

EBOR

RUBBER GUIDEBOOK  -RING

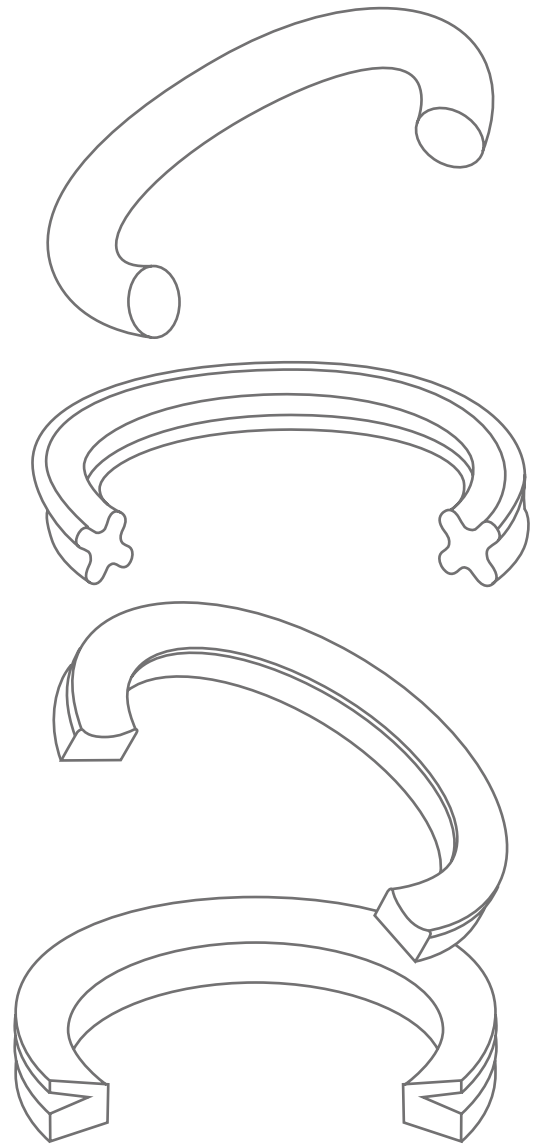


TABLE OF CONTENTS

02	About GMORS
04	Basic O-Ring Elastomers
19	General Properties of Elastomers
25	O-Ring Design Reference
29	O-Ring Standard Size (AS 568A)
38	O-Ring Standard Size (BS4518)
40	O-Ring Standard Size (GB T 3452.1)
45	O-Ring Standard Size (JIS B2401)
54	O-Ring Standard Size (Metric)
65	O-Ring Standard Size (SMS 1586)
67	X-Ring Design Reference
68	X-Ring Standard Size
75	Back-up Ring Design Reference
76	Back-up Ring Standard Size
82	O-Ring Kits
84	V-Ring Standard Size

About GMORS

GMORS- MATCH YOU ALWAYS!

GMORS Rubber- A company moving forward with continuous improvements. Servicing in Rubber industry for all kinds of application to fulfill a better world.

Welcome to GMORS Rubber!

Since 1981, GMORS has served as the leading rubber component manufacturer in Taiwan. Known for innovation and continuous improvements, GMORS products have been approved for industries of Automotive, Semi-conductor, Medical, Aerospace, Drinking Water, Food & Drug equipment, Sanitary and various industrial grades.

Marching into the 21th century, GMORS Rubber's commitment is to satisfy all industries with the optimum combination of competitive price, high quality and fast service. Our goal is to be your best global partner on rubber components.



Product Offerings

- O-rings
- X-rings
- Back-up Rings
- U-packings
- V-seals
- Special Packing Series
- Wear Rings
- Bonded Seals
- Valve Seals
- Wiper Seals
- Hydraulic Seals
- Pneumatic Seals



Approved

Manufacturing Process System

- AS9100C (Aerospace industry approved)
- ISO/TS 16949:2009
- ISO 9001:2008
- ISO 13485:2003 (medical industry non-implantable approved)

Material Certification

- UL Approval
- NSF (Drinking Water)
- WRAS (UK Drinking Water)



TAF Approved In-House Lab with Integrated Equipment



Main Market

- Industrial
- Automotive
- Semi-conductor
- Medical
- Drinking Water
- Food & Drug
- Hydraulic / Pneumatic
- Aerospace



Basic O-Ring Elastomers

Butyl Rubber(IIR)

Butyl rubber is composed by copolymerizing isobutylene which is with small amount of isoprene. It is like EPDM possessing excellent resistance to chemical and polar fluid, outstanding electrical insulation and good ozone resistance. The special properties of butyl rubber are low gas and moisture permeability and high shock absorption. These properties have made butyl rubber the polymer choice in a variety of applications.

Cure system - Sulfur-Cured

Standard IIRs are sulfur-cured.

Other Common Variations

- IIRs can be formulated with only "white list" ingredients as specified in 21.CFR 177.2600 for use in applications where the elastomer will be in contact with food or beverages, ex. bottle top seal for alcohol or medical.

General Information

ASTM D1418 Designation	IIR, CIIR, BIIR
ISO/DIN 1629 Designation	IIR, CIIR, BIIR
ASTM D2000 / SAE J 200 Codes	AA, BA
Standard Color(s)	Black
Hardness Range	50 to 80 Shore A
Relative Cost	Low

Service Temperatures

Standard Low Temperature	-55°C -65°F
Standard High Temperature	100°C 212°F

Performs Well In...

- Alcohols
- Ketones
- Dilute acids and alkalis
- Silicone oils & greases
- Water and Steam
- Phosphate ester based hydraulic fluids - Skydrol(R)
- Ozone, aging & weathering

Doesn't Perform Well In...

- Aliphatic & aromatic hydrocarbons
- Halogenated solvents
- Petroleum based oils & greases

Carboxylated Nitrile (XNBR)

Carboxylated Nitrile is similar to Nitrile rubber, but the polymer backbone has been chemically modified with Carboxylic Acid containing group. This result is XNBR with more excellent abrasion and tear resistance than traditional NBR. For this reason, XNBR based parts are usually applied in dynamic assembly such as seals and rod wipers.

Cure system - Sulfur-Cured

Standard XNBR compounds are sulfur-cured.

General Information

ASTM D1418 Designation	XNBR
ISO/DIN 1629 Designation	XNBR
ASTM D2000 / SAE J 200 Codes	BG, BK, CH
Standard Color(s)	Black
Hardness Range	50 to 90 Shore A
Relative Cost	Low

Service Temperatures

Standard Low Temperature	-20°C -4°F
Standard High Temperature	100°C 212°F
Special Compound High Temperature	125°C 257°F

Performs Well In...

- Aliphatic hydrocarbon
- Vegetable and mineral oils and greases
- Diesel
- Water
- Dilute acids, alkali and salt solutions

Doesn't Perform Well In...

- Aromatic hydrocarbon
- Chlorinated hydrocarbon
- Ketones
- Acetic acid
- Ethylene ester
- Strong acids
- Brake fluid with glycol base

Basic O-Ring Elastomers

Chloroprene Rubber(CR)

Chloroprene was one of the first successful synthetic elastomers in 1931 made by Dupont, and the trade name is Neoprene. It is prepared by emulsion polymerization of chloroprene, or 2-chlorobutadiene. CR is a multi-purposed elastomer which yields a balanced combination of properties. It has good resistance to sun, ozone, weather and performs well in contact with oils and many chemicals. It also displays outstanding physical toughness and good resistance to fire.

Cure system - Metal oxide cured

Standard CRs are metal oxides & organic accelerators.

Other Common Variations

- Chloroprene has been used in thousands of diverse environment, including automotive, wire and cable industries.
- CR is usually used in air condition system, especially old refrigerated media like R12 or R22 and lubricant with mineral oil.

General Information

ASTM D1418 Designation	CR
ISO/DIN 1629 Designation	CR
ASTM D2000 / SAE J 200 Codes	BC, BE
Standard Color(s)	Black
Hardness Range	30 to 90 Shore A
Relative Cost	Low

Service Temperatures

Standard Low Temperature	-40°C -40°F
Standard High Temperature	100°C 212°F
Special Compound Low Temperature	-55°C -67°F
Special Compound High Temperature	125°C 257°F

Performs Well In...

- Refrigerants
- Ammonia
- Water
- Silicone grease and oils
- High aniline point mineral oil

Doesn't Perform Well In...

- Aromatic hydrocarbons
- Ketones
- Esters
- Ethers
- Strong oxidizing acids
- Chlorinated hydrocarbons

Epichlorohydrin(CO, ECO, GECO)

Hydrin® is the trade name of epichlorohydrin elastomers made by Zeon Chemicals. epichlorohydrin elastomers are available as a homopolymer(CO), copolymer(ECO,GCO),and terpolmer(GECO). All epichlorohydrin rubbers offer low temperature flexibilities; resistance to oils, fuel and common solvents; higher temperature resistance than NBR; good weather ability and good dynamic properties.

Cure system - Sulfur-Cured vs. Peroxide-Cured

ECO are usually Peroxide-cured for standard compounds of Ge Mao. It also can be Sulfur-cured to improve flexible property in dynamic system but will reduce the heat resistance and cause poorer compression set.

Other Common Variations

- The typical applications of epichlorohydrin are fuels or LPG system in automotive.

General Information

ASTM D1418 Designation	CO, ECO GECO
ISO/DIN 1629 Designation	CO, ECO GECO
ASTM D2000 / SAE J 200 Codes	CH
Standard Color(s)	Black
Hardness Range	50 to 80 Shore A
Relative Cost	Medium

Service Temperatures

Standard Low Temperature	-40°C -40°F
Standard High Temperature	125°C 257°F
Special Compound High Temperature	135°C 257°F

Performs Well In...

- Mineral oil and grease
- LPG, fuels
- Silicone oil and grease
- Ozone, weather

Doesn't Perform Well In...

- Ketones and esters
- Aromatic and chlorinated hydrocarbon
- Brake fluids
- aldehydes

Basic O-Ring Elastomers

Ethylene Propylene Rubber(EPR, EPDM)

EPDM is a Copolymer of ethylene and propylene, and further a terpolymer of ethylene and propylene with a small amount of a third monomer (usually a diolefin) to permit vulcanization with sulfur. Generally Ethylene Propylene Rubber possesses excellent resistance to ozone, sunlight and weathering, and has very good flexibility at low temperature, good chemical resistance (many dilute acids and alkalis, polar solvents), and good electrical insulation property.

Cure system - Sulfur-Cured vs. Peroxide-Cured

- Standard EPDMs are usually sulfur-cured. Sulfur-cured compounds offer better flexible properties but are more prone to hardening and poorer compression set with high temperature. Peroxide-cured EPDMs have better heat resistance and lower compression set. It complies with long time usage especially for hose system of construction industry, but at the same time is more expensive and more difficult for production than the sulfur-cured.

Other Common Variations

- EPDMs are often internally lubricated to improve ease of installation or reduce friction for dynamic applications.
- EPDMs can be formulated with only "white list" ingredients as specified in 21.CFR 177.2600 for use in applications where the elastomer will be in contact with food or beverages.
- EPDMs can be submitted for approval by the National Sanitation Foundation (NSF) for use in drinking water applications.
- EPDMs are usually used in automotive air conditioning system where R134a refrigerant gas and POE or PAG lubricant and new refrigerant for environment protection R744 is used. In R744 air conditioning system, it requires excellent resistance to explosive decomposition in hydrogen dioxide at high pressure and high temperature.
- EPDMs are usually used in phosphate ester type hydraulic fluids.

General Information

ASTM D1418 Designation	EPM, EPDM
ISO/DIN 1629 Designation	EPM, EPDM
ASTM D2000 / SAE J 200 Codes	AA, BA CA, DA
Standard Color(s)	Black
Hardness Range	30 to 90 Shore A
Relative Cost	Low

Service Temperatures

Standard Low Temperature	-55°C -67°F
Standard High Temperature	125°C 257°F
Special Low Temperature	-55°C -67°F
Special High Temperature	150°C 302°F

Performs Well In...

- Alcohols
- Automotive brake fluid
- Ketones
- Dilute acids and alkalis
- Silicone oils & greases
- Steam to 400°F
- Water
- Phosphate ester based hydraulic fluids - Skydrol(R)
- Ozone, aging & weathering

Doesn't Perform Well In...

- Aliphatic & aromatic hydrocarbons
- Di-ester based lubricants
- Halogenated solvents
- Petroleum based oils & greases

Ethylene/Acrylic elastomer(AEM, VAMAC)

Ethylene/ acrylic elastomer is a copolymer of ethylene and methyl acrylate plus a small amount of a curesite monomer containing carboxylic acid groups. AEM is a tough, low-compression-set rubber with excellent resistance to high temperatures, hot mineral oil, fluids and weathering. The low temperature flexibility and mechanic properties are better than ACM, but it is not well resistant to low aniline oil (like ASTM No. 3 oil) and polar solvents. AEM is typically chosen for applications requiring improved performance versus Nitrile rubber, Neoprene or reduced cost versus higher-end elastomers such as HNBR, FKM. It also usually is applied in automatic industry.

Cure system - Amine-Cured

Standard AEM compounds are Amine based vulcanization system.

Other Common Variations

- AEM has good flexibility and good tear resistance, abrasion and compression set, and it usually is used in shaft lip seals especially in automatic transmission fluids.
- Special VAMAC compounds can improve oil resistance but will sacrifice some low temperature properties

General Information

ASTM D1418 Designation	AEM
ISO/DIN 1629 Designation	AEM
ASTM D2000 / SAE J 200 Codes	EE
Standard Color(s)	Black
Hardness Range	40 to 85 Shore A
Relative Cost	Medium-High

Service Temperatures

Standard Low Temperature	-30°C -22°F
Standard High Temperature	150°C 300°F
Special Compound Low Temperature	-40°C -40°F
Special Compound High Temperature	175°C 345°F

Performs Well In...

- Ozone, weather and hot air.
- Automatic transmission fluids (ATF) and Power steering fluids
- Water

Doesn't Perform Well In...

- Ketones
- Fuels
- Brake fluids

Basic O-Ring Elastomers

Fluorocarbon(FPM, FKM, VITON)

Fluorocarbon is a well-known high performance rubber, and especially it has excellent resistance to high temperature, ozone, weather, oxygen, mineral oil, fuels, hydraulic fluids, aromatics and many organic solvents and chemicals. Now we can supply parts made by

Fluorine Content

Viton® system gum like general type (A-TYPE, 66% fluorine), middle fluorine content type (B-, GBL-TYPE, 67~68.5% fluorine), high fluorine content type (F-, GF-TYPE, 70% fluorine), improving low temperature flexibility type (GLT-, GFLT) and excellent resistance to more chemicals and solvents-- Viton® ETP Extreme.

We also can supply excellent acid and alkali resistance parts made by VITON TBR.

Cure system Bisphenol cured vs. Peroxide-Cured

- Standard FKM compounds are Bisphenol cured. FKM compounds with peroxide-cured possess better acid solution resistance than the bisphenol cured, and can replace litharge-cured applied in acid solution. In Some lubricants adding a few organic amide or amine, choosing peroxide curing system Viton will be better than bisphenol curing system.

Other Common Variations

- FKM can also be submitted for approval to Underwriters Laboratories (UL) for use in applications as prescribed in UL157.
- FKM has excellent resistance to high temperature, oil, solvent, flame, chemical and weather, and it is usually applied in automotive, chemical processing, aerospace and many industrials.
- Viton GLT is broadly used in thermal range of -40°C to +250°C and it has outstanding resistance to aggressive HTS-type oils which are commonly used in aerospace industry.
- Viton ETP is usually applied in chemical industrial.
- In some fuels adding several methanol, Viton F and B-type are more usable than A-type especially F-type. If it requires lower temperature, GFLT and GBLT will be available.
- Viton TBR 605C(TFE/propylene polymer) is better base and steam resistant than other general Vitons. It can be use in amine, amide and some bases.

General Information

ASTM D1418 Designation	FKM
ISO/DIN 1629 Designation	FKM
ASTM D2000 / SAE J 200 Codes	HK
Standard Color(s)	Black
Hardness Range	50 to 90 Shore A
Relative Cost	High

Service Temperatures

Standard Low Temperature	-26°C -15°F
Standard High Temperature	232°C 450°F
Special Compound Low Temperature	-40°C -40°F
Special Compound High Temperature	275°C 525°F

Performs Well In...

- Petroleum products
- Fuel or blend with methanol or ethanol
- Diesel or blend with biodiesel
- Mineral oil and grease
- Silicone oil and grease
- High vacuum
- Ozone, weather and very high temperature air
- Strong acid

Doesn't Perform Well In...

- Ketones
- Low molecular weight organic acids (formic and acetic acids)
- Superheat steam
- Low molecular weight esters and ethers.
- Phosphate ester based hydraulic fluids - Skydrol(R)

Fluorosilicone Rubber (FVMQ)

Fluorosilicone is like silicone rubber, bonding trifluoropropyl, methyl, and vinyl as side chains. The mechanical and physical properties are similar to VMQ. However, FVMQ offers improved fuel and mineral oil resistance, but poorer hot air resistance than standard VMQ.

Cure system - Peroxide-Cured

Standard FVMQ compounds are peroxide-cured.

Other Common Variations

- FVMQ offers excellent low-temperature flexibility and good resistance to fuel and aromatic mineral oil. It is usually applied in contact with jet and automotive fuels, most solvents, and engine oil especially in aerospace industry.
- FVMQ compounds meet MIL-R-25988 specification.

General Information

ASTM D1418 Designation	FVMQ
ISO/DIN 1629 Designation	FVMQ
ASTM D2000 / SAE J 200 Codes	FK
Standard Color(s)	Blue
Hardness Range	40 to 85 Shore A
Relative Cost	High

Service Temperatures

Standard Low Temperature	-60°C -76°F
Standard High Temperature	177°C 350°F
Special Compound Low Temperature	-60°C -76°F
Special Compound High Temperature	232°C 450°F

Performs Well In...

- Fuels
- Aromatic mineral oils
- Benzene, Toluene
- Ozone and weather

Doesn't Perform Well In...

- Brake Fluids
- Ketones
- Hydrazine

Basic O-Ring Elastomers

Hydrogenated Nitrile Rubber(HNBR)

Hydrogenated Nitrile(HNBR) is a synthetic polymer that is obtained by saturating the double bonds in nitrile=butadiene segments with hydrogen, and it is also called HSN(Highly Saturated Nitrile). This special hydrogenation process reduces lots of double bonds in main chains of NBR polymer, thus HNBR possesses superior heat, ozone, chemical resistance and mechanical characteristics over standard Nitrile.

Acrylonitrile Content

Same as NBR, there are different levels of Acrylonitrile (ACN) content in different HNBR polymers. The ACN content can be varied from 17% to 49%. Lower ACN content gives better low temperature properties but poorer fuels and polar lubricants. Higher ACN content gives poorer low temperature properties but improves fuels and polar lubricants resistance. Standard HNBRs typically have 36% ACN content.

Cure system - Peroxide-Cured

HNBRs are usually Peroxide-cured for standard compounds of Ge Mao. It also can be Sulfur-cured to improve flexible properties in dynamic system but will reduce the heat resistance and cause poorer compression set.

Other Common Variations

- HNBRs are often internally lubricated to improve ease of installation or reduce friction for dynamic applications.
- HNBRs can be formulated with only "white list" ingredients as specified in 21.CFR 177.2600 for use in applications where the elastomer will be in contact with food or beverages.
- HNBRs are usually used in automotive air conditioning system where R134a refrigerant gas or new refrigerant for environment protection like R401a, R404a, R410a, R507 and R744 is used.
- HNBRs are also used in automotive shaft system because of their excellent abrasion resistance.
- In deeper oil wells, it requires material resistance to heat, crude oil, hydrogen sulfide, steam and explosive decompression etc. Special compounds of HNBR can be available for this application.

General Information

ASTM D1418 Designation	HNBR
ISO/DIN 1629 Designation	HNBR or NBM
ASTM D2000 / SAE J 200 Codes	CH, DF, DH
Standard Color(s)	Black Green
Hardness Range	50 to 90 Shore A
Relative Cost	High

Service Temperatures

Standard Low Temperature	-40°C -40°F
Standard High Temperature	150°C 302°F
Special Compound Low Temperature	-55°C -67°F
Special Compound High Temperature	165°C 330°F

Performs Well In...

- Petroleum based oils & fuels
- Aliphatic hydrocarbons
- Vegetable oils
- Silicone oils & greases
- Ethylene glycol
- Dilute acids, bases & salt solutions to moderate temperatures
- Water & steam to 150°C (300°F)

Doesn't Perform Well In...

- Chlorinated hydrocarbons
- Ketones
- Ethers
- Esters
- Strong acids

Natural Rubber(NR)

Natural rubber is produced from the latex of the *Hevea brasiliensis*, and the chemical name of this polymer is polyisoprene. Polyisoprene also can be synthesized by polymerization from its monomer isoprene. Natural rubber possesses many excellent physical properties including high resilience and strength and good abrasion resistance. The defects are like SBR, having poor resistance to hydrocarbon oil and not suitable in UV, oxygen, ozone because of the double bond in the polymer backbone. But its poor weathering resistance can be modified by special additive.

Cure system - Sulfur-Cured

Standard NR compounds are sulfur-cured.

Other Common Variations

- NR is usually mixed with SBR and BR and applied in tire productions.

General Information

ASTM D1418 Designation	NR
ISO/DIN 1629 Designation	NR
ASTM D2000 / SAE J 200 Codes	AA
Standard Color(s)	Black
Hardness Range	40 to 90 Shore A
Relative Cost	Low

Service Temperatures

Standard Low Temperature	-50°C -58°F
Standard High Temperature	70°C 158°F

Performs Well In...

- Alcohols
- Organic acids

Doesn't Perform Well In...

- Ozone
- Petroleum oils
- Aromatic, aliphatic, or halogenated hydrocarbons

Basic O-Ring Elastomers

Nitrile Rubber (NBR)

Nitrile rubber, also known as NBR or Buna N, is one of the most commonly used sealing elastomers due its resistance to petroleum based fuels and lubricants and its relatively low price. Nitrile elastomers are copolymers of acrylonitrile and butadiene. There are a number of common variations of nitrile compounds.

Acrylonitrile Content

The acrylonitrile (ACN) content of the polymer chains can be varied from 18% to 50%. Lower ACN content gives better low temperature properties but poorer fuels and polar lubricants. Higher ACN content gives poorer low temperature properties but improved fuels and polar lubricants resistance. Standard NBRs typically have 34% ACN content.

Cure system - Sulfur-Cured vs. Peroxide-Cured

Standard Nitriles are usually sulfur-cured. Sulfur-cured compounds offer better low temperature properties but are more prone to hardening with high temperatures. Peroxide-cured nitriles have better heat resistance and lower compression sets but are more expensive and are more difficult to process.

Cure system - Sulfur-Cured vs. Peroxide-Cured

- Nitriles are often internally lubricated to improve ease of installation or reduce friction for dynamic applications.
- Nitriles can be formulated with only "white list " ingredients as specified in 21.CFR 177.2600 for use in applications where the elastomer will be in contact with food or beverages.
- Nitriles can be submitted for approval by the National Sanitation Foundation (NSF) for use in drinking water applications.
- Nitriles can also be submitted for approval to Underwriters Laboratories (UL) for use in applications as prescribed in UL157.
- Nitrile rubber can be combined with polyvinyl chloride (PVC) to create fuel, ozone and weathering resistance NBR-PVC blends.

General Information

ASTM D1418 Designation	NBR
ISO/DIN 1629 Designation	NBR
ASTM D2000 / SAE J 200 Codes	BF, BG BK, CH
Standard Color(s)	Black
Hardness Range	40 to 90 Shore A
Relative Cost	Low

Service Temperatures

Standard Low Temperature	-40°C -40°F
Standard High Temperature	100°C 212°F
Special Compound Low Temperature	-55°C -67°F
Special Compound High Temperature	125°C 275°F

Performs Well In...

- Petroleum based oils & fuels
- Aliphatic hydrocarbons
- Vegetable oils
- Silicone oils & greases
- Ethylene glycol
- Dilute acids
- Water to below 100°C (212°F)

Doesn't Perform Well In...

- Aromatic hydrocarbons
- Automotive brake fluid
- Chlorinated hydrocarbons
- Ketones
- Ethers
- Esters
- Phosphate ester hydraulic fluids
- Strong acids
- Ozone / weathering / sunlight

Polyacrylate(ACM, PA)

Polyacrylates or simply acrylate rubbers are copolymers having two major components: the backbone (monomeric acid ester of alkyl or alkoxy) and the reactive curesite. ACMs have good resistance to high heat and oil which is better than NBRs. It also well resists oxygen and ozone even at high temperature, but is with poorer water and low temperature flexibility compared to NBRs. Special ACM can improve low temperature flexibility to -40°C (TR10 value) without reducing oil and heat resistance.

Cure system - Amine based & metal soaps Cured

Standard ACM compounds are Amine based and metal soaps combined to vulcanize.

Other Common Variations

- Polyacrylates usually are applied in automatic industry, especially in automatic transmission and steering fluids.

General Information

ASTM D1418 Designation	ACM
ISO/DIN 1629 Designation	ACM
ASTM D2000 / SAE J 200 Codes	DF, DH, EH
Standard Color(s)	Black
Hardness Range	45 to 80 Shore A
Relative Cost	Medium-High

Service Temperatures

Standard Low Temperature	-15°C 5°F
Standard High Temperature	150°C 300°F
Special Compound Low Temperature	-40°C -40°F
Special Compound High Temperature	175°C 345°F

Performs Well In...

- Mineral oils (transmission and steering fluids)
- Ozone, weather and hot air.

Doesn't Perform Well In...

- Alcohol
- Aromatics and chlorinated hydrocarbons
- Hot water and steam
- Acids, alkalis and amines
- Brake fluids

Basic O-Ring Elastomers

Polyurethane(PU, AU, EU)

The millable Polyurethane rubbers are distinguished into two types; one is polyester urethane (AU), the other is polyether urethane (EU). AU type urethanes have outstanding oil, fuel and solvent resistance but can be attacked by hydrolysis, EU type urethanes are not attacked by hydrolysis and still offer a fuel and oil resistance comparable to low ACN (18~22% ACN) Nitriles or HNBRs. Any type polyurethane has excellent wear resistance, high tensile strength and high elasticity in comparison with any other elastomers.

We also can offer any type thermoplastic urethane (TPU).

Cure system - Peroxide-Cured

Standard PU compounds are peroxide-cured.

Other Common Variations

- Polyurethane usually is applied in mechanical industry, especially in the place where material must have higher wear resistance and higher strength.
- In some applying environment, moisture condensing will happen on the surface of rubber seal, and this will cause hydrolysis of AU so choosing EU is better. But EU does not resist oil very well, thus higher aniline point oil must be used for lubricant application.
- Applying in hydraulic system, TPU will be better than millable Polyurethane.

General Information

ASTM D1418 Designation	AU, EU
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ISO/DIN 1629 Designation	AU, EU
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ASTM D2000 / SAE J 200 Codes	BG
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Standard Color(s)	Black
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Hardness Range	60 to 93 Shore A
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Relative Cost	Medium-High
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Service Temperatures

Standard Low Temperature	-40°C -40°F
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Standard High Temperature	80°C 176°F
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Special Compound Low Temperature	-55°C -67°F
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Special Compound High Temperature	100°C 212°F
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Performs Well In...

- Aliphatic hydrocarbon
- Mineral oil and grease
- Silicone oil and grease
- Ozone
- Water up to 50°C (EU type)

Doesn't Perform Well In...

- Ketones
- Alcohols
- Esters
- Ethers
- Hot water and steam
- Alkalis, amines
- Acids
- Glycols

Silicone Rubber (MQ, VMQ, PVMQ)

Physically, silicones are based on silicon, an element derived from quartz. To create this class of synthetic elastomers, pendant organic groups such as methyl, phenyl and vinyl are attached to silicon atoms. The different addition of side chains can achieve significant variations in properties. Silicones have excellent heat, ozone and corona resistance, very well dielectric stability, and resistance to many oils, chemicals, and solvents. And for all elastomers, silicones possess the best flexible property at low temperature. But it also has some weakness like low tensile strength, poor tear and wear resistance.

Cure system - Peroxide-Cured vs. Platinum cured

Standard silicone compounds are usually peroxide-cured. Platinum-cured compounds offer better flexible properties and very low volatile matter. Platinum-cured silicones usually are applied in medical system or other required low volatile matter, but they need to be produced in clean room and higher cost of platinum catalyzer so they are more expensive than peroxide-cured ones.

Other Common Variations

- Silicones can be formulated with only "white list " ingredients as specified in 21.CFR 177.2600 for use in applications where the elastomer will be in contact with food or beverages.
- Silicones can be submitted for approval by the National Sanitation Foundation (NSF) for use in drinking water applications.
- Silicones are usually used in automotive system like boots, oil filter valve, gasket in light...etc.
- Silicone parts can be used in medical system which especially require compliance to USP CLASS VI.

Performs Well In...

- Engine and transmission oil (mineral oils)
- Diluted salt solution
- Moderate water
- Dry heat
- Ozone, weather resistance

Doesn't Perform Well In...

- Concentrated acids and alkalis
- Steam over 120°C
- Petroleum oils and fuel
- Ketones

General Information

ASTM D1418 Designation	Q, MQ, VMQ, PVMQ,
ISO/DIN 1629 Designation	Q, MQ, VMQ, PVMQ,
ASTM D2000 / SAE J 200 Codes	FC, FE, GE,
Standard Color(s)	Rust
Hardness Range	25 to 90 Shore A
Relative Cost	Medium-High

Service Temperatures

Standard Low Temperature	-60°C -76°F
Standard High Temperature	225°C 437°F
Special Compound Low Temperature	-100°C -150°F
Special Compound High Temperature	300°C 572°F

Basic O-Ring Elastomers

Styrene-Butadiene Rubber(SBR)

The most widely used synthetic rubber in the world is SBR, a copolymer of styrene and butadiene. SBR also was called Buna S (from the first trade name of Bayer). Where SBR rubber is used the most is in tire by blending it with natural rubber and butadiene rubber. SBR is weak and unusable without reinforcement by carbon black, but with carbon black it is strong and abrasionresistant. The defects of SBR are poor resistant to oil and not suitable in weathering, UV, oxygen, ozone because the double bond in the polymer backbone.

Cure system - Sulfur-Cured

Standard SBR compounds are sulfur-cured.

Other Common Variations

- SBR is usually mixed with NR and BR and applied in tire productions.
- SBRs are mostly applied seals for non-mineral oil based brake fluid.

General Information

ASTM D1418 Designation	SBR
ISO/DIN 1629 Designation	SBR
ASTM D2000 / SAE J 200 Codes	AA,BA
Standard Color(s)	Black
Hardness Range	50 to 70 Shore A
Relative Cost	Low

Service Temperatures

Standard Low Temperature	-55°C -67°F
Standard High Temperature	100°C 212°F

Performs Well In...

- Water
- Alcohol
- Silicone oil and grease
- Non-mineral oil based brake fluid
- Weak acids

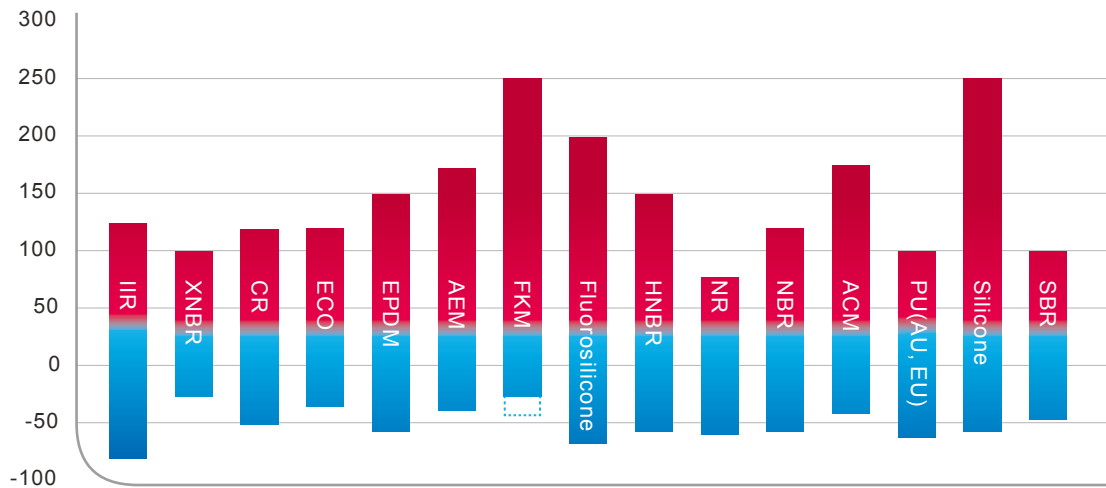
Doesn't Perform Well In...

- Petroleum oils and fuels
- Aromatic, aliphatic, or halogenated hydrocarbons
- Strong acids
- Mineral oils

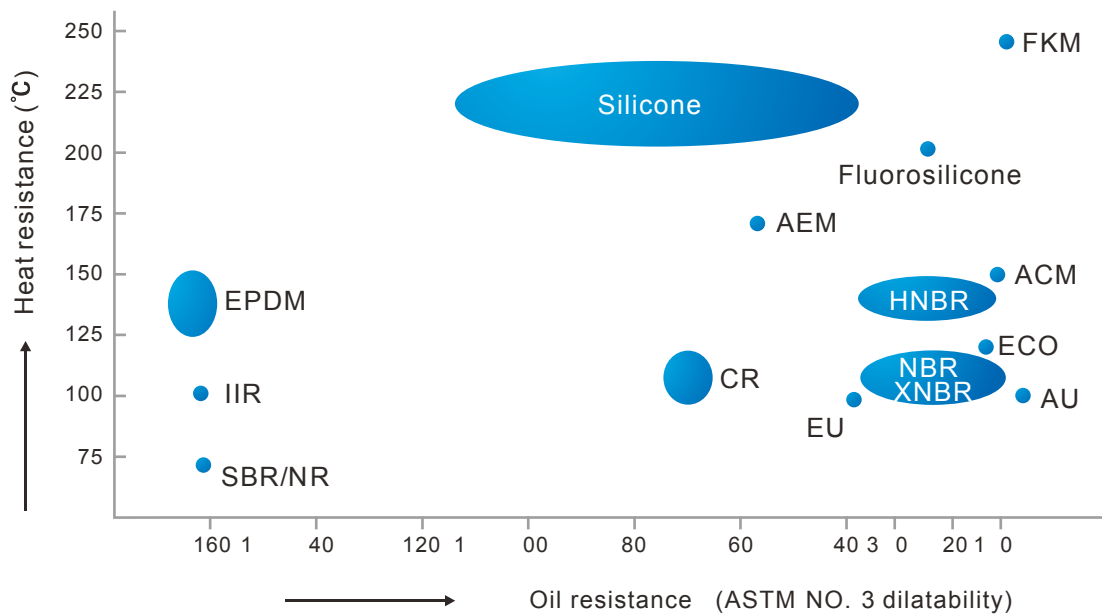
General Properties of Elastomers

Service Temperature Range Chart

This service temperature range is for reference only. In actual service environment, some specific compounds may not reach the maximum temperature as indicated in this chart. However, higher temperature may be attained if exposure is short period or intermittent.



Oil And Heat Resistance Comparison Chart



General Properties of Elastomers

Elastomer Guidelines and Recommendations

Elastomer Base	Durometer (Shore A)	General Recommendations
Butyle(IIR)	70	General ASTM D2000 M2BA710 B13 C12
Carboxylated Nitrile (XNBR)	70 70	General ASTM D2000 M2BG714 A14 B14 EO14 EO34 EF11 EF21 Internal lubrication (PTFE, Molysulfide, Erucamide)
Chloroprene Rubber (CR)	70 57 60	General ASTM M3BC710 A14 B14 EO14 EO34 F17 Electrical insulation 500v, 100m For UL94-V1 application
Epichlorohydrin (CO, ECO, GEEO)	70	General M3CH710
Ethylene Propylene Rubber (EPR, EPDM)	70 70 70 70 70 70 70 70 70 70 75	General ASTM D2000 M3CA710 A25 B35 EA14 G11 General ASTM D2000 M3DA710 A26 B36 C32 EA14 F19 G21 Z1=Peroxide Internal Lubricant FDA 21 CFR177.2600 Class II spec. NSF61 approval. Peroxide Cured, Electric insulation General, ANTI-MICROBE Peroxide Cured, Coolant System Peroxide Cured, Brake System HFC-134A Plus PAG or POE Lubricant
Ethylene/ Acrylielastomer (AEM, VAMAC)	70	General ASTM D2000 M3EE710 A47 B46 EO16 EO36 F16 E1:ATF Dexron III and I
Fluorocarbon (FPM, VITON, FKM)	75 90 75 75 75 75 75 75 75 75 75 75 95 75	General ASTM D2000 M2HK810 A1-10 B38 EF31 EO78 Z1=75+/- SHORE A. General ASTM D2000 M2HK910 A1-10 B38 EF31 EO78 EO88 FDA 21 CFR 177.2600 Internal Lubricant (PTFE, MOS2) AMS 7276, Mil-R-83248 Low Compression Set Viton GFLT for Chrysler MS-BZ832 Grade F. Viton F-type for Ford WSA-M2D401-A8 Viton GLT-type for Chrysler MS-BZ832 grade G Viton GF-type for Chrysler MS-BZ832 grade C Viton B-type for Chrysler MS-BZ832 grade B General meet F15 Low Temperature Anti Explosive Decompression (AED) GLT AMS-R-83485(Low Compression Set and Low Temperature)

Elastomer Guidelines and Recommendations

Elastomer Base	Durometer (Shore A)	General Recommendations
ETP	75	Viton ETP-type excellent oil, heat, chemical, solvent resistance
Fluorosilicone Rubber (FVMQ)	60	M25988/3 Type 1, Class 1, Grade 60
	70	M25988/1 Type 1, Class 1, Grade 70
	75	M25988/2 Type 1, Class 3, Grade 75
	80	M25988/4 Type 1, Class 1, Grade 80
Hydrogenated Nitrile Rubber (HNBR, HSN)	70	General ASTM D2000 M2DH710 A26 B16 EO16 Eo36 F17 Z1=Green color
	70	Ford WSH-M2D463-A
	70	FDA 21 CRF177.2600 Class II spec.
	70	Good fuel resistance and for adhesion metal seal.
Natural Rubber (NR)	80	New Refrigerant for Environment Protection and HFC-134A
	70	General ASTM D2000 M2AA710
Nitrile Rubber (NBR, BUNA-N)	40	General ASTM D2000 M2AA410
	70	General ASTM D2000 M2BG714 A14 B34 EA14 Ef11 EF21 EO14 EO34
	70	FDA 21 CFR177.2600 Class I
	70	40% Acn. Good fuel resistance.
	70	Internal lubricant (PTFE, Molysulfide, Wax)
	70	NBR/PVC blending, excellent ozone resistance, good fuel resistance.
	70	Higher heat resistance (M2CH714 A25 Eo15 EO35)
	70	18% Acn. Excellent low temperature resistance (-55°C)
	70	NSF61 approval.
	60	Insulation, resist to 2kv
	70	Non-nitosamine
Polyacrylate (ACM, PA)	70	General ASTM D2000 M2DH710 A26 B16 EO16 EO36 F13
	70	Improve low temperature flexibility
Polyurethane (PU, AU, EU)	70	Ether type-excellent water resistance, Ester type-excellent oil resistance.
	90	Ether type-excellent water resistance, Ester type-excellent oil resistance.
Silicone Rubber (MQ, VMQ, PVMQ)	70	General ASTM D2000 M2GE705 A19 B37 C12 Ea14 EO16 EO36 F19
	70	Meet FDA 21 CFR177.2600 Class II spec./NSF61 approval.
	70	ZZ-RP765E/ GEN,AMS 3340
	70	High heat resistance, service temperature -55°C~ +300°C
	70	Improve oil resistance
	70	USP Class VI
	60	UL 94-vo approval
Styrene-Butadiene Rubber (SBR)	70	General ASTM D2000 M2AA708

