



ProGum

O-Ring

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## I. Introduction

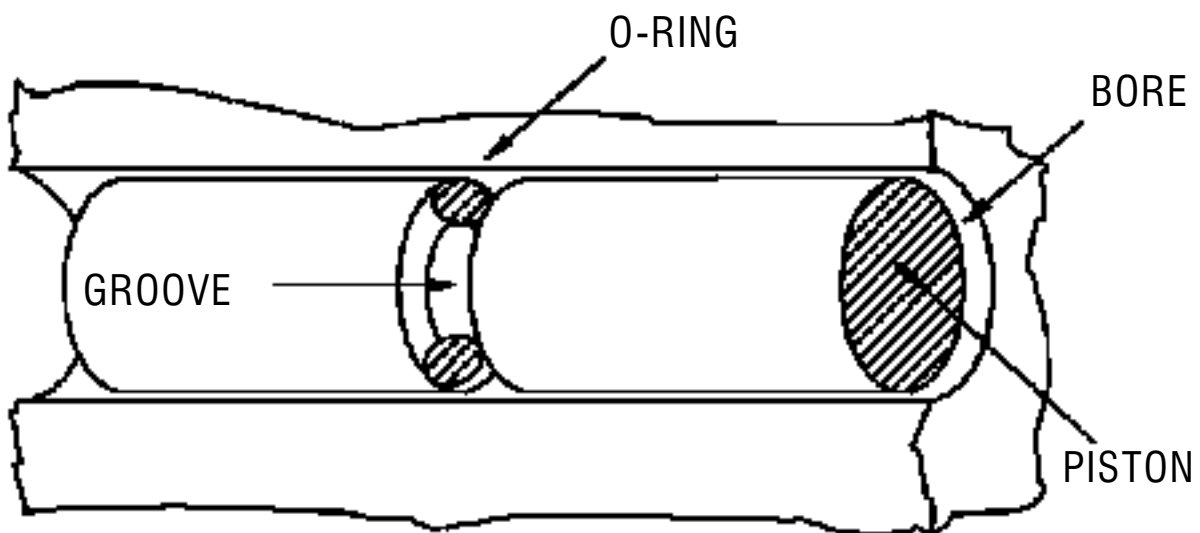
An O-Ring Seal is a means to prevent the loss of a fluid or gas. The seal consists of an O-Ring and a metal gland to contain the elastomeric material. O-Rings seals which are effective against fluids or gases are characterized by a lack of leakage. This is done by yielding of a softer material which is partially or totally confined between two mating surfaces. Rubber can be viewed as a non-compressible, viscous fluid with very high surface tension.

The O-Ring is installed without expensive machining and bulky support structures. It is dependable and it is suitable for a wide range of pressures and temperatures. It has a long life, is simple, easy to install without trouble if a few precautions are taken.

## I. Introducción

Las juntas tóricas previenen la pérdida de fluido o gas. El sellado consiste en un anillo y una cavidad metálica que contiene el elastómero. Juntas tóricas que son efectivas para fluidos o gases son caracterizadas por una carencia de fugas. Esto se consigue mediante el cede de un material blando parcialmente o totalmente confinado entre dos superficies. El elastómero se puede describir como un fluido no compresible viscoso con muy alta tensión superficial.

Las juntas tóricas se instalan sin mecanizados caros ni estructuras de soporte voluminosas. Son fiables y aptas para una gran variedad de presiones y temperaturas. Poseen una larga vida de uso, son simples y fáciles de instalar sin problema si se toman unas mínimas precauciones.



There are two different kind of sealing: static and dynamic.

Static Sealing: Seal in which all the adjacent surfaces do not move relative to each other. It is divided into axial or radial squeeze.

Dynamic Sealing: the parts to be sealed move relative to each other. There are three different kinds of seals depending on the movement: reciprocating, rotary and oscillating seal.

The main applications of O-Rings are in Automobile Industry, Bio-Medical, Electronic, Food Industry, and Aerospace.

Existen dos tipos de sellados: estático y dinámico.

Sellado estático: sellado en el cual las superficies adyacentes no se mueven relativamente a cada una. Se dividen en compresión axial o radial.

Sellado dinámico: las partes a ser selladas se mueven relativamente unas a las otras. Tenemos tres tipos de sellado dependiendo del movimiento: recíproco, rotatorio y oscilatorio.

Las principales aplicaciones de las juntas tóricas son la industria automovilística, bio-médica, electrónica, alimentaria y aeroespacial.

## II. Material Selection

It is important to consider the seal's environment when selecting the material. The most important factors are the medium being sealed, the temperature of medium, the pressure.

Material	Type of Polymer Most Often Used	ASTM D-2000 Class	Generally Resistant to	Generally Attacked by
NR	Natural Rubber	AA	Resilience	Shock Mounts, Bushings, Boots
BR	Polybutadiene	AA, BA	Similar to natural rubber	Similar to natural rubber
IR	Polyisoprene	AA	Most moderate wet or dry chemicals, organic acids, alcohols, ketones, aldehydes	Ozone, strong acids, fats, oils, greases, most hydrocarbons
SBR	Styrene Butadiene, Buna S, GRS	AA, BA	Heat Resistance, 212 DegF	Brake Cups, Boots, Grommets, Tires, Washers
Butyl	IIR, Synthetic Polyisoprene	AA, BA	Weather Impermeability	Wire & Cable Insulation, Dampeners, Air Bladders
EPDM	EPM, Ethylene Propylene	AA, BA, CA, DA	Water, steam and brake fluids	Mineral oils and solvents, aromatic hydrocarbons
CR	Neoprene, Chloroprene Polymers, Polychloroprene	BC, BE	Moderate chemicals and acids, ozone, oils, fats, greases, many oils, and solvents	Seals, Grommets, Bushings
NBR	Buna N, Nitrile	BF, BG, BK, CH	Many hydrocarbons, fats, oils, greases, hydraulic fluids, chemicals	Ozone, ketones, esters, aldehydes, chlorinated and nitro hydrocarbons
PU	AU, EU, Polyurthane Rubber		Wear resistance high tensile strength, high elasticity	Hydraulics resistance
Hypalon	Chlorosulfonated Polyethylene, CSM	CE	Similar to Neoprene	Concentrated oxidizing acids, esters, ketones, chlorinated, aromatic and nitro hydrocarbons
PA	ACM, Polyacrylic	DF, DH	Ozone, extreme pressure, lubricants, hot oils, petroleum solvents, animal and vegetable fats	Water, alcohols, glycols alkali, esters, aromatic hydrocarbons, halogenated hydrocarbons, phenol
ECO	Epichlorohydrin Polymer	CH	High & Low Temperature Flexibility	Strong oxidizing acids, esters, ketones, chlorinated, aromatic and nitro hydrocarbons
VAMAC	Ethylene Acrylic, ACM, AEM	EE	High resistance to Ozone	Oxygen attack
HNBR	Hydrogenated Nitrile	DH	Similar to NBR but with improved chemical resistance and higher service temperature	Ozone, ketones, esters, aldehydes, chlorinated and nitro hydrocarbons
Silicone	Silicone, VMQ, MVQ	FC, FE, GE	High & Low Temperature Resistance	Food & Medical Equipment
FKM	FPM, FMC, Fluorocarbon Dupont Viton	HK	High temperature Oil Resistance	High Temperature & Chemically Resistant Seal
FLUROSILICONE	FLUROSILICONE	FK	Moderate or oxidizing chemicals, ozone, aromatic chlorinated solvents, bases	Brake fluids, hydrazine, ketones
FFKM	Perfluoroelastomer	HK	Best fluid resistance of any elastomer	Fluorocarbon-containing refrigerants cause minor effects
Aflas	TETRAFLUOROETHYLENE	HK	Steam, amines and amine corrosion inhibitors, caustics, high pH media, wet sour gas, oil	Aromatic hydrocarbons, chlorinated solvents, ethers, limited in low temperatures

## Comparative Physical Properties of Rubber

Base Polymer	NR	BR	IR	SBR	Butyl	EPDM	CR	NBR	PU	Hypalon	PA	ECO	VAMAC	HNBR	Silicone	FKM	Fluorosilicone	FFKM	Aflas
Temperature Range	-43°C ~-38°C	-43°C ~-38°C	-43°C ~-38°C	-34°C ~100°C	-54°C ~110°C	-54°C ~150°C	-54°C ~150°C	-54°C ~135°C	-45°C ~-90°C	-45°C ~-120°C	-28°C ~-170°C	-54°C ~-135°C	-40°C ~-170°C	-40°C ~-150°C	-73°C ~-230°C	-20°C ~-220°C	-70°C ~-177°C	-20°C ~-300°C	-20°C ~100°C
Compression Set	Poor	Poor	Poor	Poor	Poor	Poor	Fair	Good	Poor	Poor	Fair	Fair	Good	Excellent	Good	Good	Good	Good	Excellent
Tensile Strength	Excellent	Fair	Good	Good	Fair	Fair	Good	Good	Excellent	Good	Poor	Fair	Good	Excellent	Poor	Good	Poor	Excellent	Excellent
Elongation	Excellent	Fair	Excellent	Good	Good	Good	Good	Good	Excellent	Good	Poor	Poor	Poor	Excellent	Excellent	Poor	Good	Poor	Poor
Rebound Resistance	Excellent	Fair	Excellent	Fair	Poor	Good	Excellent	Good	Excellent	Fair	Fair	Fair	Fair	Excellent	Fair	Fair	Excellent	Good	Poor
Tear Resistance	Excellent	Fair	Good	Fair	Fair	Fair	Good	Good	Excellent	Fair	Poor	Fair	Fair	Excellent	Poor	Fair	Poor	Good	Good
Abrasion Resistance	Excellent	Excellent	Excellent	Excellent	Excellent	Good	Good	Excellent	Excellent	Good	Fair	Fair	Good	Excellent	Poor	Fair	Poor	Good	
Impact Strength	Excellent	Good	Excellent	Excellent	Good	Good	Excellent	Good	Excellent	Good	Poor	Good	Fair	Excellent	Poor	Fair	Poor	Good	
Gas Impermeability Resistance	Fair	Fair	Fair	Fair	Excellent	Fair	Excellent	Good	Good	Good	Fair	Excellent	Good	Fair	Poor	Good	Poor	Excellent	Good
Oxygen Resistance	Fair	Fair	Fair	Fair	Excellent	Good	Good	Fair	Good	Excellent	Good	Good	Excellent	Good	Excellent	Excellent	Excellent	Excellent	
Ozone Resistace	Poor	Poor	Poor	Poor	Good	Excellent	Good	Poor	Good	Excellent	Good	Excellent	Excellent	Good	Excellent	Excellent	Excellent	Excellent	
Weathering Resistencia	Fair	Fair	Fair	Fair	Excellent	Excellent	Good	Fair	Good	Good	Good	Good	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Flame Resistance	Poor	Fair	Poor	Fair	Excellent	Excellent	Good	Poor	Good	Excellent	Good	Good	Excellent	Good	Excellent	Excellent	Good	Excellent	Excellent
Heat Resistance	Poor	Fair	Poor	Fair	Good	Excellent	Good	Fair	Fair	Good	Good	Good	Good	Excellent	Excellent	Excellent	Good	Excellent	Excellent
Low Temperaturas Resistencia	Good	Good	Good	Fair	Fair	Good	Fair	Fair	Good	Fair	Poor	Good	Good	Excellent	Excellent	Good	Excellent	Poor	Poor
Oil and Fuel Resistance	Poor	Poor	Poor	Poor	Poor	Poor	Fair	Good	Good	Fair	Good	Good	Fair	Good	Fair	Excellent	Good	Excellent	Excellent
Animal and Vegetable Oil Resistance	Fair	Fair	Fair	Fair	Good	Good	Good	Excellent	Good	Good	Excellent	Excellent	Fair	Fair	Fair	Excellent	Good	Excellent	Excellent
Alcohol Resistance	Good	Good	Good	Good	Good	Fair	Excellent	Good	Fair	Excellent	Good	Good	Good	Good	Good	Good	Good	Good	Excellent
Alkaline R Resistencia	Fair	Fair	Fair	Fair	Excellent	Good	Excellent	Good	Poor	Excellent	Poor	Fair	Good	Good	Poor	Fair	Good	Poor	Excellent
Acid Resistance	Fair	Fair	Fair	Fair	Good	Good	Good	Good	Poor	Good	Fair	Fair	Fair	Good	Fair	Good	Good	Excellent	Excellent
Aliphatic	Poor	Poor	Poor	Poor	Poor	Poor	Good	Excellent	Good	Good	Excellent	Good	Fair	Poor	Poor	Excellent	Good	Excellent	Excellent
Aromatic	Poor	Poor	Poor	Poor	Poor	Poor	Fair	Fair	Poor	Fair	Fair	Good	Poor	Poor	Poor	Excellent	Good	Excellent	Excellent
Oxygenated-Solvent Resistance	Good	Good	Good	Good	Excellent	Excellent	Poor	Poor	Poor	Fair	Poor	Poor	Fair	Fair	Fair	Poor	Good	Excellent	Excellent
Water Resistance	Excellent	Excellent	Excellent	Good	Excellent	Excellent	Good	Good	Fair	Good	Poor	Good	Good	Good	Good	Good	Excellent	Good	Excellent

## II. Selección del material

Importante a considerar el ambiente de sellado en la selección del material. Los factores más importantes son el medio a ser sellado, la temperatura del medio y la presión.

Material	Clase de polímero	ASTM D-2000 Clase	Resistente a	Agresivo a
NR	Goma natural	AA	Resiliencia	Montaje amortiguador, Bujas, fundas
BR	Polibutadieno	AA, BA	Similar a la goma natural	Similar a la goma natural
IR	Poliisopreno	AA	Mayoría de sustancias químicas húmedas o secas, ácidos orgánicos, alcoholes, cetonas, aldehidos	Ozono, ácidos fuertes, grasas, aceites, lubricantes, mayoría hidrocarburos
SBR	Butadieno estireno, Buna S, GRS	AA, BA	Resistencia calor, 212 DegF	Juntas de freno, fundas, arandelas, llantas, neumáticos
Butil	IIR, Poliisopreno sintético	AA, BA	Impermeabilidad condiciones atmosféricas	Cable & insulación cable, amortiguadores, cámaras de aire
EPDM	EPM, Etileno Propileno	AA, BA, CA, DA	Agua, vapor y líquidos de frenos	Aceites minerales y solventes, hidrocarburos aromáticos
CR	Neopreno, Cloropreno Polímero, Policloropreno	BC, BE	Productos químicos moderados y ácidos, ozono, aceites, grasas y solventes	Juntas, arandelas, Bujas
NBR	Buna N, Nitrilo	BF, BG, BK, CH	Gran variedad de hidrocarburos, aceites, grasas, fluidos hidráulicos, productos químicos	Ozono, cetonas, esters, aldehidos, clorados y nitro hidrocarburos
PU	AU, EU, Polyurthane Rubber	BG	Resistencia al desgaste-Friction, Resistencia elevadas a la tracción	Resistencia de hidráulica
Hypalon	Poliétileno clorosulfonado, CSM	CE	Similar al neopreno	ácidos concentrados oxidantes, esters, cetonas, clorados, hidrocarburos aromáticos y nitro
PA	ACM, Polyacrylic	DF, DH	Ozono, presiones extremas, lubricantes, aceites calientes, solventes petrolero, grasas animales y vegetales	Agua, alcoholes, glicoles alcalinos, esters, hidrocarburos aromáticos, hidrocarburos halogenados, fenol
ECO	Epiclorohidrina Polímero	CH	Flexibilidad temperaturas elevadas y bajas	Ácidos oxidantes fuertes, esters, cetonas, clorados, hidrocarburos aromáticos y nitro
VAMAC	Etileno, acrílico, ACM, AEM	EE	Resistencia elevadas de ozono	Ataque de oxígeno
HNBR	Nitrilo hidrogenado	DH	Similar a NBR pero con mejor resistencia química y elevadas temperaturas de uso	Ozono, cetonas, esters, aldehidos, clorados y nitro hidrocarburos
Silicona	Silicone, VMQ, MVQ	FC, FE, GE	Resistencia temperaturas elevadas y bajas	Aparato alimentación y médico
FKM	FPM, FMC, Fluorocarbon Dupont Viton	HK	Resistencia elevadas temperaturas de aceite	Temperaturas elevadas y Resistencia sellado químico
FLUOROSILICONA	FLUOROSILICONA	FK	Moderadas o sustancias químicas oxidantes, ozono, solventes clorados aromáticos, bases	Líquidos de freno, hidracina, cetonas
FFKM	Perfluoroelastómero	HK	Mejor resistencia a fluidos de todos los elastómeros	Fluorocarbon conteniendo refrigerantes causa efectos menores
Aflas	TETRAFLUOROETILENO	HK	Vapor, aminas e inhibidores corrosivos amínicos, cáusticos, medios elevados de pH, vapores ácidos húmedos	Hidrocarburos aromáticos, solventes clorados, eters, limitados a temperaturas bajas

