛塞  
Static Face FansaiSeal-B

## 其它特殊类型 Other Special Types



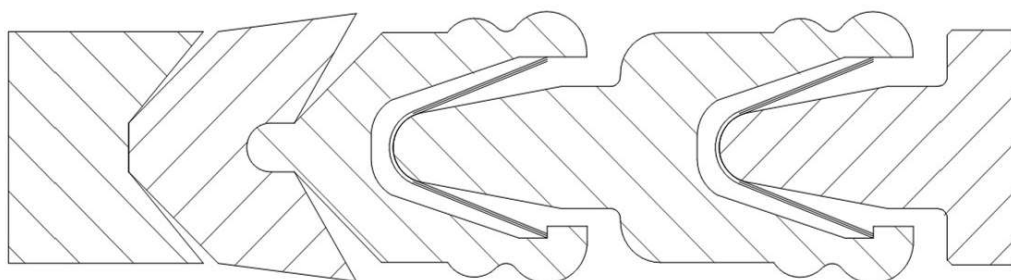
泛塞组合封:

Fansaiseals® with Pakring



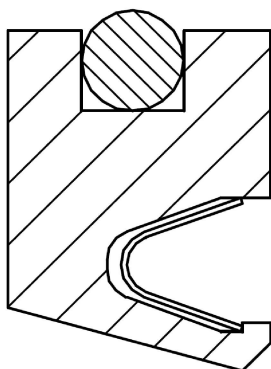
泛塞组合封:

Fansaiseals® with integral back-up Ring



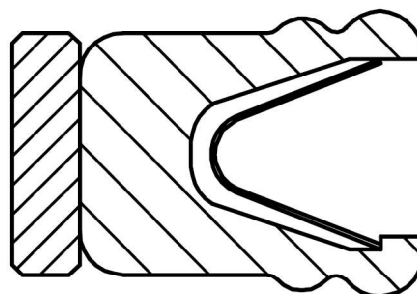
阀杆泛塞组合封:

Fansaiseals® combined with v-packing



泛塞组合油封:

Fansaiseals® + O-ring+V-Spring



泛塞组合封:

Fansaiseals® with back-up ring

更大的压盖直径需要更大的公差，以合理和可比的成本制造。

FANSAISEAL™ 零件在横截面上有一个“设计进”的挤压，但制造公差决定了最小值和最大值。如果最小挤压过小，密封在失效前可以承受较小的磨损。如果最大挤压太大，摩擦磨损将不可接受。

Kintowe FANSAIGland系统的腔体尺寸推荐是围绕活动腔体直径（活塞密封的内径和杆密封的杆径），并考虑到制造性能、磨损和摩擦问题、挤压间隙和制造过程中产生的费用。

FANSAIGland 系统计算一个给定的活动压盖直径的最佳横截面，或者反向计算给定截面的最佳活动直径，同时考虑了公差选择的基本原理。

最终的结果就是在平衡最佳密封性能和最长使用寿命与最低制造成本的过程中设计一款合理的密封套尺寸。

下面的过程和示例演示了如何有效地实现使用FANSAISEAL密封套的测量。

Larger gland diameters require greater tolerances to manufacture at reasonable and comparable costs. FANSAISEal™ components have a “designed-in” squeeze on the cross section, but manufacturing tolerances determine the minimum and maximum. If the minimum squeeze is too small, the seal can tolerate less wear before it fails. If the maximum squeeze is too large, the friction and wear will be unacceptable.

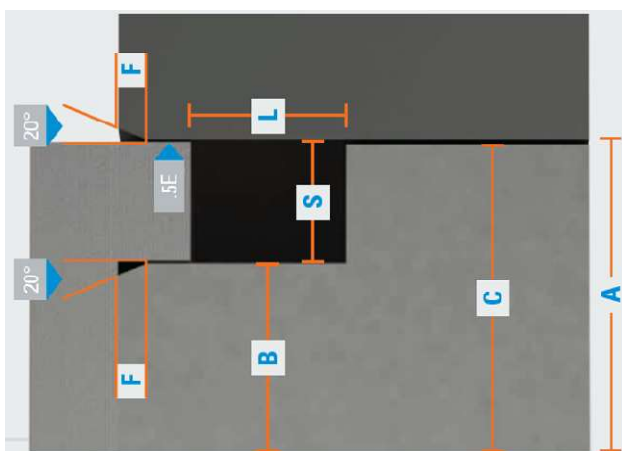
The Kintowe FANSAIGland system of gland dimension recommendations is centered around the active gland diameter (the bore diameter for piston seals and the rod diameter for rod seals) and takes into account manufacturing capabilities, wear and friction concern, extrusion gaps, and expenses incurred during manufacturing.