General Properties of Elastomers

Fluid Compatibility Table

COMPATIBILITY RATING 👍 SATISFACTORY 😊 FAIR (USUALLY OK FOR STATIC SEAL) 😐 DOUBTFUL (SOMETIMES OK FOR STATIC SEAL) 😞 UNSATISFACTORY 👎 INSUFFICIENT DATA	NITRILE(NBR)	EPDM	FLUOROCARBON(VITON)	NEOPRENE	POLYACRYLATE	FLUOROSILICONE	SILICONE	COMPATIBILITY RATING 👍 SATISFACTORY 😊 FAIR (USUALLY OK FOR STATIC SEAL) 😐 DOUBTFUL (SOMETIMES OK FOR STATIC SEAL) 😞 UNSATISFACTORY 👎 INSUFFICIENT DATA	NITRILE(NBR)	EPDM	FLUOROCARBON(VITON)	NEOPRENE	POLYACRYLATE	FLUOROSILICONE	SILICONE
ACETAMIDE	😊	😊	😊	😊	😊	😊	😊	BUTYL ALCOHOL	👍	😊	👍	👍	😊	😊	😊
ACETAMIDE	👍	👍	😊	👍	😊	👍	😊	BUTYL AMINE OF N-BUT AMINE	😊	😊	😊	😊	😊	😊	😊
ACETIC ACID, GLACIAL	😊	😊	😊	😊	😊	😊	😊	BUTYL CARBITOL	😊	👍	😊	😊	😊	😊	😊
HOT, HIGH PRESS	😊	😊	😊	😊	😊	😊	😊	BUTYL CELLOSOLVE	😊	😊	😊	😊	😊	😊	😊
5%	😊	👍	👍	👍	😊	😊	👍	BUTYRALDEHYD	😊	😊	😊	😊	😊	😊	😊
ACETONE	😊	👍	😊	😊	😊	😊	😊	CARBITOL	😊	😊	😊	😊	😊	😊	😊
ACETOPHENONE	😊	👍	😊	😊	😊	😊	😊	CARBITOL ACETATE	😊	😊	👍	😊	😊	😊	😊
ACETYLENE	👍	👍	👍	😊	👎	👎	😊	CARBON DISULFIDE	😊	😊	👍	😊	😊	👍	😊
AMMONIA, GAS, COLD	👍	👍	😊	👍	😊	😊	👍	CARBON TETRACHLORIDE	😊	😊	👍	😊	😊	😊	😊
GAS, HOT	😊	😊	😊	😊	😊	😊	😊	CARBONIC ACID	😊	👍	👍	👍	👍	👍	👍
LIQUID (ANHYDROUS)	😊	👍	😊	👍	😊	😊	😊	CASTOR OIL	👍	😊	👍	👍	👍	👍	👍
AMMONIUM HYDROXIDE,								CELLOSOLVE	😊	😊	😊	😊	😊	😊	😊
3 Molar	👍	👍	😊	👍	😊	👍	👍	CHASSIS GREASE	👍	😊	😊	😊	👍	😊	😊
CONCENTRATED	😊	👍	😊	👍	😊	👍	👍	CHLORACETIC ACID	😊	😊	😊	😊	😊	😊	😊
AMYL ACETATE	😊	👍	😊	😊	😊	😊	😊	CHLORACETONE	😊	👍	👍	😊	👎	😊	😊
ANDEROL, L-774 (DI-ESTER)	😊	😊	👍	😊	😊	😊	😊	CHLORODANE	😊	😊	👍	😊	👎	😊	😊
ANTIFREEZE	👍	👍	👍	👍	😊	👎	👍	CHLORINE, DRY	😊	😊	👍	😊	😊	👍	😊
ANILINE	😊	😊	😊	😊	😊	😊	😊	CHLORINE DIOXIDE	😊	😊	👍	😊	😊	😊	😊
ANSUL ETHER 161 OR 181	😊	😊	😊	😊	😊	😊	😊	CHLORINE DIOXIDE, 8% CL	😊	😊	👍	😊	😊	😊	😊
AROCOR, 1248	😊	😊	👍	😊	😊	😊	😊	AS NAC10 IN SOLUTION							
1254	😊	😊	👍	😊	😊	😊	😊	CHLORINE TRIFLUORIDE	😊	😊	😊	😊	😊	😊	😊
1260	👍	👎	👍	👍	😊	👍	👍	CHLORINE, WET	😊	😊	👍	😊	😊	😊	😊
ASKAREL	😊	😊	👍	😊	😊	😊	😊	CHLOROBENZOL	😊	😊	👍	😊	😊	😊	😊
ASTM OIL NO. 1	👍	😊	👍	👍	👍	👍	👍	CHLOROFORM	😊	😊	👍	😊	😊	😊	😊
NO. 3	👍	😊	👍	😊	👍	👍	😊	CHLOROSULPHONIC ACID	😊	😊	😊	😊	😊	😊	😊
ASTM REDERENCE FUEL A	👍	😊	👍	😊	😊	👍	😊	CHROME PLATING SOLUTIONS	😊	😊	👍	😊	😊	😊	😊
B	👍	😊	👍	😊	😊	👍	😊	CHROMIC ACID, 50%	😊	😊	👍	😊	😊	😊	😊
C	😊	😊	👍	😊	😊	😊	😊	CITRIC ACID	👍	👍	👍	👍	👎	👍	👍
D	😊	😊	👍	😊	😊	👎	😊	COD LIVER OIL	👍	👍	👍	😊	👍	👍	😊
AUTO. TRANSMISSION FLUID	👍	😊	👍	😊	👍	👎	😊	COFFEE	👍	👍	👍	👍	😊	👍	👍
BEER	👍	👍	👍	👍	😊	👍	👍	CORN OIL	👍	😊	👍	😊	👍	👍	👍
BENZALDEHYDE	😊	👍	😊	😊	😊	😊	😊	CREOSOTE, COAL TAR	👍	😊	👍	😊	👍	👍	😊
BENZENE	😊	😊	👍	😊	😊	😊	😊	CREOSOTE OIL	👍	😊	👍	😊	👎	😊	😊
BENZINE	👍	😊	👍	😊	👍	👍	😊	CREOSYLIC ACID	😊	😊	👍	😊	😊	😊	😊
BENZOIC ACID	😊	😊	👍	😊	😊	😊	😊	CRUDE OIL	😊	😊	👍	😊	👍	😊	😊
BENZOPHENONE	👎	😊	👍	👎	😊	👍	👎	CYCLOHEXANE	👍	😊	👍	😊	😊	👍	😊
BENZYL ALCOHOL	😊	😊	👍	😊	😊	😊	😊	CYCLOHEXNOL	👍	😊	👍	😊	👎	👍	😊
BLEACH LIQUOR	😊	👍	👍	😊	😊	😊	😊	DECALIN	😊	😊	👍	😊	👎	👍	😊
BORAX	😊	👍	👍	😊	😊	😊	😊	DENATURED ALCOHOL	👍	👍	👍	👍	😊	👍	👍
BORIC ACID	👍	👍	👍	👍	😊	👍	👍	DIACETONE	😊	👍	😊	😊	😊	😊	😊
BRAKE FLUID (NON-PETROLEUM)	😊	👍	😊	😊	👎	😊	😊	DIBUTYLAMINE	😊	😊	😊	😊	😊	😊	😊
BROMINE	😊	😊	👍	😊	😊	😊	😊	DIBUTYL PHTHALATE	😊	😊	😊	😊	😊	😊	😊
BROMOBENZENE	😊	😊	👍	😊	😊	👍	😊	DICHLORO ANILINE	😊	😊	😊	😊	😊	😊	😊
BUNKER OIL	👍	😊	👍	😊	👍	👍	😊	DICHLORO BUTANE	😊	😊	👍	😊	😊	😊	😊
BUTANE	👍	😊	👍	👍	👍	👍	😊	DIESEL OIL	👍	😊	👍	😊	👍	👍	😊
BUTTER-ANIMAL FAT	👍	👍	👍	😊	👍	👍	😊	DIETHYLAMINE	😊	😊	😊	😊	😊	😊	😊
N-BUTYL ACETATE	😊	😊	😊	😊	😊	😊	😊	DIETHYL BENZENE	😊	😊	👍	😊	👎	👎	👎

Fluid Compatibility Table

COMPATIBILITY RATING 👍 SATISFACTORY 😊 FAIR (USUALLY OK FOR STATIC SEAL) 😐 DOUBTFUL (SOMETIMES OK FOR STATIC SEAL) 😞 UNSATISFACTORY 👎 INSUFFICIENT DATA	NITRILE(NBR)	EPDM	FLUOROCARBON(VITON)	NEOPRENE	POLYACRYLATE	FLUOROSILICONE	SILICONE
DIETHYLENE GLYCOL	👍	👍	👍	👍	😐	👍	😊
DIMETHYL ETHER	😐	😐	😐	😊	😊	😊	😐
DIMETHYL FORMAMIDE	😐	👍	😐	👎	👎	👎	👍
DIMETHYL PHTHALATE	😐	👍	👍	😐	😐	👎	👎
DIMETHYL TEREPHTHALATE	😐	😐	👍	😐	😐	👎	😐
DIOCTYL PHTHALATE	😐	😊	😊	😐	😐	😊	😊
DIOXANE	😐	😊	😐	😐	😐	😐	😐
DIPHENYL	😐	😐	👍	😐	😐	😊	😐
DOW CORNING-550	👍	👍	👍	👍	👍	👍	😊
DOW GUARD	👍	👍	👍	👍	😊	👍	👍
DOWTHERM,A	😐	😐	👍	😐	😐	😊	😐
E	😐	😐	👍	😐	😐	😊	😐
ELCO 28-EP LUBRICANT	👍	😐	👍	😊	👍	👍	😊
EPOXY RESINS	👎	👍	😐	👍	👎	👎	👎
ETHANE	👍	😐	👍	😊	👍	😊	😐
ETHANOL	👍	👍	😊	👍	😐	👍	👍
ETHANOL AMINE	😊	😊	😐	😊	😐	😐	😊
ETHYL ACETATE-ORGANIC ESTER	😐	😊	😐	😐	😐	😐	😊
ETHYL BENZENE	😐	👍	👍	😐	😐	👍	😐
ETHYL CELLULOSE	😊	😊	😐	😊	😐	😐	😊
ETHYL CHLORIDE	👍	👍	👍	👍	😊	👍	😐
ETHYL ETHER	😊	😊	😐	😐	😐	😊	😐
ETHYL FORMATE	😐	😊	👍	😊	👎	👍	👎
ETHYL HHEXANOL	👍	👍	👍	👍	😐	👍	😊
ETHYL MERCAPTAN	😐	😊	😐	😊	👎	👎	😊
ETHYLENE CHLORIDE	😐	😐	👍	😐	😐	👎	😐
ETHYLENE OXIDE	😐	👍	😐	😐	😐	👎	😐
FORMALDEHYDE	😊	😊	😐	😊	😐	😐	😊
FORMIC ACID	😊	👍	😐	👍	👎	👎	😊
FREON 12	👍	😊	👍	👍	👎	😐	😐
FUEL OIL	👍	😐	👍	😊	👍	👍	😐
FURAN(FURFURAN)	😐	👎	👎	😐	😐	👎	👎
FURFURAL	😐	😊	😐	😐	😐	😐	😐
FURFURYL ALCOHOL	😐	😊	👎	😐	😐	😐	😐
FYRQUEL A60	😐	😊	😐	😐	😐	😐	😊
GALLIC ACID	😊	😊	👍	😊	😐	👍	👎
GASOLINE	👍	😐	👍	😐	😐	👍	😐
GELATIN	👍	👍	👍	👍	😐	👍	👍
GLUCOSE	👍	👍	👍	👍	👎	👍	👍
GLYCERINE-GLYCEROL	👍	👍	👍	👍	😐	👍	👍
N-HEPTANE	👍	😐	👍	😊	👍	👍	😐
N-HEXALDEHYDE	😐	👍	😐	👍	👎	😐	😊
N-HEXANE	👍	😐	👍	😊	👍	👍	😐
HEXANOL	👍	😊	👍	👍	😐	👍	👍
HOME HEATING OIL	👍	😐	👍	😊	👍	👎	👍
HYDRAZINE	😊	👍	👎	😊	👎	👎	😊
HYDROCHLORIC ACID, 3 Molar	😊	👍	👍	😊	😊	😊	😐
CONCENTRATED	😐	😊	👍	😐	😐	😊	😐
HYDROCYANIC ACID	😊	👍	👍	😊	😐	😊	😊
HYDROGEN PEROXIDE	😊	👍	👍	👍	😐	👍	👍
90%	😐	😊	👍	😐	😐	😊	😊
HTDROGEN SULFIDE DRY,COLD	👍	👍	😐	👍	😐	😊	😊
DRY,HOT	😐	👍	😐	😊	😐	😊	😊
WET,COLD	😐	👍	😐	👍	😐	😊	😊
WET,HOT	😐	👍	😐	😊	😐	😊	😊
HYDROQUINONE	😊	😐	😊	😐	😐	😊	👎
HYPOID GEAR LUBE	👍	😐	👍	😊	👍	👎	😊
IODINE	😊	😊	👍	😐	👎	👍	👎
ISOCYANATE	👎	👎	👍	👎	👎	👎	👎
ISO OCTANE	👍	😐	👍	😊	👍	👍	😐
ISOPHORONE(KETONE)	😐	👍	😐	😐	😐	😐	😐
ISOPAR	👍	😐	👍	👍	👍	👎	😐
ISOPROPANOL	😊	👍	👍	😊	😐	😊	👍
ISOPROPYL ACETATE	😐	😊	😐	😐	😐	😐	😐
JP-4(MIL-J-5624)	👍	😐	👍	😐	😊	😊	😐
JP-5(MIL-J-5624)	👍	😐	👍	😐	😊	😊	😐
KEROSINE	👍	😐	👍	😊	👍	👍	😐
LACTIC ACID,COLD	👍	👍	👍	👍	😐	👍	👎
HOT	😐	😐	👍	😐	😐	😊	👎
LACQUERS	😐	😐	😐	😐	😐	😐	😐
LARD,ANIMAL FAT	👍	😊	👍	😊	👍	👍	😊
LINOLEIC ACID	😊	😐	😊	😊	👎	👎	😊
LINSEED OIL	👍	😊	👍	😊	👍	👍	👍
LYE SOLUTIONS	😊	👍	😊	😊	😐	😊	😊
MALATHION	😊	😐	👍	👎	👎	😊	😐
MALEIC ACID	😐	😐	👍	😐	😐	👎	👎
MERCURY	👍	👍	👍	👍	👎	👎	👎
METER-CRESOL	😐	😐	👍	👍	😐	👎	😐
METHANE	👍	😐	👍	😊	👍	😊	😐
METHANOL	👍	👍	😐	👍	😐	👍	👍
METHYL ACETATE	😐	😊	😐	😊	😐	😐	😐
METHYLACRYLIC ACID	😐	😊	😊	😊	😐	😐	😐
METHYL CELLOSOLVE	😊	😊	😐	😊	😐	😐	😐
METHYL CHLORIDE	😐	😊	👍	😐	😐	😊	😐
METHYL ETHYL KETONE(MEK)	😐	👍	😐	😐	😐	😐	😐
MRTHYL MERCAPTAN	👎	👍	👎	👎	👎	👎	👎
MILK	👍	👍	👍	👍	😐	👍	👍
MINERAL OILS	👍	😊	👍	😊	👍	👍	😊
MINERAL SPIRITS	👍	😐	👍	😐	👍	👎	😐
MONOVINYL ACETYLENE	👍	👍	👍	😊	👎	👎	😊

General Properties of Elastomers

Fluid Compatibility Table

COMPATIBILITY RATING 👍 SATISFACTORY 😊 FAIR (USUALLY OK FOR STATIC SEAL) 😐 DOUBTFUL (SOMETIMES OK FOR STATIC SEAL) 😞 UNSATISFACTORY 👎 INSUFFICIENT DATA	NITRILE(NBR)	EPDM	FLUOROCARBON(VITON)	NEOPRENE	POLYACRYLATE	FLUOROSILICONE	SILICONE	COMPATIBILITY RATING 👍 SATISFACTORY 😊 FAIR (USUALLY OK FOR STATIC SEAL) 😐 DOUBTFUL (SOMETIMES OK FOR STATIC SEAL) 😞 UNSATISFACTORY 👎 INSUFFICIENT DATA	NITRILE(NBR)	EPDM	FLUOROCARBON(VITON)	NEOPRENE	POLYACRYLATE	FLUOROSILICONE	SILICONE
MUSTARD	👍	👍	👍	👍	👍	👍	👍	SILICONE GREASES	👍	👍	👍	👍	👍	👍	😐
NAPHTHA	😊	😊	👍	😊	😊	😊	😊	SILVER NITRATE	😊	👍	👍	👍	👍	👍	👍
NAPHTHALENE	😊	😊	👍	😊	👍	👍	😊	SKELLY,SOLVENT B,C,E	👍	😊	👍	😊	👍	👍	👍
NAPHTHENIC ACID	😊	😊	👍	😊	👍	👍	😊	SKYDROL	😊	👍	👍	😊	😊	👍	😊
NAYURAL GAS	👍	😊	👍	👍	😊	😊	👍	SKYDROL 500	😊	👍	😊	😊	😊	😊	😊
NEATSFOOT OIL	👍	😊	👍	😊	👍	👍	😊	SODIUM HYDROXIDE,3 MOLAR	😊	👍	😊	😊	😊	😊	👍
NITRIC ACID								SOVASOL NO.1,2 AND 3	👍	😊	👍	😊	😊	👍	😊
3 MOLAR	😊	😊	👍	😊	😊	😊	😊	NO.73 AND 74	😊	😊	👍	😊	😊	👍	😊
CONCENTRATED	😊	😊	👍	😊	😊	😊	😊	SOYBEAN OIL	👍	😊	👍	😊	👍	👍	👍
RED FUMING(RFNA)	😊	😊	😊	😊	😊	😊	😊	STEARIC ACID	😊	😊	👍	😊	👍	👍	😊
INHIBITED RED FUMING(IRENA)	😊	😊	😊	😊	😊	😊	😊	STODDARD SOLVENT	👍	😊	👍	😊	👍	👍	😊
NITROBENZENE	😊	😊	😊	😊	😊	😊	😊	SUCROSE SOLUTIONS	👍	👍	👍	😊	😊	👍	👍
NITROPROPANE	😊	😊	😊	😊	😊	😊	😊	SULFURIC ACID							
N-OCTANE	😊	😊	👍	😊	😊	😊	😊	3 MOLAR	😊	😊	👍	😊	😊	😊	😊
OCTANOL	👍	👍	👍	👍	😊	👍	👍	CONCENTRATED	😊	😊	👍	😊	😊	😊	😊
OLEIC ACID	😊	😊	😊	😊	😊	👍	😊	TALL OIL	👍	😊	👍	😊	👍	👍	👍
OLEUM(FUMING SULFURIC ACID)	😊	😊	👍	😊	😊	👍	😊	TANNIC ACID	👍	👍	👍	😊	😊	👍	😊
ORONITE 8200	😊	😊	👍	👍	👍	👍	😊	10%	👍	👍	👍	👍	😊	👍	😊
OXALIC ACID	😊	👍	👍	😊	👍	👍	😊	TAR,BITUMINOUS	😊	😊	👍	😊	😊	👍	😊
PEANUT OIL	👍	😊	👍	😊	👍	👍	👍	TARTARIC ACID	👍	😊	👍	😊	👍	👍	👍
PENTANE, 2 METHYL	👍	😊	👍	😊	👍	😊	😊	TETRACHOROETHANE	😊	😊	👍	😊	😊	😊	👍
2-4,DIMETHYL	👍	😊	👍	😊	👍	😊	😊	TETRALIN	😊	😊	👍	😊	👍	👍	😊
3-METHYL	👍	😊	👍	😊	👍	😊	😊	TIDEWATER OIL-BEEDOL	👍	😊	👍	😊	👍	👍	😊
PERCHLOROETHYLENE	😊	😊	👍	😊	😊	😊	😊	MULTIGEAR 140,EP LUBE	👍	😊	👍	😊	👍	👍	😊
PETROLEUM ETHER	😊	😊	👍	😊	😊	👍	😊	TOLUENE	😊	😊	👍	😊	😊	😊	😊
PHENOL	😊	😊	👍	😊	😊	😊	😊	TRICHLOROETHYLENE	😊	😊	👍	😊	😊	😊	😊
PHENYLHYDRAZINE	😊	😊	👍	😊	😊	👍	👍	TRIETHANOL AMINE	😊	😊	😊	😊	😊	😊	👍
PHOSPHORIC ACID								TURBINE OIL	👍	😊	👍	😊	👍	👍	😊
3 MOLAR	😊	👍	👍	😊	👍	😊	😊	TURPENTINE	👍	😊	👍	😊	😊	😊	😊
CONCENTRATED	😊	😊	👍	😊	👍	😊	😊	UCDN 50HB 280X	👍	👍	👍	👍	👍	👍	👍
PINE OIL	👍	😊	👍	😊	👍	👍	😊	UNIVIS J-43	👍	😊	👍	👍	👍	👍	😊
POTASSIUM HYDROXIDE,50%	😊	👍	😊	😊	😊	😊	😊	VARNISH	😊	😊	👍	😊	😊	😊	😊
PROPANE	👍	😊	👍	😊	👍	😊	😊	VINEGAR	😊	👍	👍	😊	😊	😊	👍
PROPANOL	👍	👍	👍	👍	😊	👍	👍	WATER	👍	👍	😊	😊	😊	👍	👍
PROPYL ACETATE	😊	😊	😊	😊	😊	😊	😊	WHEAT GERM OIL	👍	😊	👍	😊	👍	👍	👍
PYDRAUL 10E,29ELT	😊	👍	👍	😊	😊	😊	😊	WHISKEY AND WINES	👍	👍	👍	👍	😊	👍	👍
30E,50E,65E,90E	😊	👍	👍	😊	😊	👍	👍	WOOD OIL	👍	😊	👍	😊	👍	😊	😊
115E	😊	👍	👍	😊	😊	😊	😊								
230E,312C,540C	😊	😊	👍	😊	😊	😊	😊								
PYRANOL	👍	😊	👍	👍	👍	👍	😊								
PYRIDINE	😊	😊	😊	😊	😊	👍	😊								
RAPESEED OIL	😊	👍	👍	😊	😊	👍	😊								
SAE10W30	👍	😊	👍	😊	👍	👍	👍								
SEA(SALT) WATER	👍	👍	👍	😊	😊	👍	👍								

General Properties of Elastomers

Design Data: Extrusion Limit of O-ring & Clearance Gap

The O-ring is contained in the gland and forced to flow into the surface imperfections of the glands and any clearance gap available to it. So, O-ring can perform sealing by means of squeeze under low-pressure conditions. However, as the pressure mounts, it becomes distorted. The distortion increases the strain, and the increased strain results in more tight sealing. Under high pressure, O-ring would extrude out of the clearance gap. The extrusion will cause seal failure in a standard gland configuration.

An antiextrusion back-up ring, made of a tough, cut-resistant material such as leather, Teflon or hard rubber, is suggested. In static applications it may be possible to modify the gland design to withstand the higher pressure without the addition of a back-up ring. Anyway, care must be taken to make the extrusion as small as possible. The extent of this extrusion depends upon the hardness of O-ring, pressure and clearance gap. Please refer to FIG 1, FIG 2 and TABLE 1.

FIG. 1

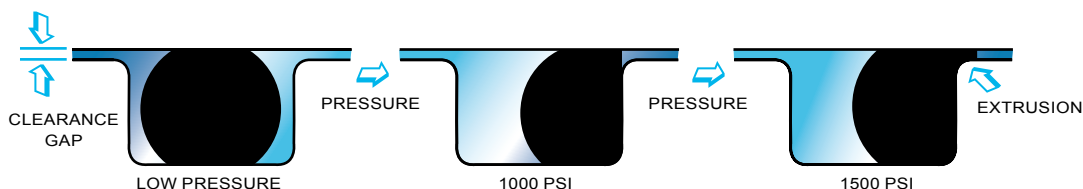


FIG.2: EXTRUSION LIMIT OF O-RIN G

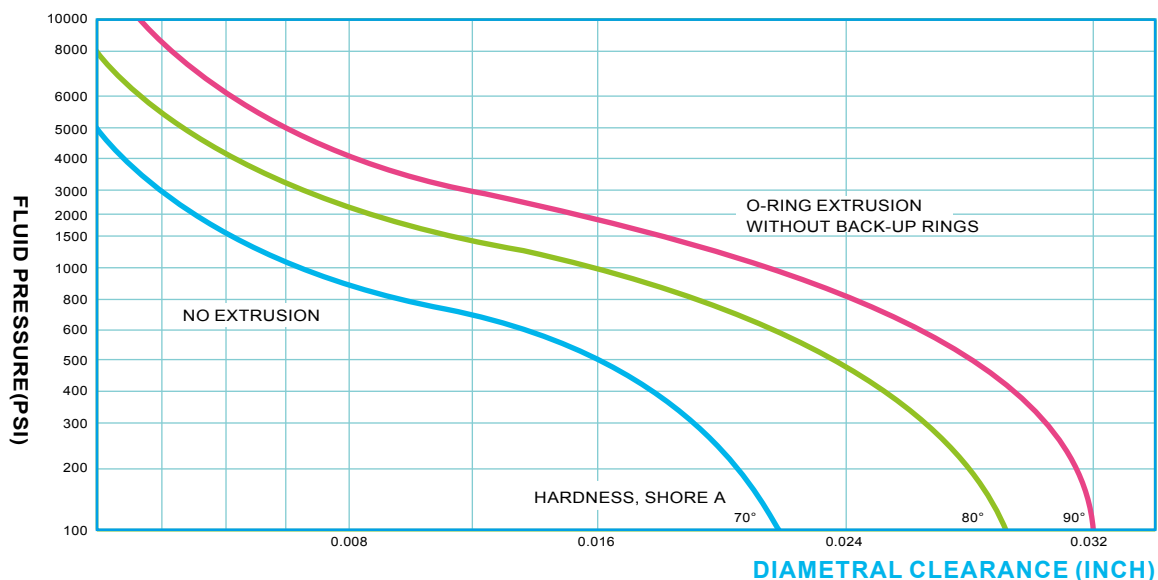


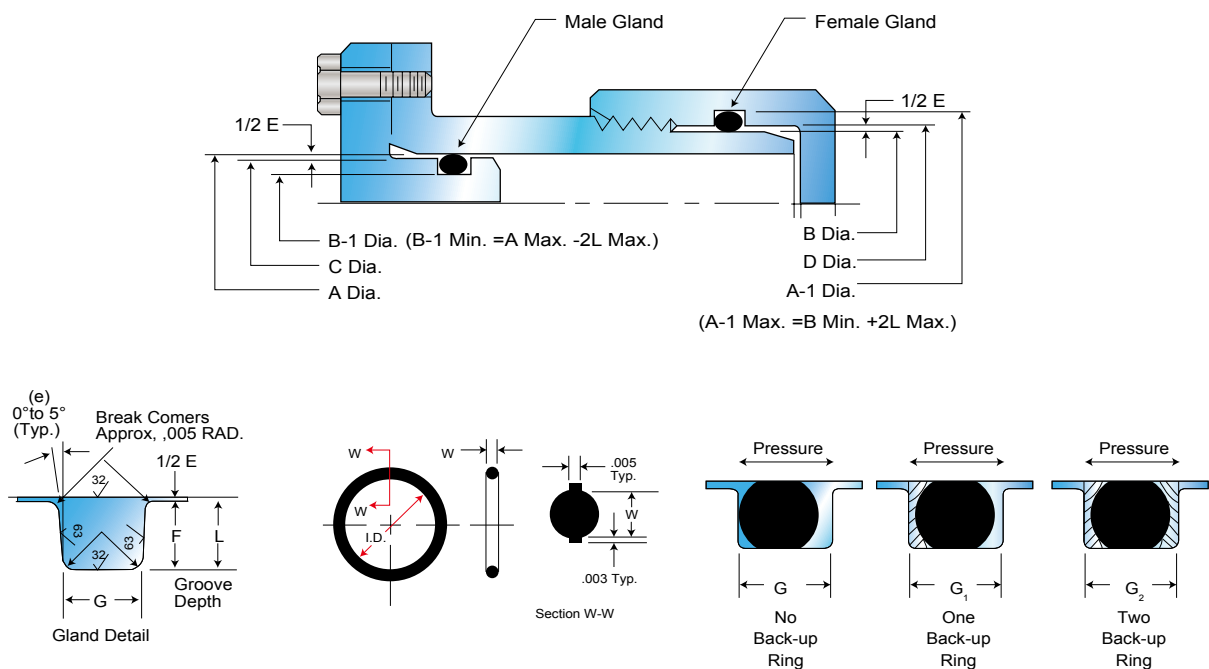
Table 1: Limit of the Diametral Clearance (Unit: Inch) Against Fluid Pressure

<div> PRESSURE (PSI) </div> <div> HARDNESS SHORE A </div>	UP TO 500	500-1000	1000-1500	1500-2000	2000-3000
70	0.016	0.010	0.006	0.004	0.002
90	0.028	0.024	0.020	0.016	0.010

EXTRUSION HAPPENS BEYOND THE LIMIT OF DIAMETRAL CLEARANCE AGAINST FLUID PRESSURE.

O-Ring Design Reference

Static O-ring Sealing- Industrial Static Seal Glands



Design- For Industrial O-Ring Static Seal Glands

O-Ring Size AS568A-	W Cross-Section		L Gland Depth	Spueeze		E(a) Diametral Clearance	G-Groove Width			R Groove Radius	Max Eccentricity(b)
	Nominal	Actual		Actual	%		No Back-up Ring(G)	One Back-up Ring(G1)	Two Back-up Ring(G2)		
006 through 012	1/16	.070 ±.003	.050 to .052	.015 to .023	22 to 32	.002 to .005	.093 to .098	.138 to .143	.205 to .210	.005 to .015	.002
014 through 116	3/32	.103 ±.003	.081 to .083	.017 to .025	17 to 24	.002 to .005	.140 to .145	.171 to .176	.238 to .243	.005 to .015	.002
201 through 222	1/8	.139 ±.004	.111 to .113	.022 to .032	16 to 23	.003 to .006	.187 to .192	.208 to .213	.275 to .280	.010 to .025	.003
309 through 349	3/16	.210 ±.005	.170 to .173	.032 to .045	15 to 21	.003 to .006	.281 to .286	.311 to .316	.410 to .415	.020 to .035	.004
425 through 460	1/4	.275 ±.006	.226 to .229	.040 to .055	15 to 20	.004 to .007	.375 to .380	.408 to .413	.538 to .543	.020 to .035	.005

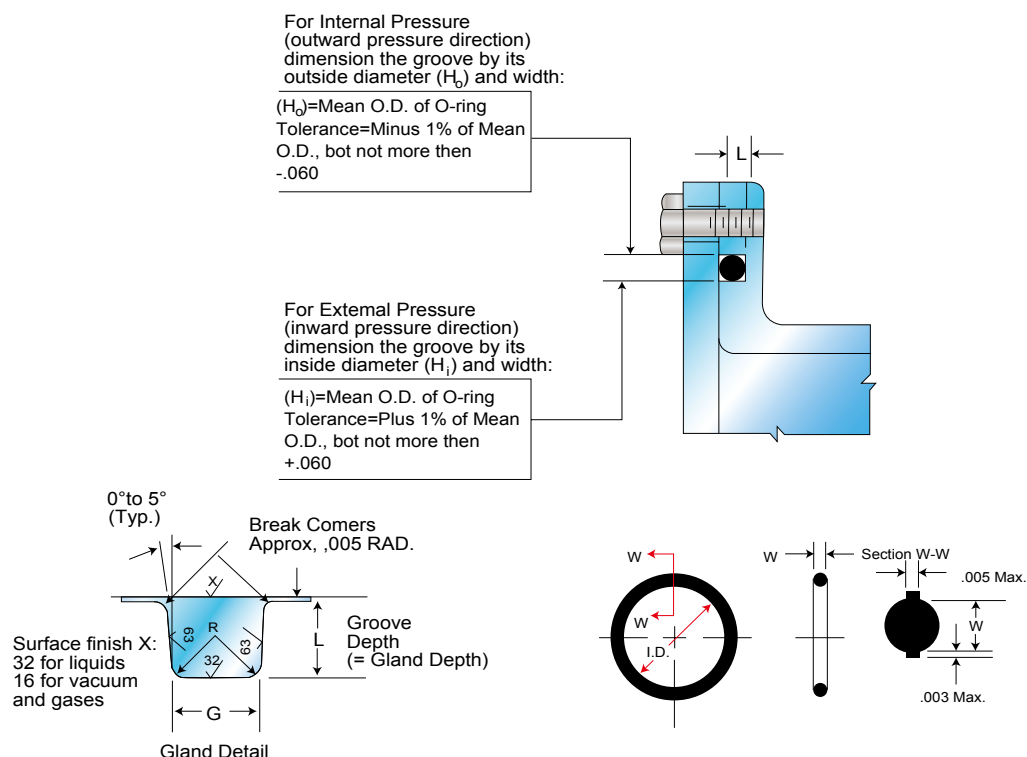
(a) Clearance (extrusion gap) must be held to a minimum consistent with design requirements for temperature range variation.

(b) Total indicator reading between groove and adjacent bearing surface.

(c) Reduce maximum diametral clearance 50% when using silicone or fluorosilicone O-rings.

(d) For ease of assembly, when Back-up Ring are used, gland depth may be increased up to 5%.

Static O-ring Sealing- Face Seal Glands



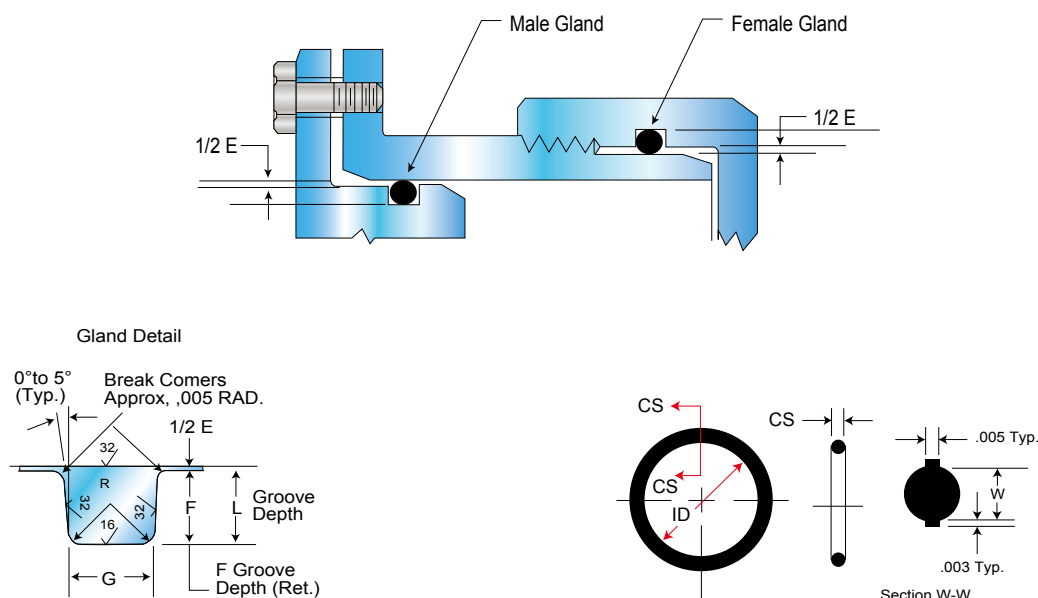
Design- For Industrial O-Ring Static Seal Glands

These dimensions are intended primarily for face type O-ring seals and low temperature applications

O-Ring Size AS568A-	W Cross-Section		L Gland Depth	Spueeze		G-Groove Width		R Groove Radius
	Nominal	Actual		Actual	%	Liquids	Vacuum and Gases	
004 through 050	1/16	.070	.050	.013	19	.101	.084	.005
		±.003	to .054	to .023	to 32	to .107	to .089	to .015
102 through 178	3/32	.103	.074	.020	20	.136	.120	.005
		±.003	to .080	to .032	to 30	to .142	to .125	to .015
201 through 284	1/8	.139	.101	.028	20	.177	.158	.010
		±.004	to .107	to .042	to 30	to .187	to .164	to .025
309 through 395	3/16	.210	.152	.043	21	.270	.239	.020
		±.005	to .162	to .063	to 30	to .290	to .244	to .035
425 through 475	1/4	.275	.201	.058	21	.342	.309	.020
		±.006	to .211	to .080	to 29	to .362	to .314	to .035
special	3/8	.275	.276	.082	22	.475	.419	.030
		±.006	to .286	to .108	to 28	to .485	to .424	to .045
special	1/2	.500	.370	.112	22	.638	.560	.030
		±.008	to .380	to .138	to 27	to 645	to 565	to .040

O-Ring Design Reference

Static O-ring Sealing- Industrial Static Seal Glands



Design- For Static Vacuum Seal Glands

O-Ring Size AS568A-	W Cross-Section		L Gland Depth	E Spueeze		Diametral Clearance	G Groove Width	R Groove Radius	Max* Eccen- tricity(b)
	Nominal	Actual		Actual	%				
004 through 050	1/16	.070 ±.003	.050 to .052	.015 to .023	22 to 32	.002 to .005	.093 to .098	.005 to .015	.002
102 through 178	3/32	.103 ±.003	.081 to .083	.017 to .025	17 to 24	.002 to .005	.140 to .145	.005 to .015	.002
201 through 284	1/8	.139 ±.004	.111 to .113	.022 to .032	16 to 23	.003 to .006	.187 to .192	.010 to .025	.003
309 through 395	3/16	.210 ±.005	.170 to .173	.032 to .045	15 to 21	.003 to .006	.281 to .286	.020 to .035	.004
425 through 475	1/4	.275 ±.006	.226 to .229	.040 to .055	15 to 20	.004 to .007	.375 to .380	.020 to .035	.005

*Total indicator reading between groove and adjacent bearing surface.

O-Ring Standard Size (AS 568A)

O-Ring Standard Size (AS 568A)

AS 568A SIZE	NOMINAL (REF.) MEASUREMENTS IN INCHES			STANDARD O-RING MEASUREMENTS IN INCHES				METRIC O-RING MEASUREMENTS IN MILLIMETERS			
	ID	OD	CS	ID	±	CS	±	ID	±	CS	±
A0001	1/32	3/32	1/32	0.029	0.004	0.040	0.003	0.74	0.10	1.02	0.08
A0002	3/64	9/64	3/64	0.042	0.004	0.050	0.003	1.07	0.10	1.27	0.08
A0003	1/16	3/16	1/16	0.056	0.004	0.060	0.003	1.42	0.10	1.52	0.08
A0004	5/64	13/64	1/16	0.070	0.005	0.070	0.003	1.78	0.13	1.78	0.08
A0005	3/32	7/32	1/16	0.101	0.005	0.070	0.003	2.57	0.13	1.78	0.08
A0006	1/8	1/4	1/16	0.114	0.005	0.070	0.003	2.90	0.13	1.78	0.08
A0007	5/32	9/32	1/16	0.145	0.005	0.070	0.003	3.68	0.13	1.78	0.08
A0008	3/16	5/16	1/16	0.176	0.005	0.070	0.003	4.47	0.13	1.78	0.08
A0009	7/32	11/32	1/16	0.208	0.005	0.070	0.003	5.28	0.13	1.78	0.08
A0010	1/4	3/8	1/16	0.239	0.005	0.070	0.003	6.07	0.13	1.78	0.08
A0011	5/16	7/16	1/16	0.301	0.005	0.070	0.003	7.65	0.13	1.78	0.08
A0012	3/8	1/2	1/16	0.364	0.005	0.070	0.003	9.25	0.13	1.78	0.08
A0013	7/16	9/16	1/16	0.426	0.005	0.070	0.003	10.82	0.13	1.78	0.08
A0014	1/2	5/8	1/16	0.489	0.005	0.070	0.003	12.42	0.13	1.78	0.08
A0015	9/16	11/16	1/16	0.551	0.007	0.070	0.003	14.00	0.18	1.78	0.08
A0016	5/8	3/4	1/16	0.614	0.009	0.070	0.003	15.60	0.23	1.78	0.08
A0017	11/16	13/16	1/16	0.676	0.009	0.070	0.003	17.17	0.23	1.78	0.08
A0018	3/4	7/8	1/16	0.739	0.009	0.070	0.003	18.77	0.23	1.78	0.08
A0019	13/16	15/16	1/16	0.801	0.009	0.070	0.003	20.35	0.23	1.78	0.08
A0020	7/8	1	1/16	0.864	0.009	0.070	0.003	21.95	0.23	1.78	0.08
A0021	15/16	1 1/16	1/16	0.926	0.009	0.070	0.003	23.52	0.23	1.78	0.08
A0022	1	1/8	1/16	0.989	0.010	0.070	0.003	25.12	0.25	1.78	0.08
A0023	1 1/16	1 3/16	1/16	1.051	0.010	0.070	0.003	26.70	0.25	1.78	0.08
A0024	1 1/8	1 1/4	1/16	1.114	0.010	0.070	0.003	28.30	0.25	1.78	0.08
A0025	1 3/16	1 5/16	1/16	1.176	0.011	0.070	0.003	29.87	0.28	1.78	0.08
A0026	1 1/4	1 3/8	1/16	1.239	0.011	0.070	0.003	31.47	0.28	1.78	0.08
A0027	1 5/16	1 7/16	1/16	1.301	0.011	0.070	0.003	33.05	0.28	1.78	0.08
A0028	1 3/8	1 1/2	1/16	1.364	0.013	0.070	0.003	34.65	0.33	1.78	0.08
A0029	1 1/2	1 5/8	1/16	1.489	0.013	0.070	0.003	37.82	0.33	1.78	0.08
A0030	1 5/8	1 3/4	1/16	1.614	0.013	0.070	0.003	41.00	0.33	1.78	0.08
A0031	1 3/4	1 7/8	1/16	1.739	0.015	0.070	0.003	44.17	0.38	1.78	0.08
A0032	1 7/8	2	1/16	1.864	0.015	0.070	0.003	47.35	0.38	1.78	0.08
A0033	2	2 1/8	1/16	1.989	0.018	0.070	0.003	50.52	0.46	1.78	0.08
A0034	2 1/8	2 1/4	1/16	2.114	0.018	0.070	0.003	53.70	0.46	1.78	0.08
A0035	2 1/4	2 3/8	1/16	2.239	0.018	0.070	0.003	56.87	0.46	1.78	0.08
A0036	2 3/8	2 1/2	1/16	2.364	0.018	0.070	0.003	60.05	0.46	1.78	0.08
A0037	2 1/2	2 5/8	1/16	2.489	0.018	0.070	0.003	63.22	0.46	1.78	0.08
A0038	2 5/8	2 3/4	1/16	2.614	0.020	0.070	0.003	66.40	0.51	1.78	0.08
A0039	2 3/4	2 7/8	1/16	2.739	0.020	0.070	0.003	69.57	0.51	1.78	0.08
A0040	2 7/8	3	1/16	2.864	0.020	0.070	0.003	72.75	0.51	1.78	0.08
A0041	3	3 1/8	1/16	2.989	0.024	0.070	0.003	75.92	0.61	1.78	0.08
A0042	3 1/4	3 3/8	1/16	3.239	0.024	0.070	0.003	82.27	0.61	1.78	0.08
A0043	3 1/2	3 5/8	1/16	3.489	0.024	0.070	0.003	88.62	0.61	1.78	0.08
A0044	3 3/4	3 7/8	1/16	3.739	0.027	0.070	0.003	94.97	0.69	1.78	0.08
A0045	4	4 1/8	1/16	3.989	0.027	0.070	0.003	101.32	0.69	1.78	0.08

O-Ring Standard
Size (AS 568A)

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AS 568A SIZE	NOMINAL (REF.) MEASUREMENTS IN INCHES			STANDARD O-RING MEASUREMENTS IN INCHES				METRIC O-RING MEASUREMENTS IN MILLIMETERS			
	ID	OD	CS	ID	±	CS	±	ID	±	CS	±
A0046	4 1/4	4 3/8	1/16	4.239	0.030	0.070	0.003	107.67	0.76	1.78	0.08
A0047	4 1/2	4 3/8	1/16	4.489	0.030	0.070	0.003	114.02	0.76	1.78	0.08
A0048	4 3/4	4 7/8	1/16	4.739	0.030	0.070	0.003	120.37	0.76	1.78	0.08
A0049	5	5 1/8	1/16	4.989	0.037	0.070	0.003	126.72	0.94	1.78	0.08
A0050	5 1/4	5 3/8	1/16	5.239	0.037	0.070	0.003	133.07	0.94	1.78	0.08
A0102	1/16	1/4	3/32	0.049	0.005	0.103	0.003	1.24	0.13	2.62	0.08
A0103	3/32	9/32	3/32	0.081	0.005	0.103	0.003	2.06	0.13	2.62	0.08
A0104	1/8	5/16	3/32	0.112	0.005	0.103	0.003	2.84	0.13	2.62	0.08
A0105	5/32	11/32	3/32	0.143	0.005	0.103	0.003	3.63	0.13	2.62	0.08
A0106	3/16	3/8	3/32	0.174	0.005	0.103	0.003	4.42	0.13	2.62	0.08
A0107	7/32	13/32	3/32	0.206	0.005	0.103	0.003	5.23	0.13	2.62	0.08
A0108	1/4	7/16	3/32	0.237	0.005	0.103	0.003	6.02	0.13	2.62	0.08
A0109	5/16	1/2	3/32	0.299	0.005	0.103	0.003	7.59	0.13	2.62	0.08
A0110	3/8	9/16	3/32	0.362	0.005	0.103	0.003	9.19	0.13	2.62	0.08
A0111	7/16	5/8	3/32	0.424	0.005	0.103	0.003	10.77	0.13	2.62	0.08
A0112	1/2	11/16	3/32	0.487	0.005	0.103	0.003	12.37	0.13	2.62	0.08
A0113	9/16	3/4	3/32	0.549	0.007	0.103	0.003	13.94	0.18	2.62	0.08
A0114	5/8	13/16	3/32	0.612	0.009	0.103	0.003	15.54	0.23	2.62	0.08
A0115	11/16	7/8	3/32	0.674	0.009	0.103	0.003	17.12	0.23	2.62	0.08
A0116	3/4	15/16	3/32	0.737	0.009	0.103	0.003	18.72	0.23	2.62	0.08
A0117	13/16	1	3/32	0.799	0.010	0.103	0.003	20.29	0.25	2.62	0.08
A0118	7/8	1 1/16	3/32	0.862	0.010	0.103	0.003	21.89	0.25	2.62	0.08
A0119	15/16	1 1/8	3/32	0.924	0.010	0.103	0.003	23.47	0.25	2.62	0.08
A0120	1	1 3/16	3/32	0.987	0.010	0.103	0.003	25.07	0.25	2.62	0.08
A0121	1 1/16	1 1/4	3/32	1.049	0.010	0.103	0.003	26.64	0.25	2.62	0.08
A0122	1 1/8	1 5/16	3/32	1.112	0.010	0.103	0.003	28.24	0.25	2.62	0.08
A0123	1 3/16	1 3/8	3/32	1.174	0.012	0.103	0.003	29.82	0.30	2.62	0.08
A0124	1 1/4	1 7/16	3/32	1.237	0.012	0.103	0.003	31.42	0.30	2.62	0.08
A0125	1 5/16	1 1/2	3/32	1.299	0.012	0.103	0.003	32.99	0.30	2.62	0.08
A0126	1 3/8	1 9/16	3/32	1.362	0.012	0.103	0.003	34.59	0.30	2.62	0.08
A0127	1 7/16	1 5/8	3/32	1.424	0.012	0.103	0.003	36.17	0.30	2.62	0.08
A0128	1 1/2	1 11/16	3/32	1.487	0.012	0.103	0.003	37.77	0.30	2.62	0.08
A0129	1 9/16	1 3/4	3/32	1.549	0.015	0.103	0.003	39.34	0.38	2.62	0.08
A0130	1 5/8	1 13/16	3/32	1.612	0.015	0.103	0.003	40.94	0.38	2.62	0.08
A0131	1 11/16	1 7/8	3/32	1.674	0.015	0.103	0.003	42.52	0.38	2.62	0.08
A0132	1 3/4	1 15/16	3/32	1.737	0.015	0.103	0.003	44.12	0.38	2.62	0.08
A0133	1 13/16	2	3/32	1.799	0.015	0.103	0.003	45.69	0.38	2.62	0.08
A0134	1 7/8	2 1/16	3/32	1.862	0.015	0.103	0.003	47.29	0.38	2.62	0.08
A0135	1 15/16	2 1/8	3/32	1.925	0.017	0.103	0.003	48.90	0.43	2.62	0.08
A0136	2	2 3/16	3/32	1.987	0.017	0.103	0.003	50.47	0.43	2.62	0.08
A0137	2 1/16	2 1/4	3/32	2.050	0.017	0.103	0.003	52.07	0.43	2.62	0.08
A0138	2 1/8	2 5/16	3/32	2.112	0.017	0.103	0.003	53.64	0.43	2.62	0.08
A0139	2 3/16	2 3/8	3/32	2.175	0.017	0.103	0.003	55.25	0.43	2.62	0.08
A0140	2 1/4	2 7/16	3/32	2.237	0.017	0.103	0.003	56.82	0.43	2.62	0.08
A0141	2 5/16	2 1/2	3/32	2.300	0.020	0.103	0.003	58.42	0.51	2.62	0.08