## Comparación propiedades físicas de la goma

Polímero base	NR	BR	IR	SBR	Butil	EPDM	CR	NBR	PU	Hypalon	PA	ECO	VAMAC	HNBR	Silicona	FKM	Fluorosilicona	FFKM	Aflas
Rango temperatura	-43°C a 38°C	-43°C a 38°C	-43°C a 38°C	-34°C a ~100°C	-54°C a ~110°C	-54°C a ~150°C	-54°C a ~150°C	-54°C a ~135°C	-45°C a ~90°C	-45°C a ~120°C	-28°C a ~170°C	-54°C a ~135°C	-40°C a ~170°C	-40°C a ~150°C	-73°C a ~230°C	-20°C a ~220°C	-70°C a ~177°C	-20°C a ~300°C	-20°C a ~100°C
Compresión Set	Baja	Baja	Baja	Baja	Baja	Baja	Regular	Buena	Baja	Baja	Regular	Regular	Buena	Excelente	Buena	Buena	Buena	Buena	Excelente
Resistencia a la tracción	Excelente	Regular	Buena	Buena	Regular	Regular	Buena	Buena	Excelente	Buena	Baja	Regular	Buena	Excelente	Baja	Buena	Baja	Excelente	Excelente
Elongación	Excelente	Regular	Excelente	Buena	Buena	Buena	Buena	Buena	Excelente	Buena	Baja	Baja	Baja	Excelente	Excelente	Baja	Buena	Baja	Baja
Resistencia Rebote	Excelente	Regular	Excelente	Regular	Baja	Buena	Excelente	Buena	Excelente	Regular	Regular	Regular	Regular	Excelente	Regular	Regular	Excelente	Buena	Baja
Resistencia rotura	Excelente	Regular	Buena	Regular	Regular	Regular	Buena	Buena	Excelente	Regular	Baja	Regular	Regular	Excelente	Baja	Regular	Baja	Buena	Buena
Resistencia abrasión	Excelente	Excelente	Excelente	Excelente	Excelente	Buena	Buena	Excelente	Excelente	Buena	Regular	Regular	Buena	Excelente	Baja	Regular	Baja	Buena	
Resistencia a la impacto	Excelente	Buena	Excelente	Excelente	Buena	Buena	Excelente	Buena	Excelente	Buena	Baja	Buena	Regular	Excelente	Baja	Regular	Baja	Buena	
Resist. Impermeabilidad gaseosa	Regular	Regular	Regular	Regular	Excelente	Regular	Excelente	Buena	Buena	Buena	Regular	Excelente	Buena	Regular	Baja	Buena	Baja	Excelente	Buena
Resistencia oxígeno	Regular	Regular	Regular	Regular	Excelente	Buena	Buena	Regular	Buena	Excelente	Buena	Buena	Excelente	Buena	Excelente	Excelente	Excelente	Excelente	
Resistencia ozono	Baja	Baja	Baja	Baja	Buena	Excelente	Buena	Baja	Buena	Excelente	Buena	Excelente	Excelente	Buena	Excelente	Excelente	Excelente	Excelente	
Resistencia ambiente	Regular	Regular	Regular	Regular	Excelente	Excelente	Buena	Regular	Buena	Buena	Buena	Buena	Excelente	Excelente	Excelente	Excelente	Excelente	Excelente	Excelente
Resistencia flama	Baja	Regular	Baja	Regular	Excelente	Excelente	Buena	Baja	Buena	Excelente	Buena	Buena	Excelente	Buena	Excelente	Excelente	Buena	Excelente	Excelente
Resistencia calor	Baja	Regular	Baja	Regular	Buena	Excelente	Buena	Regular	Regular	Buena	Buena	Buena	Buena	Excelente	Excelente	Excelente	Buena	Excelente	Excelente
Resistencia temperaturas bajas	Buena	Buena	Buena	Regular	Regular	Buena	Regular	Regular	Buena	Regular	Baja	Buena	Buena	Excelente	Excelente	Buena	Excelente	Baja	Baja
Resistencia aceite y combustible	Baja	Baja	Baja	Baja	Baja	Baja	Regular	Buena	Buena	Regular	Buena	Buena	Regular	Buena	Regular	Excelente	Buena	Excelente	Excelente
Animal and Vegetable Oil Resistance	Regular	Regular	Regular	Regular	Buena	Buena	Buena	Excelente	Buena	Buena	Excelente	Excelente	Regular	Regular	Regular	Excelente	Buena	Excelente	Excelente
Resistencia alcohol	Buena	Buena	Buena	Buena	Buena	Regular	Excelente	Buena	Regular	Excelente	Buena	Buena	Buena	Buena	Buena	Buena	Buena	Buena	Excelente
Resistencia alcalina	Regular	Regular	Regular	Regular	Excelente	Buena	Excelente	Buena	Baja	Excelente	Baja	Regular	Buena	Buena	Baja	Regular	Buena	Baja	Excelente
Resistencia ácido	Regular	Regular	Regular	Regular	Buena	Buena	Buena	Buena	Baja	Buena	Regular	Regular	Regular	Buena	Regular	Buena	Buena	Excelente	Excelente
Alifático	Baja	Baja	Baja	Baja	Baja	Baja	Buena	Excelente	Buena	Buena	Excelente	Buena	Regular	Baja	Baja	Excelente	Buena	Excelente	Excelente
Aromático	Baja	Baja	Baja	Baja	Baja	Baja	Regular	Regular	Baja	Regular	Regular	Buena	Baja	Baja	Baja	Excelente	Buena	Excelente	Excelente
Resistencia solventes oxigenados	Buena	Buena	Buena	Buena	Excelente	Excelente	Baja	Baja	Baja	Regular	Baja	Baja	Regular	Regular	Regular	Baja	Buena	Excelente	Excelente
Resistencia agua	Excelente	Excelente	Excelente	Buena	Excelente	Excelente	Buena	Buena	Regular	Buena	Baja	Buena	Buena	Buena	Buena	Buena	Excelente	Buena	Excelente

### III. TYPICAL O-RING IMPERFECTIONS

Typical visible imperfections of O-Ring are shown below. We classify these imperfections into two categories: imperfections of Type Characteristic N(normal) and imperfections of Type Characteristic S(special).

#### TYPE CHARACTERISTIC N:

O-Ring falling under the characteristic meets standard quality requirements.

#### TYPE CHARACTERISTIC S:

O-Ring falling under the characteristic is subject to exceptional demands.

The permissible flaw sizes are very limited.

### III. IMPERFECCIONES TÍPICAS EN JUNTAS TORICAS

Imperfecciones típicas visibles de las juntas tóricas son descritas en la tabla adjunta. Las imperfecciones se clasifican en dos grupos: Imperfecciones de Tipo N (normal) e imperfecciones tipo S (especial).

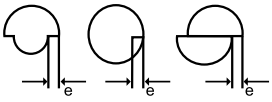
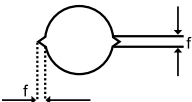
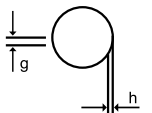
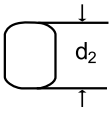
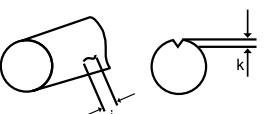
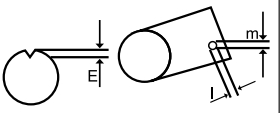
#### TIPO N:

Juntas tóricas acorde a este tipo cumplen con los requerimientos estándares de calidad.

#### TIPO S:

Juntas tóricas acorde a este tipo son sujetos a demandas excepcionales.

Los errores permisibles en los tamaños son muy limitados.

Type of deviation Defecto	Cross Section principle Ilustración	Dimension Size	Type characteristic N Tipo N					Type characteristic S Tipo S				
			1.80	2.65	3.55	5.30	7.00	1.80	2.65	3.55	5.30	7.00
Maximum size / Tamaño máximo												
Offset and form deviations (mismatch) Desalineamiento		e	0.08	0.10	0.13	0.15	0.15	0.08	0.08	0.10	0.12	0.13
Bead, bum offset combined (flash) Rebadas		f	0.10	0.12	0.14	0.16	0.18	0.10	0.10	0.13	0.15	0.15
Notch Ranura		g	0.18	0.27	0.36	0.53	0.70	0.10	0.15	0.20	0.20	0.30
			0.08	0.08	0.10	0.10	0.13	0.08	0.08	0.10	0.10	0.13
Deburring area		h	Deviations from the round cross-section are permissible if the flattening has a smooth transition into the round surface and d2 is maintained Desviaciones del corte transversal circular son permisibles en el caso que el allanamiento tenga una transición suave en la superficie circular y mantenido el d2.									
Flow lines (radial) elongation is not permissible (void) Marcas de flujo (radial) elongación no permisible (vacío)		j	0.05 x d1 or *					0.03 x d1 or *				
			1.50	1.50	6.50	6.50	6.50	1.50	1.50	1.00	5.00	5.00
Recesses distortion (void) Grietas (vacío)		l	0.60	0.80	1.00	1.30	1.70	0.15	0.25	0.40	0.63	1.00
			0.08	0.08	0.10	0.10	0.13	0.08	0.08	0.10	0.10	0.13
Foreign Particles Partículas ajenas			not permissible / no permisible									

☞ Depending on which value is larger

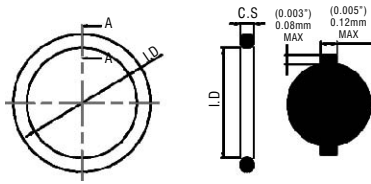
The only difference between these two types is the extent of imperfection permissible. The tolerances are still observed according to the standards used. Thus the extent of imperfection permissible is an indication of quality control in the production and finishing processes.

☞ Dependiendo del valor es más grande

La única diferencia entre los dos tipos es la extensión de la imperfección permissible. Las tolerancias son observadas acorde a los estándares usados. Así que la extensión de la imperfección permissible es una indicación de control de calidad en la producción y en los procesos finales.

# IV. O-Ring Size / DIMENSIONES DE JUNTAS TÓRICAS

## O-ring American- AS568 Series



O-Ring are measured by in side diameter (ID) and cross section width (C.S.) Dimensions are given in millimeters.

Section AA enlarged maximum flash permissible regardless of O-Ring size.

(001-050)

AS-568	Actual Size Millimeters			
	I.D.	±	C.S.	±
001	0.74	0.10	1.02	0.08
002	1.07	0.10	1.27	0.08
003	1.42	0.10	1.52	0.08
004	1.78	0.13	1.78	0.08
005	2.57	0.13	1.78	0.08
006	2.90	0.13	1.78	0.08
007	3.68	0.13	1.78	0.08
008	4.47	0.13	1.78	0.08
009	5.28	0.13	1.78	0.08
010	6.07	0.13	1.78	0.08
011	7.65	0.13	1.78	0.08
012	9.25	0.13	1.78	0.08
013	10.82	0.13	1.78	0.08
014	12.42	0.13	1.78	0.08
015	14.00	0.18	1.78	0.08
016	15.60	0.23	1.78	0.08
017	17.17	0.23	1.78	0.08
018	18.77	0.23	1.78	0.08
019	20.35	0.23	1.78	0.08
020	21.95	0.23	1.78	0.08
021	23.52	0.23	1.78	0.08
022	25.12	0.25	1.78	0.08
023	26.70	0.25	1.78	0.08
024	28.30	0.25	1.78	0.08
025	29.87	0.28	1.78	0.08
026	31.47	0.25	1.78	0.08
027	33.05	0.28	1.78	0.08
028	34.65	0.33	1.78	0.08
029	37.82	0.33	1.78	0.08
030	41.00	0.33	1.78	0.08
031	44.17	0.38	1.78	0.08
032	47.35	0.38	1.78	0.08
033	50.52	0.46	1.78	0.08
034	53.70	0.46	1.78	0.08
035	56.87	0.46	1.78	0.08
036	60.05	0.46	1.78	0.08
037	63.22	0.46	1.78	0.08
038	66.40	0.51	1.78	0.08
039	69.57	0.51	1.78	0.08
040	72.75	0.51	1.78	0.08
041	75.92	0.51	1.78	0.08
042	82.27	0.61	1.78	0.08
043	88.62	0.61	1.78	0.08
044	94.97	0.69	1.78	0.08

AS-568	Actual Size Millimeters			
	I.D.	±	C.S.	±
045	101.32	0.69	1.78	0.08
046	107.67	0.76	1.78	0.08
047	114.02	0.76	1.78	0.08
048	120.37	0.76	1.78	0.08
049	126.72	0.94	1.78	0.08
050	133.07	0.94	1.78	0.08
102	1.24	0.13	2.62	0.08
103	2.06	0.13	2.62	0.08
104	2.84	0.13	2.62	0.08
105	3.63	0.13	2.62	0.08
106	4.42	0.13	2.62	0.08
107	5.23	0.13	2.62	0.08
108	6.02	0.13	2.62	0.08
109	7.59	0.13	2.62	0.08
110	9.19	0.13	2.62	0.08
111	10.77	0.13	2.62	0.08
112	12.37	0.13	2.62	0.08
113	13.94	0.18	2.62	0.08
114	15.54	0.23	2.62	0.08
115	17.12	0.23	2.62	0.08
116	18.72	0.23	2.62	0.08
117	20.30	0.25	2.62	0.08
118	21.89	0.25	2.62	0.08
119	23.47	0.25	2.62	0.08
120	25.07	0.25	2.62	0.08
121	26.64	0.25	2.62	0.08
122	28.24	0.25	2.62	0.08
123	29.82	0.30	2.62	0.08
124	31.42	0.30	2.62	0.08
125	32.99	0.30	2.62	0.08
126	34.59	0.30	2.62	0.08
127	36.17	0.30	2.62	0.08
128	37.77	0.30	2.62	0.08
129	39.34	0.38	2.62	0.08
130	40.94	0.38	2.62	0.08
131	42.52	0.38	2.62	0.08
132	44.12	0.38	2.62	0.08
133	45.69	0.38	2.62	0.08
134	47.29	0.38	2.62	0.08
135	48.90	0.43	2.62	0.08
136	50.47	0.43	2.62	0.08
137	52.07	0.43	2.62	0.08
138	53.65	0.43	2.62	0.08
139	55.25	0.43	2.62	0.08

AS-568	Actual Size Millimeters			
	I.D.	±	C.S.	±
140	56.82	0.43	2.62	0.08
141	58.42	0.51	2.62	0.08
142	59.99	0.51	2.62	0.08
143	61.60	0.51	2.62	0.08
144	63.17	0.51	2.62	0.08
145	64.77	0.51	2.62	0.08
146	66.34	0.51	2.62	0.08
147	67.95	0.56	2.62	0.08
148	69.52	0.56	2.62	0.08
149	71.12	0.56	2.62	0.08
150	72.69	0.56	2.62	0.08
151	75.87	0.61	2.62	0.08
152	82.22	0.61	2.62	0.08
153	88.57	0.61	2.62	0.08
154	94.92	0.71	2.62	0.08
155	101.27	0.71	2.62	0.08
156	107.62	0.76	2.62	0.08
157	113.97	0.76	2.62	0.08
158	120.32	0.76	2.62	0.08
159	126.67	0.89	2.62	0.08
160	133.02	0.89	2.62	0.08
161	139.37	0.89	2.62	0.08
162	145.72	0.89	2.62	0.08
163	152.07	0.89	2.62	0.08
164	158.42	1.02	2.62	0.08
165	164.77	1.02	2.62	0.08
166	171.12	1.02	2.62	0.08
167	177.47	1.02	2.62	0.08
168	183.82	1.14	2.62	0.08
169	190.17	1.14	2.62	0.08
170	196.52	1.14	2.62	0.08
171	202.87	1.14	2.62	0.08
172	209.22	1.27	2.62	0.08
173	215.57	1.27	2.62	0.08
174	221.92	1.27	2.62	0.08
175	228.27	1.27	2.62	0.08
176	234.62	1.40	2.62	0.08
177	240.97	1.40	2.62	0.08
178	247.32	1.40	2.62	0.08
201	4.34	0.13	3.53	0.10
202	5.94	0.13	3.53	0.10
203	7.52	0.13	3.53	0.10
204	9.12	0.13	3.53	0.10
205	10.69	0.13	3.53	0.10

## O-ring American- AS568 Series

AS-568	Actual Size Millimeters			
	I.D.	±	C.S.	±
206	12.29	0.13	3.53	0.10
207	13.87	0.18	3.53	0.10
208	15.47	0.23	3.53	0.10
209	17.04	0.23	3.53	0.10
210	18.64	0.25	3.53	0.10
211	20.22	0.25	3.53	0.10
212	21.82	0.25	3.53	0.10
213	23.39	0.25	3.53	0.10
214	24.99	0.25	3.53	0.10
215	26.57	0.25	3.53	0.10
216	28.17	0.30	3.53	0.10
217	29.74	0.30	3.53	0.10
218	31.34	0.30	3.53	0.10
219	32.92	0.30	3.53	0.10
220	34.52	0.30	3.53	0.10
221	36.09	0.30	3.53	0.10
222	37.69	0.38	3.53	0.10
223	40.87	0.38	3.53	0.10
224	44.04	0.38	3.53	0.10
225	47.22	0.46	3.53	0.10
226	50.39	0.46	3.53	0.10
227	53.57	0.46	3.53	0.10
228	56.74	0.51	3.53	0.10
229	59.92	0.51	3.53	0.10
230	63.09	0.51	3.53	0.10
231	66.27	0.51	3.53	0.10
232	69.44	0.61	3.53	0.10
233	72.62	0.61	3.53	0.10
234	75.79	0.61	3.53	0.10
235	78.97	0.61	3.53	0.10
236	82.14	0.61	3.53	0.10
237	85.32	0.61	3.53	0.10
238	88.49	0.61	3.53	0.10
239	91.67	0.71	3.53	0.10
240	94.84	0.71	3.53	0.10
241	98.02	0.71	3.53	0.10
242	101.19	0.71	3.53	0.10
243	104.37	0.71	3.53	0.10
244	107.54	0.76	3.53	0.10
245	110.72	0.76	3.53	0.10
246	113.89	0.76	3.53	0.10
247	117.07	0.76	3.53	0.10
248	120.24	0.76	3.53	0.10
249	123.42	0.89	3.53	0.10
250	126.59	0.89	3.53	0.10
251	129.77	0.89	3.53	0.10
252	132.94	0.89	3.53	0.10
253	136.12	0.89	3.53	0.10
254	139.29	0.89	3.53	0.10
255	142.47	0.89	3.53	0.10
256	145.64	0.89	3.53	0.10
257	148.82	0.89	3.53	0.10

AS-568	Actual Size Millimeters			
	I.D.	±	C.S.	±
258	151.99	0.89	3.53	0.10
259	158.34	1.02	3.53	0.10
260	164.69	1.02	3.53	0.10
261	171.04	1.02	3.53	0.10
262	177.39	1.02	3.53	0.10
263	183.74	1.14	3.53	0.10
264	190.09	1.14	3.53	0.10
265	196.44	1.14	3.53	0.10
266	202.79	1.14	3.53	0.10
267	209.14	1.27	3.53	0.10
268	215.49	1.27	3.53	0.10
269	221.84	1.27	3.53	0.10
270	228.19	1.27	3.53	0.10
271	234.54	1.40	3.53	0.10
272	240.89	1.40	3.53	0.10
273	247.24	1.40	3.53	0.10
274	253.59	1.40	3.53	0.10
275	266.29	1.40	3.53	0.10
276	278.99	1.65	3.53	0.10
277	291.69	1.65	3.53	0.10
278	304.39	1.65	3.53	0.10
279	329.79	1.65	3.53	0.10
280	355.19	1.65	3.53	0.10
281	380.59	1.65	3.53	0.10
282	405.26	1.91	3.53	0.10
283	430.66	2.03	3.53	0.10
284	456.06	2.16	3.53	0.10
309	10.46	0.13	5.33	0.13
310	12.07	0.13	5.33	0.13
311	13.64	0.18	5.33	0.13
312	15.24	0.23	5.33	0.13
313	16.81	0.23	5.33	0.13
314	18.42	0.25	5.33	0.13
315	19.99	0.25	5.33	0.13
316	21.59	0.25	5.33	0.13
317	23.16	0.25	5.33	0.13
318	24.77	0.25	5.33	0.13
319	26.34	0.25	5.33	0.13
320	27.94	0.30	5.33	0.13
321	29.51	0.30	5.33	0.13
322	31.12	0.30	5.33	0.13
323	32.69	0.30	5.33	0.13
324	34.29	0.30	5.33	0.13
325	37.47	0.38	5.33	0.13
326	40.64	0.38	5.33	0.13
327	43.82	0.38	5.33	0.13
328	46.99	0.38	5.33	0.13
329	50.17	0.46	5.33	0.13
330	53.34	0.46	5.33	0.13
331	56.52	0.46	5.33	0.13
332	59.69	0.46	5.33	0.13
333	62.87	0.51	5.33	0.13