The FANSAIGland system calculates the optimal cross-section for a given active gland diameter or, working backwards, the optimal active diameter for a given cross section, giving consideration to the rationale of tolerance selection.

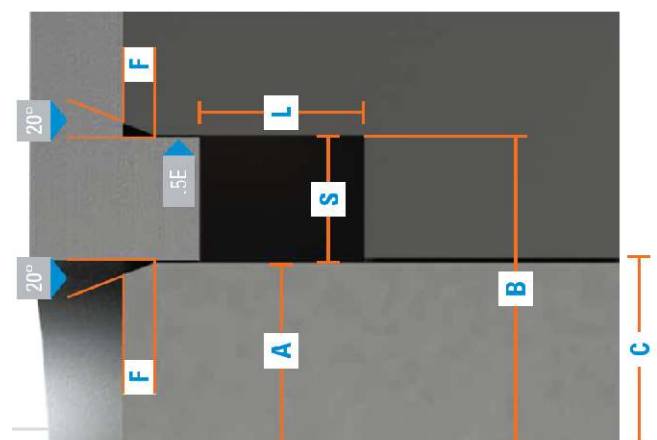
The result is a set of gland dimensions that balances the best seal performance and longevity with the lowest manufacturing costs required for that gland.

The processes and examples below demonstrate how to effectively use FANSAIGland measurements.

活塞封  
PISTON SEALS

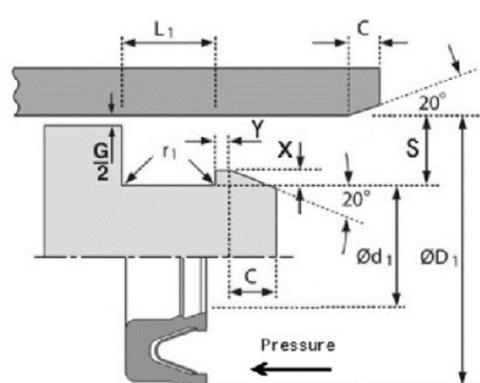
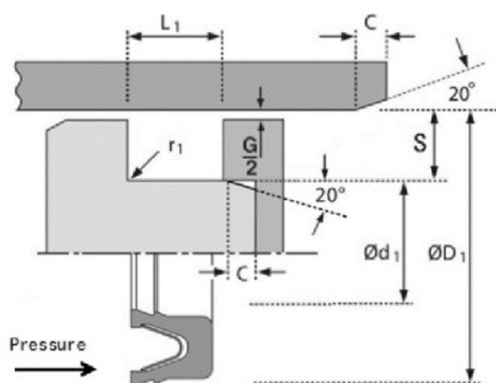


活塞杆封  
ROD SEALS



# 活塞封：8步法 PISTON SEALS:8-STEP PROCESS

$\Phi D1$	S	$\Phi d1$	L1	C	G/2	$\Phi D1-G/2$
活动压盖直径	最小压盖横截面	活塞杆直径	最小轴向压盖长度	最小安装斜面长度	直径间隙	压盖间隙直径
Active gland diameter	Minimum gland cross section	Non-active gland diameter	Minimum axial gland length	Minimum installation bevel length	Diametrical clearance	Gland clearance diameter



**步骤1：确定活动压盖直径。**对于活塞密封， $\Phi D1$ 等于活塞缸筒内径，是最小压盖外径。

Step1: Determine the active gland diameter . For piston seals, " $\Phi D1$ " equals the bore diameter and is the minimum gland OD.

**步骤2：确定最小压盖截面。**该值基于 $\Phi D1$ ，可以在以下页面Gland Dimension Examples表中找到。

Step2: Determine the minimum gland cross section .This value is based on  $\Phi D1$  and can be found in the Gland Dimension Examples tables on the following pages.

**步骤3：确定非活动压盖直径。**对于活塞密封，" $\Phi d1$ "等于" $\Phi D1 - 2S$ ",是最大压盖内径。

Step3: Determine the non-active gland Diameter .For piston seals , " $\Phi d1$  " equals " $\Phi D1 - 2S$ " and is the maximum gland ID.