O-Ring Standard Size (AS 568A)

AS 568A SIZE	NOMINAL (REF.) MEASUREMENTS IN INCHES			STANDARD O-RING MEASUREMENTS IN INCHES				METRIC O-RING MEASUREMENTS IN MILLIMETERS			
	ID	OD	CS	ID	±	CS	±	ID	±	CS	±
A0142	2 3/8	2 9/16	3/32	2.362	0.020	0.103	0.003	59.99	0.51	2.62	0.08
A0143	2 7/16	2 5/8	3/32	2.425	0.020	0.103	0.003	61.60	0.51	2.62	0.08
A0144	2 1/2	2 11/16	3/32	2.487	0.020	0.103	0.003	63.17	0.51	2.62	0.08
A0145	2 9/16	2 3/4	3/32	2.550	0.020	0.103	0.003	64.77	0.51	2.62	0.08
A0146	2 5/8	2 13/16	3/32	2.612	0.020	0.103	0.003	66.34	0.51	2.62	0.08
A0147	2 11/16	2 7/8	3/32	2.675	0.022	0.103	0.003	67.95	0.56	2.62	0.08
A0148	2 3/4	2 15/16	3/32	2.737	0.022	0.103	0.003	69.52	0.56	2.62	0.08
A0149	2 13/16	3	3/32	2.800	0.022	0.103	0.003	71.12	0.56	2.62	0.08
A0150	2 7/8	3 1/16	3/32	2.862	0.022	0.103	0.003	72.69	0.56	2.62	0.08
A0151	3	3 3/16	3/32	2.987	0.024	0.103	0.003	75.87	0.61	2.62	0.08
A0152	3 1/4	3 7/16	3/32	3.237	0.024	0.103	0.003	82.22	0.61	2.62	0.08
A0153	3 1/2	3 11/16	3/32	3.487	0.024	0.103	0.003	88.57	0.61	2.62	0.08
A0154	3 3/4	3 15/16	3/32	3.737	0.028	0.103	0.003	94.92	0.71	2.62	0.08
A0155	4	4 3/16	3/32	3.987	0.028	0.103	0.003	101.27	0.71	2.62	0.08
A0156	4 1/4	4 7/16	3/32	4.237	0.030	0.103	0.003	107.62	0.76	2.62	0.08
A0157	4 1/2	4 11/16	3/32	4.487	0.030	0.103	0.003	113.97	0.76	2.62	0.08
A0158	4 3/4	4 15/16	3/32	4.737	0.030	0.103	0.003	120.32	0.76	2.62	0.08
A0159	5	5 3/16	3/32	4.987	0.035	0.103	0.003	126.67	0.89	2.62	0.08
A0160	5 1/4	5 7/16	3/32	5.237	0.035	0.103	0.003	133.02	0.89	2.62	0.08
A0161	5 1/2	5 11/16	3/32	5.487	0.035	0.103	0.003	139.37	0.89	2.62	0.08
A0162	5 3/4	5 15/16	3/32	5.737	0.035	0.103	0.003	145.72	0.89	2.62	0.08
A0163	6	6 3/16	3/32	5.987	0.035	0.103	0.003	152.07	0.89	2.62	0.08
A0164	6 1/4	6 7/16	3/32	6.237	0.040	0.103	0.003	158.42	1.02	2.62	0.08
A0165	6 1/2	6 11/16	3/32	6.487	0.040	0.103	0.003	164.77	1.02	2.62	0.08
A0166	6 3/4	6 15/16	3/32	6.737	0.040	0.103	0.003	171.12	1.02	2.62	0.08
A0167	7	7 3/16	3/32	6.987	0.040	0.103	0.003	177.47	1.02	2.62	0.08
A0168	7 1/4	7 7/16	3/32	7.237	0.045	0.103	0.003	183.82	1.14	2.62	0.08
A0169	7 1/2	7 11/16	3/32	7.487	0.045	0.103	0.003	190.17	1.14	2.62	0.08
A0170	7 3/4	7 15/16	3/32	7.737	0.045	0.103	0.003	196.52	1.14	2.62	0.08
A0171	8	8 3/16	3/32	7.987	0.045	0.103	0.003	202.87	1.14	2.62	0.08
A0172	8 1/4	8 7/16	3/32	8.237	0.050	0.103	0.003	209.22	1.27	2.62	0.08
A0173	8 1/2	8 11/16	3/32	8.487	0.050	0.103	0.003	215.57	1.27	2.62	0.08
A0174	8 3/4	8 15/16	3/32	8.737	0.050	0.103	0.003	221.92	1.27	2.62	0.08
A0175	9	9 3/16	3/32	8.987	0.050	0.103	0.003	228.27	1.27	2.62	0.08
A0176	9 1/4	9 7/16	3/32	9.237	0.055	0.103	0.003	234.62	1.40	2.62	0.08
A0177	9 1/2	9 11/16	3/32	9.487	0.055	0.103	0.003	240.97	1.40	2.62	0.08
A0178	9 3/4	9 15/16	3/32	9.737	0.055	0.103	0.003	247.32	1.40	2.62	0.08
A0201	3/16	7/16	1/8	0.171	0.005	0.139	0.004	4.34	0.13	3.53	0.10
A0202	1/4	1/2	1/8	0.234	0.005	0.139	0.004	5.94	0.13	3.53	0.10
A0203	5/16	9/16	1/8	0.296	0.005	0.139	0.004	7.52	0.13	3.53	0.10
A0204	3/8	5/8	1/8	0.359	0.005	0.139	0.004	9.12	0.13	3.53	0.10
A0205	7/16	11/16	1/8	0.421	0.005	0.139	0.004	10.69	0.13	3.53	0.10
A0206	1/2	3/4	1/8	0.484	0.005	0.139	0.004	12.29	0.13	3.53	0.10
A0207	9/16	13/16	1/8	0.546	0.007	0.139	0.004	13.87	0.18	3.53	0.10
A0208	5/8	7/8	1/8	0.609	0.009	0.139	0.004	15.47	0.23	3.53	0.10

O-Ring Standard Size (AS 568A)

O-Ring Standard Size (AS 568A)

AS 568A SIZE	NOMINAL (REF.) MEASUREMENTS IN INCHES			STANDARD O-RING MEASUREMENTS IN INCHES				METRIC O-RING MEASUREMENTS IN MILLIMETERS			
	ID	OD	CS	ID	±	CS	±	ID	±	CS	±
A0209	11/16	15/16	1/8	0.671	0.009	0.139	0.004	17.04	0.23	3.53	0.10
A0210	3/4	1	1/8	0.734	0.010	0.139	0.004	18.64	0.25	3.53	0.10
A0211	13/16	1 1/16	1/8	0.796	0.010	0.139	0.004	20.22	0.25	3.53	0.10
A0212	7/8	1 1/8	1/8	0.859	0.010	0.139	0.004	21.82	0.25	3.53	0.10
A0213	15/16	1 3/16	1/8	0.921	0.010	0.139	0.004	23.39	0.25	3.53	0.10
A0214	1	1 1/4	1/8	0.984	0.010	0.139	0.004	24.99	0.25	3.53	0.10
A0215	1 1/16	1 5/16	1/8	1.046	0.010	0.139	0.004	26.57	0.25	3.53	0.10
A0216	1 1/8	1 3/8	1/8	1.109	0.012	0.139	0.004	28.17	0.30	3.53	0.10
A0217	1 3/16	1 7/16	1/8	1.171	0.012	0.139	0.004	29.74	0.30	3.53	0.10
A0218	1 1/4	1 1/2	1/8	1.234	0.012	0.139	0.004	31.34	0.30	3.53	0.10
A0219	1 5/16	1 9/16	1/8	1.296	0.012	0.139	0.004	32.92	0.30	3.53	0.10
A0220	1 3/8	1 5/8	1/8	1.359	0.012	0.139	0.004	34.52	0.30	3.53	0.10
A0221	1 7/16	1 11/16	1/8	1.421	0.012	0.139	0.004	36.09	0.30	3.53	0.10
A0222	1 1/2	1 3/4	1/8	1.484	0.015	0.139	0.004	37.69	0.38	3.53	0.10
A0223	1 5/8	1 7/8	1/8	1.609	0.015	0.139	0.004	40.87	0.38	3.53	0.10
A0224	1 3/4	2	1/8	1.734	0.015	0.139	0.004	44.04	0.38	3.53	0.10
A0225	1 7/8	2 1/8	1/8	1.859	0.018	0.139	0.004	47.22	0.46	3.53	0.10
A0226	2	2 1/4	1/8	1.984	0.018	0.139	0.004	50.39	0.46	3.53	0.10
A0227	2 1/16	2 3/8	1/8	2.109	0.018	0.139	0.004	53.57	0.46	3.53	0.10
A0228	2 1/4	2 1/2	1/8	2.234	0.020	0.139	0.004	56.74	0.51	3.53	0.10
A0229	2 3/8	2 5/8	1/8	2.359	0.020	0.139	0.004	59.92	0.51	3.53	0.10
A0230	2 1/2	2 3/4	1/8	2.484	0.020	0.139	0.004	63.09	0.51	3.53	0.10
A0231	2 5/8	2 7/8	1/8	2.609	0.020	0.139	0.004	66.27	0.51	3.53	0.10
A0232	2 3/4	3	1/8	2.734	0.024	0.139	0.004	69.44	0.61	3.53	0.10
A0233	2 7/8	3 1/8	1/8	2.859	0.024	0.139	0.004	72.62	0.61	3.53	0.10
A0234	3	3 1/4	1/8	2.984	0.024	0.139	0.004	75.79	0.61	3.53	0.10
A0235	3 1/8	3 3/8	1/8	3.109	0.024	0.139	0.004	78.97	0.61	3.53	0.10
A0236	3 1/4	3 1/2	1/8	3.234	0.024	0.139	0.004	82.14	0.61	3.53	0.10
A0237	3 3/8	3 5/8	1/8	3.359	0.024	0.139	0.004	85.32	0.61	3.53	0.10
A0238	3 1/2	3 3/4	1/8	3.484	0.024	0.139	0.004	88.49	0.61	3.53	0.10
A0239	3 5/8	3 7/8	1/8	3.609	0.028	0.139	0.004	91.67	0.71	3.53	0.10
A0240	3 3/4	4	1/8	3.734	0.028	0.139	0.004	94.84	0.71	3.53	0.10
A0241	3 7/8	4 1/8	1/8	3.859	0.028	0.139	0.004	98.02	0.71	3.53	0.10
A0242	4	4 1/4	1/8	3.984	0.028	0.139	0.004	101.19	0.71	3.53	0.10
A0243	4 1/8	4 3/8	1/8	4.109	0.028	0.139	0.004	104.37	0.71	3.53	0.10
A0244	4 1/4	4 1/2	1/8	4.234	0.030	0.139	0.004	107.54	0.76	3.53	0.10
A0245	4 3/8	4 5/8	1/8	4.359	0.030	0.139	0.004	110.72	0.76	3.53	0.10
A0246	4 1/2	4 3/4	1/8	4.484	0.030	0.139	0.004	113.89	0.76	3.53	0.10
A0247	4 5/8	4 7/8	1/8	4.609	0.030	0.139	0.004	117.07	0.76	3.53	0.10
A0248	4 3/4	5	1/8	4.734	0.030	0.139	0.004	120.24	0.76	3.53	0.10
A0249	4 7/8	5 1/8	1/8	4.859	0.035	0.139	0.004	123.42	0.89	3.53	0.10
A0250	5	5 1/4	1/8	4.984	0.035	0.139	0.004	126.59	0.89	3.53	0.10
A0251	5 1/8	5 3/8	1/8	5.109	0.035	0.139	0.004	129.77	0.89	3.53	0.10
A0252	5 1/4	5 1/2	1/8	5.234	0.035	0.139	0.004	132.94	0.89	3.53	0.10
A0253	5 3/8	5 5/8	1/8	5.359	0.035	0.139	0.004	136.12	0.89	3.53	0.10

O-Ring Standard Size (AS 568A)

AS 568A SIZE	NOMINAL (REF.) MEASUREMENTS IN INCHES			STANDARD O-RING MEASUREMENTS IN INCHES				METRIC O-RING MEASUREMENTS IN MILLIMETERS			
	ID	OD	CS	ID	±	CS	±	ID	±	CS	±
A0254	5 1/2	5 3/4	1/8	5.484	0.035	0.139	0.004	139.29	0.89	3.53	0.10
A0255	5 5/8	5 7/8	1/8	5.609	0.035	0.139	0.004	142.47	0.89	3.53	0.10
A0256	5 3/4	6	1/8	5.734	0.035	0.139	0.004	145.64	0.89	3.53	0.10
A0257	5 7/8	6 1/8	1/8	5.859	0.035	0.139	0.004	148.82	0.89	3.53	0.10
A0258	6	6 1/4	1/8	5.984	0.035	0.139	0.004	151.99	0.89	3.53	0.10
A0259	6 1/4	6 1/2	1/8	6.234	0.040	0.139	0.004	158.34	1.02	3.53	0.10
A0260	6 1/2	6 3/4	1/8	6.484	0.040	0.139	0.004	164.69	1.02	3.53	0.10
A0261	6 3/4	7	1/8	6.734	0.040	0.139	0.004	171.04	1.02	3.53	0.10
A0262	7	7 1/4	1/8	6.984	0.040	0.139	0.004	177.39	1.02	3.53	0.10
A0263	7 1/4	7 1/2	1/8	7.234	0.045	0.139	0.004	183.74	1.14	3.53	0.10
A0264	7 1/2	7 3/4	1/8	7.484	0.045	0.139	0.004	190.09	1.14	3.53	0.10
A0265	7 3/4	8	1/8	7.734	0.045	0.139	0.004	196.44	1.14	3.53	0.10
A0266	8	8 1/4	1/8	7.984	0.045	0.139	0.004	202.79	1.14	3.53	0.10
A0267	8 1/4	8 1/2	1/8	8.234	0.050	0.139	0.004	209.14	1.27	3.53	0.10
A0268	8 1/2	8 3/4	1/8	8.484	0.050	0.139	0.004	215.49	1.27	3.53	0.10
A0269	8 3/4	9	1/8	8.734	0.050	0.139	0.004	221.84	1.27	3.53	0.10
A0270	9	9 1/4	1/8	8.984	0.050	0.139	0.004	228.19	1.27	3.53	0.10
A0271	9 1/4	9 1/2	1/8	9.234	0.055	0.139	0.004	234.54	1.40	3.53	0.10
A0272	9 1/2	9 3/4	1/8	9.484	0.055	0.139	0.004	240.89	1.40	3.53	0.10
A0273	9 3/4	10	1/8	9.734	0.055	0.139	0.004	247.24	1.40	3.53	0.10
A0274	10	10 1/4	1/8	9.984	0.055	0.139	0.004	253.59	1.40	3.53	0.10
A0275	10 1/2	10 3/4	1/8	10.484	0.055	0.139	0.004	266.29	1.40	3.53	0.10
A0276	11	11 1/4	1/8	10.984	0.065	0.139	0.004	278.99	1.65	3.53	0.10
A0277	11 1/2	11 3/4	1/8	11.484	0.065	0.139	0.004	291.69	1.65	3.53	0.10
A0278	12	12 1/4	1/8	11.984	0.065	0.139	0.004	304.39	1.65	3.53	0.10
A0279	13	13 1/4	1/8	12.984	0.065	0.139	0.004	329.79	1.65	3.53	0.10
A0280	14	14 1/4	1/8	13.984	0.065	0.139	0.004	355.19	1.65	3.53	0.10
A0281	15	15 1/4	1/8	14.984	0.065	0.139	0.004	380.59	1.65	3.53	0.10
A0282	16	16 1/4	1/8	15.955	0.075	0.139	0.004	405.26	1.91	3.53	0.10
A0283	17	17 1/4	1/8	16.955	0.080	0.139	0.004	430.66	2.03	3.53	0.10
A0284	18	18 1/4	1/8	17.955	0.085	0.139	0.004	456.06	2.16	3.53	0.10
A0309	7/16	13/16	3/16	0.412	0.005	0.210	0.005	10.46	0.13	5.33	0.13
A0310	1/2	7/8	3/16	0.475	0.005	0.210	0.005	12.07	0.13	5.33	0.13
A0311	9/16	15/16	3/16	0.537	0.007	0.210	0.005	13.64	0.18	5.33	0.13
A0312	5/8	1	3/16	0.600	0.009	0.210	0.005	15.24	0.23	5.33	0.13
A0313	11/16	1 1/16	3/16	0.662	0.009	0.210	0.005	16.81	0.23	5.33	0.13
A0314	3/4	1 1/8	3/16	0.725	0.010	0.210	0.005	18.42	0.25	5.33	0.13
A0315	13/16	1 3/16	3/16	0.787	0.010	0.210	0.005	19.99	0.25	5.33	0.13
A0316	7/8	1 1/4	3/16	0.850	0.010	0.210	0.005	21.59	0.25	5.33	0.13
A0317	15/16	1 5/16	3/16	0.912	0.010	0.210	0.005	23.16	0.25	5.33	0.13
A0318	1	1 3/8	3/16	0.975	0.010	0.210	0.005	24.77	0.25	5.33	0.13
A0319	1 1/16	1 7/16	3/16	1.037	0.010	0.210	0.005	26.34	0.25	5.33	0.13
A0320	1 1/8	1 1/2	3/16	1.100	0.012	0.210	0.005	27.94	0.30	5.33	0.13
A0321	1 3/16	1 9/16	3/16	1.162	0.012	0.210	0.005	29.51	0.30	5.33	0.13
A0322	1 1/4	1 5/8	3/16	1.225	0.012	0.210	0.005	31.12	0.30	5.33	0.13

O-Ring Standard Size (AS 568A)

O-Ring Standard Size (AS 568A)

AS 568A SIZE	NOMINAL (REF.) MEASUREMENTS IN INCHES			STANDARD O-RING MEASUREMENTS IN INCHES				METRIC O-RING MEASUREMENTS IN MILLIMETERS			
	ID	OD	CS	ID	±	CS	±	ID	±	CS	±
A0323	1 5/16	1 11/16	3/16	1.287	0.012	0.210	0.005	32.69	0.30	5.33	0.13
A0324	1 3/8	1 3/4	3/16	1.350	0.012	0.210	0.005	34.29	0.30	5.33	0.13
A0325	1 1/2	1 7/8	3/16	1.475	0.015	0.210	0.005	37.47	0.38	5.33	0.13
A0326	1 5/8	2	3/16	1.600	0.015	0.210	0.005	40.64	0.38	5.33	0.13
A0327	1 3/4	2 1/8	3/16	1.725	0.015	0.210	0.005	43.82	0.38	5.33	0.13
A0328	1 7/8	2 1/4	3/16	1.850	0.015	0.210	0.005	46.99	0.38	5.33	0.13
A0329	2	2 3/8	3/16	1.975	0.018	0.210	0.005	50.17	0.46	5.33	0.13
A0330	2 1/8	2 1/2	3/16	2.100	0.018	0.210	0.005	53.34	0.46	5.33	0.13
A0331	2 1/4	2 5/8	3/16	2.225	0.018	0.210	0.005	56.52	0.46	5.33	0.13
A0332	2 3/8	2 3/4	3/16	2.350	0.018	0.210	0.005	59.69	0.46	5.33	0.13
A0333	2 1/2	2 7/8	3/16	2.475	0.020	0.210	0.005	62.87	0.51	5.33	0.13
A0334	2 5/8	3	3/16	2.600	0.020	0.210	0.005	66.04	0.51	5.33	0.13
A0335	2 3/4	3 1/8	3/16	2.725	0.020	0.210	0.005	69.22	0.51	5.33	0.13
A0336	2 7/8	3 1/4	3/16	2.850	0.020	0.210	0.005	72.39	0.51	5.33	0.13
A0337	3	3 3/8	3/16	2.975	0.024	0.210	0.005	75.57	0.61	5.33	0.13
A0338	3 1/8	3 1/2	3/16	3.100	0.024	0.210	0.005	78.74	0.61	5.33	0.13
A0339	3 1/4	3 5/8	3/16	3.225	0.024	0.210	0.005	81.92	0.61	5.33	0.13
A0340	3 3/8	3 3/4	3/16	3.350	0.024	0.210	0.005	85.09	0.61	5.33	0.13
A0341	3 1/2	3 7/8	3/16	3.475	0.024	0.210	0.005	88.27	0.61	5.33	0.13
A0342	3 5/8	4	3/16	3.600	0.028	0.210	0.005	91.44	0.71	5.33	0.13
A0343	3 3/4	4 1/8	3/16	3.725	0.028	0.210	0.005	94.62	0.71	5.33	0.13
A0344	3 7/8	4 1/4	3/16	3.850	0.028	0.210	0.005	97.79	0.71	5.33	0.13
A0345	4	4 3/8	3/16	3.975	0.028	0.210	0.005	100.97	0.71	5.33	0.13
A0346	4 1/8	4 1/2	3/16	4.100	0.028	0.210	0.005	104.14	0.71	5.33	0.13
A0347	4 1/4	4 5/8	3/16	4.225	0.030	0.210	0.005	107.32	0.76	5.33	0.13
A0348	4 3/8	4 3/4	3/16	4.350	0.030	0.210	0.005	110.49	0.76	5.33	0.13
A0349	4 1/2	4 7/8	3/16	4.475	0.030	0.210	0.005	113.67	0.76	5.33	0.13
A0350	4 5/8	5	3/16	4.600	0.030	0.210	0.005	116.84	0.76	5.33	0.13
A0351	4 3/4	5 1/8	3/16	4.725	0.030	0.210	0.005	120.02	0.76	5.33	0.13
A0352	4 7/8	5 1/4	3/16	4.850	0.030	0.210	0.005	123.19	0.76	5.33	0.13
A0353	5	5 3/8	3/16	4.975	0.037	0.210	0.005	126.37	0.94	5.33	0.13
A0354	5 1/8	5 1/2	3/16	5.100	0.037	0.210	0.005	129.54	0.94	5.33	0.13
A0355	5 1/4	5 5/8	3/16	5.225	0.037	0.210	0.005	132.72	0.94	5.33	0.13
A0356	5 3/8	5 3/4	3/16	5.350	0.037	0.210	0.005	135.89	0.94	5.33	0.13
A0357	5 1/2	5 7/8	3/16	5.475	0.037	0.210	0.005	139.07	0.94	5.33	0.13
A0358	5 5/8	6	3/16	5.600	0.037	0.210	0.005	142.24	0.94	5.33	0.13
A0359	5 3/4	6 1/8	3/16	5.725	0.037	0.210	0.005	145.42	0.94	5.33	0.13
A0360	5 7/8	6 1/4	3/16	5.850	0.037	0.210	0.005	148.59	0.94	5.33	0.13
A0361	6	6 3/8	3/16	5.975	0.037	0.210	0.005	151.77	0.94	5.33	0.13
A0362	6 1/4	6 5/8	3/16	6.225	0.040	0.210	0.005	158.12	1.02	5.33	0.13
A0363	6 1/2	6 7/8	3/16	6.475	0.040	0.210	0.005	164.47	1.02	5.33	0.13
A0364	6 3/4	7 1/8	3/16	6.725	0.040	0.210	0.005	170.82	1.02	5.33	0.13
A0365	7	7 3/8	3/16	6.975	0.040	0.210	0.005	177.17	1.02	5.33	0.13
A0366	7 1/4	7 5/8	3/16	7.225	0.045	0.210	0.005	183.52	1.14	5.33	0.13
A0367	7 1/2	7 7/8	3/16	7.475	0.045	0.210	0.005	189.87	1.14	5.33	0.13

O-Ring Standard Size (AS 568A)

AS 568A SIZE	NOMINAL (REF.) MEASUREMENTS IN INCHES			STANDARD O-RING MEASUREMENTS IN INCHES				METRIC O-RING MEASUREMENTS IN MILLIMETERS			
	ID	OD	CS	ID	±	CS	±	ID	±	CS	±
A0368	7 3/4	8 1/8	3/16	7.725	0.045	0.210	0.005	196.22	1.14	5.33	0.13
A0369	8	8 3/8	3/16	7.975	0.045	0.210	0.005	202.57	1.14	5.33	0.13
A0370	8 1/4	8 5/8	3/16	8.225	0.050	0.210	0.005	208.92	1.27	5.33	0.13
A0371	8 1/2	8 7/8	3/16	8.475	0.050	0.210	0.005	215.27	1.27	5.33	0.13
A0372	8 3/4	9 1/8	3/16	8.725	0.050	0.210	0.005	221.62	1.27	5.33	0.13
A0373	9	9 3/8	3/16	8.975	0.050	0.210	0.005	227.97	1.27	5.33	0.13
A0374	9 1/4	9 5/8	3/16	9.225	0.055	0.210	0.005	234.32	1.40	5.33	0.13
A0375	9 1/2	9 7/8	3/16	9.475	0.055	0.210	0.005	240.67	1.40	5.33	0.13
A0376	9 3/4	10 1/8	3/16	9.725	0.055	0.210	0.005	247.02	1.40	5.33	0.13
A0377	10	10 3/8	3/16	9.975	0.055	0.210	0.005	253.37	1.40	5.33	0.13
A0378	10 1/2	10 7/8	3/16	10.475	0.060	0.210	0.005	266.07	1.52	5.33	0.13
A0379	11	11 3/8	3/16	10.975	0.060	0.210	0.005	278.77	1.52	5.33	0.13
A0380	11 1/2	11 7/8	3/16	11.475	0.065	0.210	0.005	291.47	1.65	5.33	0.13
A0381	12	12 3/8	3/16	11.975	0.065	0.210	0.005	304.17	1.65	5.33	0.13
A0382	13	13 3/8	3/16	12.975	0.065	0.210	0.005	329.57	1.65	5.33	0.13
A0383	14	14 3/8	3/16	13.975	0.070	0.210	0.005	354.97	1.78	5.33	0.13
A0384	15	15 3/8	3/16	14.975	0.070	0.210	0.005	380.37	1.78	5.33	0.13
A0385	16	16 3/8	3/16	15.955	0.075	0.210	0.005	405.26	1.91	5.33	0.13
A0386	17	17 3/8	3/16	16.955	0.080	0.210	0.005	430.66	2.03	5.33	0.13
A0387	18	18 3/8	3/16	17.955	0.085	0.210	0.005	456.06	2.16	5.33	0.13
A0388	19	19 3/8	3/16	18.955	0.090	0.210	0.005	481.46	2.29	5.33	0.13
A0389	20	20 3/8	3/16	19.955	0.095	0.210	0.005	506.86	2.41	5.33	0.13
A0390	21	21 3/8	3/16	20.955	0.095	0.210	0.005	532.26	2.41	5.33	0.13
A0391	22	22 3/8	3/16	21.955	0.100	0.210	0.005	557.66	2.54	5.33	0.13
A0392	23	23 3/8	3/16	22.940	0.105	0.210	0.005	582.68	2.67	5.33	0.13
A0393	24	24 3/8	3/16	23.940	0.110	0.210	0.005	608.08	2.79	5.33	0.13
A0394	25	25 3/8	3/16	24.940	0.115	0.210	0.005	633.48	2.92	5.33	0.13
A0395	26	26 3/8	3/16	25.940	0.120	0.210	0.005	658.88	3.05	5.33	0.13
A0400	1 3/8	1 7/8	1/4	1.350	0.013	0.275	0.006	34.29	0.33	6.99	0.15
A0401	1 1/2	2	1/4	1.475	0.014	0.275	0.006	37.47	0.36	6.99	0.15
A0402	1 5/8	2 1/8	1/4	1.600	0.015	0.275	0.006	40.64	0.39	6.99	0.15
A0403	1 3/4	2 1/4	1/4	1.725	0.016	0.275	0.006	43.82	0.41	6.99	0.15
A0404	1 7/8	2 3/8	1/4	1.850	0.017	0.275	0.006	46.99	0.44	6.99	0.15
A0405	2	2 1/2	1/4	1.975	0.018	0.275	0.006	50.17	0.46	6.99	0.15
A0406	2 1/8	2 5/8	1/4	2.100	0.019	0.275	0.006	53.34	0.48	6.99	0.15
A0407	2 1/4	2 3/4	1/4	2.225	0.020	0.275	0.006	56.52	0.51	6.99	0.15
A0408	2 3/8	2 7/8	1/4	2.350	0.021	0.275	0.006	59.69	0.54	6.99	0.15
A0409	2 1/2	3	1/4	2.475	0.022	0.275	0.006	62.87	0.56	6.99	0.15
A0410	2 5/8	3 1/8	1/4	2.600	0.023	0.275	0.006	66.04	0.59	6.99	0.15
A0411	2 3/4	3 1/4	1/4	2.725	0.024	0.275	0.006	69.22	0.61	6.99	0.15
A0412	2 7/8	3 3/8	1/4	2.850	0.025	0.275	0.006	72.39	0.64	6.99	0.15
A0413	3	3 1/2	1/4	2.975	0.026	0.275	0.006	75.57	0.66	6.99	0.15
A0414	3 1/8	3 5/8	1/4	3.100	0.026	0.275	0.006	78.74	0.67	6.99	0.15
A0415	3 1/4	3 3/4	1/4	3.225	0.028	0.275	0.006	81.92	0.71	6.99	0.15
A0416	3 3/8	3 7/8	1/4	3.350	0.029	0.275	0.006	85.09	0.73	6.99	0.15

O-Ring Standard Size (AS 568A)

O-Ring Standard Size (AS 568A)

AS 568A SIZE	NOMINAL (REF.) MEASUREMENTS IN INCHES			STANDARD O-RING MEASUREMENTS IN INCHES				METRIC O-RING MEASUREMENTS IN MILLIMETERS			
	ID	OD	CS	ID	±	CS	±	ID	±	CS	±
A0417	3 1/2	4	1/4	3.475	0.030	0.275	0.006	88.27	0.75	6.99	0.15
A0418	3 5/8	4 1/8	1/4	3.600	0.031	0.275	0.006	91.44	0.79	6.99	0.15
A0419	3 3/4	4 1/4	1/4	3.725	0.032	0.275	0.006	94.62	0.81	6.99	0.15
A0420	3 7/8	4 3/8	1/4	3.850	0.033	0.275	0.006	97.79	0.83	6.99	0.15
A0421	4	4 1/2	1/4	3.975	0.033	0.275	0.006	100.97	0.84	6.99	0.15
A0422	4 1/8	4 5/8	1/4	4.100	0.034	0.275	0.006	104.14	0.87	6.99	0.15
A0423	4 1/4	4 3/4	1/4	4.225	0.035	0.275	0.006	107.32	0.89	6.99	0.15
A0424	4 3/8	4 7/8	1/4	4.350	0.036	0.275	0.006	110.49	0.91	6.99	0.15
A0425	4 1/2	5	1/4	4.475	0.033	0.275	0.006	113.67	0.84	6.99	0.15
A0426	4 5/8	5 1/8	1/4	4.600	0.033	0.275	0.006	116.84	0.84	6.99	0.15
A0427	4 3/4	5 1/4	1/4	4.725	0.033	0.28	0.006	120.02	0.84	6.99	0.15
A0428	4 7/8	5 3/8	1/4	4.85	0.033	0.28	0.006	123.19	0.84	6.99	0.15
A0429	5	5 1/2	1/4	4.975	0.037	0.275	0.006	126.37	0.94	6.99	0.15
A0430	5 1/8	5 5/8	1/4	5.100	0.037	0.275	0.006	129.54	0.94	6.99	0.15
A0431	5 1/4	5 3/4	1/4	5.225	0.037	0.275	0.006	132.72	0.94	6.99	0.15
A0432	5 3/8	5 7/8	1/4	5.350	0.037	0.275	0.006	135.89	0.94	6.99	0.15
A0433	5 1/2	6	1/4	5.475	0.037	0.275	0.006	139.07	0.94	6.99	0.15
A0434	5 5/8	6 1/8	1/4	5.600	0.037	0.275	0.006	142.24	0.94	6.99	0.15
A0435	5 3/4	6 1/4	1/4	5.725	0.037	0.275	0.006	145.42	0.94	6.99	0.15
A0436	5 7/8	6 3/8	1/4	5.850	0.037	0.275	0.006	148.59	0.94	6.99	0.15
A0437	6	6 1/2	1/4	5.975	0.037	0.275	0.006	151.77	0.94	6.99	0.15
A0438	6 1/4	6 3/4	1/4	6.225	0.040	0.275	0.006	158.12	1.02	6.99	0.15
A0439	6 1/2	7	1/4	6.475	0.040	0.275	0.006	164.47	1.02	6.99	0.15
A0440	6 3/4	7 1/4	1/4	6.725	0.040	0.275	0.006	170.82	1.02	6.99	0.15
A0441	7	7 1/2	1/4	6.975	0.040	0.275	0.006	177.17	1.02	6.99	0.15
A0442	7 1/4	7 3/4	1/4	7.225	0.045	0.275	0.006	183.52	1.14	6.99	0.15
A0443	7 1/2	8	1/4	7.475	0.045	0.275	0.006	189.87	1.14	6.99	0.15
A0444	7 3/4	8 1/4	1/4	7.725	0.045	0.275	0.006	196.22	1.14	6.99	0.15
A0445	8	8 1/2	1/4	7.975	0.045	0.275	0.006	202.57	1.14	6.99	0.15
A0446	8 1/2	9	1/4	8.475	0.055	0.275	0.006	215.27	1.4	6.99	0.15
A0447	9	9 1/2	1/4	8.975	0.055	0.275	0.006	227.97	1.4	6.99	0.15
A0448	9 1/2	10	1/4	9.475	0.055	0.275	0.006	240.67	1.4	6.99	0.15
A0449	10	10 1/2	1/4	9.975	0.055	0.275	0.006	253.37	1.4	6.99	0.15
A0450	10 1/2	11	1/4	10.475	0.060	0.275	0.006	266.07	1.52	6.99	0.15
A0451	11	11 1/2	1/4	10.975	0.060	0.275	0.006	278.77	1.52	6.99	0.15
A0452	11 1/2	12	1/4	11.475	0.060	0.275	0.006	291.47	1.52	6.99	0.15
A0453	12	12 1/2	1/4	11.975	0.060	0.275	0.006	304.17	1.52	6.99	0.15
A0454	12 1/2	13	1/4	12.475	0.060	0.275	0.006	316.87	1.52	6.99	0.15
A0455	13	13 1/2	1/4	12.975	0.060	0.275	0.006	329.57	1.52	6.99	0.15
A0456	13 1/2	14	1/4	13.475	0.070	0.275	0.006	342.27	1.78	6.99	0.15
A0457	14	14 1/2	1/4	13.975	0.070	0.275	0.006	354.97	1.78	6.99	0.15
A0458	14 1/2	15	1/4	14.475	0.070	0.275	0.006	367.67	1.78	6.99	0.15
A0459	15	15 1/2	1/4	14.975	0.070	0.275	0.006	380.37	1.78	6.99	0.15
A0460	15 1/2	16	1/4	15.475	0.070	0.275	0.006	393.07	1.78	6.99	0.15
A0461	16	16 1/2	1/4	15.955	0.075	0.275	0.006	405.26	1.91	6.99	0.15

O-Ring Standard Size (AS 568A)

AS 568A SIZE	NOMINAL (REF.) MEASUREMENTS IN INCHES			STANDARD O-RING MEASUREMENTS IN INCHES				METRIC O-RING MEASUREMENTS IN MILLIMETERS			
	ID	OD	CS	ID	±	CS	±	ID	±	CS	±
A0462	16 1/2	17	1/4	16.455	0.075	0.275	0.006	417.96	1.91	6.99	0.15
A0463	17	17 1/2	1/4	16.955	0.080	0.275	0.006	430.66	2.03	6.99	0.15
A0464	17 1/2	18	1/4	17.455	0.085	0.275	0.006	443.36	2.16	6.99	0.15
A0465	18	18 1/2	1/4	17.955	0.085	0.275	0.006	456.06	2.16	6.99	0.15
A0466	18 1/2	19	1/4	18.455	0.085	0.275	0.006	468.76	2.16	6.99	0.15
A0467	19	19 1/2	1/4	18.955	0.090	0.275	0.006	481.46	2.29	6.99	0.15
A0468	19 1/2	20	1/4	19.455	0.090	0.275	0.006	494.16	2.29	6.99	0.15
A0469	20	20 1/2	1/4	19.955	0.095	0.275	0.006	506.86	2.41	6.99	0.15
A0470	21	21 1/2	1/4	20.955	0.095	0.275	0.006	532.26	2.41	6.99	0.15
A0471	22	22 1/2	1/4	21.955	0.100	0.275	0.006	557.66	2.54	6.99	0.15
A0472	23	23 1/2	1/4	22.940	0.105	0.275	0.006	582.68	2.67	6.99	0.15
A0473	24	24 1/2	1/4	23.940	0.110	0.275	0.006	608.08	2.79	6.99	0.15
A0474	25	25 1/2	1/4	24.940	0.115	0.275	0.006	633.48	2.92	6.99	0.15
A0475	26	26 1/2	1/4	25.940	0.120	0.275	0.006	658.88	3.05	6.99	0.15

O-Ring For Use With Internal Straight Thread Fluid Connection Bosses And Tube Fittings

AS 568A SIZE	NOMINAL (REF.)	MEASUREMENTS IN MILLIMETERS				MEASUREMENTS IN INCHES			
	OD	ID	±	CS	±	ID	±	CS	±
A0901	3/32	0.185	0.005	0.056	0.003	4.70	0.13	1.42	0.08
A0902	1/8	0.239	0.005	0.064	0.003	6.07	0.13	1.63	0.08
A0903	3/16	0.301	0.005	0.064	0.003	7.65	0.13	1.63	0.08
A0904	1/4	0.351	0.005	0.072	0.003	8.92	0.13	1.83	0.08
A0905	5/16	0.414	0.005	0.072	0.003	10.52	0.13	1.83	0.08
A0906	3/8	0.468	0.005	0.078	0.003	11.89	0.13	1.98	0.08
A0907	7/16	0.530	0.007	0.082	0.003	13.46	0.18	2.08	0.08
A0908	1/2	0.644	0.009	0.087	0.003	16.36	0.23	2.21	0.08
A0909	9/16	0.706	0.009	0.097	0.003	17.93	0.23	2.46	0.08
A0910	5/8	0.755	0.009	0.097	0.003	19.18	0.23	2.46	0.08
A0911	11/16	0.863	0.009	0.116	0.004	21.92	0.23	2.95	0.10
A0912	3/4	0.924	0.009	0.116	0.004	23.47	0.23	2.95	0.10
A0913	13/16	0.986	0.010	0.116	0.004	25.04	0.25	2.95	0.10
A0914	7/8	1.047	0.010	0.116	0.004	26.59	0.25	2.95	0.10
A0916	1	1.171	0.010	0.116	0.004	29.74	0.25	2.95	0.10
A0918	1 1/8	1.355	0.012	0.116	0.004	34.42	0.30	2.95	0.10
A0920	1 1/4	1.475	0.014	0.118	0.004	37.47	0.36	3.00	0.10
A0924	1 1/2	1.720	0.014	0.118	0.004	43.69	0.36	3.00	0.10
A0928	1 3/4	2.090	0.018	0.118	0.004	53.09	0.46	3.00	0.10
A0932	2	2.337	0.018	0.118	0.004	59.36	0.46	3.00	0.10

O-Ring Standard
Size (AS 568A)

O-Ring Standard Size (BS 4518)

MEASUREMENTS IN MILLIMETERS				MEASUREMENTS IN INCHES			
ID	±	CS	±	ID	±	CS	±
3.10	0.14	1.60	0.08	0.122	0.006	0.063	0.003
4.10	0.14	1.60	0.08	0.161	0.006	0.063	0.003
5.10	0.15	1.60	0.08	0.201	0.006	0.063	0.003
6.10	0.16	1.60	0.08	0.240	0.006	0.063	0.003
7.10	0.17	1.60	0.08	0.280	0.007	0.063	0.003
8.10	0.18	1.60	0.08	0.319	0.007	0.063	0.003
9.10	0.18	1.60	0.08	0.358	0.007	0.063	0.003
10.10	0.19	1.60	0.08	0.398	0.007	0.063	0.003
11.10	0.20	1.60	0.08	0.437	0.008	0.063	0.003
12.10	0.21	1.60	0.08	0.476	0.008	0.063	0.003
13.10	0.21	1.60	0.08	0.516	0.008	0.063	0.003
14.10	0.22	1.60	0.08	0.555	0.009	0.063	0.003
15.10	0.23	1.60	0.08	0.594	0.009	0.063	0.003
16.10	0.24	1.60	0.08	0.634	0.009	0.063	0.003
17.10	0.24	1.60	0.08	0.673	0.009	0.063	0.003
18.10	0.25	1.60	0.08	0.713	0.010	0.063	0.003
19.10	0.26	1.60	0.08	0.752	0.010	0.063	0.003
20.10	0.27	1.60	0.08	0.791	0.011	0.063	0.003
21.10	0.27	1.60	0.08	0.831	0.011	0.063	0.003
22.10	0.28	1.60	0.08	0.870	0.011	0.063	0.003
25.10	0.30	1.60	0.08	0.988	0.012	0.063	0.003
27.10	0.32	1.60	0.08	1.067	0.013	0.063	0.003
29.10	0.33	1.60	0.08	1.146	0.013	0.063	0.003
32.10	0.35	1.60	0.08	1.264	0.014	0.063	0.003
35.10	0.37	1.60	0.08	1.382	0.015	0.063	0.003
37.10	0.39	1.60	0.08	1.461	0.015	0.063	0.003
3.60	0.14	2.40	0.09	0.142	0.006	0.094	0.004
4.60	0.15	2.40	0.09	0.181	0.006	0.094	0.004
5.60	0.16	2.40	0.09	0.220	0.006	0.094	0.004
6.60	0.16	2.40	0.09	0.260	0.006	0.094	0.004
7.60	0.17	2.40	0.09	0.299	0.007	0.094	0.004
8.60	0.18	2.40	0.09	0.339	0.007	0.094	0.004
9.60	0.19	2.40	0.09	0.378	0.007	0.094	0.004
10.60	0.19	2.40	0.09	0.417	0.007	0.094	0.004
11.60	0.20	2.40	0.09	0.457	0.008	0.094	0.004
12.60	0.21	2.40	0.09	0.496	0.008	0.094	0.004
13.60	0.22	2.40	0.09	0.535	0.009	0.094	0.004
14.60	0.22	2.40	0.09	0.575	0.009	0.094	0.004
15.60	0.23	2.40	0.09	0.614	0.009	0.094	0.004
16.60	0.24	2.40	0.09	0.654	0.009	0.094	0.004
17.60	0.25	2.40	0.09	0.693	0.010	0.094	0.004
18.60	0.25	2.40	0.09	0.732	0.010	0.094	0.004
19.60	0.26	2.40	0.09	0.772	0.010	0.094	0.004
20.60	0.27	2.40	0.09	0.811	0.011	0.094	0.004
21.60	0.28	2.40	0.09	0.850	0.011	0.094	0.004
24.60	0.30	2.40	0.09	0.969	0.012	0.094	0.004
27.60	0.32	2.40	0.09	1.087	0.013	0.094	0.004
29.60	0.33	2.40	0.09	1.165	0.013	0.094	0.004
31.60	0.35	2.40	0.09	1.244	0.014	0.094	0.004
34.60	0.37	2.40	0.09	1.362	0.015	0.094	0.004
35.60	0.38	2.40	0.09	1.402	0.015	0.094	0.004