AS-568	Actual Size Millimeters			
	I.D.	±	C.S.	±
334	66.04	0.51	5.33	0.13
335	69.22	0.51	5.33	0.13
336	72.39	0.51	5.33	0.13
337	75.57	0.61	5.33	0.13
338	78.74	0.61	5.33	0.13
339	81.92	0.61	5.33	0.13
340	85.09	0.61	5.33	0.13
341	88.27	0.61	5.33	0.13
342	91.44	0.71	5.33	0.13
343	94.62	0.71	5.33	0.13
344	97.79	0.71	5.33	0.13
345	100.97	0.71	5.33	0.13
346	104.14	0.71	5.33	0.13
347	107.32	0.76	5.33	0.13
348	110.49	0.76	5.33	0.13
349	113.67	0.76	5.33	0.13
350	116.84	0.76	5.33	0.13
351	120.02	0.76	5.33	0.13
352	123.19	0.76	5.33	0.13
353	126.37	0.94	5.33	0.13
354	129.54	0.94	5.33	0.13
355	132.72	0.94	5.33	0.13
356	135.89	0.94	5.33	0.13
357	139.07	0.94	5.33	0.13
358	142.24	0.94	5.33	0.13
359	145.42	0.94	5.33	0.13
360	148.59	0.94	5.33	0.13
361	151.77	0.94	5.33	0.13
362	158.12	1.02	5.33	0.13
363	164.47	1.02	5.33	0.13
364	170.82	1.02	5.33	0.13
365	177.17	1.02	5.33	0.13
366	183.52	1.14	5.33	0.13
367	189.87	1.14	5.33	0.13
368	196.22	1.14	5.33	0.13
369	202.57	1.14	5.33	0.13
370	208.92	1.27	5.33	0.13
371	215.27	1.27	5.33	0.13
372	221.62	1.27	5.33	0.13
373	227.97	1.27	5.33	0.13
374	234.32	1.40	5.33	0.13
375	240.67	1.40	5.33	0.13
376	247.02	1.40	5.33	0.13
377	253.37	1.40	5.33	0.13
378	266.07	1.52	5.33	0.13
379	278.77	1.52	5.33	0.13
380	291.47	1.65	5.33	0.13
381	304.17	1.65	5.33	0.13
382	329.57	1.65	5.33	0.13
383	354.97	1.78	5.33	0.13
384	380.39	1.78	5.33	0.13
385	405.26	1.91	5.33	0.13



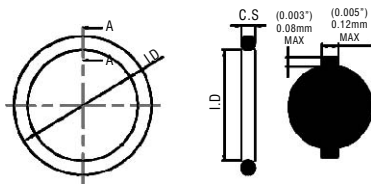
## O-ring American- AS568 Series

AS-568	Actual Size Millimeters			
	I.D.	±	C.S.	±
386	430.66	2.03	5.33	0.13
387	456.06	2.16	5.33	0.13
388	481.41	2.29	5.33	0.13
389	506.81	2.41	5.33	0.13
390	532.21	2.41	5.33	0.13
391	557.61	2.54	5.33	0.13
392	582.68	2.67	5.33	0.13
393	608.08	2.79	5.33	0.13
394	633.48	2.92	5.33	0.13
395	658.88	3.05	5.33	0.13
425	113.67	0.84	6.99	0.15
426	116.84	0.84	6.99	0.15
427	120.02	0.84	6.99	0.15
428	123.19	0.84	6.99	0.15
429	126.37	0.94	6.99	0.15
430	129.54	0.94	6.99	0.15
431	132.72	0.94	6.99	0.15
432	135.89	0.94	6.99	0.15
433	139.07	0.94	6.99	0.15
434	142.24	0.94	6.99	0.15
435	145.42	0.94	6.99	0.15
436	148.59	0.94	6.99	0.15
437	151.77	0.94	6.99	0.15
438	158.12	1.02	6.99	0.15
439	164.47	1.02	6.99	0.15
440	170.82	1.02	6.99	0.15
441	177.17	1.02	6.99	0.15
442	183.52	1.14	6.99	0.15
443	189.87	1.14	6.99	0.15

AS-568	Actual Size Millimeters			
	I.D.	±	C.S.	±
444	196.22	1.14	6.99	0.15
445	202.57	1.14	6.99	0.15
446	215.27	1.40	6.99	0.15
447	227.97	1.40	6.99	0.15
448	240.67	1.40	6.99	0.15
449	253.37	1.40	6.99	0.15
450	266.07	1.52	6.99	0.15
451	278.77	1.52	6.99	0.15
452	291.47	1.52	6.99	0.15
453	304.17	1.52	6.99	0.15
454	316.87	1.52	6.99	0.15
455	329.57	1.52	6.99	0.15
456	342.27	1.78	6.99	0.15
457	354.97	1.78	6.99	0.15
458	367.67	1.78	6.99	0.15
459	380.37	1.78	6.99	0.15
460	393.07	1.79	6.99	0.15
461	405.26	1.91	6.99	0.15
462	417.96	1.91	6.99	0.15
463	430.66	2.03	6.99	0.15
464	443.36	2.16	6.99	0.15
465	456.06	2.16	6.99	0.15
466	468.76	2.16	6.99	0.15
467	481.46	2.29	6.99	0.15
468	494.16	2.29	6.99	0.15
469	506.86	2.41	6.99	0.15
470	532.26	2.41	6.99	0.15
471	557.66	2.54	6.99	0.15
472	582.68	2.67	6.99	0.15

AS-568	Actual Size Millimeters			
	I.D.	±	C.S.	±
473	608.08	2.79	6.99	0.15
474	633.48	2.92	6.99	0.15
475	658.88	3.05	6.99	0.15
901	4.70	0.13	1.42	0.08
902	6.07	0.13	1.63	0.08
903	7.65	0.13	1.63	0.08
904	8.92	0.13	1.83	0.08
905	10.52	0.13	1.83	0.08
906	11.89	0.13	1.98	0.08
907	13.46	0.18	2.08	0.08
908	16.36	0.23	2.21	0.08
909	17.93	0.23	2.46	0.08
910	19.18	0.23	2.46	0.08
911	21.92	0.23	2.95	0.10
912	23.47	0.23	2.95	0.10
913	25.04	0.25	2.95	0.10
914	26.59	0.25	2.95	0.10
916	29.74	0.25	2.95	0.10
918	34.42	0.30	2.95	0.10
920	37.47	0.36	3.00	0.10
924	43.69	0.36	3.00	0.10
928	53.09	0.46	3.00	0.10
932	59.36	0.46	3.00	0.10

# O-ring British- BS1806 Series



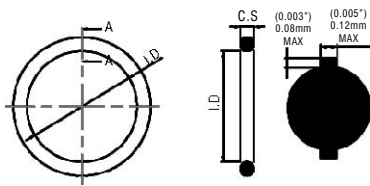
O-Ring are measured by in side diameter (ID) and cross section width (C.S.) Dimensions are given in millimeters.  
Section AA enlarged maximum flash permissible regardless of O-Ring size.

BS	Actual Size Millimeters			
	I.D.	±	C.S.	±
517	36.27	0.35	1.78	0.08
519	39.45	0.38	1.78	0.08
532	79.00	0.69	1.78	0.08
534	85.34	0.75	1.78	0.08
536	91.70	0.79	1.78	0.08
538	98.05	0.84	1.78	0.08
540	104.40	0.89	1.78	0.08
542	110.74	0.93	1.78	0.08
544	117.10	0.97	1.78	0.08
546	123.44	1.03	1.78	0.08
548	129.40	1.08	1.78	0.08
550	135.76	1.10	1.78	0.08
551	138.94	1.13	1.78	0.08
552	142.11	1.17	1.78	0.08
553	145.29	1.20	1.78	0.08
554	148.46	1.20	1.78	0.08
555	151.64	1.24	1.78	0.08
556	154.81	1.24	1.78	0.08
557	158.00	1.27	1.78	0.08
558	161.16	1.31	1.78	0.08
559	164.34	1.31	1.78	0.08
560	167.51	1.34	1.78	0.08
561	170.69	1.38	1.78	0.08
562	173.87	1.38	1.78	0.08
606	1.78	0.13	1.02	0.08
610	6.75	0.16	1.78	0.08
611	8.73	0.17	1.78	0.08
613	9.90	0.17	2.62	0.09
614	11.91	0.19	2.62	0.09
615	13.10	0.19	2.62	0.09
616	15.08	0.20	2.62	0.09
617	17.86	0.21	2.62	0.09
618	25.80	0.26	3.53	0.10
619	74.63	0.66	5.33	0.15
620	79.73	0.69	5.33	0.15
621	89.69	0.77	5.33	0.15
622	100.00	0.84	5.33	0.15
623	109.54	0.93	5.33	0.15
624	114.70	0.95	6.99	0.15
625	124.60	1.03	6.99	0.15
626	134.50	1.10	6.99	0.15
627	159.50	1.27	6.99	0.15
628	166.70	1.34	6.99	0.15
640	74.30	0.66	2.62	0.09
641	77.50	0.67	2.62	0.09

BS	Actual Size Millimeters			
	I.D.	±	C.S.	±
642	80.60	0.71	2.62	0.09
643	83.80	0.73	2.62	0.09
644	155.00	1.24	5.33	0.15
645	161.30	1.31	5.33	0.15
646	167.70	1.34	5.33	0.15
647	174.00	1.38	5.33	0.15
648	310.50	2.30	6.99	0.15
649	323.20	2.37	6.99	0.15
650	335.90	2.49	6.99	0.15
674	208.92	1.63	6.99	0.15
676	221.62	1.71	6.99	0.15
678	234.32	1.79	6.99	0.15
680	247.00	1.88	6.99	0.15
682	259.70	1.98	6.99	0.15
684	272.40	2.08	6.99	0.15
686	285.10	2.14	6.99	0.15
688	297.80	2.21	6.99	0.15
801	3.17	0.14	1.78	0.08
802	4.76	0.15	1.78	0.08
803	6.35	0.16	1.78	0.08
804	7.94	0.16	1.78	0.08
806	11.11	0.18	1.78	0.08
807	12.70	0.19	2.62	0.09
809	15.88	0.20	2.62	0.09
810	17.46	0.21	2.62	0.09
812	20.64	0.23	2.62	0.09
813	22.23	0.24	2.62	0.09
814	23.81	0.25	2.62	0.09
824	39.70	0.38	3.53	0.10
825	41.28	0.40	3.53	0.10
826	43.86	0.42	3.53	0.10
827	44.95	0.42	3.53	0.10
828	46.04	0.43	3.53	0.10
829	47.62	0.45	3.53	0.10
830	49.20	0.46	3.53	0.10
831	50.80	0.47	3.53	0.10
832	52.40	0.48	3.53	0.10
833	53.97	0.50	3.53	0.10
834	55.56	0.51	3.53	0.10
835	57.15	0.52	3.53	0.10
836	58.74	0.54	3.53	0.10
837	60.32	0.55	3.53	0.10
838	61.90	0.56	3.53	0.10
839	63.50	0.58	3.53	0.10
840	65.10	0.59	3.53	0.10

BS	Actual Size Millimeters			
	I.D.	±	C.S.	±
841	66.67	0.59	3.53	0.10
842	68.26	0.61	3.53	0.10
843	69.85	0.63	3.53	0.10
844	71.44	0.64	3.53	0.10
845	73.02	0.66	3.53	0.10
846	74.60	0.66	3.53	0.10
860	117.48	0.97	5.33	0.10
861	120.65	1.00	5.33	0.10
862	123.83	1.03	5.33	0.10
863	127.00	1.05	5.33	0.10
864	130.18	1.08	5.33	0.10
865	133.35	1.10	5.33	0.10
866	136.53	1.13	5.33	0.10
867	139.70	1.13	5.33	0.10
868	142.88	1.17	5.33	0.10
869	146.05	1.20	5.33	0.10
870	146.23	1.20	5.33	0.10
872	155.60	1.27	6.99	0.15
874	161.90	1.31	6.99	0.15
876	168.30	1.34	6.99	0.15
878	174.60	1.38	6.99	0.15
880	181.00	1.44	6.99	0.15
882	187.30	1.48	6.99	0.15
884	193.70	1.51	6.99	0.15
886	200.00	1.55	6.99	0.15

## O-ring French series



O-Ring are measured by in side diameter (ID) and cross section width (C.S.) Dimensions are given in millimeters.

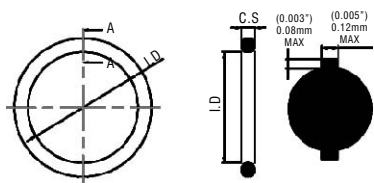
Section AA enlarged maximum flash permissible regardless of O-Ring size.

French	Actual Size Millimeters			
	I.D.	±	C.S.	±
<b>R000</b>	1.15	0.13	1.00	0.08
<b>R00</b>	2.20	0.13	1.60	0.08
<b>R1B</b>	2.75	0.14	1.60	0.08
<b>R5B</b>	6.35	0.16	1.78	0.08
<b>R8B</b>	9.52	0.17	1.78	0.08
<b>R0</b>	2.40	0.13	1.90	0.09
<b>R1</b>	2.60	0.14	1.90	0.09
<b>R2</b>	3.40	0.14	1.90	0.09
<b>R3</b>	4.20	0.14	1.90	0.09
<b>R4</b>	4.90	0.15	1.90	0.09
<b>R5</b>	5.70	0.15	1.90	0.09
<b>R5A</b>	6.40	0.16	1.90	0.09
<b>R6</b>	7.20	0.16	1.90	0.09
<b>R6A</b>	8.00	0.16	1.90	0.09
<b>R7</b>	8.90	0.17	1.90	0.09
<b>R6B</b>	6.00	0.15	2.20	0.09
<b>R19B</b>	25.00	0.25	2.40	0.09
<b>R20B</b>	29.10	0.29	2.55	0.09
<b>R8</b>	8.90	0.17	2.70	0.10
<b>R9</b>	10.50	0.18	2.70	0.10
<b>R10</b>	12.10	0.19	2.70	0.10
<b>R11</b>	13.60	0.19	2.70	0.10
<b>R12</b>	15.10	0.20	2.70	0.10
<b>R13</b>	16.90	0.21	2.70	0.10
<b>R14</b>	18.40	0.22	2.70	0.10
<b>R20T</b>	27.30	0.28	2.70	0.10
<b>R15</b>	18.30	0.22	3.60	0.13
<b>R16</b>	19.80	0.22	3.60	0.13
<b>R17</b>	21.30	0.24	3.60	0.13
<b>R18</b>	23.00	0.24	3.60	0.13
<b>R19</b>	24.60	0.25	3.60	0.13
<b>R20</b>	26.20	0.26	3.60	0.13
<b>R21</b>	27.80	0.28	3.60	0.13
<b>R22</b>	29.30	0.29	3.60	0.13
<b>R23</b>	30.80	0.31	3.60	0.13
<b>R24</b>	32.50	0.32	3.60	0.13
<b>R25</b>	34.10	0.33	3.60	0.13
<b>R26</b>	35.60	0.35	3.60	0.13
<b>R27</b>	37.30	0.36	3.60	0.13
<b>R29T</b>	43.40	0.41	3.60	0.13
<b>R29B</b>	41.40	0.40	5.30	0.13

French	Actual Size Millimeters			
	I.D.	±	C.S.	±
<b>R33B</b>	54.40	0.50	5.30	0.13
<b>R28</b>	37.47	0.36	5.33	0.15
<b>R29</b>	40.64	0.39	5.33	0.15
<b>R30</b>	43.82	0.42	5.33	0.15
<b>R31</b>	46.99	0.44	5.33	0.15
<b>R32</b>	50.17	0.47	5.33	0.15
<b>R33</b>	53.34	0.50	5.33	0.15
<b>R34</b>	56.52	0.52	5.33	0.15
<b>R35</b>	59.69	0.54	5.33	0.15
<b>R36</b>	62.87	0.56	5.33	0.15
<b>R37</b>	66.04	0.59	5.33	0.15
<b>R38</b>	69.22	0.63	5.33	0.15
<b>R39</b>	72.39	0.64	5.33	0.15
<b>R40</b>	75.57	0.67	5.33	0.15
<b>R41</b>	78.74	0.69	5.33	0.15
<b>R42</b>	81.92	0.71	5.33	0.15
<b>R43</b>	85.09	0.75	5.33	0.15
<b>R44</b>	88.27	0.77	5.33	0.15
<b>R45</b>	91.44	0.79	5.33	0.15
<b>R46</b>	94.62	0.81	5.33	0.15
<b>R47</b>	97.79	0.84	5.33	0.15
<b>R48</b>	100.97	0.87	5.33	0.15
<b>R49</b>	104.14	0.89	5.33	0.15
<b>R50</b>	107.32	0.91	5.33	0.15
<b>R51</b>	110.49	0.93	5.33	0.15
<b>R52</b>	113.67	0.95	5.33	0.15
<b>R53</b>	113.67	0.95	6.99	0.15
<b>R54</b>	116.84	0.97	6.99	0.15
<b>R55</b>	120.02	1.00	6.99	0.15
<b>R56</b>	123.19	1.03	6.99	0.15
<b>R57</b>	126.37	1.05	6.99	0.15
<b>R58</b>	129.54	1.08	6.99	0.15
<b>R59</b>	132.72	1.10	6.99	0.15
<b>R60</b>	135.89	1.10	6.99	0.15
<b>R61</b>	139.07	1.13	6.99	0.15
<b>R62</b>	142.24	1.17	6.99	0.15
<b>R63</b>	145.42	1.20	6.99	0.15
<b>R64</b>	148.59	1.20	6.99	0.15
<b>R65</b>	151.77	1.24	6.99	0.15
<b>R66</b>	158.12	1.27	6.99	0.15
<b>R67</b>	164.47	1.31	6.99	0.15

French	Actual Size Millimeters			
	I.D.	±	C.S.	±
<b>R68</b>	170.82	1.38	6.99	0.15
<b>R69</b>	171.17	1.41	6.99	0.15
<b>R70</b>	183.52	1.44	6.99	0.15
<b>R71</b>	189.87	1.48	6.99	0.15
<b>R72</b>	196.22	1.55	6.99	0.15
<b>R73</b>	202.57	1.59	6.99	0.15
<b>R74</b>	215.27	1.67	6.99	0.15
<b>R75</b>	227.97	1.75	6.99	0.15
<b>R76</b>	240.67	1.83	6.99	0.15
<b>R77</b>	253.37	1.93	6.99	0.15
<b>R78</b>	266.07	2.02	6.99	0.15
<b>R79</b>	278.77	2.08	6.99	0.15
<b>R80</b>	291.47	2.21	6.99	0.15
<b>R81</b>	304.17	2.25	6.99	0.15
<b>R82</b>	316.87	2.37	6.99	0.15
<b>R83</b>	329.57	2.43	6.99	0.15
<b>R84</b>	342.27	2.49	6.99	0.15
<b>R85</b>	354.97	2.56	6.99	0.15
<b>R86</b>	367.67	2.68	6.99	0.15
<b>R87</b>	380.37	2.76	6.99	0.15
<b>R88</b>	393.07	2.84	6.99	0.15

# O-ring Japanese- JIS B2401 Series



O-Ring are measured by in side diameter (ID) and cross section width (C.S.) Dimensions are given in millimeters. Section AA enlarged maximum flash permissible regardless of O-Ring size.