**步骤4：确定压盖直径的公差。**公差下面几页的压盖尺寸示例表中给出，仅取决于横截面，以控制密封挤压。

Step4: Determine tolerance for gland diameters. Tolerances are given in the Gland Dimension Examples tables on the following pages, dependent only upon cross section in order to control seal squeeze.

**步骤5：确定轴压盖的最小长度。**对于小于10000psi (690bar)的压力，使用值L1。L2值可增加一个挡圈，可用于压力在10000psi (690bar)至17000psi (1172bar)之间。对于超过17000psi (1172bar)的压力，请咨询 Kintowe。L1和L2的公差都是0.25mm。

Step5: Determine the minimum axial gland length . For pressures less than 10000 psi(690bar),use the value L1.Value L2 accommodates the addition of an back up ring and can be used for pressure above 10000 psi(690bar) up to 17000 psi(1172bar).For pressures above 17000psi(1172bar),please consult Kintowe . The tolerance for both L1 and L2 is 0.25mm.

**步骤6：确定最小安装斜角长度。**根据横截面，该值也在以下页面的压盖尺寸示例表中给出。

Step6: Determine the minimum installation bevel length. This value is also given in the Gland Dimension Examples tables on the following pages , according to the cross section .

**步骤7：确定最小和最大直径间隙。**这些值显示在表中。最小直径间隙将用于计算 " $\Phi D1-G/2$ "-压盖间隙直径。

Step7: Determine the minimum and maximum diametrical clearance. These values are shown in the table. The minimum diametrical clearance will be used to calculate " $\Phi D1-G/2$ " - the gland clearance diameter.

**步骤8：确定压盖间隙直径和公差。**

对于活塞密封，压盖间隙直径=" $\Phi D1-G/2$ 最小值"，是最大间隙直径。轴和孔的公差可以应用到这些值使用表。

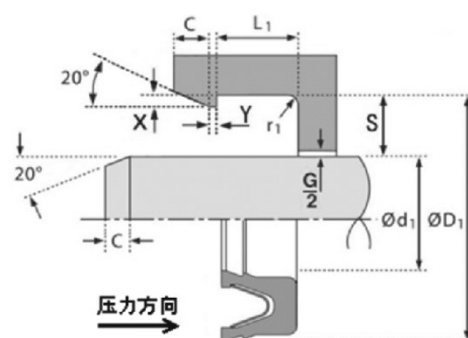
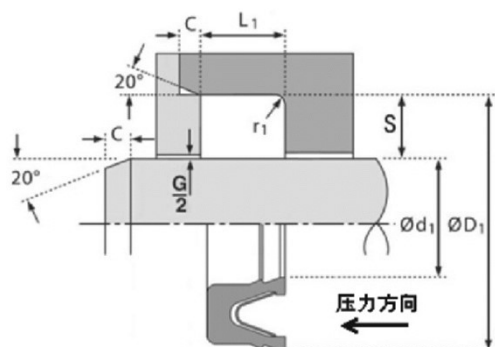
Step8: Determine the gland clearance diameter and tolerance . For piston seals , gland clearance diameter equals " $\Phi D1-G/2$  minimum" and is the maximum clearance diameter . Shaft and hole tolerance can be applied to these values using the table .



# 活塞杆封：8步法

## ROD SEALS:8-STEP PROCESS

A( $\Phi d_1$ )	S	B( $\Phi D_1$ )	L (L1)	F (C)	E (G/2)	C( $\Phi d_1 - G/2$ )
活动压盖直径	最小压盖横截面	非活动压盖直径	最小轴向压盖长度	最小安装斜面长度	直径间隙	压盖间隙直径
Active gland diameter	Minimum gland cross section	Non-active gland diameter	Minimum axial gland length	Minimum installation bevel length	Diametrical clearance	Gland clearance diameter



**步骤1：确定活动压盖直径。**对于杆密封，“ $\Phi d_1$ ”等于杆直径，是最大压盖内径。

Step1: Determine the active gland diameter . For rod seals,  $\Phi d_1$  equals rod diameter and is the maximum gland ID.

**步骤2：确定最小压盖截面。**该值基于 $\Phi d_1$ ，可以在以下页面的Gland Dimension Examples表中找到。

Step2: Determine the minimum gland cross section. This value is based on  $\Phi d_1$  and can be found in the Gland Dimension Examples tables on the following pages.

**步骤3：确定非活动压盖直径。**对于杆密封， $\Phi D_1 = \Phi d_1 + 2S$ ，是最小压盖外径。

Step3: Determine the non-active gland diameter . For rod seals,  $\Phi D_1 = \Phi d_1 + 2S$  and is the minimum gland OD.