MEASUREMENTS IN MILLIMETERS				MEASUREMENTS IN INCHES			
ID	±	CS	±	ID	±	CS	±
37.60	0.39	2.40	0.09	1.480	0.015	0.094	0.004
39.60	0.41	2.40	0.09	1.559	0.016	0.094	0.004
41.60	0.42	2.40	0.09	1.638	0.017	0.094	0.004
44.60	0.44	2.40	0.09	1.756	0.017	0.094	0.004
45.60	0.45	2.40	0.09	1.795	0.018	0.094	0.004
47.60	0.46	2.40	0.09	1.874	0.018	0.094	0.004
49.60	0.48	2.40	0.09	1.953	0.019	0.094	0.004
51.60	0.49	2.40	0.09	2.031	0.019	0.094	0.004
54.60	0.51	2.40	0.09	2.150	0.020	0.094	0.004
55.60	0.52	2.40	0.09	2.189	0.020	0.094	0.004
57.60	0.53	2.40	0.09	2.268	0.021	0.094	0.004
58.60	0.54	2.40	0.09	2.307	0.021	0.094	0.004
59.60	0.55	2.40	0.09	2.346	0.022	0.094	0.004
61.60	0.56	2.40	0.09	2.425	0.022	0.094	0.004
62.60	0.57	2.40	0.09	2.465	0.022	0.094	0.004
64.60	0.58	2.40	0.09	2.543	0.023	0.094	0.004
67.60	0.60	2.40	0.09	2.661	0.024	0.094	0.004
69.60	0.62	2.40	0.09	2.740	0.024	0.094	0.004
19.50	0.26	3.00	0.09	0.768	0.010	0.118	0.004
21.50	0.28	3.00	0.09	0.846	0.011	0.118	0.004
22.50	0.28	3.00	0.09	0.886	0.011	0.118	0.004
24.50	0.30	3.00	0.09	0.965	0.012	0.118	0.004
25.50	0.31	3.00	0.09	1.004	0.012	0.118	0.004
26.50	0.31	3.00	0.09	1.043	0.012	0.118	0.004
27.50	0.32	3.00	0.09	1.083	0.013	0.118	0.004
29.50	0.33	3.00	0.09	1.161	0.013	0.118	0.004
31.50	0.35	3.00	0.09	1.240	0.014	0.118	0.004
32.50	0.36	3.00	0.09	1.280	0.014	0.118	0.004
34.50	0.37	3.00	0.09	1.358	0.015	0.118	0.004
35.50	0.38	3.00	0.09	1.398	0.015	0.118	0.004
36.50	0.38	3.00	0.09	1.437	0.015	0.118	0.004
37.50	0.39	3.00	0.09	1.476	0.015	0.118	0.004
39.50	0.41	3.00	0.09	1.555	0.016	0.118	0.004
41.50	0.42	3.00	0.09	1.634	0.017	0.118	0.004
42.50	0.43	3.00	0.09	1.673	0.017	0.118	0.004
44.50	0.44	3.00	0.09	1.752	0.017	0.118	0.004
49.50	0.48	3.00	0.09	1.949	0.019	0.118	0.004
54.50	0.51	3.00	0.09	2.146	0.020	0.118	0.004
55.50	0.52	3.00	0.09	2.185	0.020	0.118	0.004
57.50	0.53	3.00	0.09	2.264	0.021	0.118	0.004
59.50	0.55	3.00	0.09	2.343	0.022	0.118	0.004
62.50	0.57	3.00	0.09	2.461	0.022	0.118	0.004
64.50	0.58	3.00	0.09	2.539	0.023	0.118	0.004
69.50	0.62	3.00	0.09	2.736	0.024	0.118	0.004
74.50	0.65	3.00	0.09	2.933	0.026	0.118	0.004
79.50	0.68	3.00	0.09	3.130	0.027	0.118	0.004
84.50	0.72	3.00	0.09	3.327	0.028	0.118	0.004
89.50	0.75	3.00	0.09	3.524	0.030	0.118	0.004
94.50	0.79	3.00	0.09	3.720	0.031	0.118	0.004
99.50	0.82	3.00	0.09	3.917	0.032	0.118	0.004
104.50	0.86	3.00	0.09	4.114	0.034	0.118	0.004

MEASUREMENTS IN MILLIMETERS				MEASUREMENTS IN INCHES			
ID	±	CS	±	ID	±	CS	±
109.50	0.89	3.00	0.09	4.311	0.035	0.118	0.004
114.50	0.92	3.00	0.09	4.508	0.036	0.118	0.004
119.50	0.96	3.00	0.09	4.705	0.038	0.118	0.004
124.50	0.99	3.00	0.09	4.902	0.039	0.118	0.004
129.50	1.02	3.00	0.09	5.098	0.040	0.118	0.004
134.50	1.06	3.00	0.09	5.295	0.042	0.118	0.004
139.50	1.09	3.00	0.09	5.492	0.043	0.118	0.004
144.50	1.12	3.00	0.09	5.689	0.044	0.118	0.004
149.50	1.16	3.00	0.09	5.886	0.046	0.118	0.004
154.50	1.19	3.00	0.09	6.083	0.047	0.118	0.004
159.50	1.22	3.00	0.09	6.280	0.048	0.118	0.004
164.50	1.26	3.00	0.09	6.476	0.050	0.118	0.004
169.50	1.29	3.00	0.09	6.673	0.051	0.118	0.004
174.50	1.32	3.00	0.09	6.870	0.052	0.118	0.004
179.50	1.36	3.00	0.09	7.067	0.054	0.118	0.004
184.50	1.39	3.00	0.09	7.264	0.055	0.118	0.004
189.50	1.42	3.00	0.09	7.461	0.056	0.118	0.004
194.50	1.45	3.00	0.09	7.657	0.057	0.118	0.004
199.50	1.49	3.00	0.09	7.854	0.059	0.118	0.004
209.50	1.55	3.00	0.09	8.248	0.061	0.118	0.004
219.50	1.62	3.00	0.09	8.642	0.064	0.118	0.004
229.50	1.68	3.00	0.09	9.035	0.066	0.118	0.004
239.50	1.75	3.00	0.09	9.429	0.069	0.118	0.004
244.50	1.78	3.00	0.09	9.626	0.070	0.118	0.004
249.50	1.81	3.00	0.09	9.823	0.071	0.118	0.004
44.30	0.44	5.70	0.13	1.744	0.017	0.224	0.005
45.30	0.45	5.70	0.13	1.783	0.018	0.224	0.005
49.50	0.48	5.70	0.13	1.949	0.019	0.224	0.005
52.30	0.50	5.70	0.13	2.059	0.020	0.224	0.005
54.30	0.51	5.70	0.13	2.138	0.020	0.224	0.005
55.30	0.52	5.70	0.13	2.177	0.020	0.224	0.005
59.30	0.55	5.70	0.13	2.335	0.022	0.224	0.005
62.30	0.57	5.70	0.13	2.453	0.022	0.224	0.005
64.30	0.58	5.70	0.13	2.531	0.023	0.224	0.005
69.30	0.61	5.70	0.13	2.728	0.024	0.224	0.005
74.30	0.65	5.70	0.13	2.925	0.026	0.224	0.005
79.30	0.68	5.70	0.13	3.122	0.027	0.224	0.005
84.30	0.72	5.70	0.13	3.319	0.028	0.224	0.005
89.30	0.75	5.70	0.13	3.516	0.030	0.224	0.005
94.30	0.79	5.70	0.13	3.713	0.031	0.224	0.005
99.30	0.82	5.70	0.13	3.909	0.032	0.224	0.005
104.30	0.85	5.70	0.13	4.106	0.033	0.224	0.005
109.30	0.89	5.70	0.13	4.303	0.035	0.224	0.005
114.30	0.92	5.70	0.13	4.500	0.036	0.224	0.005
119.30	0.96	5.70	0.13	4.697	0.038	0.224	0.005
124.30	0.99	5.70	0.13	4.894	0.039	0.224	0.005
129.30	1.02	5.70	0.13	5.091	0.040	0.224	0.005
134.30	1.06	5.70	0.13	5.287	0.042	0.224	0.005
139.30	1.09	5.70	0.13	5.484	0.043	0.224	0.005
144.30	1.12	5.70	0.13	5.681	0.044	0.224	0.005
149.30	1.16	5.70	0.13	5.878	0.046	0.224	0.005

MEASUREMENTS IN MILLIMETERS				MEASUREMENTS IN INCHES			
ID	±	CS	±	ID	±	CS	±
154.30	1.19	5.70	0.13	6.075	0.047	0.224	0.005
159.30	1.22	5.70	0.13	6.272	0.048	0.224	0.005
164.30	1.26	5.70	0.13	6.468	0.050	0.224	0.005
169.30	1.29	5.70	0.13	6.665	0.051	0.224	0.005
174.30	1.32	5.70	0.13	6.862	0.052	0.224	0.005
179.30	1.35	5.70	0.13	7.059	0.053	0.224	0.005
184.30	1.39	5.70	0.13	7.256	0.055	0.224	0.005
189.30	1.42	5.70	0.13	7.453	0.056	0.224	0.005
194.30	1.45	5.70	0.13	7.650	0.057	0.224	0.005
199.30	1.49	5.70	0.13	7.846	0.059	0.224	0.005
209.30	1.55	5.70	0.13	8.240	0.061	0.224	0.005
219.30	1.62	5.70	0.13	8.634	0.064	0.224	0.005
229.30	1.68	5.70	0.13	9.028	0.066	0.224	0.005
239.30	1.75	5.70	0.13	9.421	0.069	0.224	0.005
249.30	1.81	5.70	0.13	9.815	0.071	0.224	0.005
259.30	1.88	5.70	0.13	10.209	0.074	0.224	0.005
269.30	1.94	5.70	0.13	10.602	0.076	0.224	0.005
279.30	2.01	5.70	0.13	10.996	0.079	0.224	0.005
289.30	2.07	5.70	0.13	11.390	0.081	0.224	0.005
299.30	2.14	5.70	0.13	11.783	0.084	0.224	0.005
309.30	2.20	5.70	0.13	12.177	0.087	0.224	0.005
319.30	2.26	5.70	0.13	12.571	0.089	0.224	0.005
339.30	2.39	5.70	0.13	13.358	0.094	0.224	0.005
359.30	2.52	5.70	0.13	14.146	0.099	0.224	0.005
379.30	2.65	5.70	0.13	14.933	0.104	0.224	0.005
389.30	2.71	5.70	0.13	15.327	0.107	0.224	0.005
399.30	2.77	5.70	0.13	15.720	0.109	0.224	0.005
419.30	2.90	5.70	0.13	16.508	0.114	0.224	0.005
439.30	3.03	5.70	0.13	17.295	0.119	0.224	0.005
459.30	3.15	5.70	0.13	18.083	0.124	0.224	0.005
479.30	3.28	5.70	0.13	18.870	0.129	0.224	0.005
489.30	3.34	5.70	0.13	19.264	0.131	0.224	0.005
499.30	3.40	5.70	0.13	19.657	0.134	0.224	0.005
144.10	1.12	8.40	0.15	5.673	0.044	0.331	0.006
149.10	1.15	8.40	0.15	5.870	0.045	0.331	0.006
154.10	1.19	8.40	0.15	6.067	0.047	0.331	0.006
159.10	1.22	8.40	0.15	6.264	0.048	0.331	0.006
164.10	1.25	8.40	0.15	6.461	0.049	0.331	0.006
169.10	1.29	8.40	0.15	6.657	0.051	0.331	0.006
174.10	1.32	8.40	0.15	6.854	0.052	0.331	0.006
179.10	1.35	8.40	0.15	7.051	0.053	0.331	0.006
184.10	1.39	8.40	0.15	7.248	0.055	0.331	0.006
189.10	1.42	8.40	0.15	7.445	0.056	0.331	0.006
194.10	1.45	8.40	0.15	7.642	0.057	0.331	0.006
199.10	1.49	8.40	0.15	7.839	0.059	0.331	0.006
209.10	1.55	8.40	0.15	8.232	0.061	0.331	0.006
219.10	1.62	8.40	0.15	8.626	0.064	0.331	0.006
229.10	1.68	8.40	0.15	9.020	0.066	0.331	0.006
239.10	1.75	8.40	0.15	9.413	0.069	0.331	0.006
249.10	1.81	8.40	0.15	9.807	0.071	0.331	0.006

O-Ring Standard Size (GB T 3452.1)

MEASUREMENTS IN MILLIMETERS

ID	±	CS	±	ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
1.80	0.13	1.8	0.08	24.30	0.30	1.8	0.08	21.20	0.27	2.65	0.09	97.50	0.81	2.65	0.09
2.00	0.13	1.8	0.08	25.00	0.30	1.8	0.08	22.40	0.28	2.65	0.09	100.00	0.82	2.65	0.09
2.24	0.13	1.8	0.08	25.80	0.31	1.8	0.08	23.00	0.29	2.65	0.09	103.00	0.85	2.65	0.09
2.50	0.13	1.8	0.08	26.50	0.31	1.8	0.08	23.60	0.29	2.65	0.09	106.00	0.87	2.65	0.09
2.80	0.13	1.8	0.08	27.30	0.32	1.8	0.08	24.30	0.30	2.65	0.09	109.00	0.89	2.65	0.09
3.15	0.14	1.8	0.08	28.00	0.32	1.8	0.08	25.00	0.30	2.65	0.09	112.00	0.91	2.65	0.09
3.55	0.14	1.8	0.08	29.00	0.33	1.8	0.08	25.80	0.31	2.65	0.09	115.00	0.93	2.65	0.09
3.75	0.14	1.8	0.08	30.00	0.34	1.8	0.08	26.50	0.31	2.65	0.09	118.00	0.95	2.65	0.09
4.00	0.14	1.8	0.08	31.50	0.35	1.8	0.08	27.30	0.32	2.65	0.09	122.00	0.97	2.65	0.09
4.50	0.15	1.8	0.08	32.50	0.36	1.8	0.08	28.00	0.32	2.65	0.09	125.00	0.99	2.65	0.09
4.75	0.15	1.8	0.08	33.50	0.36	1.8	0.08	29.00	0.33	2.65	0.09	128.00	1.01	2.65	0.09
4.87	0.15	1.8	0.08	34.50	0.37	1.8	0.08	30.00	0.34	2.65	0.09	132.00	1.04	2.65	0.09
5.00	0.15	1.8	0.08	35.50	0.38	1.8	0.08	31.50	0.35	2.65	0.09	136.00	1.07	2.65	0.09
5.15	0.15	1.8	0.08	36.50	0.38	1.8	0.08	32.50	0.36	2.65	0.09	140.00	1.09	2.65	0.09
5.30	0.15	1.8	0.08	37.50	0.39	1.8	0.08	33.50	0.36	2.65	0.09	142.50	1.11	2.65	0.09
5.60	0.16	1.8	0.08	38.70	0.40	1.8	0.08	34.50	0.37	2.65	0.09	145.00	1.13	2.65	0.09
6.00	0.16	1.8	0.08	40.00	0.41	1.8	0.08	35.50	0.38	2.65	0.09	147.50	1.14	2.65	0.09
6.30	0.16	1.8	0.08	41.20	0.42	1.8	0.08	36.50	0.38	2.65	0.09	150.00	1.16	2.65	0.09
6.70	0.16	1.8	0.08	42.50	0.43	1.8	0.08	37.50	0.39	2.65	0.09	152.50	1.18	2.65	0.09
6.90	0.17	1.8	0.08	43.70	0.44	1.8	0.08	38.70	0.40	2.65	0.09	18.00	0.25	3.55	0.1
7.10	0.17	1.8	0.08	45.00	0.44	1.8	0.08	40.00	0.41	2.65	0.09	19.00	0.26	3.55	0.1
7.50	0.17	1.8	0.08	46.20	0.45	1.8	0.08	41.20	0.42	2.65	0.09	20.00	0.26	3.55	0.1
8.00	0.17	1.8	0.08	47.50	0.46	1.8	0.08	42.50	0.43	2.65	0.09	20.60	0.27	3.55	0.1
8.50	0.18	1.8	0.08	48.70	0.47	1.8	0.08	43.70	0.44	2.65	0.09	21.20	0.27	3.55	0.1
8.75	0.18	1.8	0.08	50.00	0.48	1.8	0.08	45.00	0.44	2.65	0.09	22.40	0.28	3.55	0.1
9.00	0.18	1.8	0.08	4.50	0.15	2.65	0.09	46.20	0.45	2.65	0.09	23.00	0.29	3.55	0.1
9.50	0.19	1.8	0.08	5.30	0.15	2.65	0.09	47.50	0.46	2.65	0.09	23.60	0.29	3.55	0.1
9.75	0.19	1.8	0.08	6.00	0.16	2.65	0.09	48.70	0.47	2.65	0.09	24.30	0.30	3.55	0.1
10.00	0.19	1.8	0.08	6.90	0.17	2.65	0.09	50.00	0.48	2.65	0.09	25.00	0.30	3.55	0.1
10.60	0.19	1.8	0.08	8.00	0.17	2.65	0.09	51.50	0.49	2.65	0.09	25.80	0.31	3.55	0.1
11.20	0.20	1.8	0.08	9.00	0.18	2.65	0.09	53.00	0.50	2.65	0.09	26.50	0.31	3.55	0.1
11.60	0.20	1.8	0.08	9.50	0.19	2.65	0.09	54.50	0.51	2.65	0.09	27.30	0.32	3.55	0.1
11.80	0.20	1.8	0.08	10.00	0.19	2.65	0.09	56.00	0.52	2.65	0.09	28.00	0.32	3.55	0.1
12.10	0.21	1.8	0.08	10.60	0.19	2.65	0.09	58.00	0.54	2.65	0.09	29.00	0.33	3.55	0.1
12.50	0.21	1.8	0.08	11.20	0.20	2.65	0.09	60.00	0.55	2.65	0.09	30.00	0.34	3.55	0.1
12.80	0.21	1.8	0.08	11.60	0.20	2.65	0.09	61.50	0.56	2.65	0.09	31.50	0.35	3.55	0.1
13.20	0.21	1.8	0.08	11.80	0.20	2.65	0.09	63.00	0.57	2.65	0.09	32.50	0.36	3.55	0.1
14.00	0.22	1.8	0.08	12.10	0.21	2.65	0.09	65.00	0.58	2.65	0.09	33.50	0.36	3.55	0.1
14.50	0.22	1.8	0.08	12.50	0.21	2.65	0.09	67.00	0.60	2.65	0.09	34.50	0.37	3.55	0.1
15.00	0.23	1.8	0.08	12.80	0.21	2.65	0.09	69.00	0.61	2.65	0.09	35.50	0.38	3.55	0.1
15.50	0.23	1.8	0.08	13.20	0.21	2.65	0.09	71.00	0.63	2.65	0.09	36.50	0.38	3.55	0.1
16.00	0.24	1.8	0.08	14.00	0.22	2.65	0.09	73.00	0.64	2.65	0.09	37.50	0.39	3.55	0.1
17.00	0.24	1.8	0.08	14.50	0.22	2.65	0.09	75.00	0.65	2.65	0.09	38.70	0.40	3.55	0.1
18.00	0.25	1.8	0.08	15.00	0.23	2.65	0.09	77.50	0.67	2.65	0.09	40.00	0.41	3.55	0.1
19.00	0.26	1.8	0.08	15.50	0.23	2.65	0.09	80.00	0.69	2.65	0.09	41.20	0.42	3.55	0.1
20.00	0.26	1.8	0.08	16.00	0.24	2.65	0.09	82.50	0.71	2.65	0.09	42.50	0.43	3.55	0.1
20.60	0.27	1.8	0.08	17.00	0.24	2.65	0.09	85.00	0.72	2.65	0.09	43.70	0.44	3.55	0.1
21.20	0.27	1.8	0.08	18.00	0.25	2.65	0.09	87.50	0.74	2.65	0.09	45.00	0.44	3.55	0.1
22.40	0.28	1.8	0.08	19.00	0.26	2.65	0.09	90.00	0.76	2.65	0.09	46.20	0.45	3.55	0.1
23.00	0.29	1.8	0.08	20.00	0.26	2.65	0.09	92.50	0.77	2.65	0.09	47.50	0.46	3.55	0.1
23.60	0.29	1.8	0.08	20.60	0.27	2.65	0.09	95.00	0.79	2.65	0.09	48.70	0.47	3.55	0.1

MEASUREMENTS IN MILLIMETERS

ID	±	CS	±	ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
50.00	0.48	3.55	0.1	177.50	1.34	3.55	0.1	136.00	1.07	5.3	0.13	315.00	2.24	5.3	0.13
51.50	0.49	3.55	0.1	180.00	1.36	3.55	0.1	140.00	1.09	5.3	0.13	320.00	2.27	5.3	0.13
53.00	0.50	3.55	0.1	182.50	1.38	3.55	0.1	142.50	1.11	5.3	0.13	325.00	2.30	5.3	0.13
54.50	0.51	3.55	0.1	185.00	1.39	3.55	0.1	145.00	1.13	5.3	0.13	330.00	2.33	5.3	0.13
56.00	0.52	3.55	0.1	187.50	1.41	3.55	0.1	147.50	1.14	5.3	0.13	335.00	2.36	5.3	0.13
58.00	0.54	3.55	0.1	190.00	1.43	3.55	0.1	150.00	1.16	5.3	0.13	340.00	2.40	5.3	0.13
60.00	0.55	3.55	0.1	195.00	1.46	3.55	0.1	152.50	1.18	5.3	0.13	345.00	2.43	5.3	0.13
61.50	0.56	3.55	0.1	200.00	1.49	3.55	0.1	155.00	1.19	5.3	0.13	350.00	2.46	5.3	0.13
63.00	0.57	3.55	0.1	40.00	0.41	5.3	0.13	157.50	1.21	5.3	0.13	355.00	2.49	5.3	0.13
65.00	0.58	3.55	0.1	41.20	0.42	5.3	0.13	160.00	1.23	5.3	0.13	360.00	2.52	5.3	0.13
67.00	0.60	3.55	0.1	42.50	0.43	5.3	0.13	162.50	1.24	5.3	0.13	365.00	2.56	5.3	0.13
69.00	0.61	3.55	0.1	43.70	0.44	5.3	0.13	165.00	1.26	5.3	0.13	370.00	2.59	5.3	0.13
71.00	0.63	3.55	0.1	45.00	0.44	5.3	0.13	167.50	1.28	5.3	0.13	375.00	2.62	5.3	0.13
73.00	0.64	3.55	0.1	46.20	0.45	5.3	0.13	170.00	1.29	5.3	0.13	379.00	2.64	5.3	0.13
75.00	0.65	3.55	0.1	47.50	0.46	5.3	0.13	172.50	1.31	5.3	0.13	383.00	2.67	5.3	0.13
77.50	0.67	3.55	0.1	48.70	0.47	5.3	0.13	175.00	1.33	5.3	0.13	387.00	2.70	5.3	0.13
80.00	0.69	3.55	0.1	50.00	0.48	5.3	0.13	177.50	1.34	5.3	0.13	391.00	2.72	5.3	0.13
82.50	0.71	3.55	0.1	51.50	0.49	5.3	0.13	180.00	1.36	5.3	0.13	395.00	2.75	5.3	0.13
85.00	0.72	3.55	0.1	53.00	0.50	5.3	0.13	182.50	1.38	5.3	0.13	400.00	2.78	5.3	0.13
87.50	0.74	3.55	0.1	54.50	0.51	5.3	0.13	185.00	1.39	5.3	0.13	109.00	0.89	7	0.15
90.00	0.76	3.55	0.1	56.00	0.52	5.3	0.13	187.50	1.41	5.3	0.13	112.00	0.91	7	0.15
92.50	0.77	3.55	0.1	58.00	0.54	5.3	0.13	190.00	1.43	5.3	0.13	115.00	0.93	7	0.15
95.00	0.79	3.55	0.1	60.00	0.55	5.3	0.13	195.00	1.46	5.3	0.13	118.00	0.95	7	0.15
97.50	0.81	3.55	0.1	61.50	0.56	5.3	0.13	200.00	1.49	5.3	0.13	122.00	0.97	7	0.15
100.00	0.82	3.55	0.1	63.00	0.57	5.3	0.13	203.00	1.51	5.3	0.13	125.00	0.99	7	0.15
103.00	0.85	3.55	0.1	65.00	0.58	5.3	0.13	206.00	1.53	5.3	0.13	128.00	1.01	7	0.15
106.00	0.87	3.55	0.1	67.00	0.60	5.3	0.13	212.00	1.57	5.3	0.13	132.00	1.04	7	0.15
109.00	0.89	3.55	0.1	69.00	0.61	5.3	0.13	218.00	1.61	5.3	0.13	136.00	1.07	7	0.15
112.00	0.91	3.55	0.1	71.00	0.63	5.3	0.13	224.00	1.65	5.3	0.13	140.00	1.09	7	0.15
115.00	0.93	3.55	0.1	73.00	0.64	5.3	0.13	227.00	1.67	5.3	0.13	142.50	1.11	7	0.15
118.00	0.95	3.55	0.1	75.00	0.65	5.3	0.13	230.00	1.69	5.3	0.13	145.00	1.13	7	0.15
122.00	0.97	3.55	0.1	77.50	0.67	5.3	0.13	236.00	1.73	5.3	0.13	147.50	1.14	7	0.15
125.00	0.99	3.55	0.1	80.00	0.69	5.3	0.13	239.00	1.75	5.3	0.13	150.00	1.16	7	0.15
128.00	1.01	3.55	0.1	82.50	0.71	5.3	0.13	243.00	1.77	5.3	0.13	152.50	1.18	7	0.15
132.00	1.04	3.55	0.1	85.00	0.72	5.3	0.13	250.00	1.82	5.3	0.13	155.00	1.19	7	0.15
136.00	1.07	3.55	0.1	87.50	0.74	5.3	0.13	254.00	1.84	5.3	0.13	157.50	1.21	7	0.15
140.00	1.09	3.55	0.1	90.00	0.76	5.3	0.13	258.00	1.87	5.3	0.13	160.00	1.23	7	0.15
142.50	1.11	3.55	0.1	92.50	0.77	5.3	0.13	261.00	1.89	5.3	0.13	162.50	1.24	7	0.15
145.00	1.13	3.55	0.1	95.00	0.79	5.3	0.13	265.00	1.91	5.3	0.13	165.00	1.26	7	0.15
147.50	1.14	3.55	0.1	97.50	0.81	5.3	0.13	268.00	1.93	5.3	0.13	167.50	1.28	7	0.15
150.00	1.16	3.55	0.1	100.00	0.82	5.3	0.13	272.00	1.96	5.3	0.13	170.00	1.29	7	0.15
152.50	1.18	3.55	0.1	103.00	0.85	5.3	0.13	276.00	1.99	5.3	0.13	172.50	1.31	7	0.15
155.00	1.19	3.55	0.1	106.00	0.87	5.3	0.13	280.00	2.01	5.3	0.13	175.00	1.33	7	0.15
157.50	1.21	3.55	0.1	109.00	0.89	5.3	0.13	283.00	2.03	5.3	0.13	177.50	1.34	7	0.15
160.00	1.23	3.55	0.1	112.00	0.91	5.3	0.13	286.00	2.05	5.3	0.13	180.00	1.36	7	0.15
162.50	1.24	3.55	0.1	115.00	0.93	5.3	0.13	290.00	2.08	5.3	0.13	182.50	1.38	7	0.15
165.00	1.26	3.55	0.1	118.00	0.95	5.3	0.13	295.00	2.11	5.3	0.13	185.00	1.39	7	0.15
167.50	1.28	3.55	0.1	122.00	0.97	5.3	0.13	300.00	2.14	5.3	0.13	187.50	1.41	7	0.15
170.00	1.29	3.55	0.1	125.00	0.99	5.3	0.13	303.00	2.16	5.3	0.13	190.00	1.43	7	0.15
172.50	1.31	3.55	0.1	128.00	1.01	5.3	0.13	307.00	2.19	5.3	0.13	195.00	1.46	7	0.15
175.00	1.33	3.55	0.1	132.00	1.04	5.3	0.13	311.00	2.21	5.3	0.13	200.00	1.49	7	0.15

O-Ring Standard
Size (GB T 3452.1)

O-Ring Standard Size (GB T 3452.1)

MEASUREMENTS IN MILLIMETERS

ID	±	CS	±	ID	±	CS	±
203.00	1.51	7	0.15	433.00	2.99	7	0.15
206.00	1.53	7	0.15	437.00	3.01	7	0.15
212.00	1.57	7	0.15	443.00	3.05	7	0.15
218.00	1.61	7	0.15	450.00	3.09	7	0.15
224.00	1.65	7	0.15	456.00	3.13	7	0.15
227.00	1.67	7	0.15	462.00	3.17	7	0.15
230.00	1.69	7	0.15	466.00	3.19	7	0.15
236.00	1.73	7	0.15	470.00	3.22	7	0.15
239.00	1.75	7	0.15	475.00	3.25	7	0.15
243.00	1.77	7	0.15	479.00	3.28	7	0.15
250.00	1.82	7	0.15	483.00	3.30	7	0.15
254.00	1.84	7	0.15	487.00	3.33	7	0.15
258.00	1.87	7	0.15	493.00	3.36	7	0.15
261.00	1.89	7	0.15	500.00	3.41	7	0.15
265.00	1.91	7	0.15	508.00	3.46	7	0.15
268.00	1.93	7	0.15	515.00	3.50	7	0.15
272.00	1.96	7	0.15	523.00	3.55	7	0.15
276.00	1.99	7	0.15	530.00	3.60	7	0.15
280.00	2.01	7	0.15	538.00	3.65	7	0.15
283.00	2.03	7	0.15	545.00	3.69	7	0.15
286.00	2.05	7	0.15	553.00	3.74	7	0.15
290.00	2.08	7	0.15	560.00	3.78	7	0.15
295.00	2.11	7	0.15	570.00	3.85	7	0.15
300.00	2.14	7	0.15	580.00	3.91	7	0.15
303.00	2.16	7	0.15	590.00	3.97	7	0.15
307.00	2.19	7	0.15	600.00	4.03	7	0.15
311.00	2.21	7	0.15	608.00	4.08	7	0.15
315.00	2.24	7	0.15	615.00	4.12	7	0.15
320.00	2.27	7	0.15	623.00	4.17	7	0.15
325.00	2.30	7	0.15	630.00	4.22	7	0.15
330.00	2.33	7	0.15	640.00	4.28	7	0.15
335.00	2.36	7	0.15	650.00	4.34	7	0.15
340.00	2.40	7	0.15	660.00	4.40	7	0.15
345.00	2.43	7	0.15	670.00	4.47	7	0.15
350.00	2.46	7	0.15				
355.00	2.49	7	0.15				
360.00	2.52	7	0.15				
365.00	2.56	7	0.15				
370.00	2.59	7	0.15				
375.00	2.62	7	0.15				
379.00	2.64	7	0.15				
383.00	2.67	7	0.15				
387.00	2.70	7	0.15				
391.00	2.72	7	0.15				
395.00	2.75	7	0.15				
400.00	2.78	7	0.15				
406.00	2.82	7	0.15				
412.00	2.85	7	0.15				
418.00	2.89	7	0.15				
425.00	2.94	7	0.15				
429.00	2.96	7	0.15				

MEASUREMENTS IN INCHES

ID	±	CS	±	ID	±	CS	±
0.071	0.005	0.071	0.003	0.957	0.012	0.071	0.003
0.079	0.005	0.071	0.003	0.984	0.012	0.071	0.003
0.088	0.005	0.071	0.003	1.016	0.012	0.071	0.003
0.098	0.005	0.071	0.003	1.043	0.012	0.071	0.003
0.110	0.005	0.071	0.003	1.075	0.013	0.071	0.003
0.124	0.006	0.071	0.003	1.102	0.013	0.071	0.003
0.140	0.006	0.071	0.003	1.142	0.013	0.071	0.003
0.148	0.006	0.071	0.003	1.181	0.013	0.071	0.003
0.157	0.006	0.071	0.003	1.240	0.014	0.071	0.003
0.177	0.006	0.071	0.003	1.280	0.014	0.071	0.003
0.187	0.006	0.071	0.003	1.319	0.014	0.071	0.003
0.192	0.006	0.071	0.003	1.358	0.015	0.071	0.003
0.197	0.006	0.071	0.003	1.398	0.015	0.071	0.003
0.203	0.006	0.071	0.003	1.437	0.015	0.071	0.003
0.209	0.006	0.071	0.003	1.476	0.015	0.071	0.003
0.220	0.006	0.071	0.003	1.524	0.016	0.071	0.003
0.236	0.006	0.071	0.003	1.575	0.016	0.071	0.003
0.248	0.006	0.071	0.003	1.622	0.017	0.071	0.003
0.264	0.006	0.071	0.003	1.673	0.017	0.071	0.003
0.272	0.007	0.071	0.003	1.720	0.017	0.071	0.003
0.280	0.007	0.071	0.003	1.772	0.017	0.071	0.003
0.295	0.007	0.071	0.003	1.819	0.018	0.071	0.003
0.315	0.007	0.071	0.003	1.870	0.018	0.071	0.003
0.335	0.007	0.071	0.003	1.917	0.019	0.071	0.003
0.344	0.007	0.071	0.003	1.969	0.019	0.071	0.003
0.354	0.007	0.071	0.003	0.177	0.006	0.104	0.004
0.374	0.007	0.071	0.003	0.209	0.006	0.104	0.004
0.384	0.007	0.071	0.003	0.236	0.006	0.104	0.004
0.394	0.007	0.071	0.003	0.272	0.007	0.104	0.004
0.417	0.007	0.071	0.003	0.315	0.007	0.104	0.004
0.441	0.008	0.071	0.003	0.354	0.007	0.104	0.004
0.457	0.008	0.071	0.003	0.374	0.007	0.104	0.004
0.465	0.008	0.071	0.003	0.394	0.007	0.104	0.004
0.476	0.008	0.071	0.003	0.417	0.007	0.104	0.004
0.492	0.008	0.071	0.003	0.441	0.008	0.104	0.004
0.504	0.008	0.071	0.003	0.457	0.008	0.104	0.004
0.520	0.008	0.071	0.003	0.465	0.008	0.104	0.004
0.551	0.009	0.071	0.003	0.476	0.008	0.104	0.004
0.571	0.009	0.071	0.003	0.492	0.008	0.104	0.004
0.591	0.009	0.071	0.003	0.504	0.008	0.104	0.004
0.610	0.009	0.071	0.003	0.520	0.008	0.104	0.004
0.630	0.009	0.071	0.003	0.551	0.009	0.104	0.004
0.669	0.009	0.071	0.003	0.571	0.009	0.104	0.004
0.709	0.010	0.071	0.003	0.591	0.009	0.104	0.004
0.748	0.010	0.071	0.003	0.610	0.009	0.104	0.004
0.787	0.010	0.071	0.003	0.630	0.009	0.104	0.004
0.811	0.011	0.071	0.003	0.669	0.009	0.104	0.004
0.835	0.011	0.071	0.003	0.709	0.010	0.104	0.004
0.882	0.011	0.071	0.003	0.748	0.010	0.104	0.004
0.906	0.011	0.071	0.003	0.787	0.010	0.104	0.004
0.929	0.011	0.071	0.003	0.811	0.011	0.104	0.004

MEASUREMENTS IN INCHES

ID	±	CS	±	ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
0.835	0.011	0.104	0.004	3.839	0.032	0.104	0.004	1.969	0.019	0.140	0.004	6.988	0.053	0.140	0.004
0.882	0.011	0.104	0.004	3.937	0.032	0.104	0.004	2.028	0.019	0.140	0.004	7.087	0.054	0.140	0.004
0.906	0.011	0.104	0.004	4.055	0.033	0.104	0.004	2.087	0.020	0.140	0.004	7.185	0.054	0.140	0.004
0.929	0.011	0.104	0.004	4.173	0.034	0.104	0.004	2.146	0.020	0.140	0.004	7.283	0.055	0.140	0.004
0.957	0.012	0.104	0.004	4.291	0.035	0.104	0.004	2.205	0.020	0.140	0.004	7.382	0.056	0.140	0.004
0.984	0.012	0.104	0.004	4.409	0.036	0.104	0.004	2.283	0.021	0.140	0.004	7.480	0.056	0.140	0.004
1.016	0.012	0.104	0.004	4.528	0.037	0.104	0.004	2.362	0.022	0.140	0.004	7.677	0.057	0.140	0.004
1.043	0.012	0.104	0.004	4.646	0.037	0.104	0.004	2.421	0.022	0.140	0.004	7.874	0.059	0.140	0.004
1.075	0.013	0.104	0.004	4.803	0.038	0.104	0.004	2.480	0.022	0.140	0.004	1.575	0.016	0.209	0.005
1.102	0.013	0.104	0.004	4.921	0.039	0.104	0.004	2.559	0.023	0.140	0.004	1.622	0.017	0.209	0.005
1.142	0.013	0.104	0.004	5.039	0.040	0.104	0.004	2.638	0.024	0.140	0.004	1.673	0.017	0.209	0.005
1.181	0.013	0.104	0.004	5.197	0.041	0.104	0.004	2.717	0.024	0.140	0.004	1.720	0.017	0.209	0.005
1.240	0.014	0.104	0.004	5.354	0.042	0.104	0.004	2.795	0.025	0.140	0.004	1.772	0.017	0.209	0.005
1.280	0.014	0.104	0.004	5.512	0.043	0.104	0.004	2.874	0.025	0.140	0.004	1.819	0.018	0.209	0.005
1.319	0.014	0.104	0.004	5.610	0.044	0.104	0.004	2.953	0.026	0.140	0.004	1.870	0.018	0.209	0.005
1.358	0.015	0.104	0.004	5.709	0.044	0.104	0.004	3.051	0.026	0.140	0.004	1.917	0.019	0.209	0.005
1.398	0.015	0.104	0.004	5.807	0.045	0.104	0.004	3.150	0.027	0.140	0.004	1.969	0.019	0.209	0.005
1.437	0.015	0.104	0.004	5.906	0.046	0.104	0.004	3.248	0.028	0.140	0.004	2.028	0.019	0.209	0.005
1.476	0.015	0.104	0.004	6.004	0.046	0.104	0.004	3.346	0.028	0.140	0.004	2.087	0.020	0.209	0.005
1.524	0.016	0.104	0.004	0.709	0.010	0.140	0.004	3.445	0.029	0.140	0.004	2.146	0.020	0.209	0.005
1.575	0.016	0.104	0.004	0.748	0.010	0.140	0.004	3.543	0.030	0.140	0.004	2.205	0.020	0.209	0.005
1.622	0.017	0.104	0.004	0.787	0.010	0.140	0.004	3.642	0.030	0.140	0.004	2.283	0.021	0.209	0.005
1.673	0.017	0.104	0.004	0.811	0.011	0.140	0.004	3.740	0.031	0.140	0.004	2.362	0.022	0.209	0.005
1.720	0.017	0.104	0.004	0.835	0.011	0.140	0.004	3.839	0.032	0.140	0.004	2.421	0.022	0.209	0.005
1.772	0.017	0.104	0.004	0.882	0.011	0.140	0.004	3.937	0.032	0.140	0.004	2.480	0.022	0.209	0.005
1.819	0.018	0.104	0.004	0.906	0.011	0.140	0.004	4.055	0.033	0.140	0.004	2.559	0.023	0.209	0.005
1.870	0.018	0.104	0.004	0.929	0.011	0.140	0.004	4.173	0.034	0.140	0.004	2.638	0.024	0.209	0.005
1.917	0.019	0.104	0.004	0.957	0.012	0.140	0.004	4.291	0.035	0.140	0.004	2.717	0.024	0.209	0.005
1.969	0.019	0.104	0.004	0.984	0.012	0.140	0.004	4.409	0.036	0.140	0.004	2.795	0.025	0.209	0.005
2.028	0.019	0.104	0.004	1.016	0.012	0.140	0.004	4.528	0.037	0.140	0.004	2.874	0.025	0.209	0.005
2.087	0.020	0.104	0.004	1.043	0.012	0.140	0.004	4.646	0.037	0.140	0.004	2.953	0.026	0.209	0.005
2.146	0.020	0.104	0.004	1.075	0.013	0.140	0.004	4.803	0.038	0.140	0.004	3.051	0.026	0.209	0.005
2.205	0.020	0.104	0.004	1.102	0.013	0.140	0.004	4.921	0.039	0.140	0.004	3.150	0.027	0.209	0.005
2.283	0.021	0.104	0.004	1.142	0.013	0.140	0.004	5.039	0.040	0.140	0.004	3.248	0.028	0.209	0.005
2.362	0.022	0.104	0.004	1.181	0.013	0.140	0.004	5.197	0.041	0.140	0.004	3.346	0.028	0.209	0.005
2.421	0.022	0.104	0.004	1.240	0.014	0.140	0.004	5.354	0.042	0.140	0.004	3.445	0.029	0.209	0.005
2.480	0.022	0.104	0.004	1.280	0.014	0.140	0.004	5.512	0.043	0.140	0.004	3.543	0.030	0.209	0.005
2.559	0.023	0.104	0.004	1.319	0.014	0.140	0.004	5.610	0.044	0.140	0.004	3.642	0.030	0.209	0.005
2.638	0.024	0.104	0.004	1.358	0.015	0.140	0.004	5.709	0.044	0.140	0.004	3.740	0.031	0.209	0.005
2.717	0.024	0.104	0.004	1.398	0.015	0.140	0.004	5.807	0.045	0.140	0.004	3.839	0.032	0.209	0.005
2.795	0.025	0.104	0.004	1.437	0.015	0.140	0.004	5.906	0.046	0.140	0.004	3.937	0.032	0.209	0.005
2.874	0.025	0.104	0.004	1.476	0.015	0.140	0.004	6.004	0.046	0.140	0.004	4.055	0.033	0.209	0.005
2.953	0.026	0.104	0.004	1.524	0.016	0.140	0.004	6.102	0.047	0.140	0.004	4.173	0.034	0.209	0.005
3.051	0.026	0.104	0.004	1.575	0.016	0.140	0.004	6.201	0.048	0.140	0.004	4.291	0.035	0.209	0.005
3.150	0.027	0.104	0.004	1.622	0.017	0.140	0.004	6.299	0.048	0.140	0.004	4.409	0.036	0.209	0.005
3.248	0.028	0.104	0.004	1.673	0.017	0.140	0.004	6.398	0.049	0.140	0.004	4.528	0.037	0.209	0.005
3.346	0.028	0.104	0.004	1.720	0.017	0.140	0.004	6.496	0.050	0.140	0.004	4.646	0.037	0.209	0.005
3.445	0.029	0.104	0.004	1.772	0.017	0.140	0.004	6.594	0.050	0.140	0.004	4.803	0.038	0.209	0.005
3.543	0.030	0.104	0.004	1.819	0.018	0.140	0.004	6.693	0.051	0.140	0.004	4.921	0.039	0.209	0.005
3.642	0.030	0.104	0.004	1.870	0.018	0.140	0.004	6.791	0.052	0.140	0.004	5.039	0.040	0.209	0.005
3.740	0.031	0.104	0.004	1.917	0.019	0.140	0.004	6.890	0.052	0.140	0.004	5.197	0.041	0.209	0.005