## P Series

JIS	Actual Size Millimeters			
	I.D.	±	C.S.	±
P 3	2.80	0.14	1.90	0.09
P 4	3.80	0.14	1.90	0.09
P 5	4.80	0.14	1.90	0.09
P 6	5.80	0.15	1.90	0.09
P 7	6.80	0.16	1.90	0.09
P 8	7.80	0.16	1.90	0.09
P 9	8.80	0.17	1.90	0.09
P 10	9.80	0.17	1.90	0.09
P 10A	9.80	0.17	2.40	0.09
P 11	10.80	0.18	2.40	0.09
P 11.2	11.00	0.18	2.40	0.09
P 12	11.80	0.19	2.40	0.09
P 12.5	12.30	0.19	2.40	0.09
P 14	13.80	0.19	2.40	0.09
P 15	14.80	0.20	2.40	0.09
P 16	15.80	0.20	2.40	0.09
P 18	17.80	0.21	2.40	0.09
P 20	19.80	0.22	2.40	0.09
P 21	20.80	0.23	2.40	0.09
P 22	21.80	0.24	2.40	0.09
P 22A	21.70	0.24	3.50	0.10
P 22.4	22.10	0.24	3.50	0.10
P 24	23.70	0.25	3.50	0.10
P 25	24.70	0.25	3.50	0.10
P 25.5	25.20	0.26	3.50	0.10
P 26	25.70	0.26	3.50	0.10
P 28	27.70	0.28	3.50	0.10
P 29	28.70	0.29	3.50	0.10
P 29.5	29.20	0.29	3.50	0.10
P 30	29.70	0.29	3.50	0.10
P 31	30.70	0.31	3.50	0.10
P 31.5	31.20	0.31	3.50	0.10
P 32	31.70	0.32	3.50	0.10
P 34	33.70	0.33	3.50	0.10
P 35	34.70	0.34	3.50	0.10
P 35.5	35.20	0.34	3.50	0.10
P 36	35.70	0.35	3.50	0.10
P 38	37.70	0.37	3.50	0.10
P 39	38.70	0.37	3.50	0.10
P 40	39.70	0.38	3.50	0.10
P 41	40.70	0.39	3.50	0.10

JIS	Actual Size Millimeters			
	I.D.	±	C.S.	±
P 42	41.70	0.40	3.50	0.10
P 44	43.70	0.41	3.50	0.10
P 45	44.70	0.42	3.50	0.10
P 46	45.70	0.43	3.50	0.10
P 48	47.70	0.45	3.50	0.10
P 49	48.70	0.45	3.50	0.10
P 50	49.70	0.46	3.50	0.10
P 48A	47.60	0.45	5.70	0.15
P 50A	49.60	0.46	5.70	0.15
P 52	51.60	0.48	5.70	0.15
P 53	52.60	0.48	5.70	0.15
P 55	54.60	0.51	5.70	0.15
P 56	55.60	0.51	5.70	0.15
P 58	57.60	0.52	5.70	0.15
P 60	59.60	0.54	5.70	0.15
P 62	61.60	0.56	5.70	0.15
P 63	62.60	0.56	5.70	0.15
P 65	64.60	0.58	5.70	0.15
P 67	66.60	0.59	5.70	0.15
P 70	69.60	0.63	5.70	0.15
P 71	70.60	0.63	5.70	0.15
P 75	74.60	0.66	5.70	0.15
P 80	96.60	0.83	5.70	0.15
P 85	84.60	0.73	5.70	0.15
P 90	89.60	0.77	5.70	0.15
P 95	94.60	0.81	5.70	0.15
P 100	99.60	0.84	5.70	0.15
P 102	101.60	0.87	5.70	0.15
P 105	104.60	0.89	5.70	0.15
P 110	109.60	0.93	5.70	0.15
P 112	111.60	0.93	5.70	0.15
P 115	114.60	0.95	5.70	0.15
P 120	119.60	1.00	5.70	0.15
P 125	124.60	1.03	5.70	0.15
P 130	129.60	1.08	5.70	0.15
P 132	131.60	1.08	5.70	0.15
P 135	134.60	1.10	5.70	0.15
P 140	139.60	1.13	5.70	0.15
P 145	144.60	1.17	5.70	0.15
P 150	149.60	1.20	5.70	0.15
P 150A	149.50	1.20	8.40	0.18

JIS	Actual Size Millimeters			
	I.D.	±	C.S.	±
P 155	154.50	1.24	8.40	0.18
P 160	159.50	1.27	8.40	0.18
P 165	164.50	1.31	8.40	0.18
P 170	169.50	1.34	8.40	0.18
P 175	174.50	1.38	8.40	0.18
P 180	179.50	1.41	8.40	0.18
P 185	184.50	1.44	8.40	0.18
P 190	189.50	1.48	8.40	0.18
P 195	194.50	1.51	8.40	0.18
P 200	199.50	1.55	8.40	0.18
P 205	204.50	1.59	8.40	0.18
P 209	208.50	1.63	8.40	0.18
P 210	209.50	1.63	8.40	0.18
P 215	214.50	1.67	8.40	0.18
P 220	219.50	1.71	8.40	0.18
P 225	224.50	1.75	8.40	0.18
P 230	229.50	1.75	8.40	0.18
P 235	234.50	1.79	8.40	0.18
P 240	239.50	1.83	8.40	0.18
P 245	244.50	1.88	8.40	0.18
P 250	249.50	1.88	8.40	0.18
P 255	254.50	1.93	8.40	0.18
P 260	259.50	1.98	8.40	0.18
P 265	264.50	1.98	8.40	0.18
P 270	269.50	2.02	8.40	0.18
P 275	274.50	2.08	8.40	0.18
P 280	279.50	2.08	8.40	0.18
P 285	284.50	2.14	8.40	0.18
P 290	289.50	2.14	8.40	0.18
P 295	294.50	2.21	8.40	0.18
P 300	299.50	2.21	8.40	0.18
P 315	314.50	2.30	8.40	0.18
P 320	319.50	2.37	8.40	0.18
P 335	334.50	2.43	8.40	0.18
P 340	339.50	2.49	8.40	0.18
P 355	354.50	2.56	8.40	0.18
P 360	359.50	2.62	8.40	0.18
P 375	374.50	2.68	8.40	0.18
P 385	384.50	2.76	8.40	0.18
P 400	399.50	2.84	8.40	0.18

# O-ring Japanese- JIS B2401 Series

## G Series

JIS	Actual Size Millimeters			
	I.D.	±	C.S.	±
G 25	24.40	0.25	3.10	0.10
G 30	29.40	0.29	3.10	0.10
G 35	34.40	0.33	3.10	0.10
G 40	39.40	0.38	3.10	0.10
G 45	44.40	0.42	3.10	0.10
G 50	49.40	0.46	3.10	0.10
G 55	54.40	0.50	3.10	0.10
G 60	59.40	0.54	3.10	0.10
G 65	64.40	0.58	3.10	0.10
G 70	69.40	0.63	3.10	0.10
G 75	74.40	0.66	3.10	0.10
G 80	79.40	0.69	3.10	0.10
G 85	84.40	0.73	3.10	0.10
G 90	89.40	0.77	3.10	0.10
G 95	94.40	0.81	3.10	0.10
G 100	99.40	0.84	3.10	0.10
G 105	104.40	0.89	3.10	0.10
G 110	109.40	0.93	3.10	0.10
G 115	114.40	0.95	3.10	0.10
G 120	119.40	1.00	3.10	0.10
G 125	124.40	1.03	3.10	0.10
G 130	129.40	1.08	3.10	0.10
G 135	134.40	1.10	3.10	0.10
G 140	139.40	1.13	3.10	0.10
G 145	144.40	1.17	3.10	0.10
G 150	149.30	1.20	5.70	0.15
G 155	154.30	1.24	5.70	0.15
G 160	159.30	1.27	5.70	0.15
G 165	164.30	1.31	5.70	0.15
G 170	169.30	1.34	5.70	0.15
G 175	174.30	1.38	5.70	0.15
G 180	179.30	1.41	5.70	0.15
G 185	184.30	1.44	5.70	0.15
G 190	189.30	1.48	5.70	0.15
G 195	194.30	1.51	5.70	0.15
G 200	199.30	1.55	5.70	0.15
G 210	209.30	1.63	5.70	0.15
G 220	219.30	1.71	5.70	0.15
G 230	229.30	1.75	5.70	0.15
G 240	239.30	1.83	5.70	0.15
G 250	249.30	1.88	5.70	0.15
G 260	259.30	1.98	5.70	0.15
G 270	269.30	2.02	5.70	0.15
G 280	279.30	2.08	5.70	0.15
G 290	289.30	2.14	5.70	0.15
G 300	299.30	2.21	5.70	0.15

## V Series

JIS	Actual Size Millimeters			
	I.D.	±	C.S.	±
V 15	14.50	0.20	4.00	0.13
V 24	23.50	0.24	4.00	0.13
V 34	33.50	0.32	4.00	0.13
V 36	34.50	0.33	4.00	0.13
V 40	39.50	0.38	4.00	0.13
V 55	54.50	0.50	4.00	0.13
V 70	69.00	0.61	4.00	0.13
V 85	84.00	0.73	4.00	0.13
V 100	99.00	0.84	4.00	0.13
V 120	119.00	1.00	4.00	0.13
V 150	148.50	1.20	4.00	0.13
V 175	173.00	1.38	4.00	0.13
V 225	222.50	1.75	6.00	0.15
V 275	272.00	2.02	6.00	0.15
V 325	321.50	2.37	6.00	0.15
V 380	376.50	2.76	6.00	0.15
V 430	425.50	3.07	6.00	0.15
V 480	475.00	3.30	10.00	0.22
V 530	524.50	3.63	10.00	0.22
V 585	579.00	3.93	10.00	0.22
V 640	633.50	4.34	10.00	0.22
V 690	683.00	4.44	10.00	0.22
V 740	732.50	4.76	10.00	0.22
V 790	782.00	5.08	10.00	0.22
V 845	836.50	5.44	10.00	0.22
V1055	1044.00	6.79	10.00	0.22

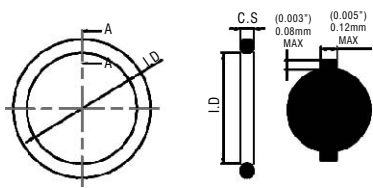
## S Series

JIS	Actual Size Millimeters			
	I.D.	±	C.S.	±
S 22.4	21.50	0.24	2.00	0.09
S 24	23.50	0.24	2.00	0.09
S 25	24.50	0.25	2.00	0.09
S 26	25.50	0.26	2.00	0.09
S 28	27.50	0.28	2.00	0.09
S 29	28.50	0.29	2.00	0.09
S 30	29.50	0.29	2.00	0.09
S 31.5	31.00	0.31	2.00	0.09
S 32	31.50	0.31	2.00	0.09
S 34	33.50	0.32	2.00	0.09
S 35	34.50	0.33	2.00	0.09
S 35.5	35.00	0.34	2.00	0.09
S 36	35.50	0.34	2.00	0.09
S 38	37.50	0.36	2.00	0.09
S 40	39.50	0.38	2.00	0.09
S 42	41.50	0.40	2.00	0.09
S 44	43.50	0.41	2.00	0.09
S 45	44.50	0.42	2.00	0.09
S 46	45.50	0.43	2.00	0.09
S 48	47.50	0.44	2.00	0.09
S 50	49.50	0.46	2.00	0.09
S 53	52.50	0.48	2.00	0.09
S55	54.50	0.50	2.00	0.09
S 56	55.50	0.51	2.00	0.09
S 60	59.50	0.54	2.00	0.09
S 63	62.50	0.56	2.00	0.09
S 65	64.50	0.58	2.00	0.09
S67	66.50	0.59	2.00	0.09
S70	69.50	0.63	2.00	0.09
S71	70.50	0.63	2.00	0.09
S75	74.50	0.66	2.00	0.09
S80	79.50	0.69	2.00	0.09
S85	84.50	0.73	2.00	0.09
S90	89.50	0.77	2.00	0.09
S95	94.50	0.81	2.00	0.09
S100	99.50	0.84	2.00	0.09
S105	104.50	0.89	2.00	0.09
S110	109.50	0.93	2.00	0.09
S112	111.50	0.93	2.00	0.09
S115	114.50	0.95	2.00	0.09
S120	119.50	1.00	2.00	0.09
S125	124.50	1.03	2.00	0.09
S130	129.50	1.08	2.00	0.09
S132	131.50	1.08	2.00	0.09
S135	134.50	1.10	2.00	0.09
S140	139.50	1.13	2.00	0.09
S145	144.50	1.17	2.00	0.09
S150	149.50	1.20	2.00	0.09

## S Series

JIS	Actual Size Millimeters			
	I.D.	±	C.S.	±
S 3	2.50	0.13	1.50	0.08
S 4	3.50	0.14	1.50	0.08
S 5	4.50	0.15	1.50	0.08
S 6	5.50	0.15	1.50	0.08
S 6	6.50	0.16	1.50	0.08
S 8	7.50	0.16	1.50	0.08
S 9	8.50	0.16	1.50	0.08
S 10	9.50	0.17	1.50	0.08
S 11.2	10.70	0.18	1.50	0.08
S 12	11.50	0.19	1.50	0.08
S 12.5	12.00	0.19	1.50	0.08
S 14	13.50	0.19	1.50	0.08
S 16	15.50	0.20	1.50	0.08
S 18	17.50	0.21	1.50	0.08
S 20	19.50	0.22	1.50	0.08
S 22	21.50	0.24	1.50	0.08

# O-ring European-Metric sizes



O-Ring are measured by in side diameter (ID) and cross section width (C.S.) Dimensions are given in millimeters.  
Section AA enlarged maximum flash permissible regardless of O-Ring size.

I.D.	C.S.	I.D.	C.S.	I.D.	C.S.	I.D.	C.S.	I.D.	C.S.	I.D.	C.S.	I.D.	C.S.	I.D.	C.S.	I.D.	C.S.
2.00	1.50	48.00	1.50	94.00	1.50	40.00	2.00	86.00	2.00	32.00	2.50	78.00	2.50				
3.00	1.50	49.00	1.50	95.00	1.50	41.00	2.00	87.00	2.00	33.00	2.50	79.00	2.50				
4.00	1.50	50.00	1.50	96.00	1.50	42.00	2.00	88.00	2.00	34.00	2.50	80.00	2.50				
5.00	1.50	51.00	1.50	97.00	1.50	43.00	2.00	89.00	2.00	35.00	2.50	81.00	2.50				
6.00	1.50	52.00	1.50	98.00	1.50	44.00	2.00	90.00	2.00	36.00	2.50	82.00	2.50				
7.00	1.50	53.00	1.50	99.00	1.50	45.00	2.00	91.00	2.00	37.00	2.50	83.00	2.50				
8.00	1.50	54.00	1.50	100.00	1.50	46.00	2.00	92.00	2.00	38.00	2.50	84.00	2.50				
9.00	1.50	55.00	1.50	1.00	2.00	47.00	2.00	93.00	2.00	39.00	2.50	85.00	2.50				
10.00	1.50	56.00	1.50	2.00	2.00	48.00	2.00	94.00	2.00	40.00	2.50	86.00	2.50				
11.00	1.50	57.00	1.50	3.00	2.00	49.00	2.00	95.00	2.00	41.00	2.50	87.00	2.50				
12.00	1.50	58.00	1.50	4.00	2.00	50.00	2.00	96.00	2.00	42.00	2.50	88.00	2.50				
13.00	1.50	59.00	1.50	5.00	2.00	51.00	2.00	97.00	2.00	43.00	2.50	89.00	2.50				
14.00	1.50	60.00	1.50	6.00	2.00	52.00	2.00	98.00	2.00	44.00	2.50	90.00	2.50				
15.00	1.50	61.00	1.50	7.00	2.00	53.00	2.00	99.00	2.00	45.00	2.50	91.00	2.50				
16.00	1.50	62.00	1.50	8.00	2.00	54.00	2.00	100.00	2.00	46.00	2.50	92.00	2.50				
17.00	1.50	63.00	1.50	9.00	2.00	55.00	2.00	115.00	2.00	47.00	2.50	93.00	2.50				
18.00	1.50	64.00	1.50	10.00	2.00	56.00	2.00	120.00	2.00	48.00	2.50	94.00	2.50				
19.00	1.50	65.00	1.50	11.00	2.00	57.00	2.00	3.00	2.50	49.00	2.50	95.00	2.50				
20.00	1.50	66.00	1.50	12.00	2.00	58.00	2.00	4.00	2.50	50.00	2.50	96.00	2.50				
21.00	1.50	67.00	1.50	13.00	2.00	59.00	2.00	5.00	2.50	51.00	2.50	97.00	2.50				
22.00	1.50	68.00	1.50	14.00	2.00	60.00	2.00	6.00	2.50	52.00	2.50	98.00	2.50				
23.00	1.50	69.00	1.50	15.00	2.00	61.00	2.00	7.00	2.50	53.00	2.50	99.00	2.50				
24.00	1.50	70.00	1.50	16.00	2.00	62.00	2.00	8.00	2.50	54.00	2.50	100.00	2.50				
25.00	1.50	71.00	1.50	17.00	2.00	63.00	2.00	9.00	2.50	55.00	2.50	3.00	3.00				
26.00	1.50	72.00	1.50	18.00	2.00	64.00	2.00	10.00	2.50	56.00	2.50	4.00	3.00				
27.00	1.50	73.00	1.50	19.00	2.00	65.00	2.00	11.00	2.50	57.00	2.50	5.00	3.00				
28.00	1.50	74.00	1.50	20.00	2.00	66.00	2.00	12.00	2.50	58.00	2.50	6.00	3.00				
29.00	1.50	75.00	1.50	21.00	2.00	67.00	2.00	13.00	2.50	59.00	2.50	7.00	3.00				
30.00	1.50	76.00	1.50	22.00	2.00	68.00	2.00	14.00	2.50	60.00	2.50	8.00	3.00				
31.00	1.50	77.00	1.50	23.00	2.00	69.00	2.00	15.00	2.50	61.00	2.50	9.00	3.00				
32.00	1.50	78.00	1.50	24.00	2.00	70.00	2.00	16.00	2.50	62.00	2.50	10.00	3.00				
33.00	1.50	79.00	1.50	25.00	2.00	71.00	2.00	17.00	2.50	63.00	2.50	11.00	3.00				
34.00	1.50	80.00	1.50	26.00	2.00	72.00	2.00	18.00	2.50	64.00	2.50	12.00	3.00				
35.00	1.50	81.00	1.50	27.00	2.00	73.00	2.00	19.00	2.50	65.00	2.50	13.00	3.00				
36.00	1.50	82.00	1.50	28.00	2.00	74.00	2.00	20.00	2.50	66.00	2.50	14.00	3.00				
37.00	1.50	83.00	1.50	29.00	2.00	75.00	2.00	21.00	2.50	67.00	2.50	15.00	3.00				
38.00	1.50	84.00	1.50	30.00	2.00	76.00	2.00	22.00	2.50	68.00	2.50	16.00	3.00				
39.00	1.50	85.00	1.50	31.00	2.00	77.00	2.00	23.00	2.50	69.00	2.50	17.00	3.00				
40.00	1.50	86.00	1.50	32.00	2.00	78.00	2.00	24.00	2.50	70.00	2.50	18.00	3.00				
41.00	1.50	87.00	1.50	33.00	2.00	79.00	2.00	25.00	2.50	71.00	2.50	19.00	3.00				
42.00	1.50	88.00	1.50	34.00	2.00	80.00	2.00	26.00	2.50	72.00	2.50	20.00	3.00				
43.00	1.50	89.00	1.50	35.00	2.00	81.00	2.00	27.00	2.50	73.00	2.50	21.00	3.00				
44.00	1.50	90.00	1.50	36.00	2.00	82.00	2.00	28.00	2.50	74.00	2.50	22.00	3.00				
45.00	1.50	91.00	1.50	37.00	2.00	83.00	2.00	29.00	2.50	75.00	2.50	23.00	3.00				
46.00	1.50	92.00	1.50	38.00	2.00	84.00	2.00	30.00	2.50	76.00	2.50	24.00	3.00				
47.00	1.50	93.00	1.50	39.00	2.00	85.00	2.00	31.00	2.50	77.00	2.50	25.00	3.00				

