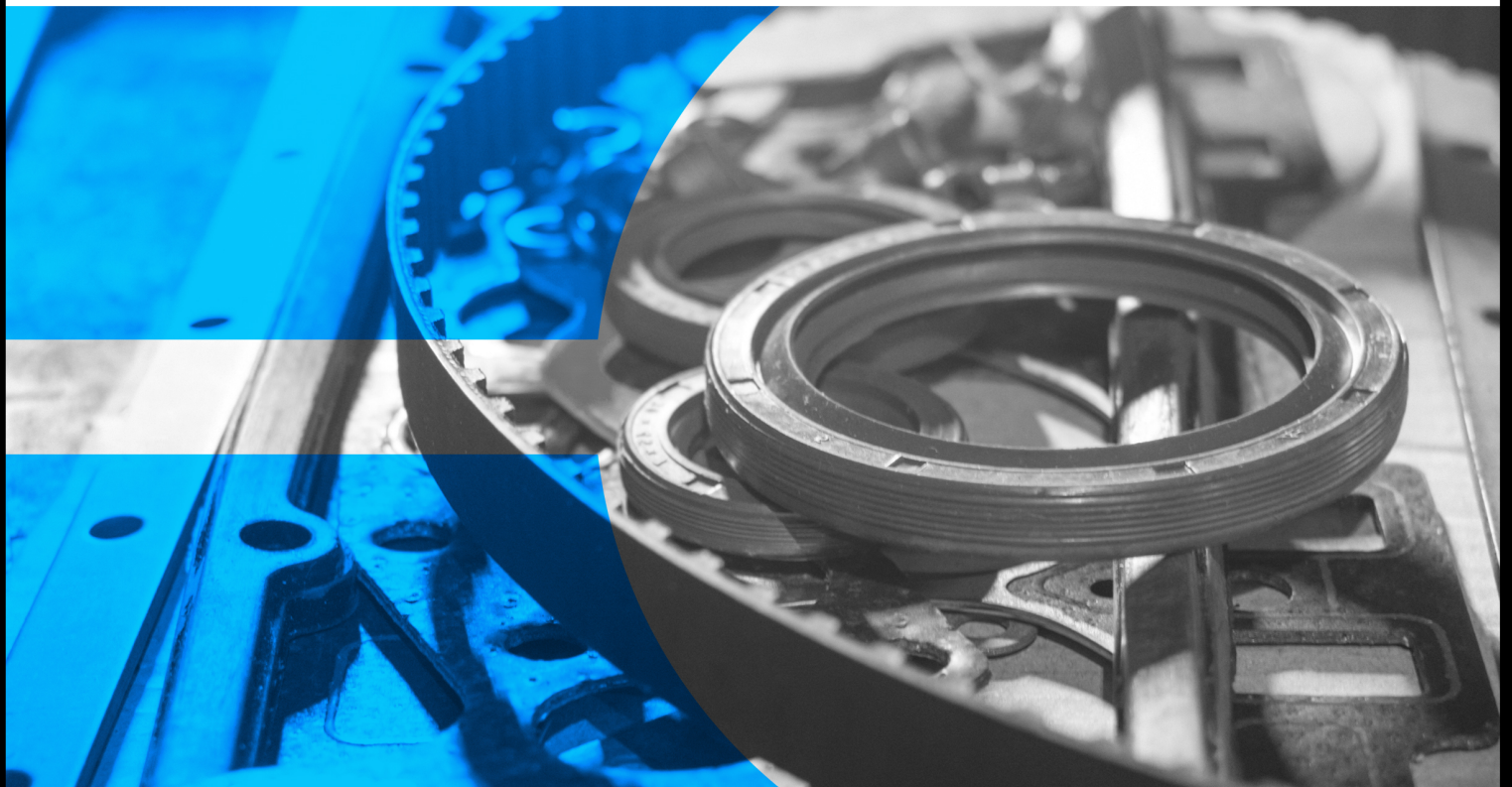


HYDRAULIC SEAL

CATALOG



- ≡ **Loaded Lip Seals**
- ≡ **U-Cups**
- ≡ **Rod Wipers**
- ≡ **Piston Seals**
- ≡ **T-Seals**
- ≡ **Oil Seals**
- ≡ **& Much More!**



Trusted Since 1943™

Who are we?