O-Ring Standard Size (GB T 3452.1)

MEASUREMENTS IN INCHES

ID	±	CS	±	ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
5.354	0.042	0.209	0.005	12.402	0.088	0.209	0.005	7.992	0.059	0.276	0.006	17.047	0.118	0.276	0.006
5.512	0.043	0.209	0.005	12.598	0.089	0.209	0.005	8.110	0.060	0.276	0.006	17.205	0.119	0.276	0.006
5.610	0.044	0.209	0.005	12.795	0.091	0.209	0.005	8.346	0.062	0.276	0.006	17.441	0.120	0.276	0.006
5.709	0.044	0.209	0.005	12.992	0.092	0.209	0.005	8.583	0.063	0.276	0.006	17.717	0.122	0.276	0.006
5.807	0.045	0.209	0.005	13.189	0.093	0.209	0.005	8.819	0.065	0.276	0.006	17.953	0.123	0.276	0.006
5.906	0.046	0.209	0.005	13.386	0.094	0.209	0.005	8.937	0.066	0.276	0.006	18.189	0.125	0.276	0.006
6.004	0.046	0.209	0.005	13.583	0.096	0.209	0.005	9.055	0.067	0.276	0.006	18.346	0.126	0.276	0.006
6.102	0.047	0.209	0.005	13.780	0.097	0.209	0.005	9.291	0.068	0.276	0.006	18.504	0.127	0.276	0.006
6.201	0.048	0.209	0.005	13.976	0.098	0.209	0.005	9.409	0.069	0.276	0.006	18.701	0.128	0.276	0.006
6.299	0.048	0.209	0.005	14.173	0.099	0.209	0.005	9.567	0.070	0.276	0.006	18.858	0.129	0.276	0.006
6.398	0.049	0.209	0.005	14.370	0.101	0.209	0.005	9.843	0.072	0.276	0.006	19.016	0.130	0.276	0.006
6.496	0.050	0.209	0.005	14.567	0.102	0.209	0.005	10.000	0.072	0.276	0.006	19.173	0.131	0.276	0.006
6.594	0.050	0.209	0.005	14.764	0.103	0.209	0.005	10.157	0.074	0.276	0.006	19.409	0.132	0.276	0.006
6.693	0.051	0.209	0.005	14.921	0.104	0.209	0.005	10.276	0.074	0.276	0.006	19.685	0.134	0.276	0.006
6.791	0.052	0.209	0.005	15.079	0.105	0.209	0.005	10.433	0.075	0.276	0.006	20.000	0.136	0.276	0.006
6.890	0.052	0.209	0.005	15.236	0.106	0.209	0.005	10.551	0.076	0.276	0.006	20.276	0.138	0.276	0.006
6.988	0.053	0.209	0.005	15.394	0.107	0.209	0.005	10.709	0.077	0.276	0.006	20.591	0.140	0.276	0.006
7.087	0.054	0.209	0.005	15.551	0.108	0.209	0.005	10.866	0.078	0.276	0.006	20.866	0.142	0.276	0.006
7.185	0.054	0.209	0.005	15.748	0.109	0.209	0.005	11.024	0.079	0.276	0.006	21.181	0.144	0.276	0.006
7.283	0.055	0.209	0.005	4.291	0.035	0.276	0.006	11.142	0.080	0.276	0.006	21.457	0.145	0.276	0.006
7.382	0.056	0.209	0.005	4.409	0.036	0.276	0.006	11.260	0.081	0.276	0.006	21.772	0.147	0.276	0.006
7.480	0.056	0.209	0.005	4.528	0.037	0.276	0.006	11.417	0.082	0.276	0.006	22.047	0.149	0.276	0.006
7.677	0.057	0.209	0.005	4.646	0.037	0.276	0.006	11.614	0.083	0.276	0.006	22.441	0.152	0.276	0.006
7.874	0.059	0.209	0.005	4.803	0.038	0.276	0.006	11.811	0.084	0.276	0.006	22.835	0.154	0.276	0.006
7.992	0.059	0.209	0.005	4.921	0.039	0.276	0.006	11.929	0.085	0.276	0.006	23.228	0.156	0.276	0.006
8.110	0.060	0.209	0.005	5.039	0.040	0.276	0.006	12.087	0.086	0.276	0.006	23.622	0.159	0.276	0.006
8.346	0.062	0.209	0.005	5.197	0.041	0.276	0.006	12.244	0.087	0.276	0.006	23.937	0.161	0.276	0.006
8.583	0.063	0.209	0.005	5.354	0.042	0.276	0.006	12.402	0.088	0.276	0.006	24.213	0.162	0.276	0.006
8.819	0.065	0.209	0.005	5.512	0.043	0.276	0.006	12.598	0.089	0.276	0.006	24.528	0.164	0.276	0.006
8.937	0.066	0.209	0.005	5.610	0.044	0.276	0.006	12.795	0.091	0.276	0.006	24.803	0.166	0.276	0.006
9.055	0.067	0.209	0.005	5.709	0.044	0.276	0.006	12.992	0.092	0.276	0.006	25.197	0.169	0.276	0.006
9.291	0.068	0.209	0.005	5.807	0.045	0.276	0.006	13.189	0.093	0.276	0.006	25.591	0.171	0.276	0.006
9.409	0.069	0.209	0.005	5.906	0.046	0.276	0.006	13.386	0.094	0.276	0.006	25.984	0.173	0.276	0.006
9.567	0.070	0.209	0.005	6.004	0.046	0.276	0.006	13.583	0.096	0.276	0.006	26.378	0.176	0.276	0.006
9.843	0.072	0.209	0.005	6.102	0.047	0.276	0.006	13.780	0.097	0.276	0.006				
10.000	0.072	0.209	0.005	6.201	0.048	0.276	0.006	13.976	0.098	0.276	0.006				
10.157	0.074	0.209	0.005	6.299	0.048	0.276	0.006	14.173	0.099	0.276	0.006				
10.276	0.074	0.209	0.005	6.398	0.049	0.276	0.006	14.370	0.101	0.276	0.006				
10.433	0.075	0.209	0.005	6.496	0.050	0.276	0.006	14.567	0.102	0.276	0.006				
10.551	0.076	0.209	0.005	6.594	0.050	0.276	0.006	14.764	0.103	0.276	0.006				
10.709	0.077	0.209	0.005	6.693	0.051	0.276	0.006	14.921	0.104	0.276	0.006				
10.866	0.078	0.209	0.005	6.791	0.052	0.276	0.006	15.079	0.105	0.276	0.006				
11.024	0.079	0.209	0.005	6.890	0.052	0.276	0.006	15.236	0.106	0.276	0.006				
11.142	0.080	0.209	0.005	6.988	0.053	0.276	0.006	15.394	0.107	0.276	0.006				
11.260	0.081	0.209	0.005	7.087	0.054	0.276	0.006	15.551	0.108	0.276	0.006				
11.417	0.082	0.209	0.005	7.185	0.054	0.276	0.006	15.748	0.109	0.276	0.006				
11.614	0.083	0.209	0.005	7.283	0.055	0.276	0.006	15.984	0.111	0.276	0.006				
11.811	0.084	0.209	0.005	7.382	0.056	0.276	0.006	16.220	0.112	0.276	0.006				
11.929	0.085	0.209	0.005	7.480	0.056	0.276	0.006	16.457	0.114	0.276	0.006				
12.087	0.086	0.209	0.005	7.677	0.057	0.276	0.006	16.732	0.116	0.276	0.006				
12.244	0.087	0.209	0.005	7.874	0.059	0.276	0.006	16.890	0.117	0.276	0.006				

O-Ring Standard Size (JIS B 2401)

TABLE OF DIMENSIONS OF O-RINGS FOR STATIC SEALING OF CYLINDRICAL SURFACE AND FLAT SURFACE

MEASUREMENTS IN MILLIMETERS					MEASUREMENTS IN INCHES				
JIS B 2401 SIZE	ID	±	CS	±	JIS B 2401 SIZE	ID	±	CS	±
G25	24.40	0.25	3.10	0.10	G25	0.961	0.010	0.122	0.004
G30	29.40	0.29	3.10	0.10	G30	1.157	0.011	0.122	0.004
G35	34.40	0.33	3.10	0.10	G35	1.354	0.013	0.122	0.004
G40	39.40	0.37	3.10	0.10	G40	1.551	0.015	0.122	0.004
G45	44.40	0.41	3.10	0.10	G45	1.748	0.016	0.122	0.004
G50	49.40	0.45	3.10	0.10	G50	1.945	0.018	0.122	0.004
G55	54.40	0.49	3.10	0.10	G55	2.142	0.019	0.122	0.004
G60	59.40	0.53	3.10	0.10	G60	2.339	0.021	0.122	0.004
G65	64.40	0.57	3.10	0.10	G65	2.535	0.022	0.122	0.004
G70	69.40	0.61	3.10	0.10	G70	2.732	0.024	0.122	0.004
G75	74.40	0.65	3.10	0.10	G75	2.929	0.026	0.122	0.004
G80	79.40	0.69	3.10	0.10	G80	3.126	0.027	0.122	0.004
G85	84.40	0.73	3.10	0.10	G85	3.323	0.029	0.122	0.004
G90	89.40	0.77	3.10	0.10	G90	3.520	0.030	0.122	0.004
G95	94.40	0.81	3.10	0.10	G95	3.717	0.032	0.122	0.004
G100	99.40	0.85	3.10	0.10	G100	3.913	0.033	0.122	0.004
G105	104.40	0.87	3.10	0.10	G105	4.110	0.034	0.122	0.004
G110	109.40	0.91	3.10	0.10	G110	4.307	0.036	0.122	0.004
G115	114.40	0.94	3.10	0.10	G115	4.504	0.037	0.122	0.004
G120	119.40	0.98	3.10	0.10	G120	4.701	0.039	0.122	0.004
G125	124.40	1.01	3.10	0.10	G125	4.898	0.040	0.122	0.004
G130	129.40	1.05	3.10	0.10	G130	5.094	0.041	0.122	0.004
G135	134.40	1.08	3.10	0.10	G135	5.291	0.043	0.122	0.004
G140	139.40	1.12	3.10	0.10	G140	5.488	0.044	0.122	0.004
G145	144.40	1.16	3.10	0.10	G145	5.685	0.046	0.122	0.004
G150	149.30	1.19	5.70	0.13	G150	5.878	0.047	0.224	0.005
G155	154.30	1.23	5.70	0.13	G155	6.075	0.048	0.224	0.005
G160	159.30	1.26	5.70	0.13	G160	6.272	0.050	0.224	0.005
G165	164.30	1.30	5.70	0.13	G165	6.468	0.051	0.224	0.005
G170	169.30	1.33	5.70	0.13	G170	6.665	0.052	0.224	0.005
G175	174.30	1.37	5.70	0.13	G175	6.862	0.054	0.224	0.005
G180	179.30	1.40	5.70	0.13	G180	7.059	0.055	0.224	0.005
G185	184.30	1.44	5.70	0.13	G185	7.256	0.057	0.224	0.005
G190	189.30	1.47	5.70	0.13	G190	7.453	0.058	0.224	0.005
G195	194.30	1.51	5.70	0.13	G195	7.650	0.059	0.224	0.005
G200	199.30	1.55	5.70	0.13	G200	7.846	0.061	0.224	0.005
G205	204.30	1.58	5.70	0.13	G205	8.043	0.062	0.224	0.005
G210	209.30	1.61	5.70	0.13	G210	8.240	0.063	0.224	0.005
G215	214.30	1.65	5.70	0.13	G215	8.437	0.065	0.224	0.005
G220	219.30	1.68	5.70	0.13	G220	8.634	0.066	0.224	0.005
G225	224.30	1.71	5.70	0.13	G225	8.831	0.067	0.224	0.005
G230	229.30	1.73	5.70	0.13	G230	9.028	0.068	0.224	0.005
G235	234.30	1.78	5.70	0.13	G235	9.224	0.070	0.224	0.005
G240	239.30	1.81	5.70	0.13	G240	9.421	0.071	0.224	0.005
G245	244.30	1.85	5.70	0.13	G245	9.618	0.073	0.224	0.005
G250	249.30	1.88	5.70	0.13	G250	9.815	0.074	0.224	0.005
G255	254.30	1.91	5.70	0.13	G255	10.012	0.075	0.224	0.005
G260	259.30	1.94	5.70	0.13	G260	10.209	0.076	0.224	0.005
G265	264.30	1.98	5.70	0.13	G265	10.405	0.078	0.224	0.005
G270	269.30	2.01	5.70	0.13	G270	10.602	0.079	0.224	0.005
G275	274.30	2.04	5.70	0.13	G275	10.799	0.080	0.224	0.005
G280	279.30	2.07	5.70	0.13	G280	10.996	0.081	0.224	0.005
G285	284.30	2.11	5.70	0.13	G285	11.193	0.083	0.224	0.005
G290	289.30	2.14	5.70	0.13	G290	11.390	0.084	0.224	0.005
G295	294.30	2.17	5.70	0.13	G295	11.587	0.085	0.224	0.005

O-Ring Standard Size (JIS B 2401)

MEASUREMENTS IN MILLIMETERS

JIS B 2401 SIZE	ID	±	CS	±
G300	299.30	2.20	5.70	0.13
G305	304.30	2.24	5.70	0.13
G310	309.30	2.27	5.70	0.13
G315	314.30	2.30	5.70	0.13
G320	319.30	2.33	5.70	0.13
G325	324.30	2.36	5.70	0.13
G330	329.30	2.39	5.70	0.13
G335	334.30	2.42	5.70	0.13
G340	339.30	2.45	5.70	0.13
G345	344.30	2.48	5.70	0.13
G350	349.30	2.51	5.70	0.13
G355	354.30	2.54	5.70	0.13
G360	359.30	2.57	5.70	0.13
G365	364.30	2.60	5.70	0.13
G370	369.30	2.63	5.70	0.13
G375	374.30	2.67	5.70	0.13
G380	379.30	2.70	5.70	0.13
G385	384.30	2.73	5.70	0.13
G390	389.30	2.77	5.70	0.13
G395	394.30	2.79	5.70	0.13
G400	399.30	2.82	5.70	0.13
G405	404.30	3.00	5.70	0.13
G410	409.30	3.00	5.70	0.13
G415	414.30	3.00	5.70	0.13
G420	419.30	3.00	5.70	0.13
G425	424.30	3.00	5.70	0.13
G430	429.30	3.00	5.70	0.13
G435	434.30	3.00	5.70	0.13
G440	439.30	3.00	5.70	0.13
G445	444.30	3.00	5.70	0.13
G450	449.30	3.00	5.70	0.13
G455	454.30	3.30	5.70	0.13
G460	459.30	3.30	5.70	0.13
G465	464.30	3.30	5.70	0.13
G470	469.30	3.30	5.70	0.13
G475	474.30	3.30	5.70	0.13
G480	479.30	3.30	5.70	0.13
G485	484.30	3.30	5.70	0.13
G490	489.30	3.30	5.70	0.13
G495	494.30	3.30	5.70	0.13
G500	499.30	3.30	5.70	0.13
G510	509.30	3.47	5.70	0.13
G520	519.30	3.53	5.70	0.13
G530	529.30	3.59	5.70	0.13
G540	539.30	3.65	5.70	0.13
G550	549.30	3.72	5.70	0.13
G560	559.30	3.78	5.70	0.13
G570	569.30	3.84	5.70	0.13
G580	579.30	3.90	5.70	0.13
G590	589.30	3.97	5.70	0.13
G600	599.30	4.03	5.70	0.13
G605	604.30	4.06	5.70	0.13
G860	859.30	5.63	5.70	0.13
G910	909.30	5.93	5.70	0.13

MEASUREMENTS IN INCHES

JIS B 2401 SIZE	ID	±	CS	±
G300	11.783	0.087	0.224	0.005
G305	11.980	0.088	0.224	0.005
G310	12.177	0.089	0.224	0.005
G315	12.374	0.091	0.224	0.005
G320	12.571	0.092	0.224	0.005
G325	12.768	0.093	0.224	0.005
G330	12.965	0.094	0.224	0.005
G335	13.161	0.095	0.224	0.005
G340	13.358	0.096	0.224	0.005
G345	13.555	0.098	0.224	0.005
G350	13.752	0.099	0.224	0.005
G355	13.949	0.100	0.224	0.005
G360	14.146	0.101	0.224	0.005
G365	14.342	0.102	0.224	0.005
G370	14.539	0.104	0.224	0.005
G375	14.736	0.105	0.224	0.005
G380	14.933	0.106	0.224	0.005
G385	15.130	0.107	0.224	0.005
G390	15.327	0.109	0.224	0.005
G395	15.524	0.110	0.224	0.005
G400	15.720	0.111	0.224	0.005
G405	15.917	0.118	0.224	0.005
G410	16.114	0.118	0.224	0.005
G415	16.311	0.118	0.224	0.005
G420	16.508	0.118	0.224	0.005
G425	16.705	0.118	0.224	0.005
G430	16.902	0.118	0.224	0.005
G435	17.098	0.118	0.224	0.005
G440	17.295	0.118	0.224	0.005
G445	17.492	0.118	0.224	0.005
G450	17.689	0.118	0.224	0.005
G455	17.886	0.130	0.224	0.005
G460	18.083	0.130	0.224	0.005
G465	18.279	0.130	0.224	0.005
G470	18.476	0.130	0.224	0.005
G475	18.673	0.130	0.224	0.005
G480	18.870	0.130	0.224	0.005
G485	19.067	0.130	0.224	0.005
G490	19.264	0.130	0.224	0.005
G495	19.461	0.130	0.224	0.005
G500	19.657	0.130	0.224	0.005
G510	20.051	0.136	0.224	0.005
G520	20.445	0.139	0.224	0.005
G530	20.839	0.141	0.224	0.005
G540	21.232	0.144	0.224	0.005
G550	21.626	0.146	0.224	0.005
G560	22.020	0.149	0.224	0.005
G570	22.413	0.151	0.224	0.005
G580	22.807	0.154	0.224	0.005
G590	23.201	0.156	0.224	0.005
G600	23.594	0.159	0.224	0.005
G605	23.791	0.160	0.224	0.005
G860	33.831	0.222	0.224	0.005
G910	35.799	0.234	0.224	0.005

TABLE OF DIMENSIONS OF O-RINGS FOR DYNAMIC SEALING AND STATIC SEALING OF
CYLINDRICAL SURFACE AND FLAT SURFACE

MEASUREMENTS IN MILLIMETERS					MEASUREMENTS IN INCHES				
JIS B 2401 SIZE	ID	±	CS	±	JIS B 2401 SIZE	ID	±	CS	±
P3	2.80	0.14	1.90	0.07	P3	0.110	0.006	0.075	0.003
P4	3.80	0.14	1.90	0.07	P4	0.150	0.006	0.075	0.003
P5	4.80	0.15	1.90	0.07	P5	0.189	0.006	0.075	0.003
P6	5.80	0.15	1.90	0.07	P6	0.228	0.006	0.075	0.003
P7	6.80	0.16	1.90	0.07	P7	0.268	0.006	0.075	0.003
P8	7.80	0.16	1.90	0.07	P8	0.307	0.006	0.075	0.003
P9	8.80	0.17	1.90	0.07	P9	0.346	0.007	0.075	0.003
P10	9.80	0.17	1.90	0.07	P10	0.386	0.007	0.075	0.003
P10A	9.80	0.17	2.40	0.07	P10A	0.386	0.007	0.094	0.003
P11	10.80	0.18	2.40	0.07	P11	0.425	0.007	0.094	0.003
P11.2	11.00	0.18	2.40	0.07	P11.2	0.433	0.007	0.094	0.003
P12	11.80	0.19	2.40	0.07	P12	0.465	0.007	0.094	0.003
P12.5	12.30	0.19	2.40	0.07	P12.5	0.484	0.007	0.094	0.003
P14	13.80	0.19	2.40	0.07	P14	0.543	0.007	0.094	0.003
P15	14.80	0.20	2.40	0.07	P15	0.583	0.008	0.094	0.003
P16	15.80	0.20	2.40	0.07	P16	0.622	0.008	0.094	0.003
P18	17.80	0.21	2.40	0.07	P18	0.701	0.008	0.094	0.003
P20	19.80	0.22	2.40	0.07	P20	0.780	0.009	0.094	0.003
P21	20.80	0.23	2.40	0.07	P21	0.819	0.009	0.094	0.003
P22	21.80	0.24	2.40	0.07	P22	0.858	0.009	0.094	0.003
P22A	21.70	0.24	3.50	0.10	P22A	0.854	0.009	0.138	0.004
P22.4	22.10	0.24	3.50	0.10	P22.4	0.870	0.009	0.138	0.004
P24	23.70	0.24	3.50	0.10	P24	0.933	0.009	0.138	0.004
P25	24.70	0.25	3.50	0.10	P25	0.972	0.010	0.138	0.004
P25.5	25.20	0.25	3.50	0.10	P25.5	0.992	0.010	0.138	0.004
P26	25.70	0.26	3.50	0.10	P26	1.012	0.010	0.138	0.004
P28	27.70	0.28	3.50	0.10	P28	1.091	0.011	0.138	0.004
P29	28.70	0.29	3.50	0.10	P29	1.130	0.011	0.138	0.004
P29.5	29.20	0.29	3.50	0.10	P29.5	1.150	0.011	0.138	0.004
P30	29.70	0.29	3.50	0.10	P30	1.169	0.011	0.138	0.004
P31	30.70	0.30	3.50	0.10	P31	1.209	0.012	0.138	0.004
P31.5	31.20	0.31	3.50	0.10	P31.5	1.228	0.012	0.138	0.004
P32	31.70	0.31	3.50	0.10	P32	1.248	0.012	0.138	0.004
P34	33.70	0.33	3.50	0.10	P34	1.327	0.013	0.138	0.004
P35	34.70	0.34	3.50	0.10	P35	1.366	0.013	0.138	0.004
P35.5	35.20	0.34	3.50	0.10	P35.5	1.386	0.013	0.138	0.004
P36	35.70	0.34	3.50	0.10	P36	1.406	0.013	0.138	0.004
P38	37.70	0.37	3.50	0.10	P38	1.484	0.015	0.138	0.004
P39	38.70	0.37	3.50	0.10	P39	1.524	0.015	0.138	0.004
P40	39.70	0.37	3.50	0.10	P40	1.563	0.015	0.138	0.004
P41	40.70	0.38	3.50	0.10	P41	1.602	0.015	0.138	0.004
P42	41.70	0.39	3.50	0.10	P42	1.642	0.015	0.138	0.004
P44	43.70	0.41	3.50	0.10	P44	1.720	0.016	0.138	0.004
P45	44.70	0.41	3.50	0.10	P45	1.760	0.016	0.138	0.004
P46	45.70	0.42	3.50	0.10	P46	1.799	0.017	0.138	0.004
P48	47.70	0.44	3.50	0.10	P48	1.878	0.017	0.138	0.004
P49	48.70	0.45	3.50	0.10	P49	1.917	0.018	0.138	0.004
P50	49.70	0.45	3.50	0.10	P50	1.957	0.018	0.138	0.004
P48A	47.60	0.44	5.70	0.13	P48A	1.874	0.017	0.224	0.005
P50A	49.60	0.45	5.70	0.13	P50A	1.953	0.018	0.224	0.005
P52	51.60	0.47	5.70	0.13	P52	2.031	0.019	0.224	0.005
P53	52.60	0.48	5.70	0.13	P53	2.071	0.019	0.224	0.005
P55	54.60	0.49	5.70	0.13	P55	2.150	0.019	0.224	0.005
P56	55.60	0.50	5.70	0.13	P56	2.189	0.020	0.224	0.005
P58	57.60	0.52	5.70	0.13	P58	2.268	0.020	0.224	0.005

O-Ring Standard Size (JIS B 2401)

MEASUREMENTS IN MILLIMETERS

JIS B 2401 SIZE	ID	±	CS	±
P60	59.60	0.53	5.70	0.13
P62	61.60	0.55	5.70	0.13
P63	62.60	0.56	5.70	0.13
P65	64.60	0.57	5.70	0.13
P67	66.60	0.59	5.70	0.13
P70	69.60	0.61	5.70	0.13
P71	70.60	0.62	5.70	0.13
P75	74.60	0.65	5.70	0.13
P80	79.60	0.69	5.70	0.13
P85	84.60	0.73	5.70	0.13
P90	89.60	0.77	5.70	0.13
P95	94.60	0.81	5.70	0.13
P100	99.60	0.84	5.70	0.13
P102	101.60	0.85	5.70	0.13
P105	104.60	0.87	5.70	0.13
P110	109.60	0.91	5.70	0.13
P112	111.60	0.92	5.70	0.13
P115	114.60	0.94	5.70	0.13
P120	119.60	0.98	5.70	0.13
P125	124.60	1.01	5.70	0.13
P130	129.60	1.05	5.70	0.13
P132	131.60	1.06	5.70	0.13
P135	134.60	1.09	5.70	0.13
P140	139.60	1.12	5.70	0.13
P145	144.60	1.16	5.70	0.13
P150	149.60	1.19	5.70	0.13
P150A	149.50	1.19	8.40	0.15
P155	154.50	1.23	8.40	0.15
P160	159.50	1.26	8.40	0.15
P165	164.50	1.30	8.40	0.15
P170	169.50	1.33	8.40	0.15
P175	174.50	1.37	8.40	0.15
P180	179.50	1.40	8.40	0.15
P185	184.50	1.44	8.40	0.15
P190	189.50	1.48	8.40	0.15
P195	194.50	1.51	8.40	0.15
P200	199.50	1.55	8.40	0.15
P205	204.50	1.58	8.40	0.15
P209	208.50	1.61	8.40	0.15
P210	209.50	1.62	8.40	0.15
P215	214.50	1.65	8.40	0.15
P220	219.50	1.68	8.40	0.15
P225	224.50	1.71	8.40	0.15
P230	229.50	1.75	8.40	0.15
P235	234.50	1.78	8.40	0.15
P240	239.50	1.81	8.40	0.15
P245	244.50	1.84	8.40	0.15
P250	249.50	1.88	8.40	0.15
P255	254.50	1.91	8.40	0.15
P260	259.50	1.94	8.40	0.15
P265	264.50	1.97	8.40	0.15
P270	269.50	2.01	8.40	0.15
P275	274.50	2.04	8.40	0.15
P280	279.50	2.07	8.40	0.15

MEASUREMENTS IN INCHES

JIS B 2401 SIZE	ID	±	CS	±
P60	2.346	0.021	0.224	0.005
P62	2.425	0.022	0.224	0.005
P63	2.465	0.022	0.224	0.005
P65	2.543	0.022	0.224	0.005
P67	2.622	0.023	0.224	0.005
P70	2.740	0.024	0.224	0.005
P71	2.780	0.024	0.224	0.005
P75	2.937	0.026	0.224	0.005
P80	3.134	0.027	0.224	0.005
P85	3.331	0.029	0.224	0.005
P90	3.528	0.030	0.224	0.005
P95	3.724	0.032	0.224	0.005
P100	3.921	0.033	0.224	0.005
P102	4.000	0.033	0.224	0.005
P105	4.118	0.034	0.224	0.005
P110	4.315	0.036	0.224	0.005
P112	4.394	0.036	0.224	0.005
P115	4.512	0.037	0.224	0.005
P120	4.709	0.039	0.224	0.005
P125	4.906	0.040	0.224	0.005
P130	5.102	0.041	0.224	0.005
P132	5.181	0.042	0.224	0.005
P135	5.299	0.043	0.224	0.005
P140	5.496	0.044	0.224	0.005
P145	5.693	0.046	0.224	0.005
P150	5.890	0.047	0.224	0.005
P150A	5.886	0.047	0.331	0.006
P155	6.083	0.048	0.331	0.006
P160	6.280	0.050	0.331	0.006
P165	6.476	0.051	0.331	0.006
P170	6.673	0.052	0.331	0.006
P175	6.870	0.054	0.331	0.006
P180	7.067	0.055	0.331	0.006
P185	7.264	0.057	0.331	0.006
P190	7.461	0.058	0.331	0.006
P195	7.657	0.059	0.331	0.006
P200	7.854	0.061	0.331	0.006
P205	8.051	0.062	0.331	0.006
P209	8.209	0.063	0.331	0.006
P210	8.248	0.064	0.331	0.006
P215	8.445	0.065	0.331	0.006
P220	8.642	0.066	0.331	0.006
P225	8.839	0.067	0.331	0.006
P230	9.035	0.069	0.331	0.006
P235	9.232	0.070	0.331	0.006
P240	9.429	0.071	0.331	0.006
P245	9.626	0.072	0.331	0.006
P250	9.823	0.074	0.331	0.006
P255	10.020	0.075	0.331	0.006
P260	10.217	0.076	0.331	0.006
P265	10.413	0.078	0.331	0.006
P270	10.610	0.079	0.331	0.006
P275	10.807	0.080	0.331	0.006
P280	11.004	0.081	0.331	0.006

MEASUREMENTS IN MILLIMETERS

JIS B 2401 SIZE	ID	±	CS	±
P285	284.50	2.10	8.40	0.15
P290	289.50	2.14	8.40	0.15
P295	294.50	2.17	8.40	0.15
P300	299.50	2.20	8.40	0.15
P305	304.50	2.24	8.40	0.15
P310	309.50	2.27	8.40	0.15
P315	314.50	2.30	8.40	0.15
P320	319.50	2.33	8.40	0.15
P325	324.50	2.36	8.40	0.15
P330	329.50	2.39	8.40	0.15
P335	334.50	2.42	8.40	0.15
P340	339.50	2.45	8.40	0.15
P345	344.50	2.48	8.40	0.15
P350	349.50	2.51	8.40	0.15
P355	354.50	2.54	8.40	0.15
P360	359.50	2.57	8.40	0.15
P365	364.50	2.60	8.40	0.15
P370	369.50	2.63	8.40	0.15
P375	374.50	2.67	8.40	0.15
P380	379.50	2.70	8.40	0.15
P385	384.50	2.73	8.40	0.15
P390	389.50	2.77	8.40	0.15
P395	394.50	2.79	8.40	0.15
P400	399.50	2.82	8.40	0.15
P405	404.50	3.00	8.40	0.15
P410	409.50	3.00	8.40	0.15
P415	414.50	3.00	8.40	0.15
P420	419.50	3.00	8.40	0.15
P425	424.50	3.00	8.40	0.15
P430	429.50	3.00	8.40	0.15
P435	434.50	3.00	8.40	0.15
P440	439.50	3.00	8.40	0.15
P445	444.50	3.00	8.40	0.15
P450	449.50	3.00	8.40	0.15
P455	454.50	3.30	8.40	0.15
P460	459.50	3.30	8.40	0.15
P465	464.50	3.30	8.40	0.15
P470	469.50	3.30	8.40	0.15
P475	474.50	3.30	8.40	0.15
P480	479.50	3.30	8.40	0.15
P485	484.50	3.30	8.40	0.15
P490	489.50	3.30	8.40	0.15
P495	494.50	3.30	8.40	0.15
P500	499.50	3.30	8.40	0.15
P590	589.50	3.97	8.40	0.15
P600	599.50	4.03	8.40	0.15
P610	609.50	4.09	8.40	0.15
P620	619.50	4.15	8.40	0.15
P625	624.50	4.18	8.40	0.15
P635	634.50	4.25	8.40	0.15
P650	649.50	4.34	8.40	0.15
P680	679.50	4.52	8.40	0.15
P690	689.50	4.59	8.40	0.15
P700	699.50	4.65	8.40	0.15
P710	709.50	4.71	8.40	0.15

MEASUREMENTS IN INCHES

JIS B 2401 SIZE	ID	±	CS	±
P285	11.201	0.083	0.331	0.006
P290	11.398	0.084	0.331	0.006
P295	11.594	0.085	0.331	0.006
P300	11.791	0.087	0.331	0.006
P305	11.988	0.088	0.331	0.006
P310	12.185	0.089	0.331	0.006
P315	12.382	0.091	0.331	0.006
P320	12.579	0.092	0.331	0.006
P325	12.776	0.093	0.331	0.006
P330	12.972	0.094	0.331	0.006
P335	13.169	0.095	0.331	0.006
P340	13.366	0.096	0.331	0.006
P345	13.563	0.098	0.331	0.006
P350	13.760	0.099	0.331	0.006
P355	13.957	0.100	0.331	0.006
P360	14.154	0.101	0.331	0.006
P365	14.350	0.102	0.331	0.006
P370	14.547	0.104	0.331	0.006
P375	14.744	0.105	0.331	0.006
P380	14.941	0.106	0.331	0.006
P385	15.138	0.107	0.331	0.006
P390	15.335	0.109	0.331	0.006
P395	15.531	0.110	0.331	0.006
P400	15.728	0.111	0.331	0.006
P405	15.925	0.118	0.331	0.006
P410	16.122	0.118	0.331	0.006
P415	16.319	0.118	0.331	0.006
P420	16.516	0.118	0.331	0.006
P425	16.713	0.118	0.331	0.006
P430	16.909	0.118	0.331	0.006
P435	17.106	0.118	0.331	0.006
P440	17.303	0.118	0.331	0.006
P445	17.500	0.118	0.331	0.006
P450	17.697	0.118	0.331	0.006
P455	17.894	0.130	0.331	0.006
P460	18.091	0.130	0.331	0.006
P465	18.287	0.130	0.331	0.006
P470	18.484	0.130	0.331	0.006
P475	18.681	0.130	0.331	0.006
P480	18.878	0.130	0.331	0.006
P485	19.075	0.130	0.331	0.006
P490	19.272	0.130	0.331	0.006
P495	19.468	0.130	0.331	0.006
P500	19.665	0.130	0.331	0.006
P590	23.209	0.156	0.331	0.006
P600	23.602	0.159	0.331	0.006
P610	23.996	0.161	0.331	0.006
P620	24.390	0.163	0.331	0.006
P625	24.587	0.165	0.331	0.006
P635	24.980	0.167	0.331	0.006
P650	25.571	0.171	0.331	0.006
P680	26.752	0.178	0.331	0.006
P690	27.146	0.181	0.331	0.006
P700	27.539	0.183	0.331	0.006
P710	27.933	0.185	0.331	0.006

O-Ring Standard
Size (JIS B 2401)

O-Ring Standard Size (JIS B 2401)

MEASUREMENTS IN MILLIMETERS					MEASUREMENTS IN INCHES				
JIS B 2401 SIZE	ID	±	CS	±	JIS B 2401 SIZE	ID	±	CS	±
P720	719.50	4.77	8.40	0.15	P720	28.327	0.188	0.331	0.006
P730	729.50	4.83	8.40	0.15	P730	28.720	0.190	0.331	0.006
P740	739.50	4.89	8.40	0.15	P740	29.114	0.193	0.331	0.006
P750	749.50	4.95	8.40	0.15	P750	29.508	0.195	0.331	0.006
P760	759.50	5.02	8.40	0.15	P760	29.902	0.197	0.331	0.006
P770	769.50	5.08	8.40	0.15	P770	30.295	0.200	0.331	0.006
P780	779.50	5.14	8.40	0.15	P780	30.689	0.202	0.331	0.006
P790	789.50	5.20	8.40	0.15	P790	31.083	0.205	0.331	0.006
P800	799.50	5.26	8.40	0.15	P800	31.476	0.207	0.331	0.006
P810	809.50	5.32	8.40	0.15	P810	31.870	0.210	0.331	0.006
P820	819.50	5.38	8.40	0.15	P820	32.264	0.212	0.331	0.006
P830	829.50	5.44	8.40	0.15	P830	32.657	0.214	0.331	0.006
P840	839.50	5.51	8.40	0.15	P840	33.051	0.217	0.331	0.006
P850	849.50	5.57	8.40	0.15	P850	33.445	0.219	0.331	0.006
P860	859.50	5.63	8.40	0.15	P860	33.839	0.222	0.331	0.006
P870	869.50	5.69	8.40	0.15	P870	34.232	0.224	0.331	0.006
P880	879.50	5.75	8.40	0.15	P880	34.626	0.226	0.331	0.006
P890	889.50	5.81	8.40	0.15	P890	35.020	0.229	0.331	0.006
P900	899.50	5.87	8.40	0.15	P900	35.413	0.231	0.331	0.006
P910	909.50	5.93	8.40	0.15	P910	35.807	0.234	0.331	0.006
P915	914.50	5.96	8.40	0.15	P915	36.004	0.235	0.331	0.006
P920	919.50	5.99	8.40	0.15	P920	36.201	0.236	0.331	0.006
P930	929.50	6.05	8.40	0.15	P930	36.594	0.238	0.331	0.006
P940	939.50	6.11	8.40	0.15	P940	36.988	0.241	0.331	0.006
P950	949.50	6.18	8.40	0.15	P950	37.382	0.243	0.331	0.006
P960	959.50	6.24	8.40	0.15	P960	37.776	0.246	0.331	0.006
P970	969.50	6.30	8.40	0.15	P970	38.169	0.248	0.331	0.006
P980	979.50	6.36	8.40	0.15	P980	38.563	0.250	0.331	0.006
P990	989.50	6.42	8.40	0.15	P990	38.957	0.253	0.331	0.006
P1000	999.50	6.48	8.40	0.15	P1000	39.350	0.255	0.331	0.006

TABLE OF DIMENSIONS OF O-RINGS FOR STATIC SEALING

★ NBR tolerance per GMORS compound no. N7034AA.
 ★ For other NBR compounds, tolerance needs to be negotiated or new tool will be charged.