## O-ring European-Metric sizes

I.D.	C.S.	I.D.	C.S.	I.D.	C.S.	I.D.	C.S.	I.D.	C.S.	I.D.	C.S.
26.00	3.00	76.00	3.00	13.00	3.50	63.00	3.50	20.00	4.00	70.00	4.00
27.00	3.00	77.00	3.00	14.00	3.50	64.00	3.50	21.00	4.00	71.00	4.00
28.00	3.00	78.00	3.00	15.00	3.50	65.00	3.50	22.00	4.00	72.00	4.00
29.00	3.00	79.00	3.00	16.00	3.50	66.00	3.50	23.00	4.00	73.00	4.00
30.00	3.00	80.00	3.00	17.00	3.50	67.00	3.50	24.00	4.00	74.00	4.00
31.00	3.00	81.00	3.00	18.00	3.50	68.00	3.50	25.00	4.00	75.00	4.00
32.00	3.00	82.00	3.00	19.00	3.50	69.00	3.50	26.00	4.00	76.00	4.00
33.00	3.00	83.00	3.00	20.00	3.50	70.00	3.50	27.00	4.00	77.00	4.00
34.00	3.00	84.00	3.00	21.00	3.50	71.00	3.50	28.00	4.00	78.00	4.00
35.00	3.00	85.00	3.00	22.00	3.50	72.00	3.50	29.00	4.00	79.00	4.00
36.00	3.00	86.00	3.00	23.00	3.50	73.00	3.50	30.00	4.00	80.00	4.00
37.00	3.00	87.00	3.00	24.00	3.50	74.00	3.50	31.00	4.00	81.00	4.00
38.00	3.00	88.00	3.00	25.00	3.50	75.00	3.50	32.00	4.00	82.00	4.00
39.00	3.00	89.00	3.00	26.00	3.50	76.00	3.50	33.00	4.00	83.00	4.00
40.00	3.00	90.00	3.00	27.00	3.50	77.00	3.50	34.00	4.00	84.00	4.00
41.00	3.00	91.00	3.00	28.00	3.50	78.00	3.50	35.00	4.00	85.00	4.00
42.00	3.00	92.00	3.00	29.00	3.50	79.00	3.50	36.00	4.00	86.00	4.00
43.00	3.00	93.00	3.00	30.00	3.50	80.00	3.50	37.00	4.00	87.00	4.00
44.00	3.00	94.00	3.00	31.00	3.50	81.00	3.50	38.00	4.00	88.00	4.00
45.00	3.00	95.00	3.00	32.00	3.50	82.00	3.50	39.00	4.00	89.00	4.00
46.00	3.00	96.00	3.00	33.00	3.50	83.00	3.50	40.00	4.00	90.00	4.00
47.00	3.00	97.00	3.00	34.00	3.50	84.00	3.50	41.00	4.00	91.00	4.00
48.00	3.00	98.00	3.00	35.00	3.50	85.00	3.50	42.00	4.00	92.00	4.00
49.00	3.00	99.00	3.00	36.00	3.50	86.00	3.50	43.00	4.00	93.00	4.00
50.00	3.00	100.00	3.00	37.00	3.50	87.00	3.50	44.00	4.00	94.00	4.00
51.00	3.00	101.00	3.00	38.00	3.50	88.00	3.50	45.00	4.00	95.00	4.00
52.00	3.00	102.00	3.00	39.00	3.50	89.00	3.50	46.00	4.00	96.00	4.00
53.00	3.00	105.00	3.00	40.00	3.50	90.00	3.50	47.00	4.00	97.00	4.00
54.00	3.00	110.00	3.00	41.00	3.50	91.00	3.50	48.00	4.00	98.00	4.00
55.00	3.00	115.00	3.00	42.00	3.50	92.00	3.50	49.00	4.00	99.00	4.00
56.00	3.00	116.00	3.00	43.00	3.50	93.00	3.50	50.00	4.00	100.00	4.00
57.00	3.00	120.00	3.00	44.00	3.50	94.00	3.50	51.00	4.00	102.00	4.00
58.00	3.00	122.00	3.00	45.00	3.50	95.00	3.50	52.00	4.00	105.00	4.00
59.00	3.00	125.00	3.00	46.00	3.50	96.00	3.50	53.00	4.00	108.00	4.00
60.00	3.00	126.00	3.00	47.00	3.50	97.00	3.50	54.00	4.00	110.00	4.00
61.00	3.00	130.00	3.00	48.00	3.50	98.00	3.50	55.00	4.00	115.00	4.00
62.00	3.00	135.00	3.00	49.00	3.50	99.00	3.50	56.00	4.00	120.00	4.00
63.00	3.00	137.00	3.00	50.00	3.50	100.00	3.50	57.00	4.00	129.00	4.00
64.00	3.00	140.00	3.00	51.00	3.50	8.00	4.00	58.00	4.00	130.00	4.00
65.00	3.00	145.00	3.00	52.00	3.50	9.00	4.00	59.00	4.00	135.00	4.00
66.00	3.00	150.00	3.00	53.00	3.50	10.00	4.00	60.00	4.00	144.00	4.00
67.00	3.00	268.00	3.00	54.00	3.50	11.00	4.00	61.00	4.00	145.00	4.00
68.00	3.00	5.00	3.50	55.00	3.50	12.00	4.00	62.00	4.00	150.00	4.00
69.00	3.00	6.00	3.50	56.00	3.50	13.00	4.00	63.00	4.00		
70.00	3.00	7.00	3.50	57.00	3.50	14.00	4.00	64.00	4.00		
71.00	3.00	8.00	3.50	58.00	3.50	15.00	4.00	65.00	4.00		
72.00	3.00	9.00	3.50	59.00	3.50	16.00	4.00	66.00	4.00		
73.00	3.00	10.00	3.50	60.00	3.50	17.00	4.00	67.00	4.00		
74.00	3.00	11.00	3.50	61.00	3.50	18.00	4.00	68.00	4.00		
75.00	3.00	12.00	3.50	62.00	3.50	19.00	4.00	69.00	4.00		

## TOLEARANCE STANDARD

### METRIC SERIES PER ISO3601 / DIN3771

I.D.	±	I.D.	±	I.D.	±	I.D.	±
.....-2.5	0.13	51.51-53.00	0.48	132.01-136.00	1.10	345.01-355.00	2.56
2.51-4.50	0.14	53.01-54.50	0.50	136.01-140.00	1.13	355.01-365.00	2.62
4.51-6.30	0.15	54.51-56.00	0.51	140.01-145.00	1.17	365.01-375.00	2.68
6.31-8.50	0.16	56.01-58.00	0.52	145.01-150.00	1.20	375.01-387.00	2.76
8.51-10.00	0.17	58.01-60.00	0.54	150.01-155.00	1.24	387.01-400.00	2.84
10.01-11.20	0.18	60.01-61.50	0.55	155.01-160.00	1.27	400.01-412.00	2.91
11.21-14.00	0.19	61.51-63.00	0.56	160.01-165.00	1.31	412.01-425.00	2.99
14.01-16.00	0.20	63.01-65.00	0.58	165.01-170.00	1.34	425.01-437.00	3.07
16.01-18.00	0.21	65.01-67.00	0.59	170.01-175.00	1.38	437.01-450.00	3.15
18.01-20.00	0.22	67.01-69.00	0.61	175.01-180.00	1.41	450.01-462.00	3.22
20.01-21.20	0.23	69.01-71.00	0.63	180.01-185.00	1.44	462.01-475.00	3.30
21.21-23.60	0.24	71.01-73.00	0.64	185.01-190.00	1.48	475.01-487.00	3.37
23.61-25.00	0.25	73.01-75.00	0.66	190.01-195.00	1.51	487.01-500.00	3.45
25.01-26.50	0.26	75.01-77.50	0.67	195.01-200.00	1.55	500.01-515.00	3.54
26.51-28.00	0.28	77.51-80.00	0.69	200.01-206.00	1.59	515.01-530.00	3.63
28.01-30.00	0.29	80.01-82.50	0.71	206.01-212.00	1.63	530.01-545.00	3.72
30.01-31.50	0.31	82.51-85.00	0.73	212.01-218.00	1.67	545.01-560.00	3.81
31.51-33.50	0.32	85.01-87.50	0.75	218.01-224.00	1.71	560.01-580.00	3.93
33.51-34.50	0.33	87.51-90.00	0.77	224.01-230.00	1.75	580.01-600.00	4.05
34.51-35.50	0.34	90.01-92.50	0.79	230.01-236.00	1.79	600.01-615.00	4.13
35.51-36.50	0.35	92.51-95.00	0.81	236.01-243.00	1.83	615.01-630.00	4.22
36.51-37.50	0.36	95.01-97.50	0.83	243.01-250.00	1.88	630.01-650.00	4.34
37.51-38.70	0.37	97.51-100.00	0.84	250.01-258.00	1.93	650.01-670.00	4.46
38.71-40.00	0.38	100.01-103.00	0.87	258.01-265.00	1.98	> 670.01	0.65%
40.01-41.20	0.39	103.01-106.00	0.89	265.01-272.00	2.02		
41.21-42.50	0.40	106.01-109.00	0.91	272.01-280.00	2.08		
42.51-43.70	0.41	109.01-112.00	0.93	280.01-290.00	2.14		
43.71-45.00	0.42	112.01-115.00	0.95	290.01-300.00	2.21		
45.01-46.20	0.43	115.01-118.00	0.97	300.01-307.00	2.25		
46.21-47.50	0.44	118.01-122.00	1.00	307.01-315.00	2.30		
47.51-48.70	0.45	122.01-125.00	1.03	315.01-325.00	2.37		
48.71-50.00	0.46	125.01-128.00	1.05	325.01-335.00	2.43		
50.01-51.50	0.47	128.01-132.00	1.08	335.01-345.00	2.49		

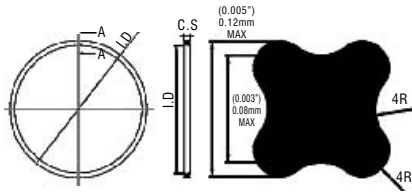
  

C.S.	±
.....-1.8	0.08
1.81-2.65	0.09
2.66-3.55	0.10
3.56-5.30	0.13
5.31-7.00	0.15
7.01-8.70	0.18
8.71-10.40	0.22
> 10.41	1.8%



# V. X-Ring Size

## X-ring American- AS568 Series



X-Ring are measured by in side diameter (ID) and cross section width (C.S.) Dimensions are given in millimeters.

Section AA enlarged maximum flash permissible regardless of X-Ring size.

AS-568	Actual Size Millimeters			
	I.D.	±	C.S.	±
001	0.74	0.10	1.02	0.08
002	1.07	0.10	1.27	0.08
003	1.42	0.10	1.52	0.08
004	1.78	0.13	1.78	0.08
005	2.57	0.13	1.78	0.08
006	2.90	0.13	1.78	0.08
007	3.68	0.13	1.78	0.08
008	4.47	0.13	1.78	0.08
009	5.28	0.13	1.78	0.08
010	6.07	0.13	1.78	0.08
011	7.65	0.13	1.78	0.08
012	9.25	0.13	1.78	0.08
013	10.82	0.13	1.78	0.08
014	12.42	0.13	1.78	0.08
015	14.00	0.18	1.78	0.08
016	15.60	0.23	1.78	0.08
017	17.17	0.23	1.78	0.08
018	18.77	0.23	1.78	0.08
019	20.35	0.23	1.78	0.08
020	21.95	0.23	1.78	0.08
021	23.52	0.23	1.78	0.08
022	25.12	0.25	1.78	0.08
023	26.70	0.25	1.78	0.08
024	28.30	0.25	1.78	0.08
025	29.87	0.28	1.78	0.08
026	31.47	0.25	1.78	0.08
027	33.05	0.28	1.78	0.08
028	34.65	0.33	1.78	0.08
029	37.82	0.33	1.78	0.08
030	41.00	0.33	1.78	0.08
031	44.17	0.38	1.78	0.08
032	47.35	0.38	1.78	0.08
033	50.52	0.46	1.78	0.08
034	53.70	0.46	1.78	0.08
035	56.87	0.46	1.78	0.08
036	60.05	0.46	1.78	0.08
037	63.22	0.46	1.78	0.08
038	66.40	0.51	1.78	0.08
039	69.57	0.51	1.78	0.08
040	72.75	0.51	1.78	0.08
041	75.92	0.51	1.78	0.08
042	82.27	0.61	1.78	0.08
043	88.62	0.61	1.78	0.08
044	94.97	0.69	1.78	0.08

AS-568	Actual Size Millimeters			
	I.D.	±	C.S.	±
045	101.32	0.69	1.78	0.08
046	107.67	0.76	1.78	0.08
047	114.02	0.76	1.78	0.08
048	120.37	0.76	1.78	0.08
049	126.72	0.94	1.78	0.08
050	133.07	0.94	1.78	0.08
102	1.24	0.13	2.62	0.08
103	2.06	0.13	2.62	0.08
104	2.84	0.13	2.62	0.08
105	3.63	0.13	2.62	0.08
106	4.42	0.13	2.62	0.08
107	5.23	0.13	2.62	0.08
108	6.02	0.13	2.62	0.08
109	7.59	0.13	2.62	0.08
110	9.19	0.13	2.62	0.08
111	10.77	0.13	2.62	0.08
112	12.37	0.13	2.62	0.08
113	13.94	0.18	2.62	0.08
114	15.54	0.23	2.62	0.08
115	17.12	0.23	2.62	0.08
116	18.72	0.23	2.62	0.08
117	20.30	0.25	2.62	0.08
118	21.89	0.25	2.62	0.08
119	23.47	0.25	2.62	0.08
120	25.07	0.25	2.62	0.08
121	26.64	0.25	2.62	0.08
122	28.24	0.25	2.62	0.08
123	29.82	0.30	2.62	0.08
124	31.42	0.30	2.62	0.08
125	32.99	0.30	2.62	0.08
126	34.59	0.30	2.62	0.08
127	36.17	0.30	2.62	0.08
128	37.77	0.30	2.62	0.08
129	39.34	0.38	2.62	0.08
130	40.94	0.38	2.62	0.08
131	42.52	0.38	2.62	0.08
132	44.12	0.38	2.62	0.08
133	45.69	0.38	2.62	0.08
134	47.29	0.38	2.62	0.08
135	48.90	0.43	2.62	0.08
136	50.47	0.43	2.62	0.08
137	52.07	0.43	2.62	0.08
138	53.65	0.43	2.62	0.08
139	55.25	0.43	2.62	0.08

AS-568	Actual Size Millimeters			
	I.D.	±	C.S.	±
140	56.82	0.43	2.62	0.08
141	58.42	0.51	2.62	0.08
142	59.99	0.51	2.62	0.08
143	61.60	0.51	2.62	0.08
144	63.17	0.51	2.62	0.08
145	64.77	0.51	2.62	0.08
146	66.34	0.51	2.62	0.08
147	67.95	0.56	2.62	0.08
148	69.52	0.56	2.62	0.08
149	71.12	0.56	2.62	0.08
150	72.69	0.56	2.62	0.08
151	75.87	0.61	2.62	0.08
152	82.22	0.61	2.62	0.08
153	88.57	0.61	2.62	0.08
154	94.92	0.71	2.62	0.08
155	101.27	0.71	2.62	0.08
156	107.62	0.76	2.62	0.08
157	113.97	0.76	2.62	0.08
158	120.32	0.76	2.62	0.08
159	126.67	0.89	2.62	0.08
160	133.02	0.89	2.62	0.08
161	139.37	0.89	2.62	0.08
162	145.72	0.89	2.62	0.08
163	152.07	0.89	2.62	0.08
164	158.42	1.02	2.62	0.08
165	164.77	1.02	2.62	0.08
166	171.12	1.02	2.62	0.08
167	177.47	1.02	2.62	0.08
168	183.82	1.14	2.62	0.08
169	190.17	1.14	2.62	0.08
170	196.52	1.14	2.62	0.08
171	202.87	1.14	2.62	0.08
172	209.22	1.27	2.62	0.08
173	215.57	1.27	2.62	0.08
174	221.92	1.27	2.62	0.08
175	228.27	1.27	2.62	0.08
176	234.62	1.40	2.62	0.08
177	240.97	1.40	2.62	0.08
178	247.32	1.40	2.62	0.08
201	4.34	0.13	3.53	0.10
202	5.94	0.13	3.53	0.10
203	7.52	0.13	3.53	0.10
204	9.12	0.13	3.53	0.10
205	10.69	0.13	3.53	0.10

## X-ring American- AS568 Series

AS-568	Actual Size Millimeters			
	I.D.	±	C.S.	±
206	12.29	0.13	3.53	0.10
207	13.87	0.18	3.53	0.10
208	15.47	0.23	3.53	0.10
209	17.04	0.23	3.53	0.10
210	18.64	0.25	3.53	0.10
211	20.22	0.25	3.53	0.10
212	21.82	0.25	3.53	0.10
213	23.39	0.25	3.53	0.10
214	24.99	0.25	3.53	0.10
215	26.57	0.25	3.53	0.10
216	28.17	0.30	3.53	0.10
217	29.74	0.30	3.53	0.10
218	31.34	0.30	3.53	0.10
219	32.92	0.30	3.53	0.10
220	34.52	0.30	3.53	0.10
221	36.09	0.30	3.53	0.10
222	37.69	0.38	3.53	0.10
223	40.87	0.38	3.53	0.10
224	44.04	0.38	3.53	0.10
225	47.22	0.46	3.53	0.10
226	50.39	0.46	3.53	0.10
227	53.57	0.46	3.53	0.10
228	56.74	0.51	3.53	0.10
229	59.92	0.51	3.53	0.10
230	63.09	0.51	3.53	0.10
231	66.27	0.51	3.53	0.10
232	69.44	0.61	3.53	0.10
233	72.62	0.61	3.53	0.10
234	75.79	0.61	3.53	0.10
235	78.97	0.61	3.53	0.10
236	82.14	0.61	3.53	0.10
237	85.32	0.61	3.53	0.10
238	88.49	0.61	3.53	0.10
239	91.67	0.71	3.53	0.10
240	94.84	0.71	3.53	0.10
241	98.02	0.71	3.53	0.10
242	101.19	0.71	3.53	0.10
243	104.37	0.71	3.53	0.10
244	107.54	0.76	3.53	0.10
245	110.72	0.76	3.53	0.10
246	113.89	0.76	3.53	0.10
247	117.07	0.76	3.53	0.10
248	120.24	0.76	3.53	0.10
249	123.42	0.89	3.53	0.10
250	126.59	0.89	3.53	0.10
251	129.77	0.89	3.53	0.10
252	132.94	0.89	3.53	0.10
253	136.12	0.89	3.53	0.10
254	139.29	0.89	3.53	0.10
255	142.47	0.89	3.53	0.10
256	145.64	0.89	3.53	0.10
257	148.82	0.89	3.53	0.10