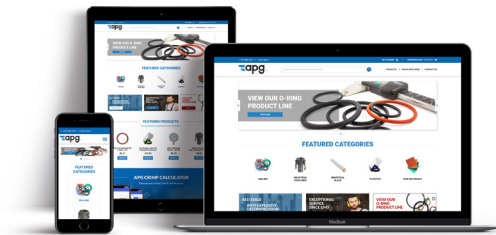
APG was founded in 1943 and remains a leading manufacturer and master distributor in the fluid sealing industry. We are globally recognized as an ISO9001:2015 registered company specializing in the manufacture and supply of quality sealing, coupling and other industrial solutions.

Our ability to adopt new technologies, striving for continuous improvement of our processes, and the forming of long-lasting, strategic partnerships have given our distributors a competitive advantage and the capacity to remain relevant in today's ever-changing marketplace.

We've solidified distribution points across the globe to ensure our stock remains plentiful and available at a moment's notice, we've invested in state-of-the-art machinery to increase the efficiency of custom fabricated items and we've created various internal processes to ensure a constant stream of new products are being introduced strategically throughout the year.

This, among many other reasons, is why APG has been Trusted since 1943.

We've launched our new website!
Visit callapg.com today!



Schedule a Website Onboarding Today!

Ask about how to schedule a Website Onboarding Meeting where we'll discuss:

- Account Creation
- Online Ordering
- eCommerce and Knowledge Base Overview
- What's currently in development
- How the APG Website can benefit your business



Our Mission

to provide the **correct answer** the first-time and the **right product** on-time, **every-time**.

APG Product Linecard.

Sealing



Industrial Couplings



Industrial Glass



Plastics



Raw Materials

















Our Value-Added Services:

As your trusted source for fluid-sealing and conveyance products since 1943, APG is proud to offer a wide range of industry-leading logistical, informational, and value-added services to our distributors. Using APG's varying internal departments and processes, we can provide you with a distinct market advantage while driving your costs down and ensuring you're able to spend your time focusing on your customers. Below you'll find a list of a few ways APG can increase your value proposition and stimulate additional demand for your core products and services:

- Product Kitting & Bagging
- Private Labeling
- 24/7 Call-Out Service
- Repackaging & Custom Packaging
- Labeling
- Just-in-time, same-day or next-day delivery
- Quality Inspection
- Consulting
- Training and Education
- Blind & Drop Shipments
- Custom Product Design & Fabrication
- EDI Capabilities & Integration
















Hydraulic Seals

Type	Inch / Metric	Cross Section	Style	Material
Loaded Lip Seals	Inch		Standard	92 Durometer Urethane with 70 Durometer Nitrile Energizer
			Deep Style	92 Durometer Urethane with 70 Durometer Nitrile Energizer
			Type "B" Style	92 Durometer Urethane with 70 Durometer Nitrile Energizer
	Metric		L9011	92 Durometer Urethane with 70 Durometer Nitrile Energizer
U-Cups	Inch		8400 Series	80 Durometer Nitrile
			6226 Series	70 Durometer Nitrile
	Metric		L9000	94 Durometer Urethane
Rod Wipers	Inch		WD	90 Durometer Urethane 90 Durometer Fluorelastomer
			WAN	90 Durometer Urethane 90 Durometer Fluorelastomer
			WH	90 Durometer Urethane 90 Durometer Nitrile
			WK	92 Durometer Urethane
			Metal Clad Wipers	Metal Cased Urethane Metal Cased Nitrile
			M	80 Durometer Nitrile
	Metric		P7	80 Durometer Nitrile 85 Durometer Fluorelastomer














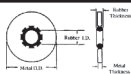
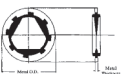
Notes: (1) Seal types, styles, and materials listed are those stocked by APG and PAG Ohio when this brochure was printed. For the availability of additional seal types, styles, and materials, please inquire.