MEASUREMENTS IN MILLIMETERS					MEASUREMENTS IN INCHES				
JIS B 2401 SIZE	ID	±	CS	±	JIS B 2401 SIZE	ID	±	CS	±
S3	2.50	0.13	1.50	0.08	S3	0.098	0.005	0.059	0.003
S4	3.50	0.14	1.50	0.08	S4	0.138	0.006	0.059	0.003
S5	4.50	0.14	1.50	0.08	S5	0.177	0.006	0.059	0.003
S6	5.50	0.15	1.50	0.08	S6	0.217	0.006	0.059	0.003
S7	6.50	0.15	1.50	0.08	S7	0.256	0.006	0.059	0.003
S8	7.50	0.16	1.50	0.08	S8	0.295	0.006	0.059	0.003
S9	8.50	0.16	1.50	0.08	S9	0.335	0.006	0.059	0.003
S10	9.50	0.17	1.50	0.08	S10	0.374	0.007	0.059	0.003
S11.2	10.70	0.18	1.50	0.08	S11.2	0.421	0.007	0.059	0.003
S12	11.50	0.18	1.50	0.08	S12	0.453	0.007	0.059	0.003
S12.5	12.00	0.19	1.50	0.08	S12.5	0.472	0.007	0.059	0.003
S14	13.50	0.19	1.50	0.08	S14	0.531	0.007	0.059	0.003
S15	14.50	0.19	1.50	0.08	S15	0.571	0.007	0.059	0.003
S16	15.50	0.20	1.50	0.08	S16	0.610	0.008	0.059	0.003
S18	17.50	0.21	1.50	0.08	S18	0.689	0.008	0.059	0.003
S20	19.50	0.22	1.50	0.08	S20	0.768	0.009	0.059	0.003
S22	21.50	0.23	1.50	0.08	S22	0.846	0.009	0.059	0.003
S22.4	21.90	0.23	2.00	0.08	S22.4	0.862	0.009	0.079	0.003
S24	23.50	0.24	2.00	0.08	S24	0.925	0.009	0.079	0.003
S25	24.50	0.24	2.00	0.08	S25	0.965	0.009	0.079	0.003
S26	25.50	0.25	2.00	0.08	S26	1.004	0.010	0.079	0.003
S28	27.50	0.26	2.00	0.08	S28	1.083	0.010	0.079	0.003
S29	28.50	0.28	2.00	0.08	S29	1.122	0.011	0.079	0.003
S30	29.50	0.28	2.00	0.08	S30	1.161	0.011	0.079	0.003
S31.5	31.00	0.29	2.00	0.08	S31.5	1.220	0.011	0.079	0.003
S32	31.50	0.31	2.00	0.08	S32	1.240	0.012	0.079	0.003
S34	33.50	0.32	2.00	0.08	S34	1.319	0.013	0.079	0.003
S35	34.50	0.33	2.00	0.08	S35	1.358	0.013	0.079	0.003
S35.5	35.00	0.33	2.00	0.08	S35.5	1.378	0.013	0.079	0.003
S36	35.50	0.34	2.00	0.08	S36	1.398	0.013	0.079	0.003
S38	37.50	0.36	2.00	0.08	S38	1.476	0.014	0.079	0.003
S39	38.50	0.36	2.00	0.08	S39	1.516	0.014	0.079	0.003
S40	39.50	0.38	2.00	0.08	S40	1.555	0.015	0.079	0.003
S42	41.50	0.39	2.00	0.08	S42	1.634	0.015	0.079	0.003
S44	43.50	0.40	2.00	0.08	S44	1.713	0.016	0.079	0.003
S45	44.50	0.41	2.00	0.08	S45	1.752	0.016	0.079	0.003
S46	45.50	0.42	2.00	0.08	S46	1.791	0.017	0.079	0.003
S48	47.50	0.44	2.00	0.08	S48	1.870	0.017	0.079	0.003
S50	49.50	0.45	2.00	0.08	S50	1.949	0.018	0.079	0.003
S53	52.50	0.47	2.00	0.08	S53	2.067	0.019	0.079	0.003
S55	54.50	0.50	2.00	0.08	S55	2.146	0.020	0.079	0.003
S56	55.50	0.50	2.00	0.08	S56	2.185	0.020	0.079	0.003
S60	59.50	0.52	2.00	0.08	S60	2.343	0.020	0.079	0.003
S63	62.50	0.55	2.00	0.08	S63	2.461	0.022	0.079	0.003
S65	64.50	0.56	2.00	0.08	S65	2.539	0.022	0.079	0.003
S67	66.50	0.58	2.00	0.08	S67	2.618	0.023	0.079	0.003
S70	69.50	0.61	2.00	0.08	S70	2.736	0.024	0.079	0.003

O-Ring Standard Size (JIS B 2401)

MEASUREMENTS IN INCHES

JIS B 2401 SIZE	ID	±	CS	±		JIS B 2401 SIZE	ID	±	CS	±
S71	70.50	0.61	2.00	0.08		S71	2.776	0.024	0.079	0.003
S75	74.50	0.64	2.00	0.08		S75	2.933	0.025	0.079	0.003
S80	79.50	0.67	2.00	0.08		S80	3.130	0.026	0.079	0.003
S85	84.50	0.71	2.00	0.08		S85	3.327	0.028	0.079	0.003
S90	89.50	0.75	2.00	0.08		S90	3.524	0.030	0.079	0.003
S95	94.50	0.79	2.00	0.08		S95	3.720	0.031	0.079	0.003
S100	99.50	0.83	2.00	0.08		S100	3.917	0.033	0.079	0.003
S105	104.50	0.87	2.00	0.08		S105	4.114	0.034	0.079	0.003
S110	109.50	0.91	2.00	0.08		S110	4.311	0.036	0.079	0.003
S112	111.50	0.91	2.00	0.08		S112	4.390	0.036	0.079	0.003
S115	114.50	0.93	2.00	0.08		S115	4.508	0.037	0.079	0.003
S120	119.50	0.97	2.00	0.08		S120	4.705	0.038	0.079	0.003
S125	124.50	1.00	2.00	0.08		S125	4.902	0.039	0.079	0.003
S130	129.50	1.05	2.00	0.08		S130	5.098	0.041	0.079	0.003
S132	131.50	1.05	2.00	0.08		S132	5.177	0.041	0.079	0.003
S135	134.50	1.08	2.00	0.08		S135	5.295	0.043	0.079	0.003
S140	139.50	1.10	2.00	0.08		S140	5.492	0.043	0.079	0.003
S145	144.50	1.13	2.00	0.08		S145	5.689	0.044	0.079	0.003
S150	149.50	1.17	2.00	0.08		S150	5.886	0.046	0.079	0.003

MEASUREMENTS IN MILLIMETERS					MEASUREMENTS IN INCHES				
JIS B 2401 SIZE	ID	±	CS	±	JIS B 2401 SIZE	ID	±	CS	±
V10	9.50	0.17	4.00	0.10	V10	0.374	0.007	0.157	0.004
V15	14.50	0.20	4.00	0.10	V15	0.571	0.008	0.157	0.004
V24	23.50	0.24	4.00	0.10	V24	0.925	0.009	0.157	0.004
V34	33.50	0.33	4.00	0.10	V34	1.319	0.013	0.157	0.004
V40	39.50	0.37	4.00	0.10	V40	1.555	0.015	0.157	0.004
V55	54.50	0.49	4.00	0.10	V55	2.146	0.019	0.157	0.004
V58	57.50	0.52	4.00	0.10	V58	2.264	0.020	0.157	0.004
V70	69.00	0.61	4.00	0.10	V70	2.717	0.024	0.157	0.004
V85	84.00	0.72	4.00	0.10	V85	3.307	0.028	0.157	0.004
V100	99.00	0.83	4.00	0.10	V100	3.898	0.033	0.157	0.004
V120	119.00	0.97	4.00	0.10	V120	4.685	0.038	0.157	0.004
V140	138.50	1.08	4.00	0.10	V140	5.453	0.043	0.157	0.004
V150	148.50	1.18	4.00	0.10	V150	5.846	0.046	0.157	0.004
V175	173.00	1.36	4.00	0.10	V175	6.811	0.054	0.157	0.004
V225	222.50	1.70	6.00	0.15	V225	8.760	0.067	0.236	0.006
V275	272.00	2.02	6.00	0.15	V275	10.709	0.080	0.236	0.006
V315	312.00	2.22	6.00	0.15	V315	12.283	0.087	0.236	0.006
V325	321.50	2.34	6.00	0.15	V325	12.657	0.092	0.236	0.006
V380	376.00	2.68	6.00	0.15	V380	14.803	0.106	0.236	0.006
V430	425.50	2.99	6.00	0.15	V430	16.752	0.118	0.236	0.006
V475	470.50	3.22	6.00	0.15	V475	18.524	0.127	0.236	0.006
V480	475.00	3.30	10.00	0.30	V480	18.701	0.130	0.394	0.012
V490	485.00	3.31	10.00	0.30	V490	19.094	0.130	0.394	0.012
V510	504.50	3.44	10.00	0.30	V510	19.862	0.135	0.394	0.012
V530	524.50	3.60	10.00	0.30	V530	20.650	0.142	0.394	0.012
V585	579.00	3.92	10.00	0.30	V585	22.795	0.154	0.394	0.012
V640	633.50	4.24	10.00	0.30	V640	24.941	0.167	0.394	0.012
V690	683.00	4.54	10.00	0.30	V690	26.890	0.179	0.394	0.012
V740	732.50	4.83	10.00	0.30	V740	28.839	0.190	0.394	0.012
V790	782.00	5.12	10.00	0.30	V790	30.787	0.202	0.394	0.012
V950	940.50	6.06	10.00	0.30	V950	37.027	0.239	0.394	0.012
V1055	1044.0	6.67	10.00	0.30	V1055	41.102	0.263	0.394	0.012

O-Ring Standard Size (Metric)

MEASUREMENTS IN MILLIMETERS

ID	±	CS	±	ID	±	CS	±	ID	±	CS	±				
1.00	0.12	1.00	0.07	28.00	0.26	1.00	0.07	20.00	0.22	1.50	0.08				
1.50	0.12			29.00	0.27			21.00	0.23						
2.00	0.13			30.00	0.27			21.50	0.23						
2.50	0.13			31.00	0.28			22.00	0.24						
3.00	0.14			32.00	0.29			23.00	0.24						
3.50	0.14			33.00	0.29			24.00	0.24						
4.00	0.14			34.00	0.30			25.00	0.25						
4.50	0.14			35.00	0.30			26.00	0.26						
5.00	0.15			36.00	0.31			27.00	0.26						
5.50	0.15			37.00	0.31			28.00	0.28						
6.00	0.15			38.00	0.32			28.50	0.28						
6.50	0.16			39.00	0.33			29.00	0.29						
7.00	0.16			40.00	0.33			30.00	0.29						
7.50	0.16											31.50	0.31		
8.00	0.16			1.50	0.12			1.50	0.08			32.00	0.32		
8.50	0.16			1.85	0.13							33.00	0.32		
9.00	0.17			2.00	0.13							34.00	0.33		
9.50	0.17			2.50	0.13							35.00	0.34		
10.00	0.17			3.00	0.14							36.00	0.35		
10.50	0.18			3.50	0.14	37.00	0.36								
11.00	0.18			4.00	0.14	38.00	0.36								
11.50	0.19			4.50	0.14	39.00	0.37								
12.00	0.19			5.00	0.15	40.00	0.38								
12.50	0.19			5.50	0.15	41.00	0.39								
13.00	0.19			6.00	0.15	42.00	0.40								
13.50	0.19			6.50	0.15	43.00	0.40								
14.00	0.19			7.00	0.16	44.00	0.41								
14.50	0.20			7.50	0.16	45.00	0.42								
15.00	0.20			8.00	0.16	46.00	0.43								
15.50	0.20			8.50	0.16	47.00	0.44								
16.00	0.20			9.00	0.17	48.00	0.44								
16.50	0.21			9.50	0.17	49.00	0.45								
17.00	0.21			10.00	0.17	50.00	0.46								
17.50	0.21			10.50	0.18	51.00	0.47								
18.00	0.21			10.70	0.18	52.00	0.47								
18.50	0.22			11.00	0.18	53.00	0.48								
19.00	0.22			11.50	0.18	54.00	0.50								
19.50	0.22			12.00	0.19	55.00	0.50								
20.00	0.22			12.50	0.19	56.00	0.51								
20.50	0.22			13.00	0.19	57.00	0.52								
21.00	0.23			13.50	0.19	58.00	0.52								
21.50	0.23			14.00	0.19	59.00	0.54								
22.00	0.24			14.50	0.19	60.00	0.54								
22.50	0.24			15.00	0.20	61.00	0.55								
23.00	0.24			15.50	0.20	62.00	0.55								
23.50	0.24			16.00	0.20	63.00	0.56								
24.00	0.24			17.00	0.21	64.00	0.58								
24.50	0.25			17.50	0.21	65.00	0.58								
25.00	0.25			18.00	0.21	66.00	0.59								
26.00	0.25			19.00	0.22	67.00	0.59								
27.00	0.26			19.50	0.22	68.00	0.61								

MEASUREMENTS IN MILLIMETERS

ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
69.00	0.61	1.50	0.08	14.00	0.19	2.00	0.08	56.00	0.51	2.00	0.08
70.00	0.62			15.00	0.20			57.00	0.52		
71.00	0.63			16.00	0.20			58.00	0.52		
72.00	0.63			17.00	0.21			59.00	0.54		
73.00	0.64			18.00	0.21			60.00	0.54		
74.00	0.65			19.00	0.22			61.00	0.55		
75.00	0.65			19.50	0.22			62.00	0.55		
76.00	0.66			20.00	0.22			63.00	0.56		
77.00	0.67			21.00	0.23			64.00	0.58		
78.00	0.67			22.00	0.24			64.50	0.58		
79.00	0.68			23.00	0.24			65.00	0.58		
80.00	0.69			23.50	0.24			66.00	0.59		
81.00	0.69			24.00	0.24			67.00	0.59		
82.00	0.70			24.50	0.25			68.00	0.61		
83.00	0.71			25.00	0.25			69.00	0.61		
84.00	0.72			26.00	0.26			69.50	0.61		
85.00	0.72			27.00	0.26			70.00	0.62		
86.00	0.73			28.00	0.28			71.00	0.63		
87.00	0.74			29.00	0.29			72.00	0.63		
88.00	0.74			29.50	0.29			73.00	0.64		
89.00	0.75			30.00	0.29			74.00	0.65		
90.00	0.76	2.00	0.08	31.00	0.31			75.00	0.65		
91.00	0.76			32.00	0.32			76.00	0.66		
92.00	0.77			33.00	0.32			77.00	0.67		
93.00	0.78			33.50	0.32			78.00	0.67		
94.00	0.78			34.00	0.33			79.00	0.68		
95.00	0.79			35.00	0.34			80.00	0.69		
96.00	0.80			36.00	0.35			81.00	0.69		
97.00	0.80			36.50	0.35			82.00	0.70		
98.00	0.81			37.00	0.36			83.00	0.71		
99.00	0.82			37.50	0.36			84.00	0.72		
100.00	0.82			38.00	0.36			85.00	0.72		
2.00	0.13	2.00	0.08	38.50	0.37			86.00	0.73		
3.00	0.14			39.00	0.37			87.00	0.74		
3.50	0.14			40.00	0.38			88.00	0.74		
4.00	0.14			41.00	0.39			89.00	0.75		
4.50	0.14			42.00	0.40			90.00	0.76		
5.00	0.15			43.00	0.40			91.00	0.76		
6.00	0.15			44.00	0.41			92.00	0.77		
6.50	0.16			45.00	0.42			93.00	0.78		
7.00	0.16			46.00	0.43			94.00	0.78		
8.00	0.16			47.00	0.44			95.00	0.79		
9.00	0.17			48.00	0.44			96.00	0.80		
9.50	0.17			49.00	0.45			97.00	0.80		
10.00	0.17			50.00	0.46			98.00	0.81		
11.00	0.18			51.00	0.47			99.00	0.82		
11.50	0.19			52.00	0.47			100.00	0.82		
12.00	0.19			53.00	0.48			105.00	0.86		
12.50	0.19			54.00	0.50			109.00	0.89		
13.00	0.19			55.00	0.50						
				55.50	0.51						

O-Ring Standard Size (Metric)

MEASUREMENTS IN MILLIMETERS

ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
3.00	0.14	2.50	0.09	54.00	0.50	2.50	0.09	105.00	0.86	2.50	0.09
4.00	0.14			55.00	0.50			106.00	0.87		
5.00	0.15			56.00	0.51			107.00	0.87		
6.00	0.15			57.00	0.52			108.00	0.88		
7.00	0.16			58.00	0.52			109.00	0.89		
8.00	0.16			59.00	0.54			110.00	0.89		
9.00	0.17			60.00	0.54			111.00	0.90		
10.00	0.17			61.00	0.55			112.00	0.91		
11.00	0.18			62.00	0.55			113.00	0.91		
12.00	0.19			63.00	0.56			114.00	0.92		
13.00	0.19			64.00	0.58			115.00	0.93		
14.00	0.19			65.00	0.58			116.00	0.93		
15.00	0.20			66.00	0.59			117.00	0.94		
16.00	0.20			67.00	0.59			118.00	0.95		
17.00	0.21			68.00	0.61			119.00	0.95		
18.00	0.21			69.00	0.61			120.00	0.96		
19.00	0.22			70.00	0.62			121.00	0.97		
20.00	0.22			71.00	0.63			122.00	0.97		
21.00	0.23			72.00	0.63			123.00	0.98		
22.00	0.24			73.00	0.64			124.00	0.99		
23.00	0.24			74.00	0.65			125.00	0.99		
24.00	0.24			75.00	0.65			126.00	1.00		
25.00	0.25			76.00	0.66			127.00	1.01		
26.00	0.26			77.00	0.67			128.00	1.01		
27.00	0.26			78.00	0.67			129.00	1.02		
28.00	0.28			79.00	0.68			130.00	1.03		
29.00	0.29			80.00	0.69			131.00	1.03		
30.00	0.29			81.00	0.69			132.00	1.04		
31.00	0.31			82.00	0.70			133.00	1.05		
32.00	0.32			83.00	0.71			134.00	1.00		
33.00	0.32			84.00	0.72			135.00	1.06		
34.00	0.33			85.00	0.72			136.00	1.07		
35.00	0.34			86.00	0.73			137.00	1.07		
36.00	0.35			87.00	0.74			138.00	1.08		
37.00	0.36			88.00	0.74			139.00	1.09		
38.00	0.36			89.00	0.75			140.00	1.09		
39.00	0.37			90.00	0.76			141.00	1.10		
40.00	0.38			91.00	0.76			142.00	1.11		
41.00	0.39			92.00	0.77			143.00	1.11		
42.00	0.40			93.00	0.78			144.00	1.12		
43.00	0.40			94.00	0.78			145.00	1.13		
44.00	0.41			95.00	0.79			146.00	1.13		
45.00	0.42			96.00	0.80			147.00	1.14		
46.00	0.43			97.00	0.80			148.00	1.15		
47.00	0.44			98.00	0.81			149.00	1.15		
48.00	0.44			99.00	0.82			150.00	1.16		
49.00	0.45			100.00	0.82			162.00	1.24		
50.00	0.46			101.00	0.83						
51.00	0.47			102.00	0.84						
52.00	0.47			103.00	0.85						
53.00	0.48			104.00	0.85						

MEASUREMENTS IN MILLIMETERS

ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
3.00	0.14	3.00	0.09	45.00	0.42	3.00	0.09	95.00	0.79	3.00	0.09
4.00	0.14			46.00	0.43			96.00	0.80		
5.00	0.15			47.00	0.44			97.00	0.80		
6.00	0.15			48.00	0.44			98.00	0.81		
7.00	0.16			49.00	0.45			98.50	0.81		
8.00	0.16			50.00	0.46			99.00	0.82		
9.00	0.17			51.00	0.47			100.00	0.82		
9.50	0.17			52.00	0.47			101.00	0.83		
10.00	0.17			53.00	0.48			102.00	0.84		
11.00	0.18			54.00	0.50			103.00	0.85		
12.00	0.19			55.00	0.50			104.00	0.85		
13.00	0.19			56.00	0.51			105.00	0.86		
13.50	0.19			57.00	0.52			106.00	0.87		
14.00	0.19			58.00	0.52			107.00	0.87		
15.00	0.20			59.00	0.54			108.00	0.88		
15.50	0.20			60.00	0.54			109.00	0.89		
16.00	0.20			61.00	0.55			110.00	0.89		
17.00	0.21			62.00	0.55			111.00	0.90		
17.50	0.21			63.00	0.56			112.00	0.91		
18.00	0.21			64.00	0.58			113.00	0.91		
19.00	0.22			65.00	0.58			114.00	0.92		
20.00	0.22			66.00	0.59			115.00	0.93		
21.00	0.23			67.00	0.59			116.00	0.93		
22.00	0.24			68.00	0.61			117.00	0.94		
23.00	0.24			69.00	0.61			118.00	0.95		
24.00	0.24			70.00	0.62			119.00	0.95		
25.00	0.25			71.00	0.63			120.00	0.96		
26.00	0.26			72.00	0.63			121.00	0.97		
27.00	0.26			73.00	0.64			122.00	0.97		
28.00	0.28			74.00	0.65			123.00	0.98		
28.50	0.28			75.00	0.65			124.00	0.99		
29.00	0.29			76.00	0.66			125.00	0.99		
29.50	0.29			77.00	0.67			126.00	1.00		
30.00	0.29			78.00	0.67			127.00	1.01		
31.00	0.31			79.00	0.68			128.00	1.01		
32.00	0.32			80.00	0.69			129.00	1.02		
33.00	0.32			81.00	0.69			130.00	1.03		
34.00	0.33			82.00	0.70			131.00	1.03		
35.00	0.34			83.00	0.71			132.00	1.04		
36.00	0.35			84.00	0.72			133.00	1.05		
36.50	0.35			85.00	0.72			134.00	1.05		
37.00	0.36			86.00	0.73			135.00	1.06		
37.50	0.36			87.00	0.74			136.00	1.07		
38.00	0.36			88.00	0.74			137.00	1.07		
39.00	0.37			89.00	0.75			138.00	1.08		
40.00	0.38			90.00	0.76			139.00	1.09		
41.00	0.39			91.00	0.76			140.00	1.09		
42.00	0.40			92.00	0.77			141.00	1.10		
42.50	0.40			93.00	0.78			142.00	1.11		
43.00	0.40			94.00	0.78			143.00	1.11		
44.00	0.41			94.50	0.79			144.00	1.12		

O-Ring Standard
Size (Metric)

O-Ring Standard Size (Metric)

MEASUREMENTS IN MILLIMETERS

ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
145.00	1.13	3.00	0.09	196.00	1.46	3.00	0.09	247.00	1.80	3.00	0.09
146.00	1.13			197.00	1.47			248.00	1.80		
147.00	1.14			198.00	1.48			249.00	1.81		
148.00	1.15			199.00	1.48			250.00	1.82		
149.00	1.15			200.00	1.49			260.00	1.88		
150.00	1.16			201.00	1.50			270.00	1.95		
151.00	1.17			202.00	1.50			280.00	2.01		
152.00	1.17			203.00	1.51			285.00	2.04		
153.00	1.18			204.00	1.52			290.00	2.08		
154.00	1.19			205.00	1.52			310.00	2.20		
155.00	1.19			206.00	1.53						
156.00	1.20			207.00	1.54			4.00	0.14	4.00	0.10
157.00	1.21			208.00	1.54			5.00	0.15		
158.00	1.21			209.00	1.55			6.00	0.15		
159.00	1.22			210.00	1.56			7.00	0.16		
160.00	1.23			211.00	1.56			8.00	0.16		
161.00	1.23			212.00	1.57			9.00	0.17		
162.00	1.24			213.00	1.58			10.00	0.17		
163.00	1.25			214.00	1.58			11.00	0.18		
164.00	1.25			215.00	1.59			12.00	0.19		
165.00	1.26			216.00	1.60			13.00	0.19		
166.00	1.27			217.00	1.60			14.00	0.19		
167.00	1.27			218.00	1.61			15.00	0.20		
168.00	1.28			219.00	1.62			16.00	0.20		
169.00	1.29			220.00	1.62			17.00	0.21		
170.00	1.29			221.00	1.63			18.00	0.21		
171.00	1.30			222.00	1.64			19.00	0.22		
172.00	1.31			223.00	1.64			20.00	0.22		
173.00	1.31			224.00	1.65			21.00	0.23		
174.00	1.32			225.00	1.65			22.00	0.24		
175.00	1.33			226.00	1.66			23.00	0.24		
176.00	1.33			227.00	1.67			24.00	0.24		
177.00	1.34			228.00	1.67			25.00	0.25		
178.00	1.35			229.00	1.68			26.00	0.26		
179.00	1.35			230.00	1.69			27.00	0.26		
180.00	1.36			231.00	1.69			28.00	0.28		
181.00	1.37			232.00	1.70			29.00	0.29		
182.00	1.37			233.00	1.71			30.00	0.29		
183.00	1.38			234.00	1.71			31.00	0.31		
184.00	1.39			235.00	1.72			32.00	0.32		
185.00	1.39			236.00	1.73			33.00	0.32		
186.00	1.40			237.00	1.73			34.00	0.33		
187.00	1.41			238.00	1.74			35.00	0.34		
188.00	1.41			239.00	1.75			36.00	0.35		
189.00	1.42			240.00	1.75			37.00	0.36		
190.00	1.43			241.00	1.76			38.00	0.36		
191.00	1.43			242.00	1.77			39.00	0.37		
192.00	1.44			243.00	1.77			40.00	0.38		
193.00	1.45			244.00	1.78			41.00	0.39		
194.00	1.45			245.00	1.78			42.00	0.40		
195.00	1.46			246.00	1.79			43.00	0.40		

MEASUREMENTS IN MILLIMETERS

ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
44.00	0.41	4.00	0.10	95.00	0.79	4.00	0.10	145.00	1.13	4.00	0.10
45.00	0.42			96.00	0.80			146.00	1.13		
46.00	0.43			97.00	0.80			147.00	1.14		
47.00	0.44			98.00	0.81			148.00	1.15		
48.00	0.44			99.00	0.82			149.00	1.15		
49.00	0.45			100.00	0.82			150.00	1.16		
50.00	0.46			101.00	0.83			151.00	1.17		
51.00	0.47			102.00	0.84			152.00	1.17		
52.00	0.47			103.00	0.85			153.00	1.18		
53.00	0.48			104.00	0.85			154.00	1.19		
54.00	0.50			105.00	0.86			155.00	1.19		
55.00	0.50			106.00	0.87			156.00	1.20		
56.00	0.51			107.00	0.87			157.00	1.21		
57.00	0.52			108.00	0.88			158.00	1.21		
58.00	0.52			109.00	0.89			159.00	1.22		
59.00	0.54			110.00	0.89			160.00	1.23		
60.00	0.54			111.00	0.90			161.00	1.23		
61.00	0.55			112.00	0.91			162.00	1.24		
62.00	0.55			113.00	0.91			163.00	1.25		
63.00	0.56			114.00	0.92			164.00	1.25		
64.00	0.58			115.00	0.93			165.00	1.26		
65.00	0.58			116.00	0.93			166.00	1.27		
66.00	0.59			117.00	0.94			167.00	1.27		
67.00	0.59			118.00	0.95			168.00	1.28		
68.00	0.61			119.00	0.95			169.00	1.29		
69.00	0.61			120.00	0.96			170.00	1.29		
70.00	0.62			121.00	0.97			171.00	1.30		
71.00	0.63			122.00	0.97			172.00	1.31		
72.00	0.63			123.00	0.98			173.00	1.31		
73.00	0.64			124.00	0.99			174.00	1.32		
74.00	0.65			125.00	0.99			175.00	1.33		
75.00	0.65			126.00	1.00			176.00	1.33		
76.00	0.66			127.00	1.01			177.00	1.34		
77.00	0.67			128.00	1.01			178.00	1.35		
78.00	0.67			129.00	1.02			179.00	1.35		
79.00	0.68			130.00	1.03			180.00	1.36		
80.00	0.69			131.00	1.03			181.00	1.37		
81.00	0.69			132.00	1.04			182.00	1.37		
82.00	0.70			133.00	1.05			183.00	1.38		
83.00	0.71			134.00	1.05			184.00	1.39		
84.00	0.72			135.00	1.06			185.00	1.39		
85.00	0.72			136.00	1.07			186.00	1.40		
86.00	0.73			137.00	1.07			187.00	1.41		
87.00	0.74			138.00	1.08			188.00	1.41		
88.00	0.74			139.00	1.09			189.00	1.42		
89.00	0.75			140.00	1.09			190.00	1.43		
90.00	0.76			140.50	1.10			191.00	1.43		
91.00	0.76			141.00	1.10			192.00	1.44		
92.00	0.77			142.00	1.11			193.00	1.45		
93.00	0.78			143.00	1.11			194.00	1.45		
94.00	0.78			144.00	1.12			195.00	1.46		

O-Ring Standard Size (Metric)

MEASUREMENTS IN MILLIMETERS

ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
196.00	1.46	4.00	0.10	247.00	1.80	4.00	0.10	298.00	2.13	4.00	0.10
197.00	1.47			248.00	1.80			299.00	2.13		
198.00	1.48			249.00	1.81			300.00	2.14		
199.00	1.48			250.00	1.82			301.00	2.15		
200.00	1.49			251.00	1.82			302.00	2.15		
201.00	1.50			252.00	1.83			303.00	2.16		
202.00	1.50			253.00	1.84			304.00	2.17		
203.00	1.51			254.00	1.84			305.00	2.17		
204.00	1.52			255.00	1.85			306.00	2.18		
205.00	1.52			256.00	1.86			307.00	2.19		
206.00	1.53			257.00	1.86			308.00	2.19		
207.00	1.54			258.00	1.87			309.00	2.20		
208.00	1.54			259.00	1.88			310.00	2.20		
209.00	1.55			260.00	1.88			311.00	2.21		
210.00	1.56			261.00	1.89			312.00	2.22		
211.00	1.56			262.00	1.89			313.00	2.22		
212.00	1.57			263.00	1.90			314.00	2.23		
213.00	1.58			264.00	1.91			315.00	2.24		
214.00	1.58			265.00	1.91			316.00	2.24		
215.00	1.59			266.00	1.92			317.00	2.25		
216.00	1.60			267.00	1.93			318.00	2.26		
217.00	1.60			268.00	1.93			319.00	2.26		
218.00	1.61			269.00	1.94			320.00	2.27		
219.00	1.62			270.00	1.95			321.00	2.27		
220.00	1.62			271.00	1.95			322.00	2.28		
221.00	1.63			272.00	1.96			323.00	2.29		
222.00	1.64			273.00	1.97			324.00	2.29		
223.00	1.64			274.00	1.97			325.00	2.30		
224.00	1.65			275.00	1.98			326.00	2.31		
225.00	1.65			276.00	1.99			327.00	2.31		
226.00	1.66			277.00	1.99			328.00	2.32		
227.00	1.67			278.00	2.00			329.00	2.33		
228.00	1.67			279.00	2.00			330.00	2.33		
229.00	1.68			280.00	2.01			331.00	2.34		
230.00	1.69			281.00	2.02			332.00	2.35		
231.00	1.69			282.00	2.02			333.00	2.35		
232.00	1.70			283.00	2.03			334.00	2.36		
233.00	1.71			284.00	2.04			335.00	2.36		
234.00	1.71			285.00	2.04			336.00	2.37		
235.00	1.72			286.00	2.05			337.00	2.38		
236.00	1.73			287.00	2.06			338.00	2.38		
237.00	1.73			288.00	2.06			339.00	2.39		
238.00	1.74			289.00	2.07			340.00	2.40		
239.00	1.75			290.00	2.08			341.00	2.40		
240.00	1.75			291.00	2.08			342.00	2.41		
241.00	1.76			292.00	2.09			343.00	2.42		
242.00	1.77			293.00	2.10			344.00	2.42		
243.00	1.77			294.00	2.10			345.00	2.43		
244.00	1.78			295.00	2.11			346.00	2.43		
245.00	1.78			296.00	2.11			347.00	2.44		
246.00	1.79			297.00	2.12			348.00	2.45		

MEASUREMENTS IN MILLIMETERS

ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
349.00	2.45	4.00	0.10	401.00	2.78	4.00	0.10	453.00	3.11	4.00	0.10
350.00	2.46			402.00	2.79			454.00	3.12		
351.00	2.47			403.00	2.80			455.00	3.13		
352.00	2.47			404.00	2.80			456.00	3.13		
353.00	2.48			405.00	2.81			457.00	3.14		
354.00	2.49			406.00	2.82			458.00	3.14		
355.00	2.49			407.00	2.82			459.00	3.15		
356.00	2.50			408.00	2.83			460.00	3.16		
357.00	2.50			409.00	2.84			461.00	3.16		
358.00	2.51			410.00	2.84			462.00	3.17		
359.00	2.52			411.00	2.85			463.00	3.18		
360.00	2.52			412.00	2.85			464.00	3.18		
361.00	2.53			413.00	2.86			465.00	3.19		
362.00	2.54			414.00	2.87			466.00	3.19		
363.00	2.54			415.00	2.87			467.00	3.20		
364.00	2.55			416.00	2.88			468.00	3.21		
365.00	2.56			417.00	2.89			469.00	3.21		
366.00	2.56			418.00	2.89			470.00	3.22		
367.00	2.57			419.00	2.90			471.00	3.23		
368.00	2.57			420.00	2.90			472.00	3.23		
369.00	2.58			421.00	2.91			473.00	3.24		
370.00	2.59			422.00	2.92			474.00	3.24		
371.00	2.59			423.00	2.92			475.00	3.25		
372.00	2.60			424.00	2.93			476.00	3.26		
373.00	2.61			425.00	2.94			477.00	3.26		
374.00	2.61			426.00	2.94			478.00	3.27		
375.00	2.62			427.00	2.95			479.00	3.28		
376.00	2.63			428.00	2.96			480.00	3.28		
377.00	2.63			429.00	2.96			481.00	3.29		
378.00	2.64			430.00	2.97			482.00	3.30		
379.00	2.64			431.00	2.97			483.00	3.30		
380.00	2.65			432.00	2.98			484.00	3.31		
381.00	2.66			433.00	2.99			485.00	3.31		
382.00	2.66			434.00	2.99			486.00	3.32		
383.00	2.67			435.00	3.00			487.00	3.33		
384.00	2.68			436.00	3.01			488.00	3.33		
385.00	2.68			437.00	3.01			489.00	3.34		
386.00	2.69			438.00	3.02			490.00	3.35		
387.00	2.70			439.00	3.02			491.00	3.35		
388.00	2.70			440.00	3.03			492.00	3.36		
389.00	2.71			441.00	3.04			493.00	3.36		
390.00	2.71			442.00	3.04			494.00	3.37		
391.00	2.72			443.00	3.05			495.00	3.38		
392.00	2.73			444.00	3.06			496.00	3.38		
393.00	2.73			445.00	3.06			497.00	3.39		
394.00	2.74			446.00	3.07			498.00	3.40		
395.00	2.75			447.00	3.08			499.00	3.40		
396.00	2.75			448.00	3.08			500.00	3.41		
397.00	2.76			449.00	3.09			525.00	3.56		
398.00	2.77			450.00	3.09			530.00	3.60		
399.00	2.77			451.00	3.10			540.00	3.66		
400.00	2.78			452.00	3.11			550.00	3.72		
								560.00	3.78		

O-Ring Standard Size (Metric)

MEASUREMENTS IN MILLIMETERS

ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
4.00	0.14	5.00	0.13	61.00	0.55	5.00	0.13	118.00	0.95	5.00	0.13
5.00	0.15			62.00	0.55			119.00	0.95		
6.00	0.15			63.00	0.56			120.00	0.96		
7.00	0.16			64.00	0.58			121.00	0.97		
8.00	0.16			65.00	0.58			122.00	0.97		
9.00	0.17			66.00	0.59			123.00	0.98		
10.00	0.17			67.00	0.59			124.00	0.99		
11.00	0.18			68.00	0.61			125.00	0.99		
12.00	0.19			69.00	0.61			126.00	1.00		
13.00	0.19			70.00	0.62			127.00	1.01		
14.00	0.19			71.00	0.63			128.00	1.01		
15.00	0.20			72.00	0.63			129.00	1.02		
16.00	0.20			73.00	0.64			130.00	1.03		
17.00	0.21			74.00	0.65			131.00	1.03		
18.00	0.21			75.00	0.65			132.00	1.04		
19.00	0.22			76.00	0.66			133.00	1.05		
20.00	0.22			77.00	0.67			134.00	1.05		
21.00	0.23			78.00	0.67			135.00	1.06		
22.00	0.24			79.00	0.68			136.00	1.07		
23.00	0.24			80.00	0.69			137.00	1.07		
24.00	0.24			81.00	0.69			138.00	1.08		
25.00	0.25			82.00	0.70			139.00	1.09		
26.00	0.26			83.00	0.71			140.00	1.09		
27.00	0.26			84.00	0.72			141.00	1.10		
28.00	0.28			85.00	0.72			142.00	1.11		
29.00	0.29			86.00	0.73			143.00	1.11		
30.00	0.29			87.00	0.74			144.00	1.12		
31.00	0.31			88.00	0.74			145.00	1.13		
32.00	0.32			89.00	0.75			146.00	1.13		
33.00	0.32			90.00	0.76			147.00	1.14		
34.00	0.33			91.00	0.76			148.00	1.15		
35.00	0.34			92.00	0.77			149.00	1.15		
36.00	0.35			93.00	0.78			150.00	1.16		
37.00	0.36			94.00	0.78			151.00	1.17		
38.00	0.36			95.00	0.79			152.00	1.17		
39.00	0.37			96.00	0.80			153.00	1.18		
40.00	0.38			97.00	0.80			154.00	1.19		
41.00	0.39			98.00	0.81			155.00	1.19		
42.00	0.40			99.00	0.82			156.00	1.20		
43.00	0.40			100.00	0.82			157.00	1.21		
44.00	0.41			101.00	0.83			158.00	1.21		
45.00	0.42			102.00	0.84			159.00	1.22		
46.00	0.43			103.00	0.85			160.00	1.23		
47.00	0.44			104.00	0.85			161.00	1.23		
48.00	0.44			105.00	0.86			162.00	1.24		
49.00	0.45			106.00	0.87			163.00	1.25		
50.00	0.46			107.00	0.87			164.00	1.25		
51.00	0.47			108.00	0.88			165.00	1.26		
52.00	0.47			109.00	0.89			166.00	1.27		
53.00	0.48			110.00	0.89			167.00	1.27		
54.00	0.50			111.00	0.90			168.00	1.28		
55.00	0.50			112.00	0.91			169.00	1.29		
56.00	0.51			113.00	0.91			170.00	1.29		
57.00	0.52			114.00	0.92			171.00	1.30		
58.00	0.52			115.00	0.93			172.00	1.31		
59.00	0.54			116.00	0.93			173.00	1.31		
60.00	0.54			117.00	0.94			174.00	1.32		

MEASUREMENTS IN MILLIMETERS

ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
175.00	1.33	5.00	0.13	232.00	1.70	5.00	0.13	289.00	2.07	5.00	0.13
176.00	1.33			233.00	1.71			290.00	2.08		
177.00	1.34			234.00	1.71			291.00	2.08		
178.00	1.35			235.00	1.72			292.00	2.09		
179.00	1.35			236.00	1.73			293.00	2.10		
180.00	1.36			237.00	1.73			294.00	2.10		
181.00	1.37			238.00	1.74			295.00	2.11		
182.00	1.37			239.00	1.75			296.00	2.11		
183.00	1.38			240.00	1.75			297.00	2.12		
184.00	1.39			241.00	1.76			298.00	2.13		
185.00	1.39			242.00	1.77			299.00	2.13		
186.00	1.40			243.00	1.77			300.00	2.14		
187.00	1.41			244.00	1.78			301.00	2.15		
188.00	1.41			245.00	1.78			302.00	2.15		
189.00	1.42			246.00	1.79			303.00	2.16		
190.00	1.43			247.00	1.80			304.00	2.17		
191.00	1.43			248.00	1.80			305.00	2.17		
192.00	1.44			249.00	1.81			306.00	2.18		
193.00	1.45			250.00	1.82			307.00	2.19		
194.00	1.45			251.00	1.82			308.00	2.19		
195.00	1.46			252.00	1.83			309.00	2.20		
196.00	1.46			253.00	1.84			310.00	2.20		
197.00	1.47			254.00	1.84			311.00	2.21		
198.00	1.48			255.00	1.85			312.00	2.22		
199.00	1.48			256.00	1.86			313.00	2.22		
200.00	1.49			257.00	1.86			314.00	2.23		
201.00	1.50			258.00	1.87			315.00	2.24		
202.00	1.50			259.00	1.88			316.00	2.24		
203.00	1.51			260.00	1.88			317.00	2.25		
204.00	1.52			261.00	1.89			318.00	2.26		
205.00	1.52			262.00	1.89			319.00	2.26		
206.00	1.53			263.00	1.90			320.00	2.27		
207.00	1.54			264.00	1.91			321.00	2.27		
208.00	1.54			265.00	1.91			322.00	2.28		
209.00	1.55			266.00	1.92			323.00	2.29		
210.00	1.56			267.00	1.93			324.00	2.29		
211.00	1.56			268.00	1.93			325.00	2.30		
212.00	1.57			269.00	1.94			326.00	2.31		
213.00	1.58			270.00	1.95			327.00	2.31		
214.00	1.58			271.00	1.95			328.00	2.32		
215.00	1.59			272.00	1.96			329.00	2.33		
216.00	1.60			273.00	1.97			330.00	2.33		
217.00	1.60			274.00	1.97			331.00	2.34		
218.00	1.61			275.00	1.98			332.00	2.35		
219.00	1.62			276.00	1.99			333.00	2.35		
220.00	1.62			277.00	1.99			334.00	2.36		
221.00	1.63			278.00	2.00			335.00	2.36		
222.00	1.64			279.00	2.00			336.00	2.37		
223.00	1.64			280.00	2.01			337.00	2.38		
224.00	1.65			281.00	2.02			338.00	2.38		
225.00	1.65			282.00	2.02			339.00	2.39		
226.00	1.66			283.00	2.03			340.00	2.40		
227.00	1.67			284.00	2.04			341.00	2.40		
228.00	1.67			285.00	2.04			342.00	2.41		
229.00	1.68			286.00	2.05			343.00	2.42		
230.00	1.69			287.00	2.06			344.00	2.42		
231.00	1.69			288.00	2.06			345.00	2.43		

O-Ring Standard Size (Metric)

MEASUREMENTS IN MILLIMETERS

ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
346.00	2.43	5.00	0.13	415.00	2.87	5.00	0.13	115.00	0.93	6.00	0.15
347.00	2.44			420.00	2.90			120.00	0.96		
348.00	2.45			425.00	2.94			125.00	0.99		
349.00	2.45			430.00	2.97			130.00	1.03		
350.00	2.46			435.00	3.00			135.00	1.06		
351.00	2.47			440.00	3.03			140.00	1.09		
352.00	2.47			445.00	3.06			145.00	1.13		
353.00	2.48			450.00	3.09			150.00	1.16		
354.00	2.49			455.00	3.13			155.00	1.19		
355.00	2.49			460.00	3.16			160.00	1.23		
356.00	2.50			465.00	3.19			165.00	1.26		
357.00	2.50			470.00	3.22			170.00	1.29		
358.00	2.51			475.00	3.25			175.00	1.33		
359.00	2.52			480.00	3.28			180.00	1.36		
360.00	2.52			485.00	3.31			185.00	1.39		
361.00	2.53			490.00	3.35			190.00	1.43		
362.00	2.54			495.00	3.38			195.00	1.46		
363.00	2.54			500.00	3.41			200.00	1.49		
364.00	2.55			505.00	3.44			205.00	1.52		
365.00	2.56			510.00	3.47			210.00	1.56		
366.00	2.56			515.00	3.50			215.00	1.59		
367.00	2.57			520.00	3.53			220.00	1.62		
368.00	2.57			525.00	3.56			225.00	1.65		
369.00	2.58			530.00	3.60			230.00	1.69		
370.00	2.59			535.00	3.63			235.00	1.72		
371.00	2.59			540.00	3.66			240.00	1.75		
372.00	2.60			545.00	3.69			245.00	1.78		
373.00	2.61			550.00	3.72			250.00	1.82		
374.00	2.61			555.00	3.75			260.00	1.88		
375.00	2.62			560.00	3.78			270.00	1.95		
376.00	2.63			565.00	3.81			275.00	1.98		
377.00	2.63			570.00	3.85			280.00	2.01		
378.00	2.64			575.00	3.88			295.00	2.11		
379.00	2.64			580.00	3.91			300.00	2.14		
380.00	2.65			585.00	3.93			310.00	2.20		
381.00	2.66			590.00	3.97			320.00	2.27		
382.00	2.66			595.00	4.00			325.00	2.30		
383.00	2.67			600.00	4.03			330.00	2.33		
384.00	2.68			20.00	0.26	6.00	0.15	340.00	2.40		
385.00	2.68			25.00	0.30			350.00	2.46		
386.00	2.69			30.00	0.34			360.00	2.52		
387.00	2.70			35.00	0.37			375.00	2.62		
388.00	2.70			40.00	0.41			380.00	2.65		
389.00	2.71			45.00	0.44			400.00	2.78		
390.00	2.71			50.00	0.48			410.00	2.84		
391.00	2.72			55.00	0.52			425.00	2.94		
392.00	2.73			60.00	0.55			450.00	3.09		
393.00	2.73			65.00	0.58			460.00	3.16		
394.00	2.74			70.00	0.62			470.00	3.22		
395.00	2.75			75.00	0.65			475.00	3.25		
396.00	2.75			80.00	0.69			490.00	3.35		
397.00	2.76			85.00	0.72			500.00	3.41		
398.00	2.77			90.00	0.76			525.00	3.56		
399.00	2.77			95.00	0.79			550.00	3.72		
400.00	2.78			100.00	0.82			555.00	3.75		
405.00	2.81			105.00	0.86			575.00	3.88		
410.00	2.84			110.00	0.89			600.00	4.03		

O-Ring Standard Size (Swedish SMS 1586)

MEASUREMENTS IN MILLIMETERS				MEASUREMENTS IN INCHES			
ID	±	CS	±	ID	±	CS	±
3.1	0.14	1.6	0.08	0.122	0.006	0.063	0.003
4.1	0.14	1.6	0.08	0.161	0.006	0.063	0.003
5.1	0.15	1.6	0.08	0.201	0.006	0.063	0.003
6.1	0.16	1.6	0.08	0.240	0.006	0.063	0.003
7.1	0.17	1.6	0.08	0.280	0.007	0.063	0.003
8.1	0.18	1.6	0.08	0.319	0.007	0.063	0.003
9.1	0.18	1.6	0.08	0.358	0.007	0.063	0.003
10.1	0.19	1.6	0.08	0.398	0.007	0.063	0.003
11.1	0.2	1.6	0.08	0.437	0.008	0.063	0.003
12.1	0.21	1.6	0.08	0.476	0.008	0.063	0.003
13.1	0.21	1.6	0.08	0.516	0.008	0.063	0.003
14.1	0.22	1.6	0.08	0.555	0.009	0.063	0.003
15.1	0.23	1.6	0.08	0.594	0.009	0.063	0.003
16.1	0.24	1.6	0.08	0.634	0.009	0.063	0.003
17.1	0.24	1.6	0.08	0.673	0.009	0.063	0.003
18.1	0.25	1.6	0.08	0.713	0.010	0.063	0.003
19.1	0.26	1.6	0.08	0.752	0.010	0.063	0.003
20.1	0.27	1.6	0.08	0.791	0.011	0.063	0.003
21.1	0.27	1.6	0.08	0.831	0.011	0.063	0.003
22.1	0.28	1.6	0.08	0.870	0.011	0.063	0.003
25.1	0.3	1.6	0.08	0.988	0.012	0.063	0.003
27.1	0.32	1.6	0.08	1.067	0.013	0.063	0.003
29.1	0.33	1.6	0.08	1.146	0.013	0.063	0.003
32.1	0.35	1.6	0.08	1.264	0.014	0.063	0.003
35.1	0.37	1.6	0.08	1.382	0.015	0.063	0.003
37.1	0.39	1.6	0.08	1.461	0.015	0.063	0.003
3.3	0.14	2.4	0.09	0.130	0.006	0.094	0.004
4.3	0.15	2.4	0.09	0.169	0.006	0.094	0.004
5.3	0.15	2.4	0.09	0.209	0.006	0.094	0.004
6.3	0.16	2.4	0.09	0.248	0.006	0.094	0.004
7.3	0.17	2.4	0.09	0.287	0.007	0.094	0.004
8.3	0.18	2.4	0.09	0.327	0.007	0.094	0.004
9.3	0.18	2.4	0.09	0.366	0.007	0.094	0.004
10.3	0.19	2.4	0.09	0.406	0.007	0.094	0.004
11.3	0.2	2.4	0.09	0.445	0.008	0.094	0.004
12.3	0.21	2.4	0.09	0.484	0.008	0.094	0.004
13.3	0.22	2.4	0.09	0.524	0.009	0.094	0.004
14.3	0.22	2.4	0.09	0.563	0.009	0.094	0.004
15.3	0.23	2.4	0.09	0.602	0.009	0.094	0.004
16.3	0.24	2.4	0.09	0.642	0.009	0.094	0.004
17.3	0.25	2.4	0.09	0.681	0.010	0.094	0.004
18.3	0.25	2.4	0.09	0.720	0.010	0.094	0.004
19.3	0.26	2.4	0.09	0.760	0.010	0.094	0.004
20.3	0.27	2.4	0.09	0.799	0.011	0.094	0.004
21.3	0.27	2.4	0.09	0.839	0.011	0.094	0.004
22.3	0.28	2.4	0.09	0.878	0.011	0.094	0.004
23.3	0.29	2.4	0.09	0.917	0.011	0.094	0.004
25.3	0.3	2.4	0.09	0.996	0.012	0.094	0.004
27.3	0.32	2.4	0.09	1.075	0.013	0.094	0.004
30.3	0.34	2.4	0.09	1.193	0.013	0.094	0.004
33.3	0.36	2.4	0.09	1.311	0.014	0.094	0.004