AS-568	Actual Size Millimeters			
	I.D.	±	C.S.	±
258	151.99	0.89	3.53	0.10
259	158.34	1.02	3.53	0.10
260	164.69	1.02	3.53	0.10
261	171.04	1.02	3.53	0.10
262	177.39	1.02	3.53	0.10
263	183.74	1.14	3.53	0.10
264	190.09	1.14	3.53	0.10
265	196.44	1.14	3.53	0.10
266	202.79	1.14	3.53	0.10
267	209.14	1.27	3.53	0.10
268	215.49	1.27	3.53	0.10
269	221.84	1.27	3.53	0.10
270	228.19	1.27	3.53	0.10
271	234.54	1.40	3.53	0.10
272	240.89	1.40	3.53	0.10
273	247.24	1.40	3.53	0.10
274	253.59	1.40	3.53	0.10
275	266.29	1.40	3.53	0.10
276	278.99	1.65	3.53	0.10
277	291.69	1.65	3.53	0.10
278	304.39	1.65	3.53	0.10
279	329.79	1.65	3.53	0.10
280	355.19	1.65	3.53	0.10
281	380.59	1.65	3.53	0.10
282	405.26	1.91	3.53	0.10
283	430.66	2.03	3.53	0.10
284	456.06	2.16	3.53	0.10
309	10.46	0.13	5.33	0.13
310	12.07	0.13	5.33	0.13
311	13.64	0.18	5.33	0.13
312	15.24	0.23	5.33	0.13
313	16.81	0.23	5.33	0.13
314	18.42	0.25	5.33	0.13
315	19.99	0.25	5.33	0.13
316	21.59	0.25	5.33	0.13
317	23.16	0.25	5.33	0.13
318	24.77	0.25	5.33	0.13
319	26.34	0.25	5.33	0.13
320	27.94	0.30	5.33	0.13
321	29.51	0.30	5.33	0.13
322	31.12	0.30	5.33	0.13
323	32.69	0.30	5.33	0.13
324	34.29	0.30	5.33	0.13
325	37.47	0.38	5.33	0.13
326	40.64	0.38	5.33	0.13
327	43.82	0.38	5.33	0.13
328	46.99	0.38	5.33	0.13
329	50.17	0.46	5.33	0.13
330	53.34	0.46	5.33	0.13
331	56.52	0.46	5.33	0.13
332	59.69	0.46	5.33	0.13
333	62.87	0.51	5.33	0.13

AS-568	Actual Size Millimeters			
	I.D.	±	C.S.	±
334	66.04	0.51	5.33	0.13
335	69.22	0.51	5.33	0.13
336	72.39	0.51	5.33	0.13
337	75.57	0.61	5.33	0.13
338	78.74	0.61	5.33	0.13
339	81.92	0.61	5.33	0.13
340	85.09	0.61	5.33	0.13
341	88.27	0.61	5.33	0.13
342	91.44	0.71	5.33	0.13
343	94.62	0.71	5.33	0.13
344	97.79	0.71	5.33	0.13
345	100.97	0.71	5.33	0.13
346	104.14	0.71	5.33	0.13
347	107.32	0.76	5.33	0.13
348	110.49	0.76	5.33	0.13
349	113.67	0.76	5.33	0.13
350	116.84	0.76	5.33	0.13
351	120.02	0.76	5.33	0.13
352	123.19	0.76	5.33	0.13
353	126.37	0.94	5.33	0.13
354	129.54	0.94	5.33	0.13
355	132.72	0.94	5.33	0.13
356	135.89	0.94	5.33	0.13
357	139.07	0.94	5.33	0.13
358	142.24	0.94	5.33	0.13
359	145.42	0.94	5.33	0.13
360	148.59	0.94	5.33	0.13
361	151.77	0.94	5.33	0.13
362	158.12	1.02	5.33	0.13
363	164.47	1.02	5.33	0.13
364	170.82	1.02	5.33	0.13
365	177.17	1.02	5.33	0.13
366	183.52	1.14	5.33	0.13
367	189.87	1.14	5.33	0.13
368	196.22	1.14	5.33	0.13
369	202.57	1.14	5.33	0.13
370	208.92	1.27	5.33	0.13
371	215.27	1.27	5.33	0.13
372	221.62	1.27	5.33	0.13
373	227.97	1.27	5.33	0.13
374	234.32	1.40	5.33	0.13
375	240.67	1.40	5.33	0.13
376	247.02	1.40	5.33	0.13
377	253.37	1.40	5.33	0.13
378	266.07	1.52	5.33	0.13
379	278.77	1.52	5.33	0.13
380	291.47	1.65	5.33	0.13
381	304.17	1.65	5.33	0.13
382	329.57	1.65	5.33	0.13
383	354.97	1.78	5.33	0.13
384	380.39	1.78	5.33	0.13
385	405.26	1.91	5.33	0.13

## X-ring American- AS568 Series

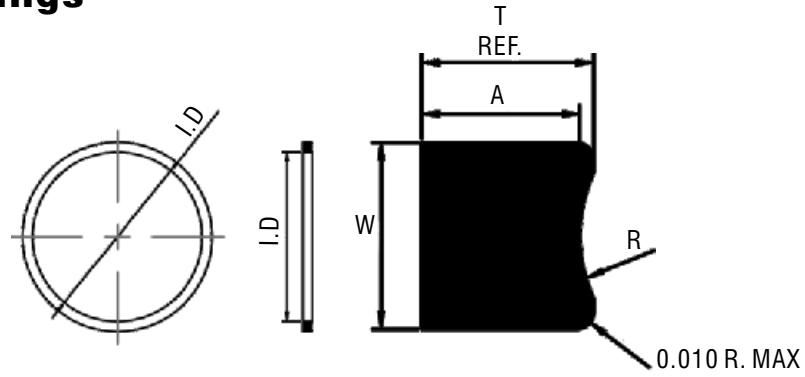
AS-568	Actual Size Millimeters			
	I.D.	±	C.S.	±
<b>386</b>	430.66	2.03	5.33	0.13
<b>387</b>	456.06	2.16	5.33	0.13
<b>388</b>	481.41	2.29	5.33	0.13
<b>389</b>	506.81	2.41	5.33	0.13
<b>390</b>	532.21	2.41	5.33	0.13
<b>391</b>	557.61	2.54	5.33	0.13
<b>392</b>	582.68	2.67	5.33	0.13
<b>393</b>	608.08	2.79	5.33	0.13
<b>394</b>	633.48	2.92	5.33	0.13
<b>395</b>	658.88	3.05	5.33	0.13
<b>425</b>	113.67	0.84	6.99	0.15
<b>426</b>	116.84	0.84	6.99	0.15
<b>427</b>	120.02	0.84	6.99	0.15
<b>428</b>	123.19	0.84	6.99	0.15
<b>429</b>	126.37	0.94	6.99	0.15
<b>430</b>	129.54	0.94	6.99	0.15
<b>431</b>	132.72	0.94	6.99	0.15
<b>432</b>	135.89	0.94	6.99	0.15
<b>433</b>	139.07	0.94	6.99	0.15
<b>434</b>	142.24	0.94	6.99	0.15

AS-568	Actual Size Millimeters			
	I.D.	±	C.S.	±
<b>435</b>	145.42	0.94	6.99	0.15
<b>436</b>	148.59	0.94	6.99	0.15
<b>437</b>	151.77	0.94	6.99	0.15
<b>438</b>	158.12	1.02	6.99	0.15
<b>439</b>	164.47	1.02	6.99	0.15
<b>440</b>	170.82	1.02	6.99	0.15
<b>441</b>	177.17	1.02	6.99	0.15
<b>442</b>	183.52	1.14	6.99	0.15
<b>443</b>	189.87	1.14	6.99	0.15
<b>444</b>	196.22	1.14	6.99	0.15
<b>445</b>	202.57	1.14	6.99	0.15
<b>446</b>	215.27	1.40	6.99	0.15
<b>447</b>	227.97	1.40	6.99	0.15
<b>448</b>	240.67	1.40	6.99	0.15
<b>449</b>	253.37	1.40	6.99	0.15
<b>450</b>	266.07	1.52	6.99	0.15
<b>451</b>	278.77	1.52	6.99	0.15
<b>452</b>	291.47	1.52	6.99	0.15
<b>453</b>	304.17	1.52	6.99	0.15
<b>454</b>	316.87	1.52	6.99	0.15

AS-568	Actual Size Millimeters			
	I.D.	±	C.S.	±
<b>455</b>	329.57	1.52	6.99	0.15
<b>456</b>	342.27	1.78	6.99	0.15
<b>457</b>	354.97	1.78	6.99	0.15
<b>458</b>	367.67	1.78	6.99	0.15
<b>459</b>	380.37	1.78	6.99	0.15
<b>460</b>	393.07	1.79	6.99	0.15
<b>461</b>	405.26	1.91	6.99	0.15
<b>462</b>	417.96	1.91	6.99	0.15
<b>463</b>	430.66	2.03	6.99	0.15
<b>464</b>	443.36	2.16	6.99	0.15
<b>465</b>	456.06	2.16	6.99	0.15
<b>466</b>	468.76	2.16	6.99	0.15
<b>467</b>	481.46	2.29	6.99	0.15
<b>468</b>	494.16	2.29	6.99	0.15
<b>469</b>	506.86	2.41	6.99	0.15
<b>470</b>	532.26	2.41	6.99	0.15
<b>471</b>	557.66	2.54	6.99	0.15
<b>472</b>	582.68	2.67	6.99	0.15
<b>473</b>	608.08	2.79	6.99	0.15
<b>474</b>	633.48	2.92	6.99	0.15
<b>475</b>	658.88	3.05	6.99	0.15



# VI. Back-up Rings



<Inch>

AS-568 NO.	ID d	TOL. ±	R ±0.010	T (RED.)	A	TOL. ±	W	TOL. ±	ID X OD X A (mm)
006	.140								3.56 x 6.26 x 1.14
007	.171								4.74 x 7.04 x 1.14
008	.202								5.13 x 7.83 x 1.14
009	.234								5.94 x 8.64 x 1.14
010	.265	.005							6.73 x 9.43 x 1.14
011	.327								8.31 x 11.00 x 1.14
012	.390								9.91 x 12.61 x 1.14
013	.455								11.56 x 14.26 x 1.14
014	.518								13.16 x 15.86 x 1.14
015	.580	.007							14.73 x 17.43 x 1.14
016	.643								16.33 x 19.03 x 1.14
017	.705								17.91 x 20.61 x 1.14
018	.768	.009							19.51 x 22.21 x 1.14
019	.830								21.08 x 23.78 x 1.14
020	.893								22.68 x 25.38 x 1.14
021	.955								24.26 x 26.96 x 1.14
022	1.018								25.86 x 28.56 x 1.14
023	1.080	.010	.087	.049	.045	.003	.053	.003	27.43 x 30.13 x 1.14
024	1.143								29.03 x 31.73 x 1.14
025	1.205								30.61 x 33.31 x 1.14
026	1.268	.011							32.21 x 34.91 x 1.14
027	1.330								33.78 x 36.48 x 1.14
028	1.393								35.38 x 38.08 x 1.14
029	1.518	.013							38.56 x 41.26 x 1.14
030	1.643								41.73 x 44.43 x 1.14
031	1.768	.015							44.91 x 47.61 x 1.14
032	1.893								48.08 x 50.78 x 1.14
033	2.018								51.26 x 53.96 x 1.14
034	2.143								54.53 x 57.13 x 1.14
035	2.268	.018							57.61 x 60.31 x 1.14
036	2.393								60.78 x 63.48 x 1.14
037	2.518								63.96 x 66.66 x 1.14
038	2.643								67.13 x 69.83 x 1.14
039	2.768	.020							70.31 x 73.01 x 1.14
040	2.893								73.48 x 76.18 x 1.14

AS-568 NO.	ID d	TOL. ±	R ±0.010	T (RED.)	A ±0.045	TOL. ±	W	TOL. ±	ID X OD X A (mm)
041	3.018								76.66 x 79.36 x 1.14
042	3.268	.024							83.01 x 85.71 x 1.14
043	3.518								89.36 x 92.06 x 1.14
044	3.768	.027							95.71 x 98.41 x 1.14
045	4.018		.087	.049	.045	.003	.053	.003	102.06 x 104.76 x 1.14
046	4.268								108.41 x 111.11 x 1.14
047	4.518	.030							114.76 x 117.46 x 1.14
048	4.768								121.11 x 123.81 x 1.14
049	5.018	.037							127.46 x 130.16 x 1.14
050	5.268								133.81 x 136.50 x 1.14
110	.390								9.91 x 14.27 x 1.14
111	.452	.005							11.48 x 15.84 x 1.14
112	.515	.007							13.08 x 17.44 x 1.14
113	.577								14.66 x 19.02 x 1.14
114	.640	.009							16.26 x 20.62 x 1.14
115	.702								17.83 x 22.19 x 1.14
116	.765								19.43 x 23.79 x 1.14
117	.831	.010							21.11 x 25.47 x 1.14
118	.893								22.68 x 27.04 x 1.14
119	.956								24.28 x 28.64 x 1.14
120	1.018								25.86 x 30.22 x 1.14
121	1.081								27.46 x 31.82 x 1.14
122	1.143	.129	.053	.045	.003	.086	.003		29.03 x 33.39 x 1.14
123	1.206								30.63 x 34.99 x 1.14
124	1.268								32.21 x 36.57 x 1.14
125	1.331	.012							33.81 x 38.17 x 1.14
126	1.393								35.38 x 39.74 x 1.14
127	1.456								36.98 x 41.34 x 1.14
128	1.518								38.56 x 42.92 x 1.14
129	1.581	.015							40.16 x 44.52 x 1.14
130	1.643								41.73 x 46.09 x 1.14
131	1.706								43.33 x 47.69 x 1.14
132	1.768								44.91 x 49.27 x 1.14
133	1.831								46.51 x 50.87 x 1.14
134	1.893								48.08 x 52.44 x 1.14

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AS-568 NO.	ID d	TOL. ±	R ±0.010	T (RED.)	A	TOL. ±	W	TOL. ±	ID X OD X A (mm)						
135	1.956	.017							49.86 x 54.04 x 1.14						
136	2.018								51.26 x 55.62 x 1.14						
137	2.081								52.86 x 57.22 x 1.14						
138	2.143								54.43 x 58.79 x 1.14						
139	2.206								56.03 x 60.39 x 1.14						
140	2.268								57.61 x 61.97 x 1.14						
141	2.331								59.21 x 63.57 x 1.14						
142	2.393	.020						60.78 x 65.14 x 1.14							
143	2.456							62.38 x 66.74 x 1.14							
144	2.518							63.96 x 68.32 x 1.14							
145	2.581							65.56 x 69.92 x 1.14							
146	2.643							67.13 x 71.49 x 1.14							
147	2.706							68.73 x 73.09 x 1.14							
148	2.768							.022						70.31 x 74.67 x 1.14	
149	2.831	71.91 x 76.27 x 1.14													
150	2.893	73.48 x 77.84 x 1.14													
151	3.018	76.66 x 81.02 x 1.14													
152	3.268	83.01 x 87.37 x 1.14													
153	3.518	89.36 x 93.72 x 1.14													
154	3.708	95.71 x 100.07 x 1.14													
155	4.018	.028						102.06 x 106.42 x 1.14							
156	4.268							108.41 x 112.77 x 1.14							
157	4.518							114.76 x 119.12 x 1.14							
158	4.768							121.11 x 125.47 x 1.14							
159	5.018							127.46 x 131.82 x 1.14							
160	5.268							133.81 x 138.17 x 1.14							
161	5.518							140.16 x 144.52 x 1.14							
162	5.768	.035						146.51 x 150.87 x 1.14							
163	6.018							152.86 x 157.22 x 1.14							
164	6.268							159.21 x 163.57 x 1.14							
165	6.518							165.56 x 169.92 x 1.14							
166	6.768							171.91 x 176.27 x 1.14							
167	7.018							178.25 x 182.61 x 1.14							
168	7.268							184.61 x 188.97 x 1.14							
169	7.518	.040						190.96 x 195.32 x 1.14							
170	7.768							197.31 x 201.67 x 1.14							
171	8.018							203.66 x 208.02 x 1.14							
172	8.268							210.01 x 214.37 x 1.14							
173	8.518							216.36 x 220.72 x 1.14							
174	8.768							222.71 x 227.07 x 1.14							
175	9.018							229.06 x 233.42 x 1.14							
176	9.268	.045						235.41 x 239.77 x 1.14							
177	9.518							241.76 x 246.12 x 1.14							
178	9.768							248.11 x 252.47 x 1.14							
210	.766							.010	.174	.050	.040	.003	.118	.004	19.46 x 25.46 x 1.02

AS-568 NO.	ID d	TOL. ±	R ±0.010	T (RED.)	A ±0.045	TOL. ±	W	TOL. ±	ID X OD X A (mm)					
211	.828	.010							21.03 x 27.03 x 1.02					
212	.891								22.63 x 28.63 x 1.02					
213	.953								24.21 x 30.21 x 1.02					
214	1.016								25.81 x 31.81 x 1.02					
215	1.078								27.38 x 33.38 x 1.02					
216	1.141								28.98 x 34.98 x 1.02					
217	1.203								30.56 x 36.56 x 1.02					
218	1.266	.012						32.16 x 38.16 x 1.02						
219	1.334							33.88 x 39.88 x 1.02						
220	1.397							35.50 x 41.50 x 1.02						
221	1.459							37.06 x 43.06 x 1.02						
222	1.522							38.66 x 44.66 x 1.02						
223	1.647							41.83 x 47.83 x 1.02						
224	1.772							45.01 x 51.01 x 1.02						
225	1.897	.015						48.18 x 54.18 x 1.02						
226	2.022							51.36 x 57.36 x 1.02						
227	2.147							54.53 x 60.53 x 1.02						
228	2.272							57.71 x 63.71 x 1.02						
229	2.397							60.88 x 68.88 x 1.02						
230	2.522							64.06 x 70.06 x 1.02						
231	2.631							66.83 x 72.83 x 1.02						
232	2.756	.018						70.00 x 76.00 x 1.02						
233	2.881							73.18 x 79.18 x 1.02						
234	3.006							76.35 x 82.35 x 1.02						
235	3.131							79.53 x 85.53 x 1.02						
236	3.256							82.70 x 88.70 x 1.02						
237	3.381							85.88 x 91.88 x 1.02						
238	3.506							89.05 x 95.05 x 1.02						
239	3.631	.020						92.23 x 98.23 x 1.02						
240	3.756							95.40 x 101.40 x 1.02						
241	3.881							98.58 x 104.58 x 1.02						
242	4.006							101.75 x 107.75 x 1.02						
243	4.131							104.93 x 110.93 x 1.02						
244	4.256							108.10 x 114.10 x 1.02						
245	4.381							111.28 x 117.28 x 1.02						
246	4.506	.024						114.45 x 120.45 x 1.02						
247	4.631							117.63 x 123.63 x 1.02						
248	4.768							121.11 x 127.11 x 1.02						
249	4.893							124.28 x 130.28 x 1.02						
250	5.018							127.46 x 133.46 x 1.02						
251	5.143							130.63 x 136.63 x 1.02						
252	5.268							.028						133.81 x 139.81 x 1.02
253	5.393	136.98 x 142.98 x 1.02												
254	5.518	140.16 x 146.16 x 1.02												
255	5.643	.030												143.33 x 149.33 x 1.02