**步骤4：确定压盖直径的公差。**公差在下面几页的压盖尺寸示例表中给出，仅取决于横截面，以控制挤压密封。

Step4: Determine the tolerances for gland diameter . Tolerances are given in the Gland Dimension Examples tables on the following pages, dependent only upon cross section in order to control seal squeeze.

**步骤5：确定轴压盖的最小长度。**

对于小于10000psi(690bar)的压力，使用值L1。若达到L2值可增加一个挡圈，可用于在10000psi(690bar)至17000psi(1172bar)之间。如果压力高于17000 (1172bar),请咨询 Kintowe。L1和L2的公差都是0.25mm

Step5: Determine the axial gland length. For pressures less than 10000psi(690bar),use the value L1 . Value L2 accommodates the addition of a back-up ring and can be used for pressure above 10000psi (690bar) up to 17000psi (1172bar). For pressure above 17000(1172bar), please consult Kintowe . The tolerance for both L1 and L2 is 0.25mm.

**步骤6：确定最小安装斜角长度。**根据横截面，该值也在以下页面的压盖尺寸示例表中给出。

Step6: Determine the minimum installation bevel length. This value is also given in the Gland Dimension Examples tables on the following pages , according to the cross section .

**步骤7：确定最小和最大间隙值。**这些值显示在表中。最小直径间隙将用于计算  $G/2$  - 压盖间隙直径。

Step7: Determine the minimum and maximum diametrical clearance . These values are shown in the table . The minimum diametrical clearance will be used to calculate “ $\Phi d_1 + G/2$ ” - the gland clearance diameter .

**步骤8：确定压盖间隙直径和公差。**对于杆密封，“ $\Phi d_1 + G/2$  min”是最小间隙直径。

Step8: Determine the gland clearance diameter and tolerance . For rod seals, “ $\Phi d_1 + G/2$  min” and is the minimum clearance diameter.

## 腔体尺寸对照范例 GLAND DIMENSION EXAMPLES

该范例表明了实际直径与密封套沟槽之间的关系

The examples show a relationship between active diameter and gland section.

杆直径或缸径 Rod Diameter Or Cylinder Bore	标准压盖截面 Nominal Gland Cross Section	最小压盖截面 Minimum Gland Cross Section	轴向压盖最小长度 Minimum Axial Gland Length	轴向压盖最小长度 MINIMUM AXIAL GLAND LENGTH	最小安装斜角长度 Minimum Installation Bevel Length	最小直径间隙 Minimum Diametrical Clearance	最大直径间隙 Maximum Diametrical Clearance	轴公差 Shaft Tolerance	孔径公差 HOLE TOLERANCE
A	-	S	L1+0.25	L2+0.25	F min.	E min.	E max.	-. XXX	+. XXX
5.0-14.9	3.00	2.98	4.06	5.45	0.86	0.02	0.11	0.03	0.06
15.0-24.9	4.00	3.97	5.37	7.19	1.14	0.04	0.17	0.05	0.08
25.0-59.9	5.00	4.96	6.64	8.92	1.43	0.05	0.2	0.06	0.09
60.0-169.9	7.50	7.44	9.82	13.24	2.14	0.09	0.33	0.1	0.14
170.0-409.9	10.00	9.92	13.01	17.53	2.85	0.12	0.45	0.15	0.18
410.0-500.0	12.50	12.41	16.16	21.81	3.56	0.17	0.6	0.2	0.23