Hydraulic Seals

Type	Inch / Metric	Cross Section	Style	Material
Rod Wipers (continued)	Metric (continued)		P8	80 Durometer Urethane
				93 Durometer Urethane
			P9	80 Durometer Urethane
Wear Rings and Wear Strips	Inch		Wear Rings	Glass Filled Nylon
	Inch & Metric		Wear Strips	Bronze Filled PTFE
Cast Iron Piston Rings	Inch		Cast Iron Piston Rings	Cast Iron With Permaseal® Joint
Piston Seals	Inch		Square Piston Seals	15% Glass Filled PTFE with 70 Durometer Nitrile O-Rings
			Rectangular Piston Seals	15% Glass Filled PTFE with 70 Durometer Nitrile O-Rings
T-Seals	Inch		Rod T-Seal	70 Durometer Nitrile with Nylon Back-Up Rings
			Piston T-Seal	70 Durometer Nitrile with Nylon Back-up Rings
Vee Packings	Inch		Female Adapter (Top)	Fabric Reinforced Nitrile Nylon
			V-Ring (Center Ring)	Fabric Reinforced Nitrile Homogeneous 90 Durometer Nitrile Hytrel
			Male Adapter (Bottom)	Fabric Reinforced Nitrile Nylon
Piston Cups	Inch		Piston Cups	Homogeneous 90 Durometer Nitrile Fabric Reinforced Nitrile 90 Durometer Urethane Thin Wall 90 Durometer Nitrile

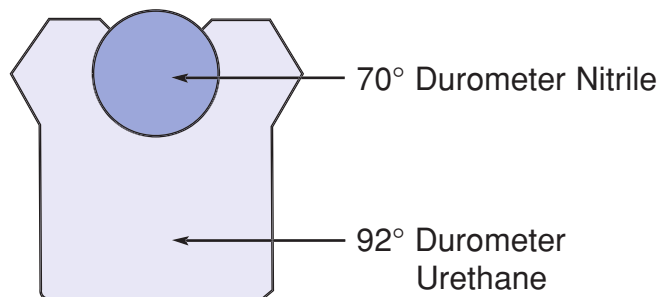
Notes: (1) Seal types, styles, and materials listed are those stocked by APG and PAG Ohio when this brochure was printed. For the availability of additional seal types, styles, and materials, please inquire.

Hydraulic Seals

Type	Inch / Metric	Cross Section	Style	Material	
Compact Piston Seals	Metric		ERKO	80 Durometer Nitrile with Fabric Reinforced Nitrile and Nylon Guide Rings	
			EZE	80 Durometer Nitrile with Fabric Reinforced Nitrile and Nylon Guide Rings	
			EZM	80 Durometer Nitrile with Fabric Reinforced Nitrile and Nylon Guide Rings	
			EZW	80 Durometer Nitrile with Fabric Reinforced Nitrile and Nylon Guide Rings	
			L43	80 Durometer Nitrile with Fabric Reinforced Nitrile and Hytrel Back-Up Rings	
Oil Seals	Metric		R	Nitrile Fluorelastomer	
			RST	Nitrile Fluorelastomer	
			RZV	Nitrile	
			MZV	Nitrile	
			MST	Nitrile	
	Inch	Above Styles Are Available In Select Standard Sizes		Nitrile	
V Seals	Metric		A	60 Durometer Nitrile 60 Durometer Fluorelastomer	
			S	60 Durometer Nitrile 60 Durometer Fluorelastomer	
			L	60 Durometer Nitrile 60 Durometer Fluorelastomer	
		Bonded Seals		Bonded Seals	Metal / Nitrile
		Fastener Seals	Inch		Fastener Seals
	Thread Seals			70 Durometer Nitrile with Zinc Plated Steel	

Notes: (1) Seal types, styles, and materials listed are those stocked by APG and PAG Ohio when this brochure was printed. For the availability of additional seal types, styles, and materials, please inquire.

Loaded Lip Seals



Loaded Lip Seals are very versatile and can be used as rod seals or piston seals. They are considered to be multi-purpose seals and are designed for significantly improved performance. APG Loaded Lip Seals are molded from 92 Durometer Urethane with a 70 Durometer Nitrile energizer. The energizer ensures constant pressure on the sealing lips.