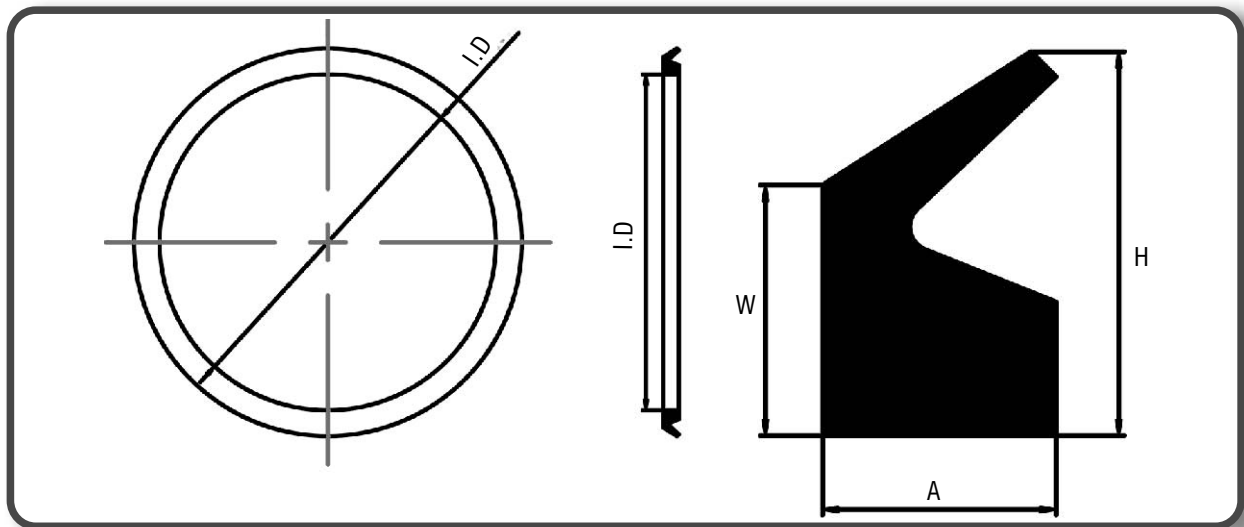
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AS-568 NO.	ID d	TOL. ±	R ±0.010	T (RED.)	A	TOL. ±	W	TOL. ±	ID X OD X A (mm)																																										
256	5.768	.035	.174	.050	.040	.003	.118	.004	146.51 x 152.51 x 1.02																																										
257	5.893								149.68 x 155.68 x 1.02																																										
258	6.018								152.86 x 158.86 x 1.02																																										
259	6.268	.040							.174	.050	.040	.003	.118	.004	159.21 x 165.21 x 1.02																																				
260	6.518														165.56 x 171.56 x 1.02																																				
261	6.768														171.91 x 177.91 x 1.02																																				
262	7.018														178.26 x 184.26 x 1.02																																				
263	7.268	.045													.174	.050	.040	.003	.118	.004	184.61 x 190.61 x 1.02																														
264	7.518																				190.96 x 196.96 x 1.02																														
265	7.768																				197.31 x 203.31 x 1.02																														
266	8.018	.050																			.174	.050	.040	.003	.118	.004	203.66 x 209.66 x 1.02																								
267	8.268																										210.01 x 216.01 x 1.02																								
268	8.518																										216.36 x 222.36 x 1.02																								
269	8.768																										222.71 x 228.71 x 1.02																								
270	9.018	.055																									.174	.050	.040	.003	.118	.004	229.06 x 235.06 x 1.02																		
271	9.268																																235.41 x 241.41 x 1.02																		
272	9.518																																241.76 x 247.76 x 1.02																		
273	9.768																																248.11 x 254.11 x 1.02																		
274	10.018	.065																															.174	.050	.040	.003	.118	.004	254.46 x 260.46 x 1.02												
275	10.518																																						267.16 x 273.16 x 1.02												
276	11.018																																						279.86 x 285.86 x 1.02												
277	11.518																																						292.56 x 298.56 x 1.02												
278	12.018	.065																																					.174	.050	.040	.003	.118	.004	305.26 x 311.26 x 1.02						
279	13.018																																												330.66 x 336.66 x 1.02						
280	14.018																																												356.05 x 362.05 x 1.02						
281	15.018																																												381.46 x 387.46 x 1.02						
325	1.513	.015																																											.262	.076	.060	.004	.183	.005	38.43 x 47.73 x 1.52
326	1.638																																																		41.61 x 50.91 x 1.52
327	1.763																																																		44.78 x 54.08 x 1.52
328	1.888	.018																																																	.262
329	2.013		51.13 x 60.43 x 1.52																																																
330	2.138		54.31 x 63.61 x 1.52																																																
331	2.268		57.61 x 66.91 x 1.52																																																
332	2.393	.020	.262	.076	.060	.004	.183	.005	60.78 x 70.08 x 1.52																																										
333	2.518								63.96 x 73.26 x 1.52																																										
334	2.643								67.13 x 76.43 x 1.52																																										
335	2.768								70.31 x 79.61 x 1.52																																										
336	2.893	.024							.262	.076	.060	.004	.183	.005	73.48 x 82.78 x 1.52																																				
337	3.018														76.66 x 85.96 x 1.52																																				
338	3.143														79.83 x 89.13 x 1.52																																				
339	3.273														83.13 x 92.43 x 1.52																																				
340	3.398	.028													.262	.076	.060	.004	.183	.005	86.31 x 95.61 x 1.52																														
341	3.523																				89.48 x 98.78 x 1.52																														
342	3.648																				92.66 x 101.96 x 1.52																														

AS-568 NO.	ID d	TOL. ±	R ±0.010	T (RED.)	A ±0.045	TOL. ±	W	TOL. ±	ID X OD X A (mm)																																										
343	3.773	.028	.262	.076	.060	.004	.183	.005	95.83 x 105.13 x 1.52																																										
344	3.898								99.01 x 108.31 x 1.52																																										
345	4.028								102.31 x 111.61 x 1.52																																										
346	4.153	.030							.262	.076	.060	.004	.183	.005	105.49 x 114.79 x 1.52																																				
347	4.278														108.66 x 117.96 x 1.52																																				
348	4.403														111.84 x 121.14 x 1.52																																				
349	4.528														115.01 x 124.31 x 1.52																																				
425	4.551	.033													.344	.117	.096	.005	.236	.006	115.60 x 127.58 x 2.44																														
426	4.676																				118.77 x 130.75 x 2.44																														
427	4.801																				121.95 x 133.93 x 2.44																														
428	4.926	.037																			.344	.117	.096	.005	.236	.006	125.20 x 137.18 x 2.44																								
429	5.051																										128.30 x 140.28 x 2.44																								
430	5.176																										131.47 x 143.45 x 2.44																								
431	5.301																										134.65 x 146.63 x 2.44																								
432	5.426	.040																									.344	.117	.096	.005	.236	.006	137.82 x 149.80 x 2.44																		
433	5.551																																141.00 x 152.98 x 2.44																		
434	5.676																																144.17 x 156.15 x 2.44																		
435	5.801																																147.35 x 159.33 x 2.44																		
436	5.926	.045																															.344	.117	.096	.005	.236	.006	150.52 x 162.50 x 2.44												
437	6.051																																						153.70 x 165.68 x 2.44												
438	6.274																																						159.36 x 171.34 x 2.44												
439	6.524																																						165.71 x 177.69 x 2.44												
440	6.774	.055																																					.344	.117	.096	.005	.236	.006	172.06 x 184.04 x 2.44						
441	7.024																																												178.41 x 190.39 x 2.44						
442	7.274																																												184.76 x 196.74 x 2.44						
443	7.524																																												191.11 x 203.09 x 2.44						
444	7.774	.060																																											.344	.117	.096	.005	.236	.006	197.46 x 209.44 x 2.44
445	8.024																																																		203.81 x 215.79 x 2.44
446	8.524																																																		216.51 x 228.49 x 2.44
447	9.024																																																		229.21 x 241.19 x 2.44
448	9.524	.070	.344	.117	.096	.005	.236	.006																																											241.91 x 253.89 x 2.44
449	10.024																																																		254.61 x 266.59 x 2.44
450	10.524																																																		267.31 x 279.29 x 2.44
451	11.024								280.01 x 291.99 x 2.44																																										
452	11.524	.070							.344	.117	.096	.005	.236	.006																																					292.71 x 304.69 x 2.44
453	12.024																																																		305.41 x 317.39 x 2.44
454	12.524																																																		318.11 x 330.09 x 2.44
455	13.024														330.81 x 342.79 x 2.44																																				
456	13.524	.070													.344	.117	.096	.005	.236	.006																															343.51 x 355.49 x 2.44
457	14.024																																																		356.21 x 361.09 x 2.44
458	14.524																				368.91 x 380.89 x 2.44																														
459	15.024																				381.61 x 393.51 x 2.44																														
460	15.524																				.344	.117	.096	.005	.236	.006																									394.31 x 406.29 x 2.44

## VII. V-Ring

### VA type



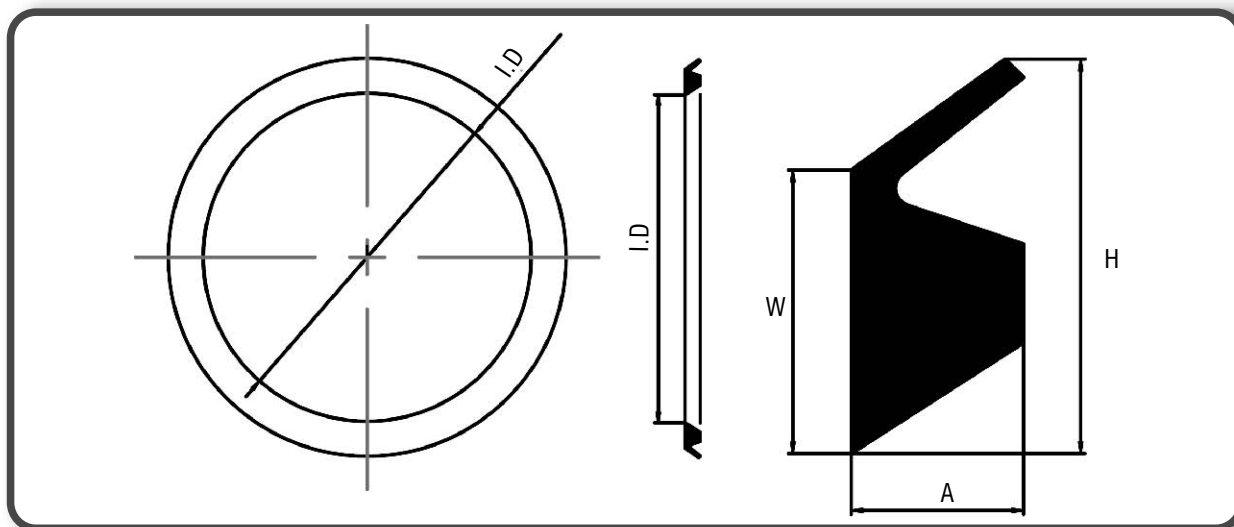
Ref.	d1	ID	W	A	H
VA-3	2.70 - 3.50	2.50	1.50	2.10	3.00
VA-4	3.50 - 4.50	3.20	2.00	2.40	3.70
VA-5	4.50 - 5.50	4.00	2.00	2.40	3.70
VA-6	5.50 - 6.50	5.00	2.00	2.40	3.70
VA-7	6.50 - 8.00	6.00	2.00	2.40	3.70
VA-8	8.00 - 9.50	7.00	2.00	2.40	3.70
VA-10	9.50 - 11.50	9.00	3.00	3.40	5.50
VA-12	11.50 - 12.50	10.50	3.00	3.40	5.50
VA-13	12.50 - 13.50	11.70	3.00	3.40	5.50
VA-14	13.50 - 15.50	12.50	3.00	3.40	5.50
VA-16	15.50 - 17.00	14.00	3.00	3.40	5.50
VA-18	17.50 - 19.00	16.00	3.00	3.40	5.50
VA-20	19.00 - 21.00	18.00	4.00	4.70	7.50
VA-22	21.00 - 24.00	20.00	4.00	4.70	7.50
VA-25	24.00 - 27.00	22.00	4.00	4.70	7.50
VA-28	27.00 - 29.00	25.00	4.00	4.70	7.50
VA-30	29.00 - 31.00	27.00	4.00	4.70	7.50
VA-32	31.00 - 33.00	29.00	4.00	4.70	7.50
VA-35	33.00 - 36.00	31.00	4.00	4.70	7.50
VA-38	36.00 - 38.00	34.00	4.00	4.70	7.50

<b>Ref.</b>	<b>d1</b>	<b>ID</b>	<b>W</b>	<b>A</b>	<b>H</b>
VA-40	38.00 - 43.00	36.00	5.00	5.50	9.00
VA-45	43.00 - 48.00	40.00	5.00	5.50	9.00
VA-50	48.00 - 53.00	45.00	5.00	5.50	9.00
VA-55	53.00 - 58.00	49.00	5.00	5.50	9.00
VA-60	58.00 - 63.00	54.00	5.00	5.50	9.00
VA-65	63.00 - 68.00	58.00	5.00	5.50	9.00
VA-70	68.00 - 73.00	63.00	6.00	6.80	11.00
VA-75	73.00 - 78.00	67.00	6.00	6.80	11.00
VA-80	78.00 - 83.00	72.00	6.00	6.80	11.00
VA-85	83.00 - 88.00	76.00	6.00	6.80	11.00
VA-90	88.00 - 93.00	81.00	6.00	6.80	11.00
VA-95	93.00 - 98.00	85.00	6.00	6.80	11.00
VA-100	98.00 - 105.00	90.00	6.00	6.80	11.00
VA-110	105.00 - 115.00	99.00	7.00	7.90	12.80
VA-120	115.00 - 125.00	108.00	7.00	7.90	12.80
VA-130	125.00 - 135.00	117.00	7.00	7.90	12.80
VA-140	135.00 - 145.00	126.00	7.00	7.90	12.80
VA-150	145.00 - 155.00	135.00	7.00	7.90	12.80
VA-160	155.00 - 165.00	144.00	8.00	9.00	14.50
VA-170	165.00 - 175.00	153.00	8.00	9.00	14.50
VA-180	175.00 - 185.00	162.00	8.00	9.00	14.50
VA-190	185.00 - 195.00	171.00	8.00	9.00	14.50
VA-199	195.00 - 210.00	180.00	8.00	9.00	14.50
VA-200	190.00 - 210.00	180.00	15.00	14.30	25.00
VA-220	210.00 - 235.00	198.00	15.00	14.30	25.00
VA-250	235.00 - 265.00	225.00	15.00	14.30	25.00
VA-275	265.00 - 290.00	247.00	15.00	14.30	25.00
VA-300	290.00 - 310.00	270.00	15.00	14.30	25.00
VA-325	310.00 - 335.00	292.00	15.00	14.30	25.00
VA-350	335.00 - 365.00	315.00	15.00	14.30	25.00
VA-375	365.00 - 390.00	337.00	15.00	14.30	25.00
VA-400	390.00 - 430.00	360.00	15.00	14.30	25.00
VA-450	430.00 - 480.00	405.00	15.00	14.30	25.00
VA-500	480.00 - 530.00	450.00	15.00	14.30	25.00
VA-550	530.00 - 580.00	495.00	15.00	14.30	25.00
VA-600	580.00 - 630.00	540.00	15.00	14.30	25.00
VA-650	630.00 - 665.00	600.00	15.00	14.30	25.00
VA-700	665.00 - 705.00	630.00	15.00	14.30	25.00