MEASUREMENTS IN MILLIMETERS				MEASUREMENTS IN INCHES			
ID	±	CS	±	ID	±	CS	±
17.2	0.24	3	0.09	0.677	0.009	0.118	0.004
18.2	0.25	3	0.09	0.717	0.010	0.118	0.004
19.2	0.26	3	0.09	0.756	0.010	0.118	0.004
20.2	0.27	3	0.09	0.795	0.011	0.118	0.004
21.2	0.27	3	0.09	0.835	0.011	0.118	0.004
22.2	0.28	3	0.09	0.874	0.011	0.118	0.004
24.2	0.3	3	0.09	0.953	0.012	0.118	0.004
25.2	0.3	3	0.09	0.992	0.012	0.118	0.004
26.2	0.31	3	0.09	1.031	0.012	0.118	0.004
28.2	0.32	3	0.09	1.110	0.013	0.118	0.004
29.2	0.33	3	0.09	1.150	0.013	0.118	0.004
30.2	0.34	3	0.09	1.189	0.013	0.118	0.004
31.2	0.35	3	0.09	1.228	0.014	0.118	0.004
32.2	0.35	3	0.09	1.268	0.014	0.118	0.004
34.2	0.37	3	0.09	1.346	0.015	0.118	0.004
35.2	0.38	3	0.09	1.386	0.015	0.118	0.004
36.2	0.38	3	0.09	1.425	0.015	0.118	0.004
37.2	0.39	3	0.09	1.465	0.015	0.118	0.004
39.2	0.4	3	0.09	1.543	0.016	0.118	0.004
40.2	0.41	3	0.09	1.583	0.016	0.118	0.004
42.2	0.42	3	0.09	1.661	0.017	0.118	0.004
44.2	0.44	3	0.09	1.740	0.017	0.118	0.004
45.2	0.45	3	0.09	1.780	0.018	0.118	0.004
46.2	0.45	3	0.09	1.819	0.018	0.118	0.004
49.5	0.48	3	0.09	1.949	0.019	0.118	0.004
50.2	0.48	3	0.09	1.976	0.019	0.118	0.004
54.5	0.51	3	0.09	2.146	0.020	0.118	0.004
55.2	0.52	3	0.09	2.173	0.020	0.118	0.004
56.2	0.52	3	0.09	2.213	0.020	0.118	0.004
57.2	0.53	3	0.09	2.252	0.021	0.118	0.004
59.5	0.55	3	0.09	2.343	0.022	0.118	0.004
60.5	0.55	3	0.09	2.382	0.022	0.118	0.004
62.2	0.57	3	0.09	2.449	0.022	0.118	0.004
64.5	0.58	3	0.09	2.539	0.023	0.118	0.004
69.5	0.62	3	0.09	2.736	0.024	0.118	0.004
74.5	0.65	3	0.09	2.933	0.026	0.118	0.004
79.5	0.68	3	0.09	3.130	0.027	0.118	0.004
84.5	0.72	3	0.09	3.327	0.028	0.118	0.004
89.5	0.75	3	0.09	3.524	0.030	0.118	0.004
94.5	0.79	3	0.09	3.720	0.031	0.118	0.004
99.5	0.82	3	0.09	3.917	0.032	0.118	0.004
104.5	0.86	3	0.09	4.114	0.034	0.118	0.004
109.5	0.89	3	0.09	4.311	0.035	0.118	0.004
114.5	0.92	3	0.09	4.508	0.036	0.118	0.004
119.5	0.96	3	0.09	4.705	0.038	0.118	0.004
124.5	0.99	3	0.09	4.902	0.039	0.118	0.004
129.5	1.02	3	0.09	5.098	0.040	0.118	0.004
134.5	1.06	3	0.09	5.295	0.042	0.118	0.004
139.5	1.09	3	0.09	5.492	0.043	0.118	0.004
144.5	1.12	3	0.09	5.689	0.044	0.118	0.004

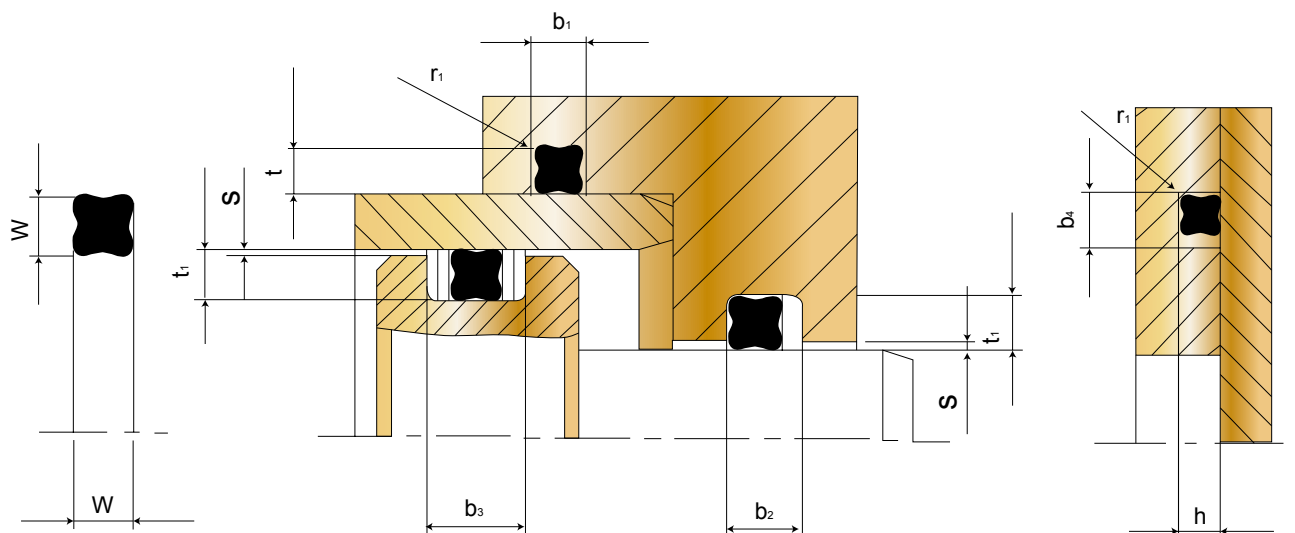
O-Ring Standard Size (Swedish SMS 1586)

MEASUREMENTS IN MILLIMETERS				MEASUREMENTS IN INCHES			
ID	±	CS	±	ID	±	CS	±
35.2	0.38	5.7	0.13	1.386	0.015	0.224	0.005
36.2	0.38	5.7	0.13	1.425	0.015	0.224	0.005
37.2	0.39	5.7	0.13	1.465	0.015	0.224	0.005
39.2	0.4	5.7	0.13	1.543	0.016	0.224	0.005
41.2	0.42	5.7	0.13	1.622	0.017	0.224	0.005
44.2	0.44	5.7	0.13	1.740	0.017	0.224	0.005
45.2	0.45	5.7	0.13	1.780	0.018	0.224	0.005
47.2	0.46	5.7	0.13	1.858	0.018	0.224	0.005
49.2	0.47	5.7	0.13	1.937	0.019	0.224	0.005
51.2	0.49	5.7	0.13	2.016	0.019	0.224	0.005
52.2	0.5	5.7	0.13	2.055	0.020	0.224	0.005
54.2	0.51	5.7	0.13	2.134	0.020	0.224	0.005
57.2	0.53	5.7	0.13	2.252	0.021	0.224	0.005
59.2	0.54	5.7	0.13	2.331	0.021	0.224	0.005
61.2	0.56	5.7	0.13	2.409	0.022	0.224	0.005
62.2	0.57	5.7	0.13	2.449	0.022	0.224	0.005
64.2	0.58	5.7	0.13	2.528	0.023	0.224	0.005
67.2	0.6	5.7	0.13	2.646	0.024	0.224	0.005
69.2	0.61	5.7	0.13	2.724	0.024	0.224	0.005
71.2	0.63	5.7	0.13	2.803	0.025	0.224	0.005
72.2	0.63	5.7	0.13	2.843	0.025	0.224	0.005
74.2	0.65	5.7	0.13	2.921	0.026	0.224	0.005
77.2	0.67	5.7	0.13	3.039	0.026	0.224	0.005
79.2	0.68	5.7	0.13	3.118	0.027	0.224	0.005
81.2	0.7	5.7	0.13	3.197	0.028	0.224	0.005
82.2	0.7	5.7	0.13	3.236	0.028	0.224	0.005
84.2	0.72	5.7	0.13	3.315	0.028	0.224	0.005
87.2	0.74	5.7	0.13	3.433	0.029	0.224	0.005
89.2	0.75	5.7	0.13	3.512	0.030	0.224	0.005
92.2	0.77	5.7	0.13	3.630	0.030	0.224	0.005
94.2	0.79	5.7	0.13	3.709	0.031	0.224	0.005
97.2	0.81	5.7	0.13	3.827	0.032	0.224	0.005
99.2	0.82	5.7	0.13	3.906	0.032	0.224	0.005
104.2	0.85	5.7	0.13	4.102	0.033	0.224	0.005
109.2	0.89	5.7	0.13	4.299	0.035	0.224	0.005
114.2	0.92	5.7	0.13	4.496	0.036	0.224	0.005
119.2	0.95	5.7	0.13	4.693	0.037	0.224	0.005
124.2	0.99	5.7	0.13	4.890	0.039	0.224	0.005
129.2	1.02	5.7	0.13	5.087	0.040	0.224	0.005
134.2	1.06	5.7	0.13	5.283	0.042	0.224	0.005
139.2	1.09	5.7	0.13	5.480	0.043	0.224	0.005
144.2	1.12	5.7	0.13	5.677	0.044	0.224	0.005
149.2	1.16	5.7	0.13	5.874	0.046	0.224	0.005
154.2	1.19	5.7	0.13	6.071	0.047	0.224	0.005
159.2	1.22	5.7	0.13	6.268	0.048	0.224	0.005
164.2	1.26	5.7	0.13	6.465	0.050	0.224	0.005
169.2	1.29	5.7	0.13	6.661	0.051	0.224	0.005
174.2	1.32	5.7	0.13	6.858	0.052	0.224	0.005
179.2	1.35	5.7	0.13	7.055	0.053	0.224	0.005
184.2	1.39	5.7	0.13	7.252	0.055	0.224	0.005
189.2	1.42	5.7	0.13	7.449	0.056	0.224	0.005

MEASUREMENTS IN MILLIMETERS				MEASUREMENTS IN INCHES			
ID	±	CS	±	ID	±	CS	±
194.2	1.45	5.7	0.13	7.646	0.057	0.224	0.005
199.2	1.49	5.7	0.13	7.843	0.059	0.224	0.005
204.2	1.52	5.7	0.13	8.039	0.060	0.224	0.005
209.2	1.55	5.7	0.13	8.236	0.061	0.224	0.005
219.2	1.62	5.7	0.13	8.630	0.064	0.224	0.005
229.2	1.68	5.7	0.13	9.024	0.066	0.224	0.005
239.2	1.75	5.7	0.13	9.417	0.069	0.224	0.005
249.2	1.81	5.7	0.13	9.811	0.071	0.224	0.005
259.2	1.88	5.7	0.13	10.205	0.074	0.224	0.005
269.2	1.94	5.7	0.13	10.598	0.076	0.224	0.005
279.2	2.01	5.7	0.13	10.992	0.079	0.224	0.005
289.2	2.07	5.7	0.13	11.386	0.081	0.224	0.005
299.2	2.13	5.7	0.13	11.780	0.084	0.224	0.005
319.2	2.26	5.7	0.13	12.567	0.089	0.224	0.005
339.2	2.39	5.7	0.13	13.354	0.094	0.224	0.005
359.2	2.52	5.7	0.13	14.142	0.099	0.224	0.005
379.2	2.65	5.7	0.13	14.929	0.104	0.224	0.005
399.2	2.77	5.7	0.13	15.717	0.109	0.224	0.005
419.2	2.9	5.7	0.13	16.504	0.114	0.224	0.005
439.2	3.03	5.7	0.13	17.291	0.119	0.224	0.005
459.2	3.15	5.7	0.13	18.079	0.124	0.224	0.005
479.2	3.28	5.7	0.13	18.866	0.129	0.224	0.005
499.2	3.4	5.7	0.13	19.654	0.134	0.224	0.005
144.1	1.12	8.4	0.15	5.673	0.044	0.331	0.006
149.1	1.15	8.4	0.15	5.870	0.045	0.331	0.006
154.1	1.19	8.4	0.15	6.067	0.047	0.331	0.006
159.1	1.22	8.4	0.15	6.264	0.048	0.331	0.006
164.1	1.25	8.4	0.15	6.461	0.049	0.331	0.006
169.1	1.29	8.4	0.15	6.657	0.051	0.331	0.006
174.1	1.32	8.4	0.15	6.854	0.052	0.331	0.006
179.1	1.35	8.4	0.15	7.051	0.053	0.331	0.006
184.1	1.39	8.4	0.15	7.248	0.055	0.331	0.006
189.1	1.42	8.4	0.15	7.445	0.056	0.331	0.006
194.1	1.45	8.4	0.15	7.642	0.057	0.331	0.006
199.1	1.49	8.4	0.15	7.839	0.059	0.331	0.006
209.1	1.55	8.4	0.15	8.232	0.061	0.331	0.006
219.1	1.62	8.4	0.15	8.626	0.064	0.331	0.006
229.1	1.68	8.4	0.15	9.020	0.066	0.331	0.006
239.1	1.75	8.4	0.15	9.413	0.069	0.331	0.006
249.1	1.81	8.4	0.15	9.807	0.071	0.331	0.006

X-Ring Design Reference

Installation Recommendations



thickness W	Radial Squeezing		Groove Dimensions					Radius r ₁	rad.Gap S _{max.}
	Dynamically $\frac{\text{max.}}{\text{min.}}$	Statically $\frac{\text{max.}}{\text{min.}}$	Groove depth		Groove width				
			Dynamically t ₁ +0.05	Statically t / h+0.05	b ₁ ,b ₄ +0.2	b ₂ +0.2	b ₃ +0.2		
1.02	$\frac{0.300}{0.115}$	$\frac{0.300}{0.115}$	0.80	0.75	1.20	-	-	0.10	0.03
1.27	$\frac{0.330}{0.145}$	$\frac{0.330}{0.145}$	1.00	0.90	1.40	-	-	0.10	0.03
1.52	$\frac{0.350}{0.165}$	$\frac{0.350}{0.165}$	1.25	1.15	1.70	-	-	0.22	0.04
1.78	$\frac{0.360}{0.175}$	$\frac{0.360}{0.175}$	1.50	1.40	2.00	3.40	4.80	0.22	0.05
2.62	$\frac{0.400}{0.215}$	$\frac{0.400}{0.215}$	2.30	2.25	3.00	4.40	5.80	0.30	0.08
3.53	$\frac{0.430}{0.205}$	$\frac{0.430}{0.205}$	3.20	3.10	4.00	5.40	6.80	0.40	0.08
5.33	$\frac{0.560}{0.250}$	$\frac{0.560}{0.250}$	4.90	4.75	6.00	7.70	9.40	0.40	0.10
7.00	$\frac{0.700}{0.350}$	$\frac{0.700}{0.350}$	6.40	6.20	8.00	10.50	13.00	0.60	0.10

X-Ring Standard Size

X-Ring Standard Size

JIS B 2401 SIZE	MEASUREMENTS IN MILLIMETERS NBR 70				MEASUREMENTS IN MILLIMETERS FKM 70			
	ID	±	W	±	ID	±	W	±
X0002	1.07	0.100	1.27	0.08	1.07	0.110	1.27	0.09
X0003	1.42	0.100	1.52	0.08	1.42	0.110	1.52	0.09
X0004	1.78	0.130	1.78	0.08	1.78	0.14	1.78	0.09
X0005	2.57	0.130	1.78	0.08	2.57	0.14	1.78	0.09
X0006	2.90	0.130	1.78	0.08	2.90	0.14	1.78	0.09
X0007	3.68	0.130	1.78	0.08	3.68	0.15	1.78	0.09
X0008	4.47	0.130	1.78	0.08	4.47	0.15	1.78	0.09
X0009	5.28	0.130	1.78	0.08	5.28	0.16	1.78	0.09
X0010	6.07	0.130	1.78	0.08	6.07	0.16	1.78	0.09
X0011	7.65	0.130	1.78	0.08	7.65	0.17	1.78	0.09
X0012	9.25	0.130	1.78	0.08	9.25	0.18	1.78	0.09
X0013	10.82	0.130	1.78	0.08	10.82	0.18	1.78	0.09
X0014	12.42	0.130	1.78	0.08	12.42	0.19	1.78	0.09
X0015	14.00	0.180	1.78	0.08	14.00	0.25	1.78	0.09
X0016	15.60	0.230	1.78	0.08	15.60	0.31	1.78	0.09
X0017	17.17	0.230	1.78	0.08	17.17	0.32	1.78	0.09
X0018	18.77	0.230	1.78	0.08	18.77	0.32	1.78	0.09
X0019	20.35	0.230	1.78	0.08	20.35	0.33	1.78	0.09
X0020	21.95	0.230	1.78	0.08	21.95	0.34	1.78	0.09
X0021	23.52	0.230	1.78	0.08	23.52	0.35	1.78	0.09
X0022	25.12	0.250	1.78	0.08	25.12	0.38	1.78	0.09
X0023	26.70	0.250	1.78	0.08	26.70	0.38	1.78	0.09
X0024	28.30	0.250	1.78	0.08	28.30	0.39	1.78	0.09
X0025	29.87	0.280	1.78	0.08	29.87	0.43	1.78	0.09
X0026	31.47	0.280	1.78	0.08	31.47	0.44	1.78	0.09
X0027	33.05	0.280	1.78	0.08	33.05	0.45	1.78	0.09
X0028	34.65	0.330	1.78	0.08	34.65	0.50	1.78	0.09
X0029	37.82	0.330	1.78	0.08	37.82	0.52	1.78	0.09
X0030	41.00	0.330	1.78	0.08	41.00	0.54	1.78	0.09
X0031	44.17	0.380	1.78	0.08	44.17	0.60	1.78	0.09
X0032	47.35	0.380	1.78	0.08	47.35	0.62	1.78	0.09
X0033	50.52	0.460	1.78	0.08	50.52	0.71	1.78	0.09
X0034	53.70	0.460	1.78	0.08	53.70	0.73	1.78	0.09
X0035	56.87	0.460	1.78	0.08	56.87	0.74	1.78	0.09
X0036	60.05	0.460	1.78	0.08	60.05	0.76	1.78	0.09
X0037	63.22	0.460	1.78	0.08	63.22	0.78	1.78	0.09
X0038	66.40	0.510	1.78	0.08	66.40	0.84	1.78	0.09
X0039	69.57	0.510	1.78	0.08	69.57	0.86	1.78	0.09
X0040	72.75	0.510	1.78	0.08	72.75	0.87	1.78	0.09
X0041	75.92	0.610	1.78	0.08	75.92	0.99	1.78	0.09
X0042	82.27	0.610	1.78	0.08	82.27	1.02	1.78	0.09
X0043	88.62	0.610	1.78	0.08	88.62	1.05	1.78	0.09
X0044	94.97	0.690	1.78	0.08	94.97	1.16	1.78	0.09
X0045	101.32	0.690	1.78	0.08	101.32	1.20	1.78	0.09
X0046	107.67	0.760	1.78	0.08	107.67	1.300	1.78	0.09
X0047	114.02	0.760	1.78	0.08	114.02	1.330	1.78	0.09
X0048	120.37	0.760	1.78	0.08	120.37	1.36	1.78	0.09
X0049	126.72	0.940	1.78	0.08	126.72	1.57	1.78	0.09
X0050	133.07	0.940	1.78	0.08	133.07	1.61	1.78	0.09
X0102	1.24	0.130	2.62	0.08	1.24	0.14	2.62	0.09
X0103	2.06	0.130	2.62	0.08	2.06	0.14	2.62	0.09
X0104	2.84	0.130	2.62	0.08	2.84	0.14	2.62	0.09
X0105	3.63	0.130	2.62	0.08	3.63	0.15	2.62	0.09
X0106	4.42	0.130	2.62	0.08	4.42	0.15	2.62	0.09
X0107	5.23	0.130	2.62	0.08	5.23	0.16	2.62	0.09

X-Ring Standard Size

JIS B 2401 SIZE	MEASUREMENTS IN MILLIMETERS NBR 70				MEASUREMENTS IN MILLIMETERS FKM 70			
	ID	±	W	±	ID	±	W	±
X0108	6.02	0.130	2.62	0.08	6.02	0.16	2.62	0.09
X0109	7.59	0.130	2.62	0.08	7.59	0.17	2.62	0.09
X0110	9.19	0.130	2.62	0.08	9.19	0.18	2.62	0.09
X0111	10.77	0.130	2.62	0.08	10.77	0.18	2.62	0.09
X0112	12.37	0.130	2.62	0.08	12.37	0.19	2.62	0.09
X0113	13.94	0.180	2.62	0.08	13.94	0.25	2.62	0.09
X0114	15.54	0.230	2.62	0.08	15.54	0.31	2.62	0.09
X0115	17.12	0.230	2.62	0.08	17.12	0.32	2.62	0.09
X0116	18.72	0.230	2.62	0.08	18.72	0.32	2.62	0.09
X0117	20.30	0.250	2.62	0.08	20.30	0.35	2.62	0.09
X0118	21.89	0.250	2.62	0.08	21.89	0.36	2.62	0.09
X0119	23.47	0.250	2.62	0.08	23.47	0.37	2.62	0.09
X0120	25.07	0.250	2.62	0.08	25.07	0.38	2.62	0.09
X0121	26.64	0.250	2.62	0.08	26.64	0.38	2.62	0.09
X0122	28.24	0.250	2.62	0.08	28.24	0.39	2.62	0.09
X0123	29.82	0.300	2.62	0.08	29.82	0.45	2.62	0.09
X0124	31.42	0.300	2.62	0.08	31.42	0.46	2.62	0.09
X0125	32.99	0.300	2.62	0.08	32.99	0.46	2.62	0.09
X0126	34.59	0.300	2.62	0.08	34.59	0.47	2.62	0.09
X0127	36.17	0.300	2.62	0.08	36.17	0.48	2.62	0.09
X0128	37.77	0.300	2.62	0.08	37.77	0.49	2.62	0.09
X0129	39.34	0.380	2.62	0.08	39.34	0.58	2.62	0.09
X0130	40.94	0.380	2.62	0.08	40.94	0.58	2.62	0.09
X0131	42.52	0.380	2.62	0.08	42.52	0.59	2.62	0.09
X0132	44.12	0.380	2.62	0.08	44.12	0.60	2.62	0.09
X0133	45.69	0.380	2.62	0.08	45.69	0.61	2.62	0.09
X0134	47.29	0.380	2.62	0.08	47.29	0.62	2.62	0.09
X0135	48.90	0.430	2.62	0.08	48.90	0.67	2.62	0.09
X0136	50.47	0.430	2.62	0.08	50.47	0.68	2.62	0.09
X0137	52.07	0.430	2.62	0.08	52.07	0.69	2.62	0.09
X0138	53.64	0.430	2.62	0.08	53.64	0.70	2.62	0.09
X0139	55.25	0.430	2.62	0.08	55.25	0.71	2.62	0.09
X0140	56.82	0.430	2.62	0.08	56.82	0.71	2.62	0.09
X0141	58.42	0.510	2.62	0.08	58.42	0.800	2.62	0.09
X0142	59.99	0.510	2.62	0.08	59.99	0.810	2.62	0.09
X0143	61.60	0.510	2.62	0.08	61.60	0.82	2.62	0.09
X0144	63.17	0.510	2.62	0.08	63.17	0.83	2.62	0.09
X0145	64.77	0.510	2.62	0.08	64.77	0.83	2.62	0.09
X0146	66.34	0.510	2.62	0.08	66.34	0.84	2.62	0.09
X0147	67.95	0.560	2.62	0.08	67.95	0.90	2.62	0.09
X0148	69.52	0.560	2.62	0.08	69.52	0.91	2.62	0.09
X0149	71.12	0.560	2.62	0.08	71.12	0.92	2.62	0.09
X0150	72.69	0.560	2.62	0.08	72.69	0.92	2.62	0.09
X0151	75.87	0.610	2.62	0.08	75.87	0.99	2.62	0.09
X0152	82.22	0.610	2.62	0.08	82.22	1.02	2.62	0.09
X0153	88.57	0.610	2.62	0.08	88.57	1.05	2.62	0.09
X0154	94.92	0.710	2.62	0.08	94.92	1.18	2.62	0.09
X0155	101.27	0.710	2.62	0.08	101.27	1.22	2.62	0.09
X0156	107.62	0.760	2.62	0.08	107.62	1.30	2.62	0.09
X0157	113.97	0.760	2.62	0.08	113.97	1.33	2.62	0.09
X0158	120.32	0.760	2.62	0.08	120.32	1.36	2.62	0.09
X0159	126.67	0.890	2.62	0.08	126.67	1.52	2.62	0.09
X0160	133.02	0.890	2.62	0.08	133.02	1.56	2.62	0.09
X0161	139.37	0.890	2.62	0.08	139.37	1.59	2.62	0.09
X0162	145.72	0.890	2.62	0.08	145.72	1.62	2.62	0.09

X-Ring Standard Size

X-Ring Standard Size

JIS B 2401 SIZE	MEASUREMENTS IN MILLIMETERS NBR 70				MEASUREMENTS IN MILLIMETERS FKM 70			
	ID	±	W	±	ID	±	W	±
X0163	152.07	0.890	2.62	0.08	152.07	1.65	2.62	0.09
X0164	158.42	1.020	2.62	0.08	158.42	1.81	2.62	0.09
X0165	164.77	1.020	2.62	0.08	164.77	1.84	2.62	0.09
X0166	171.12	1.020	2.62	0.08	171.12	1.88	2.62	0.09
X0167	177.47	1.020	2.62	0.08	177.47	1.91	2.62	0.09
X0168	183.82	1.140	2.62	0.08	183.82	2.06	2.62	0.09
X0169	190.17	1.140	2.62	0.08	190.17	2.09	2.62	0.09
X0170	196.52	1.140	2.62	0.08	196.52	2.12	2.62	0.09
X0171	202.87	1.140	2.62	0.08	202.87	2.15	2.62	0.09
X0172	209.22	1.270	2.62	0.08	209.22	2.32	2.62	0.09
X0173	215.57	1.270	2.62	0.08	215.57	2.35	2.62	0.09
X0174	221.92	1.270	2.62	0.08	221.92	2.38	2.62	0.09
X0175	228.27	1.270	2.62	0.08	228.27	2.41	2.62	0.09
X0176	234.62	1.400	2.62	0.08	234.62	2.57	2.62	0.09
X0177	240.97	1.400	2.62	0.08	240.97	2.60	2.62	0.09
X0178	247.32	1.400	2.62	0.08	247.32	2.64	2.62	0.09
X0201	4.34	0.130	3.53	0.10	4.34	0.15	3.53	0.12
X0202	5.94	0.130	3.53	0.10	5.94	0.16	3.53	0.12
X0203	7.52	0.130	3.53	0.10	7.52	0.17	3.53	0.12
X0204	9.12	0.130	3.53	0.10	9.12	0.18	3.53	0.12
X0205	10.69	0.130	3.53	0.10	10.69	0.18	3.53	0.12
X0206	12.29	0.130	3.53	0.10	12.29	0.19	3.53	0.12
X0207	13.87	0.180	3.53	0.10	13.87	0.250	3.53	0.12
X0208	15.47	0.230	3.53	0.10	15.47	0.310	3.53	0.12
X0209	17.04	0.230	3.53	0.10	17.04	0.32	3.53	0.12
X0210	18.64	0.250	3.53	0.10	18.64	0.34	3.53	0.12
X0211	20.22	0.250	3.53	0.10	20.22	0.35	3.53	0.12
X0212	21.82	0.250	3.53	0.10	21.82	0.36	3.53	0.12
X0213	23.39	0.250	3.53	0.10	23.39	0.37	3.53	0.12
X0214	24.99	0.250	3.53	0.10	24.99	0.37	3.53	0.12
X0215	26.57	0.250	3.53	0.10	26.57	0.38	3.53	0.12
X0216	28.17	0.300	3.53	0.10	28.17	0.44	3.53	0.12
X0217	29.74	0.300	3.53	0.10	29.74	0.45	3.53	0.12
X0218	31.34	0.300	3.53	0.10	31.34	0.46	3.53	0.12
X0219	32.92	0.300	3.53	0.10	32.92	0.46	3.53	0.12
X0220	34.52	0.300	3.53	0.10	34.52	0.47	3.53	0.12
X0221	36.09	0.300	3.53	0.10	36.09	0.48	3.53	0.12
X0222	37.69	0.380	3.53	0.10	37.69	0.57	3.53	0.12
X0223	40.87	0.380	3.53	0.10	40.87	0.58	3.53	0.12
X0224	44.04	0.380	3.53	0.10	44.04	0.60	3.53	0.12
X0225	47.22	0.460	3.53	0.10	47.22	0.70	3.53	0.12
X0226	50.39	0.460	3.53	0.10	50.39	0.71	3.53	0.12
X0227	53.57	0.460	3.53	0.10	53.57	0.73	3.53	0.12
X0228	56.74	0.510	3.53	0.10	56.74	0.79	3.53	0.12
X0229	59.92	0.510	3.53	0.10	59.92	0.81	3.53	0.12
X0230	63.09	0.510	3.53	0.10	63.09	0.83	3.53	0.12
X0231	66.27	0.510	3.53	0.10	66.27	0.84	3.53	0.12
X0232	69.44	0.610	3.53	0.10	69.44	0.96	3.53	0.12
X0233	72.62	0.610	3.53	0.10	72.62	0.97	3.53	0.12
X0234	75.79	0.610	3.53	0.10	75.79	0.99	3.53	0.12
X0235	78.97	0.610	3.53	0.10	78.97	1.00	3.53	0.12
X0236	82.14	0.610	3.53	0.10	82.14	1.02	3.53	0.12
X0237	85.32	0.610	3.53	0.10	85.32	1.04	3.53	0.12
X0238	88.49	0.610	3.53	0.10	88.49	1.05	3.53	0.12
X0239	91.67	0.710	3.53	0.10	91.67	1.17	3.53	0.12

X-Ring Standard Size

JIS B 2401 SIZE	MEASUREMENTS IN MILLIMETERS NBR 70				MEASUREMENTS IN MILLIMETERS FKM 70			
	ID	±	W	±	ID	±	W	±
X0240	94.84	0.710	3.53	0.10	94.84	1.18	3.53	0.12
X0241	98.02	0.710	3.53	0.10	98.02	1.20	3.53	0.12
X0242	101.19	0.710	3.53	0.10	101.19	1.22	3.53	0.12
X0243	104.37	0.710	3.53	0.10	104.37	1.23	3.53	0.12
X0244	107.54	0.760	3.53	0.10	107.54	1.30	3.53	0.12
X0245	110.72	0.760	3.53	0.10	110.72	1.31	3.53	0.12
X0246	113.89	0.760	3.53	0.10	113.89	1.33	3.53	0.12
X0247	117.07	0.760	3.53	0.10	117.07	1.35	3.53	0.12
X0248	120.24	0.760	3.53	0.10	120.24	1.36	3.53	0.12
X0249	123.42	0.890	3.53	0.10	123.42	1.51	3.53	0.12
X0250	126.59	0.890	3.53	0.10	126.59	1.52	3.53	0.12
X0251	129.77	0.890	3.53	0.10	129.77	1.540	3.53	0.12
X0252	132.94	0.890	3.53	0.10	132.94	1.550	3.53	0.12
X0253	136.12	0.890	3.53	0.10	136.12	1.57	3.53	0.12
X0254	139.29	0.890	3.53	0.10	139.29	1.59	3.53	0.12
X0255	142.47	0.890	3.53	0.10	142.47	1.60	3.53	0.12
X0256	145.64	0.890	3.53	0.10	145.64	1.62	3.53	0.12
X0257	148.82	0.890	3.53	0.10	148.82	1.63	3.53	0.12
X0258	151.99	0.890	3.53	0.10	151.99	1.65	3.53	0.12
X0259	158.34	1.020	3.53	0.10	158.34	1.81	3.53	0.12
X0260	164.69	1.020	3.53	0.10	164.69	1.84	3.53	0.12
X0261	171.04	1.020	3.53	0.10	171.04	1.88	3.53	0.12
X0262	177.39	1.020	3.53	0.10	177.39	1.91	3.53	0.12
X0263	183.74	1.140	3.53	0.10	183.74	2.06	3.53	0.12
X0264	190.09	1.140	3.53	0.10	190.09	2.09	3.53	0.12
X0265	196.44	1.140	3.53	0.10	196.44	2.12	3.53	0.12
X0266	202.79	1.140	3.53	0.10	202.79	2.15	3.53	0.12
X0267	209.14	1.270	3.53	0.10	209.14	2.32	3.53	0.12
X0268	215.49	1.270	3.53	0.10	215.49	2.35	3.53	0.12
X0269	221.84	1.270	3.53	0.10	221.84	2.38	3.53	0.12
X0270	228.19	1.270	3.53	0.10	228.19	2.41	3.53	0.12
X0271	234.54	1.400	3.53	0.10	234.54	2.57	3.53	0.12
X0272	240.89	1.400	3.53	0.10	240.89	2.60	3.53	0.12
X0273	247.24	1.400	3.53	0.10	247.24	2.64	3.53	0.12
X0274	253.59	1.400	3.53	0.10	253.59	2.67	3.53	0.12
X0275	266.29	1.400	3.53	0.10	266.29	2.73	3.53	0.12
X0276	278.99	1.650	3.53	0.10	278.99	3.04	3.53	0.12
X0277	291.69	1.650	3.53	0.10	291.69	3.11	3.53	0.12
X0278	304.39	1.650	3.53	0.10	304.39	3.17	3.53	0.12
X0279	329.79	1.650	3.53	0.10	329.79	3.30	3.53	0.12
X0280	355.19	1.650	3.53	0.10	355.19	3.43	3.53	0.12
X0281	380.59	1.650	3.53	0.10	380.59	3.55	3.53	0.12
X0282	405.26	1.910	3.53	0.10	405.26	3.94	3.53	0.12
X0283	430.66	2.030	3.53	0.10	430.66	4.18	3.53	0.12
X0284	456.06	2.160	3.53	0.10	456.06	4.44	3.53	0.12
X0309	10.46	0.130	5.33	0.13	10.46	0.18	5.33	0.16
X0310	12.07	0.130	5.33	0.13	12.07	0.19	5.33	0.16
X0311	13.64	0.180	5.33	0.13	13.64	0.25	5.33	0.16
X0312	15.24	0.230	5.33	0.13	15.24	0.31	5.33	0.16
X0313	16.81	0.230	5.33	0.13	16.81	0.31	5.33	0.16
X0314	18.42	0.250	5.33	0.13	18.42	0.34	5.33	0.16
X0315	19.99	0.250	5.33	0.13	19.99	0.35	5.33	0.16
X0316	21.59	0.250	5.33	0.13	21.59	0.36	5.33	0.16
X0317	23.16	0.250	5.33	0.13	23.16	0.37	5.33	0.16
X0318	24.77	0.250	5.33	0.13	24.77	0.37	5.33	0.16

X-Ring Standard Size

X-Ring Standard Size

JIS B 2401 SIZE	MEASUREMENTS IN MILLIMETERS NBR 70				MEASUREMENTS IN MILLIMETERS FKM 70			
	ID	±	W	±	ID	±	W	±
X0319	26.34	0.250	5.33	0.13	26.34	0.380	5.33	0.16
X0320	27.94	0.300	5.33	0.13	27.94	0.440	5.33	0.16
X0321	29.51	0.300	5.33	0.13	29.51	0.45	5.33	0.16
X0322	31.12	0.300	5.33	0.13	31.12	0.46	5.33	0.16
X0323	32.69	0.300	5.33	0.13	32.69	0.46	5.33	0.16
X0324	34.29	0.300	5.33	0.13	34.29	0.47	5.33	0.16
X0325	37.47	0.380	5.33	0.13	37.47	0.57	5.33	0.16
X0326	40.64	0.380	5.33	0.13	40.64	0.58	5.33	0.16
X0327	43.82	0.380	5.33	0.13	43.82	0.60	5.33	0.16
X0328	46.99	0.380	5.33	0.13	46.99	0.61	5.33	0.16
X0329	50.17	0.460	5.33	0.13	50.17	0.71	5.33	0.16
X0330	53.34	0.460	5.33	0.13	53.34	0.73	5.33	0.16
X0331	56.52	0.460	5.33	0.13	56.52	0.74	5.33	0.16
X0332	59.69	0.460	5.33	0.13	59.69	0.76	5.33	0.16
X0333	62.87	0.510	5.33	0.13	62.87	0.82	5.33	0.16
X0334	66.04	0.510	5.33	0.13	66.04	0.84	5.33	0.16
X0335	69.22	0.510	5.33	0.13	69.22	0.86	5.33	0.16
X0336	72.39	0.510	5.33	0.13	72.39	0.87	5.33	0.16
X0337	75.57	0.610	5.33	0.13	75.57	0.99	5.33	0.16
X0338	78.74	0.610	5.33	0.13	78.74	1.00	5.33	0.16
X0339	81.92	0.610	5.33	0.13	81.92	1.02	5.33	0.16
X0340	85.09	0.610	5.33	0.13	85.09	1.04	5.33	0.16
X0341	88.27	0.610	5.33	0.13	88.27	1.05	5.33	0.16
X0342	91.44	0.710	5.33	0.13	91.44	1.17	5.33	0.16
X0343	94.62	0.710	5.33	0.13	94.62	1.18	5.33	0.16
X0344	97.79	0.710	5.33	0.13	97.79	1.20	5.33	0.16
X0345	100.97	0.710	5.33	0.13	100.97	1.21	5.33	0.16
X0346	104.14	0.710	5.33	0.13	104.14	1.23	5.33	0.16
X0347	107.32	0.760	5.33	0.13	107.32	1.30	5.33	0.16
X0348	110.49	0.760	5.33	0.13	110.49	1.31	5.33	0.16
X0349	113.67	0.760	5.33	0.13	113.67	1.33	5.33	0.16
X0350	116.84	0.760	5.33	0.13	116.84	1.34	5.33	0.16
X0351	120.02	0.760	5.33	0.13	120.02	1.36	5.33	0.16
X0352	123.19	0.760	5.33	0.13	123.19	1.38	5.33	0.16
X0353	126.37	0.940	5.33	0.13	126.37	1.57	5.33	0.16
X0354	129.54	0.940	5.33	0.13	129.54	1.59	5.33	0.16
X0355	132.72	0.940	5.33	0.13	132.72	1.60	5.33	0.16
X0356	135.89	0.940	5.33	0.13	135.89	1.62	5.33	0.16
X0357	139.07	0.940	5.33	0.13	139.07	1.64	5.33	0.16
X0358	142.24	0.940	5.33	0.13	142.24	1.65	5.33	0.16
X0359	145.42	0.940	5.33	0.13	145.42	1.67	5.33	0.16
X0360	148.59	0.940	5.33	0.13	148.59	1.68	5.33	0.16
X0361	151.77	0.940	5.33	0.13	151.77	1.70	5.33	0.16
X0362	158.12	1.020	5.33	0.13	158.12	1.81	5.33	0.16
X0363	164.47	1.020	5.33	0.13	164.47	1.840	5.33	0.16
X0364	170.82	1.020	5.33	0.13	170.82	1.870	5.33	0.16
X0365	177.17	1.020	5.33	0.13	177.17	1.91	5.33	0.16
X0366	183.52	1.140	5.33	0.13	183.52	2.06	5.33	0.16
X0367	189.87	1.140	5.33	0.13	189.87	2.09	5.33	0.16
X0368	196.22	1.140	5.33	0.13	196.22	2.12	5.33	0.16
X0369	202.57	1.140	5.33	0.13	202.57	2.15	5.33	0.16
X0370	208.92	1.270	5.33	0.13	208.92	2.31	5.33	0.16
X0371	215.27	1.270	5.33	0.13	215.27	2.35	5.33	0.16
X0372	221.62	1.270	5.33	0.13	221.62	2.38	5.33	0.16
X0373	227.97	1.270	5.33	0.13	227.97	2.41	5.33	0.16