### 腔体沟槽表面处理 SUGGESTED GLAND SURFACE FINISHES

静态STATIC

动态DYNAMIC

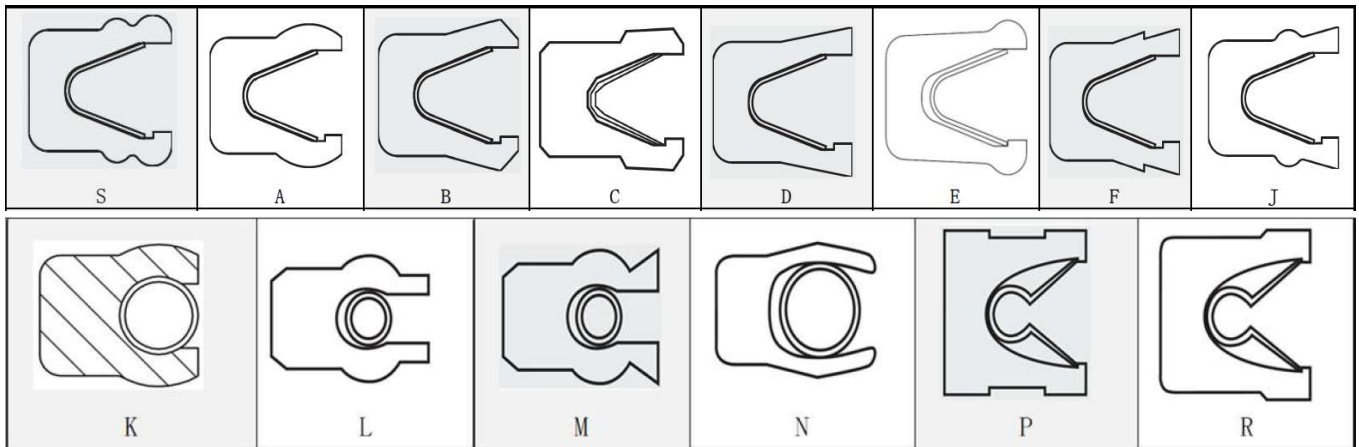
Ra 0.8  $\mu\text{m}$  max

Ra 0.4  $\mu\text{m}$  max

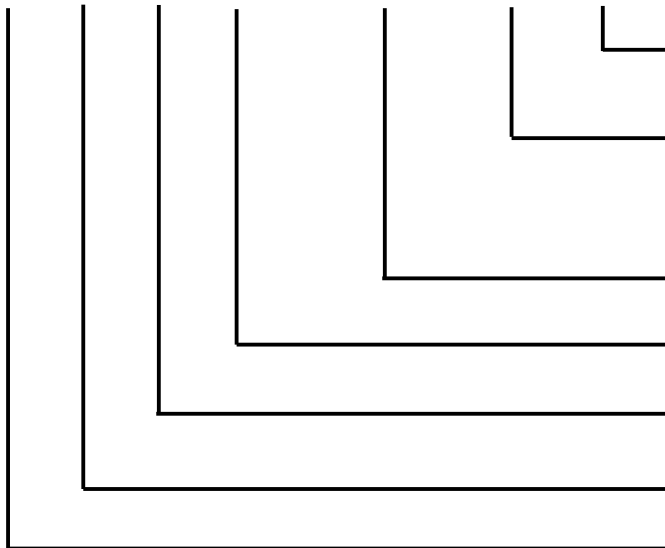
Ra 32 max

Ra 16 max

## 订货举例 Part No. Example



V S P M 00140 S 702



密封材料 Jacket Material

弹簧材质 Spring Material

S : 301 S.S

E : Elgiloy

缸径尺寸 X 10 / Piston Diameter X 10

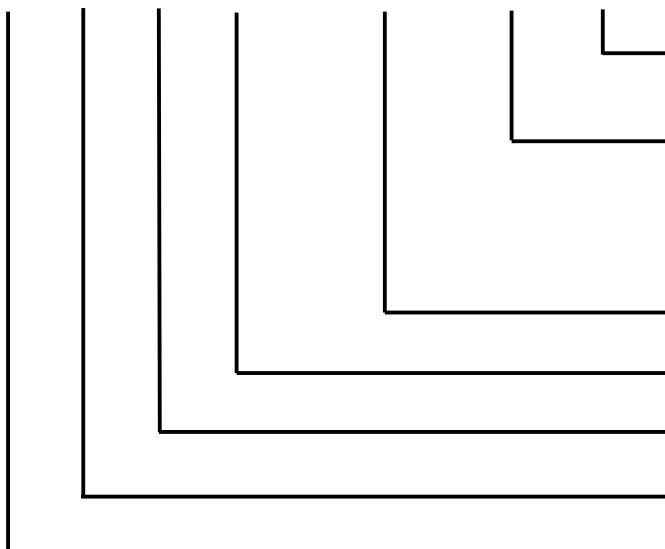
公制 Metric

活塞封 Piston Seal

唇口类型 Lip Type

弹簧型号 Spring Type

V B F M 00220 S 711



密封材料 Jacket Material

弹簧材质 Spring Material

S : 301 S.S

E : Elgiloy

杆径尺寸 X10 / Rod Diameter X 10

公制 Metric

法兰泛塞封 Flanged FANSAI Seal

唇口类型 Lip Type

弹簧型号 Spring Type

本样本中提供的各参数与特性仅供参考，金泰保留随时更改产品设计和说明的权力，如有更改恕不另行通知！  
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