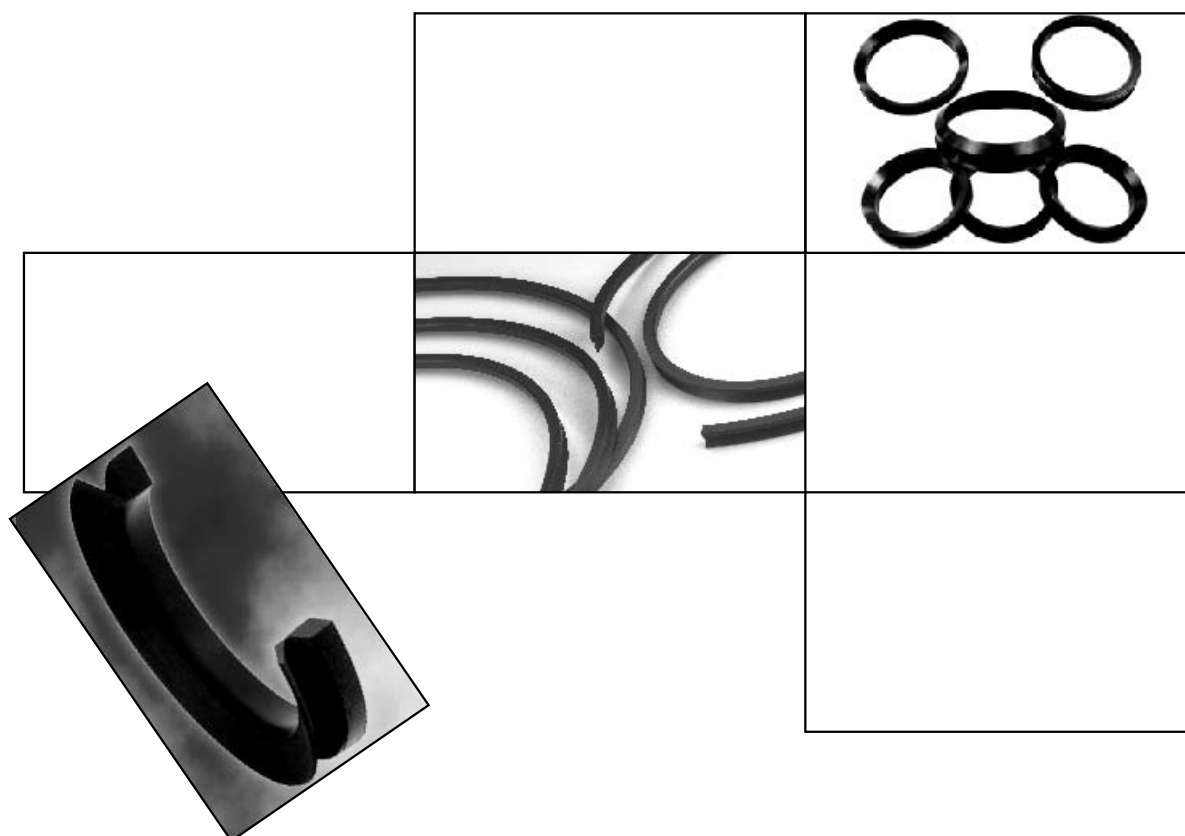
## VII. V-Ring

### VS type



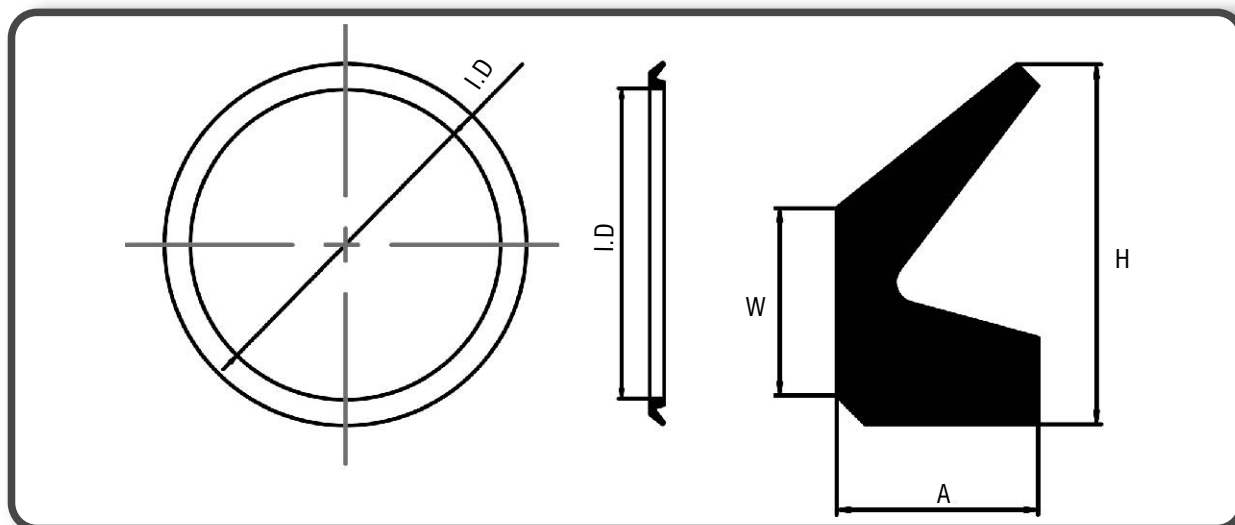
Ref.	d1	ID	W	A	H
VS-5	4.50 - 5.50	4.00	2.00	3.90	5.20
VS-6	5.50 - 6.50	5.00	2.00	3.90	5.20
VS-7	6.50 - 8.00	6.00	2.00	3.90	5.20
VS-8	8.00 - 9.50	7.00	2.00	3.90	3.70
VS-10	9.50 - 11.50	9.00	3.00	5.60	7.70
VS-12	11.50 - 13.50	10.50	3.00	5.60	7.70
VS-14	13.50 - 15.50	12.50	3.00	5.60	7.70
VS-16	15.50 - 17.50	14.00	3.00	5.60	7.70
VS-18	17.50 - 19.00	16.00	3.00	5.60	7.70
VS-20	19.00 - 21.00	18.00	4.00	7.90	10.50
VS-22	21.00 - 24.00	20.00	4.00	7.90	10.50
VS-25	24.00 - 27.00	22.00	4.00	7.90	10.50
VS-28	27.00 - 29.00	25.00	4.00	7.90	10.50
VS-30	29.00 - 31.00	27.00	4.00	7.90	10.50
VS-32	31.00 - 33.00	29.00	4.00	7.90	10.50
VS-35	33.00 - 36.00	31.00	4.00	7.90	10.50
VS-38	36.00 - 38.00	34.00	4.00	7.90	10.50
VS-40	38.00 - 43.00	36.00	5.00	9.50	13.00
VS-45	43.00 - 48.00	40.00	5.00	9.50	13.00
VS-50	48.00 - 53.00	45.00	5.00	9.50	13.00

Ref.	d1	ID	W	A	H
VS-55	53.00 - 58.00	49.00	5.00	9.50	13.00
VS-60	58.00 - 63.00	54.00	5.00	9.50	13.00
VS-65	63.00 - 68.00	58.00	5.00	9.50	13.00
VS-70	68.00 - 73.00	63.00	6.00	11.30	15.50
VS-75	73.00 - 78.00	67.00	6.00	11.30	15.50
VS-80	78.00 - 83.00	72.00	6.00	11.30	15.50
VS-85	83.00 - 88.00	76.00	6.00	11.30	15.50
VS-90	88.00 - 93.00	81.00	6.00	11.30	15.50
VS-95	93.00 - 98.00	85.00	6.00	11.30	15.50
VS-100	98.00 - 105.00	90.00	6.00	11.30	15.50
VS-110	105.00 - 115.00	99.00	7.00	13.10	18.00
VS-120	115.00 - 125.00	108.00	7.00	13.10	18.00
VS-130	125.00 - 135.00	117.00	7.00	13.10	18.00
VS-140	135.00 - 145.00	126.00	7.00	13.10	18.00
VS-150	145.00 - 155.00	135.00	7.00	13.10	18.00
VS-160	155.00 - 165.00	144.00	8.00	15.00	20.50
VS-170	165.00 - 175.00	153.00	8.00	15.00	20.50
VS-180	175.00 - 185.00	162.00	8.00	15.00	20.50
VS-190	185.00 - 195.00	171.00	8.00	15.00	20.50
VS-299	195.00 - 210.00	180.00	8.00	15.00	20.50



## VII. V-Ring

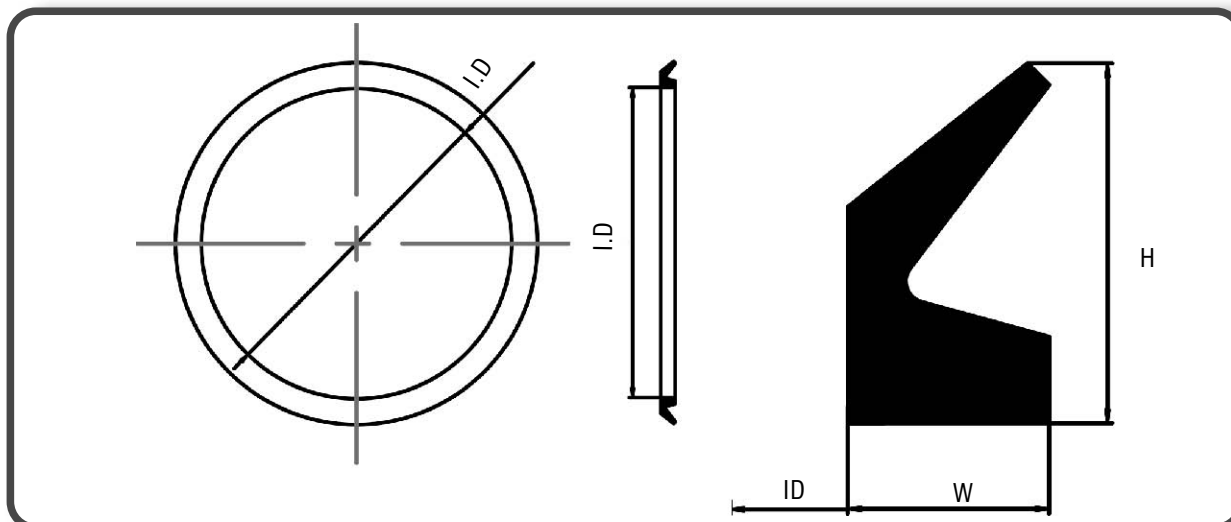
### VL type



Ref.	d1	ID	W	A	H
VL-110	105.00-115.00	99.00	6.50	6.00	10.50
VL-120	115.00-125.00	108.00	6.50	6.00	10.50
VL-130	125.00-135.00	117.00	6.50	6.00	10.50
VL-140	135.00-145.00	126.00	6.50	6.00	10.50
VL-150	145.00-155.00	135.00	6.50	6.00	10.50
VL-160	155.00-165.00	144.00	6.50	6.00	10.50
VL-170	165.00-175.00	153.00	6.50	6.00	10.50
VL-180	175.00-185.00	162.00	6.50	6.00	10.50
VL-190	185.00-195.00	171.00	6.50	6.00	10.50
VL-200	195.00-210.00	182.00	6.50	6.00	10.50
VL-220	210.00-233.00	198.00	6.50	6.00	10.50
VL-250	233.00-260.00	225.00	6.50	6.00	10.50
VL-275	260.00-285.00	247.00	6.50	6.00	10.50
VL-300	285.00-310.00	270.00	6.50	6.00	10.50
VL-325	310.00-335.00	292.00	6.50	6.00	10.50
VL-350	335.00-365.00	315.00	6.50	6.00	10.50
VL-375	365.00-385.00	337.00	6.50	6.00	10.50
VL-400	385.00-410.00	360.00	6.50	6.00	10.50
VL-425	410.00-440.00	382.00	6.50	6.00	10.50
VL-450	440.00-475.00	405.00	6.50	6.00	10.50
VL-500	475.00-510.00	450.00	6.50	6.00	10.50
VL-525	510.00-540.00	472.00	6.50	6.00	10.50
VL-550	540.00-575.00	495.00	6.50	6.00	10.50
VL-600	575.00-625.00	540.00	6.50	6.00	10.50
VL-650	625.00-675.00	600.00	6.50	6.00	10.50
VL-700	675.00-710.00	630.00	6.50	6.00	10.50
VL-725	710.00-740.00	670.00	6.50	6.00	10.50

## VII. V-Ring

### VE type



Ref.	d1	ID	W	H	MFC NO.
VE-450	450.00-455.00	439.00	30.00	65.00	S180450
VE-455	455.00-460.00	444.00	30.00	65.00	S180455
VE-460	460.00-465.00	448.00	30.00	65.00	S180460
VE-465	465.00-470.00	453.00	30.00	65.00	S180465
VE-470	470.00-475.00	458.00	30.00	65.00	S180470
VE-475	475.00-480.00	463.00	30.00	65.00	S180475
VE-480	480.00-485.00	468.00	30.00	65.00	S180480
VE-485	485.00-490.00	473.00	30.00	65.00	S180485
VE-490	490.00-495.00	478.00	30.00	65.00	S180490
VE-495	495.00-500.00	483.00	30.00	65.00	S180495
VE-500	500.00-505.00	488.00	30.00	65.00	S180500
VE-505	505.00-510.00	493.00	30.00	65.00	S180505
VE-510	510.00-515.00	497.00	30.00	65.00	S180510
VE-515	515.00-520.00	502.00	30.00	65.00	S180515
VE-520	520.00-525.00	507.00	30.00	65.00	S180520
VE-525	525.00-530.00	512.00	30.00	65.00	S180525
VE-530	530.00-535.00	517.00	30.00	65.00	S180530
VE-535	535.00-540.00	521.00	30.00	65.00	S180535
VE-540	540.00-545.00	526.00	30.00	65.00	S180540
VE-545	545.00-550.00	531.00	30.00	65.00	S180545

## VIII. O-ring kits- Kit C Series / JUEGOS DE JUNTAS TORICAS- Juego Serie C

### \*AS 568 Standard Series (Inch)

AS568 NO.	Q'TY	AS568 NO.	Q'TY	AS568 NO.	Q'TY
6	20	113	13	216	10
7	20	114	13	217	10
8	20	115	13	218	10
9	20	116	10	219	10
10	20	210	10	220	10
11	20	211	10	221	10
12	20	212	10	222	10
110	13	213	10	325	7
111	13	214	10	326	7
112	13	215	10	327	7
TOTAL Q'TY : 30 ITEMS / 382 PCS MEASUREMENT : 240 x 175 x 45 (mm)					

### \* European Standard Series (mm)

ID X C/S	Q'TY	ID X C/S	Q'TY	ID X C/S	Q'TY
3.00 X 2.00	16	14.0 X 2.5	13	28.0 X 3.0	12
4.00 X 2.00	16	16.0 X 2.5	13	30.0 X 3.0	12
5.00 X 2.00	16	17.0 X 2.5	13	32.0 X 3.0	12
6.00 X 2.00	16	19.0 X 2.5	13	33.0 X 3.0	12
7.00 X 2.00	16	19.0 X 3.0	11	35.0 X 3.0	12
8.00 X 2.00	16	20.0 X 3.0	12	36.0 X 3.0	12
10.00 X 2.00	16	22.0 X 3.0	12	38.0 X 3.0	12
10.00 X 2.00	13	24.0 X 3.0	12	38.0 X 4.0	9
11.00 X 2.50	13	25.0 X 3.0	12	41.0 X 4.0	9
12.00 X 2.50	13	27.0 X 3.0	12	44.0 X 4.0	9
TOTAL Q'TY : 30 ITEMS / 385 PCS MEASUREMENT : 240 x 175 x 45 (mm)					

### \* JIS Standard Series (mm)

JIS NO.	Q'TY	JIS NO.	Q'TY	JIS NO.	Q'TY
P3	20	P14	14	G30	11
P4	20	P16	14	P30	10
P5	18	P18	14	P32	10
P6	18	P20	13	P34	10
P7	18	20.00 X 3.00	11	G35	11
P8	18	22.00 X 3.00	12	P36	10
P9	18	P22.4	10	G40	11
P10A	14	G25	12	P40	10
P11	14	P25	10	G45	11
P12	14	P26	10	P48	10
TOTAL Q'TY : 30 ITEMS / 396 PCS MEASUREMENT : 240 x 175 x 45 (mm)					

### \* French Size (mm)

ID X C/S	Q'TY	ID X C/S	Q'TY	ID X C/S	Q'TY
R1 2.6X1.9	16	R11 13.6X2.7	13	R21 27.8X3.6	10
R2 3.4X1.9					
R3 4.2X1.9	16	R12 15.1X2.7	13	R22 29.3X3.6	10
R4 4.9X1.9	16	R13 16.9X2.7	13	R23 30.8X3.6	10
R5 5.7X1.9	16	R14 18.4X2.7	13	R24 32.5X3.6	10
R5a 6.4X1.9	16	R15 18.3X3.6	9	R25 34.1X3.6	10
R6 7.2X1.9	16	R16 19.8X3.6	10	R26 35.6X3.6	10
R6a 8.0X1.9	16	R17 21.3X3.6	10	R27 37.3X3.6	10
R7 8.9X1.9	13	R18 23X3.6	10	R28 37.47X5.33	6
R8 8.9X2.7	13	R19 24.6X3.6	10	R29 40.64X5.33	6
R10 12.1X2.7	13	R20 26.2X3.6	10	R30 43.82X5.33	6
TOTAL Q'TY : 30 ITEMS / 350 PCS MEASUREMENT : 240 x 175 x 45 (mm)					

BOX'S COLOR STD



BOX'S COLOR CAN BE CHANGED AS REQUEST.

## IX. Molded Rubber Products

- Compression, transfer, and injection moulding, extruding, lathe cutting, stamping and other fabricating services for your selection.
- Assorted manual press machines special for small order services.
- Fully automatic machinery equipped for making high volume parts.
- Size range: from 0.5mm to 1800mm.

### TYPE:

- ❖ Self-Lubricated Silicone Connectors / Wire Seals.
- ❖ Rubber Products with PSA (Pressure Sensitive Adhesive).
- ❖ Custom Molded Rubber Products.
- ❖ Shaped Gaskets According to Drawing.
- ❖ Rubber Diaphragm.
- ❖ Fabric Reinforced Diaphragm.
- ❖ Sanitary Silicone Products.
- ❖ Molded Sponge Products.
- ❖ Low Durometer / Low Friction Rubber Molded Products.
- ❖ Particular Compound Rubber Products.
- ❖ Hydraulic & Pneumatic Packings.

### MATERIAL:

- ❖ NBR / NBR FDA / NBR Peroxide
- ❖ HNBR (Hydrogenated Nitrile Synthetic Rubber)
- ❖ XNBR (Carboxylic Nitrile Rubber)
- ❖ EPDM / EPDM FDA / EPDM Peroxide
- ❖ ECO (Epichlorohydrin)
- ❖ CR (Neoprene)
- ❖ VMQ (Silicone)
- ❖ Self-Lubricated Silicone
- ❖ FVMQ (Fluorosilicone)
- ❖ FKM (Fluoroelastomer)
- ❖ VITON GLT / GFLT
- ❖ ACM (Polyacrylate)
- ❖ VAMAC
- ❖ AFLAS
- ❖ FFKM

## IX. Productos moldeados de goma

- Compresión, transferencia y moldeo a inyección, extrusión, torneado, estampación, además de otros servicios de fabricación a su disposición.
- Surtido de prensas manuales especiales para pedidos pequeños.
- Maquinaria completamente automatizada preparada para producción de partes voluminosas.
- Rango de medidas: 0.5-1800 Mm.

### Tipo:

- ❖ Conectores de silicona lubricados /conectores de sellado
- ❖ Productos de goma con PSA (Adhesivo sensitivo a la presión)
- ❖ Productos moldeados de goma individualizados según pedido
- ❖ Juntas acorde a diseños.
- ❖ Diafragmas de goma
- ❖ Diafragmas reforzados con tejido
- ❖ Productos de silicona para aplicaciones sanitarias
- ❖ Productos moldeados de esponjados
- ❖ Baja Durometria / Productos moldeados de goma con baja fricción
- ❖ Productos de goma utilizando componentes particulares. Collarines hidráulicos y neumáticos

### Material:

- ❖ NBR/NBR FDA/NBR Peróxido
- ❖ HNBR (Nitrilo sintético hidrogenado)
- ❖ XNBR (Nitrilo Carboxílico)
- ❖ EPDM/EPDM/ FDA/ EPDM Peróxido
- ❖ ECO (Epiclorohidrina)
- ❖ CR (Neopreno)
- ❖ VMQ (Silicona)
- ❖ Silicona lubricada
- ❖ FVMQ (Fluorosilicona)
- ❖ FKM (Fluoroelastómero)
- ❖ VITON GLT/GFLT
- ❖ ACM (Poliacrilato)
- ❖ VAMAC
- ❖ AFLAS
- ❖ FFKM

# X. SAMPLING INSPECTION STANDARD

## APPEARANCE PER MIL-STD-1050 AQL1.5

c : accepted  
d : rejected

Order Quantity	Inspect Quantity	AQL Grade													
		0.010	0.015	0.025	0.040	0.065	0.10	0.15	0.25	0.40	0.65	1.0	1.5	2.5	4.0
		c d	c d	c d	c d	c d	c d	c d	c d	c d	c d	c d	c d	c d	c d
2-8	2	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
9-15	3	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
16-25	5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
26-50	8	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
51-90	13	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
91-150	20	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
151-280	32	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
281-500	50	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
501-1,200	80	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
1,200-3,200	125	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
3,201-10,000	200	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
10,001-35,000	315	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
35,001-150,000	500	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
150,001-500,000	800	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
500,001-UP	1250	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	