X-Ring Standard Size

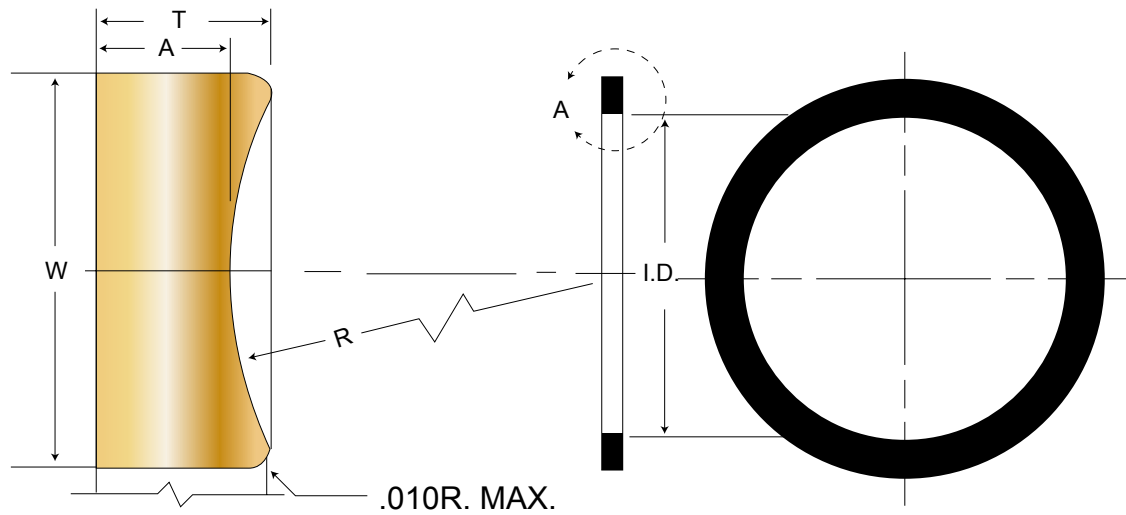
JIS B 2401 SIZE	MEASUREMENTS IN MILLIMETERS NBR 70				MEASUREMENTS IN MILLIMETERS FKM 70			
	ID	±	W	±	ID	±	W	±
X0374	234.32	1.400	5.33	0.13	234.32	2.57	5.33	0.16
X0375	240.67	1.400	5.33	0.13	240.67	2.60	5.33	0.16
X0376	247.02	1.400	5.33	0.13	247.02	2.64	5.33	0.16
X0377	253.37	1.400	5.33	0.13	253.37	2.67	5.33	0.16
X0378	266.07	1.520	5.33	0.13	266.07	2.85	5.33	0.16
X0379	278.77	1.520	5.33	0.13	278.77	2.91	5.33	0.16
X0380	291.47	1.650	5.33	0.13	291.47	3.11	5.33	0.16
X0381	304.17	1.650	5.33	0.13	304.17	3.17	5.33	0.16
X0382	329.57	1.650	5.33	0.13	329.57	3.30	5.33	0.16
X0383	354.97	1.780	5.33	0.13	354.97	3.55	5.33	0.16
X0384	380.37	1.780	5.33	0.13	380.37	3.68	5.33	0.16
X0385	405.26	1.910	5.33	0.13	405.26	3.94	5.33	0.16
X0386	430.66	2.030	5.33	0.13	430.66	4.18	5.33	0.16
X0387	456.06	2.160	5.33	0.13	456.06	4.44	5.33	0.16
X0388	481.41	2.290	5.33	0.13	481.41	4.70	5.33	0.16
X0389	506.81	2.410	5.33	0.13	506.81	4.94	5.33	0.16
X0390	532.21	2.410	5.33	0.13	532.21	5.07	5.33	0.16
X0391	557.61	2.540	5.33	0.13	557.61	5.33	5.33	0.16
X0392	582.68	2.670	5.33	0.13	582.68	5.58	5.33	0.16
X0393	608.08	2.790	5.33	0.13	608.08	5.83	5.33	0.16
X0394	633.48	2.920	5.33	0.13	633.48	6.09	5.33	0.16
X0395	658.88	3.050	5.33	0.13	658.88	6.34	5.33	0.16
X0425	113.67	0.840	6.99	0.15	113.67	1.41	6.99	0.18
X0426	116.84	0.840	6.99	0.15	116.84	1.42	6.99	0.18
X0427	120.02	0.840	6.99	0.15	120.02	1.44	6.99	0.18
X0428	123.19	0.840	6.99	0.15	123.19	1.46	6.99	0.18
X0429	126.37	0.940	6.99	0.15	126.37	1.57	6.99	0.18
X0430	129.54	0.940	6.99	0.15	129.54	1.59	6.99	0.18
X0431	132.72	0.940	6.99	0.15	132.72	1.60	6.99	0.18
X0432	135.89	0.940	6.99	0.15	135.89	1.62	6.99	0.18
X0433	139.07	0.940	6.99	0.15	139.07	1.64	6.99	0.18
X0434	142.24	0.940	6.99	0.15	142.24	1.65	6.99	0.18
X0435	145.42	0.940	6.99	0.15	145.42	1.67	6.99	0.18
X0436	148.59	0.940	6.99	0.15	148.59	1.680	6.99	0.18
X0437	151.77	0.940	6.99	0.15	151.77	1.700	6.99	0.18
X0438	158.12	1.020	6.99	0.15	158.12	1.81	6.99	0.18
X0439	164.47	1.020	6.99	0.15	164.47	1.84	6.99	0.18
X0440	170.82	1.020	6.99	0.15	170.82	1.87	6.99	0.18
X0441	177.17	1.020	6.99	0.15	177.17	1.91	6.99	0.18
X0442	183.52	1.140	6.99	0.15	183.52	2.06	6.99	0.18
X0443	189.87	1.140	6.99	0.15	189.87	2.09	6.99	0.18
X0444	196.22	1.140	6.99	0.15	196.22	2.12	6.99	0.18
X0445	202.57	1.140	6.99	0.15	202.57	2.15	6.99	0.18
X0446	215.27	1.400	6.99	0.15	215.27	2.48	6.99	0.18
X0447	227.97	1.400	6.99	0.15	227.97	2.54	6.99	0.18
X0448	240.67	1.400	6.99	0.15	240.67	2.60	6.99	0.18
X0449	253.37	1.400	6.99	0.15	253.37	2.67	6.99	0.18
X0450	266.07	1.520	6.99	0.15	266.07	2.85	6.99	0.18
X0451	278.77	1.520	6.99	0.15	278.77	2.91	6.99	0.18
X0452	291.47	1.520	6.99	0.15	291.47	2.98	6.99	0.18
X0453	304.17	1.520	6.99	0.15	304.17	3.04	6.99	0.18
X0454	316.87	1.520	6.99	0.15	316.87	3.10	6.99	0.18
X0455	329.57	1.520	6.99	0.15	329.57	3.17	6.99	0.18
X0456	342.27	1.780	6.99	0.15	342.27	3.49	6.99	0.18
X0457	354.97	1.780	6.99	0.15	354.97	3.55	6.99	0.18

X-Ring Standard Size

X-Ring Standard Size								
JIS B 2401 SIZE	MEASUREMENTS IN MILLIMETERS NBR 70				MEASUREMENTS IN MILLIMETERS FKM 70			
	ID	±	W	±	ID	±	W	±
X0458	367.67	1.780	6.99	0.15	367.67	3.62	6.99	0.18
X0459	380.37	1.780	6.99	0.15	380.37	3.68	6.99	0.18
X0460	393.07	1.780	6.99	0.15	393.07	3.75	6.99	0.18
X0461	405.26	1.910	6.99	0.15	405.26	3.94	6.99	0.18
X0462	417.96	1.910	6.99	0.15	417.96	4.00	6.99	0.18
X0463	430.66	2.030	6.99	0.15	430.66	4.18	6.99	0.18
X0464	443.36	2.160	6.99	0.15	443.36	4.38	6.99	0.18
X0465	456.06	2.160	6.99	0.15	456.06	4.44	6.99	0.18
X0466	468.76	2.160	6.99	0.15	468.76	4.50	6.99	0.18
X0467	481.46	2.290	6.99	0.15	481.46	4.70	6.99	0.18
X0468	494.16	2.290	6.99	0.15	494.16	4.76	6.99	0.18
X0469	506.86	2.410	6.99	0.15	506.86	4.94	6.99	0.18
X0470	532.26	2.410	6.99	0.15	532.26	5.07	6.99	0.18
X0471	557.66	2.540	6.99	0.15	557.66	5.33	6.99	0.18
X0472	582.68	2.670	6.99	0.15	582.68	5.58	6.99	0.18
X0473	608.08	2.790	6.99	0.15	608.08	5.83	6.99	0.18
X0474	633.48	2.920	6.99	0.15	633.48	6.09	6.99	0.18
X0475	658.88	3.050	6.99	0.15	658.88	6.34	6.99	0.18

Back-Up Ring Design Reference

BACK-UP RING



Size		Tolerance in mm						
		R ±.010	T. (REF.)	TOL. ±	A.	TOL. ±	W.	TOL. ±
-004	-050	2.21	1.20	0.08	1.14	0.08	1.35	0.08
-102	-178	3.28	1.28	0.08	1.14	0.08	2.18	0.08
-201	-284	4.42	1.23	0.08	1.02	0.08	3.00	0.10
-309	-395	6.65	1.88	0.10	1.52	0.10	4.65	0.13
-425	-475	8.74	2.97	0.13	2.44	0.13	5.99	0.15

Back-Up Ring Standard Size

MEASUREMENTS IN MILLIMETERS

Back-Up Ring SIZE	ID	NBR ±	FKM ±	R±.010	±	T	±	A	±	W	±
R0004	2.44	0.13	+0.13/-0.13	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0005	3.23	0.13	+0.13/-0.14	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0006	3.56	0.13	+0.13/-0.14	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0007	4.34	0.13	+0.13/-0.14	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0008	5.13	0.13	+0.13/-0.14	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0009	5.94	0.13	+0.13/-0.14	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0010	6.73	0.13	+0.13/-0.15	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0011	8.31	0.13	+0.13/-0.15	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0012	9.91	0.13	+0.13/-0.16	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0013	11.56	0.13	+0.13/-0.16	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0014	13.16	0.13	+0.13/-0.17	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0015	14.73	0.18	+0.18/-0.22	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0016	16.33	0.23	+0.23/-0.28	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0017	17.91	0.23	+0.23/-0.28	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0018	19.51	0.23	+0.23/-0.29	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0019	21.08	0.23	+0.23/-0.29	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0020	22.68	0.23	+0.23/-0.3	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0021	24.26	0.23	+0.23/-0.3	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0022	25.86	0.25	+0.25/-0.33	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0023	27.43	0.25	+0.25/-0.34	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0024	29.03	0.25	+0.25/-0.34	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0025	30.61	0.28	+0.28/-0.37	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0026	32.21	0.28	+0.28/-0.38	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0027	33.78	0.28	+0.28/-0.38	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0028	35.38	0.33	+0.33/-0.44	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0029	38.56	0.33	+0.33/-0.45	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0030	41.73	0.33	+0.33/-0.46	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0031	44.91	0.38	+0.38/-0.52	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0032	48.09	0.38	+0.38/-0.53	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0033	51.26	0.46	+0.46/-0.61	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0034	54.43	0.46	+0.46/-0.62	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0035	57.61	0.46	+0.46/-0.63	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0036	60.78	0.46	+0.46/-0.64	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0037	63.96	0.46	+0.46/-0.65	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0038	67.13	0.51	+0.51/-0.71	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0039	70.31	0.51	+0.51/-0.72	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0040	73.48	0.51	+0.51/-0.73	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0041	76.66	0.61	+0.61/-0.84	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0042	83.01	0.61	+0.61/-0.86	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0043	89.36	0.61	+0.61/-0.88	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0044	95.71	0.69	+0.69/-0.97	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0045	102.06	0.69	+0.69/-0.99	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0046	108.41	0.76	+0.76/-1.09	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0047	114.76	0.76	+0.76/-1.11	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0048	121.11	0.76	+0.76/-1.13	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0049	127.46	0.94	+0.94/-1.32	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0050	133.81	0.94	+0.94/-1.34	2.21	0.25	1.20	0.08	1.14	0.08	1.35	0.08
R0102	1.96	0.13	+0.13/-0.13	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0103	2.77	0.13	+0.13/-0.14	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0104	3.56	0.13	+0.13/-0.14	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0105	4.34	0.13	+0.13/-0.14	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0106	5.13	0.13	+0.13/-0.14	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0107	5.94	0.13	+0.13/-0.14	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0108	6.73	0.13	+0.13/-0.15	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0109	8.31	0.13	+0.13/-0.15	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0110	9.91	0.13	+0.13/-0.16	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0111	11.48	0.13	+0.13/-0.16	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0112	13.08	0.13	+0.13/-0.17	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08

MEASUREMENTS IN MILLIMETERS

Back-Up Ring SIZE	ID	NBR ±	FKM ±	R±.010	±	T	±	A	±	W	±
R0113	14.66	0.18	+0.18/-0.22	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0114	16.26	0.23	+0.23/-0.28	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0115	17.83	0.23	+0.23/-0.28	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0116	19.43	0.23	+0.23/-0.29	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0117	21.11	0.25	+0.25/-0.32	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0118	22.68	0.25	+0.25/-0.32	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0119	24.28	0.25	+0.25/-0.33	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0120	25.86	0.25	+0.25/-0.33	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0121	27.46	0.25	+0.25/-0.34	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0122	29.03	0.25	+0.25/-0.34	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0123	30.63	0.30	+0.3/-0.4	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0124	32.21	0.30	+0.3/-0.4	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0125	33.81	0.30	+0.3/-0.41	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0126	35.38	0.30	+0.3/-0.41	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0127	36.98	0.30	+0.3/-0.42	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0128	38.56	0.30	+0.3/-0.42	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0129	40.16	0.38	+0.38/-0.5	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0130	41.73	0.38	+0.38/-0.51	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0131	43.33	0.38	+0.38/-0.51	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0132	44.91	0.38	+0.38/-0.52	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0133	46.51	0.38	+0.38/-0.52	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0134	48.08	0.38	+0.38/-0.53	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0135	49.68	0.43	+0.43/-0.58	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0136	51.26	0.43	+0.43/-0.59	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0137	52.86	0.43	+0.43/-0.59	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0138	54.43	0.43	+0.43/-0.6	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0139	56.03	0.43	+0.43/-0.6	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0140	57.61	0.43	+0.43/-0.6	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0141	59.21	0.51	+0.51/-0.69	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0142	60.78	0.51	+0.51/-0.69	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0143	62.38	0.51	+0.51/-0.7	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0144	63.96	0.51	+0.51/-0.7	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0145	65.56	0.51	+0.51/-0.7	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0146	67.13	0.51	+0.51/-0.71	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0147	68.73	0.56	+0.56/-0.76	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0148	70.31	0.56	+0.56/-0.77	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0149	71.91	0.56	+0.56/-0.77	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0150	73.48	0.56	+0.56/-0.78	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0151	76.66	0.61	+0.61/-0.84	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0152	83.01	0.61	+0.61/-0.86	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0153	89.36	0.61	+0.61/-0.88	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0154	95.71	0.71	+0.71/-1	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0155	102.06	0.71	+0.71/-1.02	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0156	108.41	0.76	+0.76/-1.09	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0157	114.76	0.76	+0.76/-1.11	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0158	121.11	0.76	+0.76/-1.13	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0159	127.46	0.89	+0.89/-1.27	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0160	133.81	0.89	+0.89/-1.29	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0161	140.16	0.89	+0.89/-1.31	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0162	146.51	0.89	+0.89/-1.33	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0163	152.86	0.89	+0.89/-1.35	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0164	159.21	1.02	+1.02/-1.49	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0165	165.56	1.02	+1.02/-1.51	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0166	171.91	1.02	+1.02/-1.53	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0167	178.26	1.02	+1.02/-1.55	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0168	184.61	1.14	+1.14/-1.7	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0169	190.96	1.14	+1.14/-1.72	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0170	197.31	1.14	+1.14/-1.73	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08

Back-Up Ring Standard Size

MEASUREMENTS IN MILLIMETERS

Back-Up Ring SIZE	ID	NBR ±	FKM ±	R±.010	±	T	±	A	±	W	±
R0171	203.66	1.14	+1.14/-1.75	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0172	210.01	1.27	+1.27/-1.9	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0173	216.36	1.27	+1.27/-1.92	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0174	222.71	1.27	+1.27/-1.94	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0175	229.06	1.27	+1.27/-1.96	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0176	235.41	1.40	+1.4/-2.1	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0177	241.76	1.40	+1.4/-2.12	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0178	248.11	1.40	+1.4/-2.14	3.28	0.25	1.28	0.08	1.14	0.08	2.18	0.08
R0201	5.13	0.13	+0.13/-0.14	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0202	6.73	0.13	+0.13/-0.15	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0203	8.31	0.13	+0.13/-0.15	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0204	9.91	0.13	+0.13/-0.16	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0205	11.56	0.13	+0.13/-0.16	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0206	13.16	0.13	+0.13/-0.17	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0207	14.73	0.18	+0.18/-0.22	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0208	16.33	0.23	+0.23/-0.28	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0209	17.91	0.23	+0.23/-0.28	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0210	19.46	0.25	+0.25/-0.31	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0211	21.03	0.25	+0.25/-0.32	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0212	22.63	0.25	+0.25/-0.32	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0213	24.21	0.25	+0.25/-0.33	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0214	25.81	0.25	+0.25/-0.33	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0215	27.38	0.25	+0.25/-0.34	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0216	28.98	0.30	+0.3/-0.39	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0217	30.56	0.30	+0.3/-0.4	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0218	32.16	0.30	+0.3/-0.4	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0219	33.88	0.30	+0.3/-0.41	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0220	35.48	0.30	+0.3/-0.41	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0221	37.06	0.30	+0.3/-0.42	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0222	38.66	0.38	+0.38/-0.5	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0223	41.83	0.38	+0.38/-0.51	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0224	45.01	0.38	+0.38/-0.52	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0225	48.18	0.46	+0.46/-0.6	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0226	51.36	0.46	+0.46/-0.61	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0227	54.53	0.46	+0.46/-0.62	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0228	57.71	0.51	+0.51/-0.68	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0229	60.88	0.51	+0.51/-0.69	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0230	64.06	0.51	+0.51/-0.7	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0231	66.83	0.51	+0.51/-0.71	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0232	70	0.61	+0.61/-0.82	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0233	73.18	0.61	+0.61/-0.83	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0234	76.35	0.61	+0.61/-0.84	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0235	79.53	0.61	+0.61/-0.85	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0236	82.7	0.61	+0.61/-0.86	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0237	85.88	0.61	+0.61/-0.87	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0238	89.05	0.61	+0.61/-0.88	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0239	92.23	0.71	+0.71/-0.99	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0240	95.4	0.71	+0.71/-1	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0241	98.58	0.71	+0.71/-1.01	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0242	101.75	0.71	+0.71/-1.02	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0243	104.93	0.71	+0.71/-1.03	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0244	108.1	0.76	+0.76/-1.09	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0245	111.28	0.76	+0.76/-1.1	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0246	114.45	0.76	+0.76/-1.11	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0247	117.63	0.76	+0.76/-1.11	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0248	121.11	0.76	+0.76/-1.13	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0249	124.28	0.89	+0.89/-1.26	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0250	127.46	0.89	+0.89/-1.27	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10

MEASUREMENTS IN MILLIMETERS

Back-Up Ring SIZE	ID	NBR ±	FKM ±	R±.010	±	T	±	A	±	W	±
R0251	130.63	0.89	+0.89/-1.28	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0252	133.81	0.89	+0.89/-1.29	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0253	136.98	0.89	+0.89/-1.3	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0254	140.16	0.89	+0.89/-1.31	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0255	143.33	0.89	+0.89/-1.32	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0256	146.51	0.89	+0.89/-1.33	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0257	149.68	0.89	+0.89/-1.34	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0258	152.86	0.89	+0.89/-1.35	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0259	159.21	1.02	+1.02/-1.49	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0260	165.56	1.02	+1.02/-1.51	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0261	171.91	1.02	+1.02/-1.53	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0262	178.26	1.02	+1.02/-1.55	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0263	184.61	1.14	+1.14/-1.7	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0264	190.96	1.14	+1.14/-1.72	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0265	197.31	1.14	+1.14/-1.73	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0266	203.66	1.14	+1.14/-1.75	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0267	210.01	1.27	+1.27/-1.9	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0268	216.36	1.27	+1.27/-1.92	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0269	222.71	1.27	+1.27/-1.94	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0270	229.06	1.27	+1.27/-1.96	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0271	235.41	1.40	+1.4/-2.1	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0272	241.76	1.40	+1.4/-2.12	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0273	248.11	1.40	+1.4/-2.14	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0274	254.46	1.40	+1.4/-2.16	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0275	267.16	1.40	+1.4/-2.2	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0276	279.86	1.65	+1.65/-2.49	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0277	292.56	1.65	+1.65/-2.53	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0278	305.26	1.65	+1.65/-2.57	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0279	330.66	1.65	+1.65/-2.64	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0280	356.06	1.65	+1.65/-2.72	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0281	381.46	1.65	+1.65/-2.8	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0282	406.12	1.91	+1.91/-3.12	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0283	431.52	2.03	+2.03/-3.33	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0284	456.92	2.16	+2.16/-3.53	4.42	0.25	1.23	0.08	1.02	0.08	3.00	0.10
R0309	11.43	0.13	+0.13/-0.16	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0310	13.03	0.13	+0.13/-0.17	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0311	14.61	0.18	+0.18/-0.22	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0312	16.21	0.23	+0.23/-0.28	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0313	17.78	0.23	+0.23/-0.28	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0314	19.38	0.25	+0.25/-0.31	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0315	20.96	0.25	+0.25/-0.32	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0316	22.56	0.25	+0.25/-0.32	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0317	24.13	0.25	+0.25/-0.33	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0318	25.73	0.25	+0.25/-0.33	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0319	27.31	0.25	+0.25/-0.34	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0320	28.91	0.30	+0.3/-0.39	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0321	30.48	0.30	+0.3/-0.4	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0322	32.08	0.30	+0.3/-0.4	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0323	33.43	0.30	+0.3/-0.41	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0324	35.26	0.30	+0.3/-0.41	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0325	38.43	0.38	+0.38/-0.5	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0326	41.61	0.38	+0.38/-0.51	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0327	44.78	0.38	+0.38/-0.52	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0328	47.96	0.38	+0.38/-0.52	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0329	51.13	0.46	+0.46/-0.61	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0330	54.31	0.46	+0.46/-0.62	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0331	57.61	0.46	+0.46/-0.63	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0332	60.78	0.46	+0.46/-0.64	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13

Back-Up Ring Standard Size

MEASUREMENTS IN MILLIMETERS

Back-Up Ring SIZE	ID	NBR ±	FKM ±	R±.010	±	T	±	A	±	W	±
R0333	63.96	0.51	+0.51/-0.7	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0334	67.13	0.51	+0.51/-0.71	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0335	70.31	0.51	+0.51/-0.72	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0336	73.48	0.51	+0.51/-0.73	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0337	76.66	0.61	+0.61/-0.84	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0338	79.83	0.61	+0.61/-0.85	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0339	83.13	0.61	+0.61/-0.86	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0340	86.31	0.61	+0.61/-0.87	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0341	89.48	0.61	+0.61/-0.88	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0342	92.66	0.71	+0.71/-0.99	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0343	95.83	0.71	+0.71/-1	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0344	99.01	0.71	+0.71/-1.01	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0345	102.31	0.71	+0.71/-1.02	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0346	105.49	0.71	+0.71/-1.03	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0347	108.66	0.76	+0.76/-1.09	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0348	111.84	0.76	+0.76/-1.1	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0349	115.01	0.76	+0.76/-1.11	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0350	118.19	0.76	+0.76/-1.12	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0351	121.36	0.76	+0.76/-1.13	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0352	124.54	0.76	+0.76/-1.14	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0353	127.71	0.94	+0.94/-1.32	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0354	130.89	0.94	+0.94/-1.33	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0355	134.06	0.94	+0.94/-1.34	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0356	137.24	0.94	+0.94/-1.35	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0357	140.41	0.94	+0.94/-1.36	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0358	143.59	0.94	+0.94/-1.37	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0359	146.76	0.94	+0.94/-1.38	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0360	149.94	0.94	+0.94/-1.39	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0361	153.11	0.94	+0.94/-1.4	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0362	159.46	1.02	+1.02/-1.49	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0363	165.81	1.02	+1.02/-1.51	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0364	172.16	1.02	+1.02/-1.53	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0365	178.51	1.02	+1.02/-1.55	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0366	184.86	1.14	+1.14/-1.7	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0367	191.21	1.14	+1.14/-1.72	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0368	197.56	1.14	+1.14/-1.74	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0369	203.91	1.14	+1.14/-1.75	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0370	210.26	1.27	+1.27/-1.9	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0371	216.61	1.27	+1.27/-1.92	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0372	222.96	1.27	+1.27/-1.94	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0373	229.31	1.27	+1.27/-1.96	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0374	235.66	1.40	+1.4/-2.1	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0375	242.01	1.40	+1.4/-2.12	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0376	248.36	1.40	+1.4/-2.14	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0377	254.71	1.40	+1.4/-2.16	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0378	267.41	1.52	+1.52/-2.33	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0379	280.11	1.52	+1.52/-2.36	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0380	292.81	1.65	+1.65/-2.53	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0381	305.51	1.65	+1.65/-2.57	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0382	330.91	1.65	+1.65/-2.64	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0383	356.31	1.78	+1.78/-2.85	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0384	381.71	1.78	+1.78/-2.92	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0385	406.6	1.91	+1.91/-3.12	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0386	432	2.03	+2.03/-3.33	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0387	457.4	2.16	+2.16/-3.53	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0388	482.75	2.29	+2.29/-3.73	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0389	508.15	2.41	+2.41/-3.94	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0390	533.55	2.41	+2.41/-4.01	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13

MEASUREMENTS IN MILLIMETERS

Back-Up Ring SIZE	ID	NBR ±	FKM ±	R±.010	±	T	±	A	±	W	±
R0391	558.95	2.54	+2.54/-4.22	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0392	584.02	2.67	+2.67/-4.42	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0393	609.42	2.79	+2.79/-4.62	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0394	634.82	2.92	+2.92/-4.83	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0395	660.22	3.05	+3.05/-5.03	6.65	0.25	1.88	0.10	1.52	0.10	4.65	0.13
R0425	115.6	0.84	+0.84/-1.18	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0426	118.77	0.84	+0.84/-1.19	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0427	121.95	0.84	+0.84/-1.2	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0428	125.12	0.84	+0.84/-1.21	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0429	128.3	0.94	+0.94/-1.32	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0430	131.47	0.94	+0.94/-1.33	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0431	134.65	0.94	+0.94/-1.34	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0432	137.82	0.94	+0.94/-1.35	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0433	141	0.94	+0.94/-1.36	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0434	144.17	0.94	+0.94/-1.37	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0435	147.35	0.94	+0.94/-1.38	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0436	150.52	0.94	+0.94/-1.39	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0437	153.7	0.94	+0.94/-1.4	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0438	159.36	1.02	+1.02/-1.49	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0439	165.71	1.02	+1.02/-1.51	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0440	172.06	1.02	+1.02/-1.53	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0441	178.41	1.02	+1.02/-1.55	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0442	184.76	1.14	+1.14/-1.7	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0443	191.11	1.14	+1.14/-1.72	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0444	197.46	1.14	+1.14/-1.74	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0445	203.81	1.14	+1.14/-1.75	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0446	216.51	1.40	+1.4/-2.05	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0447	229.21	1.40	+1.4/-2.08	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0448	241.91	1.40	+1.4/-2.12	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0449	254.61	1.40	+1.4/-2.16	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0450	267.31	1.52	+1.52/-2.33	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0451	280.01	1.52	+1.52/-2.36	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0452	292.71	1.52	+1.52/-2.4	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0453	305.41	1.52	+1.52/-2.44	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0454	318.11	1.52	+1.52/-2.48	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0455	330.81	1.52	+1.52/-2.52	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0456	343.51	1.78	+1.78/-2.81	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0457	356.21	1.78	+1.78/-2.85	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0458	368.91	1.78	+1.78/-2.88	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0459	381.61	1.78	+1.78/-2.92	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0460	394.31	1.78	+1.78/-2.96	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0461	406.5	1.91	+1.91/-3.12	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0462	419.2	1.91	+1.91/-3.16	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0463	431.9	2.03	+2.03/-3.33	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0464	444.6	2.16	+2.16/-3.49	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0465	457.3	2.16	+2.16/-3.53	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0466	470	2.16	+2.16/-3.57	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0467	482.7	2.29	+2.29/-3.73	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0468	495.4	2.29	+2.29/-3.77	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0469	508.1	2.41	+2.41/-3.94	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0470	533.5	2.41	+2.41/-4.01	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0471	558.9	2.54	+2.54/-4.22	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0472	584.3	2.67	+2.67/-4.42	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0473	609.7	2.79	+2.79/-4.62	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0474	635.1	2.92	+2.92/-4.83	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15
R0475	660.5	3.05	+3.05/-5.03	8.74	0.25	2.91	0.13	2.44	0.13	5.99	0.15

O-Ring Kits

Available in Nitrile 70/90 and FKM 75



Benefits

Reduce down-time with immediate availability of the required O-Rings Size

Reduce cost as no minimum order quantity is required for a single line item

Save cost as the O-Rings can be replaced without replacing the whole box

O-Ring Kit Series 1(AS568)

NBR 70 black or NBR 90 black or FKM 75 black or FKM 75 brown
382 O-Rings in 30 different imperial sizes

Nr.	Size	Dimensions	Quantity
006	2-006	2.90x1.78	20
007	2-007	3.68x1.78	20
008	2-008	4.47x1.78	20
009	2-009	5.28x1.78	20
010	2-010	6.07x1.78	20
011	2-011	7.65x1.78	20
012	2-012	9.25x1.78	20
110	2-110	9.19x2.62	13
111	2-111	10.77x2.62	13
112	2-112	12.37x2.62	13
113	2-113	13.94x2.62	13
114	2-114	15.94x2.62	13
115	2-115	17.12x2.62	13
116	2-116	18.76x2.62	13
210	2-210	18.64x3.53	10
211	2-211	20.22x3.53	10
212	2-212	21.82x3.53	10
213	2-213	23.39x3.53	10
214	2-214	24.99x3.53	10
215	2-215	26.57x3.53	10
216	2-216	28.17x3.53	10
217	2-217	29.74x3.53	10
218	2-218	31.34x3.53	10
219	2-219	32.92x3.53	10
220	2-220	34.52x3.53	10
221	2-221	36.09x3.53	10
222	2-222	37.69x3.53	10
325	2-325	37.47x5.33	7
326	2-326	40.64x5.33	7
327	2-327	43.82x5.33	7

O-Ring Kit Series 2(JIS)

NBR 90 black
391 O-Rings in 30 different JIS sizes

Position On Kit	Size	Dimensions	Quantity
006	P3	2.80x1.90	18
007	P4	3.80x1.90	18
008	P5	4.80x1.90	18
009	P6	5.80x1.90	18
010	P7	6.80x1.90	18
011	P8	7.80x1.90	18
012	P9	8.80x1.90	18
110	P10A	9.80x2.40	14
111	P11	10.80x2.40	14
112	P12	11.80x2.40	14
113	P14	13.80x2.40	14
114	P16	15.80x2.40	14
115	P18	17.80x2.40	14
116	P20	19.80x2.40	14
210	G20	20.00x3.00	11
211	G22	22.00x3.00	11
212	P22.4	22.10x3.50	10
213	G25	24.40x3.10	11
214	P25	24.70x3.50	10
215	P26	25.70x3.50	10
216	G30	29.40x3.10	11
217	P30	29.70x3.50	10
218	P32	31.70x3.50	10
219	P34	33.70x3.50	10
220	G35	34.40x3.10	11
221	P36	35.70x3.50	10
222	G40	39.40x3.10	11
325	P40	39.70x3.50	10
326	G45	44.70x3.10	11
327	P48	47.70x3.50	10

O-Ring Kit Series 3(Metric)

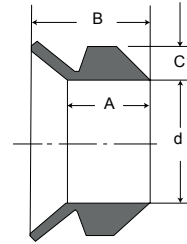
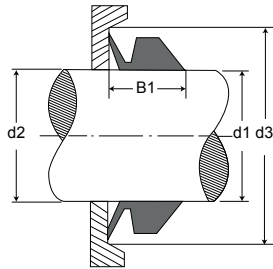
NBR 70 black or FKM 75 black
386 O-Rings in 30 different imperial sizes

Position On Kit	Dimensions	Quantity	Position On Kit	Dimensions	Quantity
006	3.00X2.00	16	211	20.00X3.00	12
007	4.00X2.00	16	212	22.00X3.00	12
008	5.00X2.00	16	213	24.00X3.00	12
009	6.00X2.00	16	214	25.00X3.00	12
010	7.00X2.00	16	215	27.00X3.00	12
011	8.00X2.00	16	216	28.00X3.00	12
012	10.00X2.00	16	217	30.00X3.00	12
110	10.00X2.50	13	218	32.00X3.00	12
111	11.00X2.50	13	219	33.00X3.00	12
112	12.00X2.50	13	220	35.00X3.00	12
113	14.00X2.50	13	221	36.00X3.00	12
114	16.00X2.50	13	222	38.00X3.00	12
115	17.00X2.50	13	325	38.00X4.00	9
116	19.00X2.50	13	326	41.00X4.00	9
210	19.00X3.00	12	327	44.00X4.00	9

V-Ring Standard Size

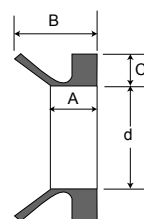
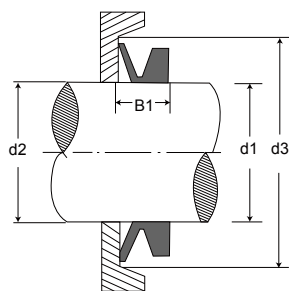
The V-ring is an all-rubber seal that mounts directly on the shaft and seals axially against counterface, housing, seal case or similar surface. The long flexible lip is designed to act like a mechanical face seal. It can retain lubricants and exclude contaminants. V-rings can be used as a primary seal or as a secondary back-up seal.

It performs well in dry applications and is capable of handling a greater amount of eccentricity and misalignment than most radial lip type seals.



VS Standard Sizes

SIZE NUMBERS	d1	d	c	A	B	d2	d3	B1
VS-005	4.5 - 5.5	4.0	2.0	3.9	5.2	d1+1	d1+6	4.5 ± 0.4
VS-006	5.5 - 6.5	5.0	2.0	3.9	5.2	d1+1	d1+6	4.5 ± 0.4
VS-007	6.5 - 8.0	6.0	2.0	3.9	5.2	d1+1	d1+6	4.5 ± 0.4
VS-008	8.0 - 9.5	7.0	2.0	3.9	5.2	d1+1	d1+6	4.5 ± 0.4
VS-010	9.5 - 11.5	9.0	3.0	5.6	7.7	d1+2	d1+9	6.7 ± 0.6
VS-012	11.5 - 13.5	10.5	3.0	5.6	7.7	d1+2	d1+9	6.7 ± 0.6
VS-014	13.5 - 15.5	12.5	3.0	5.6	7.7	d1+2	d1+9	6.7 ± 0.6
VS-016	15.5 - 17.5	14.0	3.0	5.6	7.7	d1+2	d1+9	6.7 ± 0.6
VS-018	17.5 - 19.0	16.0	3.0	5.6	7.7	d1+2	d1+9	6.7 ± 0.6
VS-020	19.0 - 21.0	18.0	4.0	7.9	10.5	d1+2	d1+12	9.0 ± 0.8
VS-022	21.0 - 24.0	20.0	4.0	7.9	10.5	d1+2	d1+12	9.0 ± 0.8
VS-025	24.0 - 27.0	22.0	4.0	7.9	10.5	d1+2	d1+12	9.0 ± 0.8
VS-028	27.0 - 29.0	25.0	4.0	7.9	10.5	d1+3	d1+12	9.0 ± 0.8
VS-030	29.0 - 31.0	27.0	4.0	7.9	10.5	d1+3	d1+12	9.0 ± 0.8
VS-032	31.0 - 33.0	29.0	4.0	7.9	10.5	d1+3	d1+12	9.0 ± 0.8
VS-035	33.0 - 36.0	31.0	4.0	7.9	10.5	d1+3	d1+12	9.0 ± 0.8
VS-038	36.0 - 38.0	34.0	4.0	7.9	10.5	d1+3	d1+12	9.0 ± 0.8
VS-040	38.0 - 43.0	36.0	5.0	9.5	13.0	d1+3	d1+15	11.0 ± 1.0
VS-045	43.0 - 48.0	40.0	5.0	9.5	13.0	d1+3	d1+15	11.0 ± 1.0
VS-050	48.0 - 53.0	45.0	5.0	9.5	13.0	d1+3	d1+15	11.0 ± 1.0
VS-055	53.0 - 58.0	49.0	5.0	9.5	13.0	d1+3	d1+15	11.0 ± 1.0
VS-060	58.0 - 63.0	54.0	5.0	9.5	13.0	d1+3	d1+15	11.0 ± 1.0
VS-065	63.0 - 68.0	58.0	5.0	9.5	13.0	d1+3	d1+15	11.0 ± 1.0
VS-070	68.0 - 73.0	63.0	6.0	11.3	15.5	d1+4	d1+18	13.5 ± 1.2
VS-075	73.0 - 78.0	67.0	6.0	11.3	15.5	d1+4	d1+18	13.5 ± 1.2
VS-080	78.0 - 83.0	72.0	6.0	11.3	15.5	d1+4	d1+18	13.5 ± 1.2
VS-085	83.0 - 88.0	76.0	6.0	11.3	15.5	d1+4	d1+18	13.5 ± 1.2
VS-090	88.0 - 93.0	81.0	6.0	11.3	15.5	d1+4	d1+18	13.5 ± 1.2
VS-095	93.0 - 98.0	85.0	6.0	11.3	15.5	d1+4	d1+18	13.5 ± 1.2
VS-100	98.0 - 105.0	90.0	6.0	11.3	15.5	d1+4	d1+18	13.5 ± 1.2
VS-110	105.0 - 115.0	99.0	7.0	13.1	18.0	d1+4	d1+21	15.5 ± 1.5
VS-120	115.0 - 125.0	108.0	7.0	13.1	18.0	d1+4	d1+21	15.5 ± 1.5
VS-130	125.0 - 135.0	117.0	7.0	13.1	18.0	d1+4	d1+21	15.5 ± 1.5
VS-140	135.0 - 145.0	126.0	7.0	13.1	18.0	d1+4	d1+21	15.5 ± 1.5
VS-150	145.0 - 155.0	135.0	7.0	13.1	18.0	d1+4	d1+21	15.5 ± 1.5
VS-160	155.0 - 165.0	144.0	8.0	15.0	20.5	d1+5	d1+24	18.0 ± 1.8
VS-170	165.0 - 175.0	153.0	8.0	15.0	20.5	d1+5	d1+24	18.0 ± 1.8
VS-180	175.0 - 185.0	162.0	8.0	15.0	20.5	d1+5	d1+24	18.0 ± 1.8
VS-190	185.0 - 195.0	171.0	8.0	15.0	20.5	d1+5	d1+24	18.0 ± 1.8
VS-199	195.0 - 210.0	180.0	8.0	15.0	20.5	d1+5	d1+24	18.0 ± 1.8



VS Standard Sizes

SIZE NUMBERS	d1	d	c	A	B	d2	d3	B1
VA-003	2.7 - 3.5	2.5	1.5	2.0	3.0	d1+1	d1+4	2.5 ± 0.3
VA-004	3.5 - 4.5	3.2	2.0	2.4	3.7	d1+1	d1+6	3.0 ± 0.4
VA-005	4.5 - 5.5	4.0	2.0	2.4	3.7	d1+1	d1+6	3.0 ± 0.4
VA-006	5.5 - 6.5	5.0	2.0	2.4	3.7	d1+1	d1+6	3.0 ± 0.4
VA-007	6.5 - 8.0	6.0	2.0	2.4	3.7	d1+1	d1+6	3.0 ± 0.4
VA-008	8.0 - 9.5	7.0	2.0	2.4	3.7	d1+1	d1+6	3.0 ± 0.4
VA-010	9.5 - 11.5	9.0	3.0	3.4	5.5	d1+2	d1+9	4.5 ± 0.6
VA-012	11.5 - 13.5	10.5	3.0	3.4	5.5	d1+2	d1+9	4.5 ± 0.6
VA-013	13.5 - 15.5	11.7	3.0	3.4	5.5	d1+2	d1+9	4.5 ± 0.6
VA-014	15.5 - 17.5	12.5	3.0	3.4	5.5	d1+2	d1+9	4.5 ± 0.6
VA-016	15.5 - 17.5	14.0	3.0	3.4	5.5	d1+2	d1+9	4.5 ± 0.6
VA-018	17.5 - 19.0	16.0	3.0	3.4	5.5	d1+2	d1+9	4.5 ± 0.6
VA-020	19.0 - 21.0	18.0	4.0	4.7	7.5	d1+2	d1+12	6.0 ± 0.8
VA-022	21.0 - 24.0	20.0	4.0	4.7	7.5	d1+2	d1+12	6.0 ± 0.8
VA-025	24.0 - 27.0	22.0	4.0	4.7	7.5	d1+2	d1+12	6.0 ± 0.8
VA-028	27.0 - 29.0	25.0	4.0	4.7	7.5	d1+3	d1+12	6.0 ± 0.8
VA-030	29.0 - 31.0	27.0	4.0	4.7	7.5	d1+3	d1+12	6.0 ± 0.8
VA-032	31.0 - 33.0	29.0	4.0	4.7	7.5	d1+3	d1+12	6.0 ± 0.8
VA-035	33.0 - 36.0	31.0	4.0	4.7	7.5	d1+3	d1+12	6.0 ± 0.8
VA-038	36.0 - 38.0	34.0	4.0	4.7	7.5	d1+3	d1+12	6.0 ± 0.8
VA-040	38.0 - 43.0	36.0	5.0	5.5	9.0	d1+3	d1+15	7.0 ± 1.0
VA-045	43.0 - 48.0	40.0	5.0	5.5	9.0	d1+3	d1+15	7.0 ± 1.0
VA-050	48.0 - 53.0	45.0	5.0	5.5	9.0	d1+3	d1+15	7.0 ± 1.0
VA-055	53.0 - 58.0	49.0	5.0	5.5	9.0	d1+3	d1+15	7.0 ± 1.0
VA-060	58.0 - 63.0	54.0	5.0	5.5	9.0	d1+3	d1+15	7.0 ± 1.0
VA-065	63.0 - 68.0	58.0	5.0	5.5	9.0	d1+3	d1+15	7.0 ± 1.0
VA-070	68.0 - 73.0	63.0	6.0	6.8	11.0	d1+4	d1+18	9.0 ± 1.2
VA-075	73.0 - 78.0	67.0	6.0	6.8	11.0	d1+4	d1+18	9.0 ± 1.2
VA-080	78.0 - 83.0	72.0	6.0	6.8	11.0	d1+4	d1+18	9.0 ± 1.2
VA-085	83.0 - 88.0	76.0	6.0	6.8	11.0	d1+4	d1+18	9.0 ± 1.2
VA-090	88.0 - 83.0	81.0	6.0	6.8	11.0	d1+4	d1+18	9.0 ± 1.2
VA-095	93.0 - 98.0	85.0	6.0	6.8	11.0	d1+4	d1+18	9.0 ± 1.2
VA-0100	98.0 - 105.0	90.0	6.0	6.8	11.0	d1+4	d1+18	9.0 ± 1.2
VA-0110	105.0 - 115.0	99.0	7.0	7.9	12.8	d1+4	d1+21	10.5 ± 1.5
VA-0120	115.0 - 125.0	108.0	7.0	7.9	12.8	d1+4	d1+21	10.5 ± 1.5
VA-0130	125.0 - 135.0	117.0	7.0	7.9	12.8	d1+4	d1+21	10.5 ± 1.5
VA-0140	135.0 - 145.0	126.0	7.0	7.9	12.8	d1+4	d1+21	10.5 ± 1.5
VA-0150	145.0 - 155.0	135.0	7.0	7.9	12.8	d1+4	d1+21	10.5 ± 1.5
VA-0160	155.0 - 165.0	144.0	8.0	9.0	14.5	d1+5	d1+24	12.0 ± 1.8
VA-0170	165.0 - 175.0	153.0	8.0	9.0	14.5	d1+5	d1+24	12.0 ± 1.8
VA-0180	175.0 - 185.0	162.0	8.0	9.0	14.5	d1+5	d1+24	12.0 ± 1.8
VA-0190	185.0 - 195.0	171.0	8.0	9.0	14.5	d1+5	d1+24	12.0 ± 1.8
VA-0199	195.0 - 210.0	180.0	8.0	9.0	14.5	d1+5	d1+24	12.0 ± 1.8
VA-0200	190.0 - 210.0	180.0	15.0	14.0	25.0	d1+10	d1+45	20.0 ± 4.0
VA-0220	210.0 - 235.0	198.0	15.0	14.0	25.0	d1+10	d1+45	20.0 ± 4.0
VA-0250	235.0 - 265.0	225.0	15.0	14.0	25.0	d1+10	d1+45	20.0 ± 4.0
VA-0275	265.0 - 290.0	247.0	15.0	14.0	25.0	d1+10	d1+45	20.0 ± 4.0
VA-0300	290.0 - 310.0	270.0	15.0	14.0	25.0	d1+10	d1+45	20.0 ± 4.0
VA-0325	310.0 - 335.0	292.0	15.0	14.0	25.0	d1+10	d1+45	20.0 ± 4.0
VA-0350	335.0 - 365.0	315.0	15.0	14.0	25.0	d1+10	d1+45	20.0 ± 4.0
VA-0375	365.0 - 390.0	337.0	15.0	14.0	25.0	d1+10	d1+45	20.0 ± 4.0
VA-0400	390.0 - 430.0	360.0	15.0	14.0	25.0	d1+10	d1+45	20.0 ± 4.0
VA-0450	430.0 - 480.0	405.0	15.0	14.0	25.0	d1+10	d1+45	20.0 ± 4.0
VA-0500	480.0 - 530.0	450.0	15.0	14.0	25.0	d1+10	d1+45	20.0 ± 4.0
VA-0550	530.0 - 580.0	495.0	15.0	14.0	25.0	d1+10	d1+45	20.0 ± 4.0
VA-0600	580.0 - 630.0	540.0	15.0	14.0	25.0	d1+10	d1+45	20.0 ± 4.0



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