Temperature: -65° to +300°F
 Pressure: 0 to 5000 psi
 Fluids: Petroleum based Hydraulic Fluids

Standard

The Standard Loaded Lip Seal is the most widely used design of Loaded Lip Seal. By energizing the sealing lips with an endless O-ring, you are assured of uniform, positive lip contact and excellent low-pressure sealing. The seal depth is equal to the radial width, which results in a square design. Standard Loaded Lip Seals can be widely used to interchange with existing hydraulic packing and/or O-rings without changing dimensions.



Type "B"

The Loaded Lip Seal Type "B" features a back-beveled sealing lip. This provides greater film breaking and increased unit loading at the sealing surface. The seal depth is generally 1 1/2 times the radial width to ensure seal stability in the most rugged applications. It is most commonly used as a rod seal.



Deep Style

The Loaded Lip Seal – Deep Style incorporates the same unique design as the Standard Loaded Lip Seal, plus its depth is 1 1/2 times greater than the radial width. This increases seal stability to withstand rugged, high shock, heavy-duty applications. This seal will replace many kinds of Vee Packing. When minimum drag is needed, use Standard Loaded Lip Seals or Loaded Lip Seals – Deep Style.

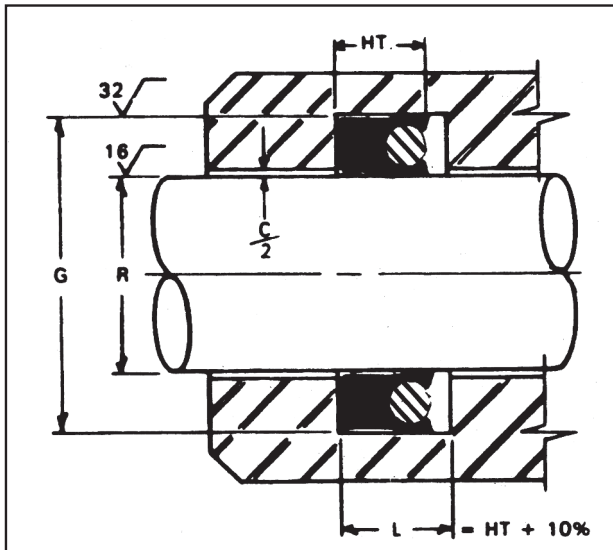


L9011 (Metric)

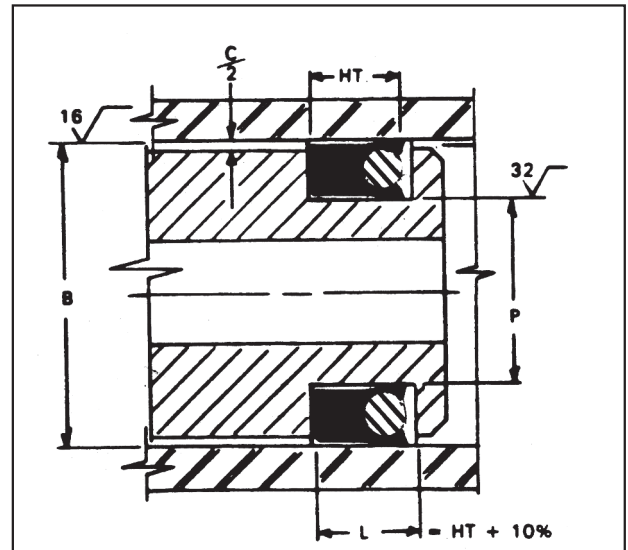
The L9011 Loaded Lip Seal incorporates the same unique design as the Type "B". The energizer, however, is a Q-Ring instead of an O-Ring.



Loaded Lip Seal Design Data



Rod Seal Installation



Piston Seal Installation

Rod Dia.	Tolerance of Rod Dia.	Tolerance of Groove Dia.	Max. Diametrical Clearance C		
			1000 PSI	3000 PSI	5000 PSI
R	R	G			
0 - 3/4	+0 -0.002	+0.004 -0	.008	.006	.004
3/4 - 1 1/4	+0 -0.003	+0.005 -0	.010	.008	.004
1 1/4 - 2	+0 -0.003	+0.006 -0	.012	.008	.004
2 - 3	-0 -0.003	+0.007 -0	.012	.008	.005
3 - 5	+0 -0.004	+0.009 -0	.014	.010	
5 - 7	+0 -0.004	+0.010 -0	.014	.010	
7 - 9	+0 -0.005	+0.011 -0	.016	.010	
9 - 12	+0 -0.005	+0.012 -0	.016		
12 - 17	+0 -0.006	+0.012 -0	.018		

Cylinder Dia.	Tolerance of Cylinder Dia.	Tolerance of Groove Dia.	Max. Diametrical Clearance C		
			1000 PSI	3000 PSI	5000 PSI
B	B	P			
0 - 3/4	+0.002 -0	+0 -0.004	.008	.006	.004
3/4 - 1 1/4	+0.003 -0	+0 -0.005	.010	.008	.004
1 1/4 - 2	+0.003 -0	+0 -0.006	.012	.008	.004
2 - 3	+0.003 -0	+0 -0.007	.012	.008	.005
3 - 5	+0.004 -0	+0 -0.009	.014	.010	
5 - 7	+0.004 -0	+0 -0.010	.014	.010	
7 - 9	+0.005 -0	+0 -0.011	.016	.010	
9 - 12	+0.005 -0	+0 -0.012	.016		
12 - 17	+0.006 -0	+0 -0.012	.018		

Loaded Lip Seal Dimensional Data

Standard Loaded Lip Seals

Part Number	Inside Diameter (Inches)	Outside Diameter (Inches)
1/8" Cross Section		
L12500062	1/16	5/16
L12500093	3/32	11/32
L12500125	1/8	3/8
L12500187	3/16	7/16
L12500250	1/4	1/2
L12500312	5/16	9/16
L12500359	23/64	39/64
L12500375	3/8	5/8
L12500437	7/16	11/16
L12500500	1/2	3/4
**	17/32	25/32
L12500562	9/16	13/16
L12500625	5/8	7/8
L12500687	11/16	15/16
L12500750	3/4	1
L12500812	13/16	1 1/16
L12500875	7/8	1 1/8
L12500906	29/32	1 5/32
L12500937	15/16	1 3/16
L12501000	1	1 1/4
L12501062	1 1/16	1 5/16
L12501125	1 1/8	1 3/8
L12501187	1 3/16	1 7/16
L12501250	1 1/4	1 1/2
L12501312	1 5/16	1 9/16
L12501375	1 3/8	1 5/8
L12501437	1 7/16	1 11/16
L12501500	1 1/2	1 3/4
L12501562	1 9/16	1 13/16
L12501625	1 5/8	1 7/8
**	1 11/16	1 15/16
L12501750	1 3/4	2
L12501875	1 7/8	2 1/8
L12502000	2	2 1/4
L12502125	2 1/8	2 3/8
L12502250	2 1/4	2 1/2
L12502375	2 3/8	2 5/8
L12502500	2 1/2	2 3/4
**	2 5/8	2 7/8
L12502750	2 3/4	3
L12502875	2 7/8	3 1/8
L12503000	3	3 1/4
L12503250	3 1/4	3 1/2
L12503375	3 3/8	3 5/8
L12503500	3 1/2	3 3/4
L12504000	4	4 1/4
L12504250	4 1/4	4 1/2
**	4 3/8	4 5/8
L12504500	4 1/2	4 3/4
**	4 3/4	5
**	5	5 1/4
**	5 3/4	6

Part Number	Inside Diameter (Inches)	Outside Diameter (Inches)
5/32" Cross Section		
L15600437	7/16	3/4
L15600750	3/4	1 1/16
L15600937	15/16	1 1/4
L15601000	1	1 5/16
L15601062	1 1/16	1 3/8
L15601187	1 3/16	1 1/2
L15601250	1 1/4	1 9/16
L15601375	1 3/8	1 11/16
L15601500	1 1/2	1 13/16
**	2 1/16	2 3/8
11/64" Cross Section		
**	9/16	29/32
3/16" Cross Section		
L18700187	3/16	9/16
L18700250	1/4	5/8
L18700312	5/16	11/16
L18700375	3/8	3/4
L18700437	7/16	13/16
L18700500	1/2	7/8
L18700562	9/16	15/16
L18700625	5/8	1
**	21/32	1 1/32
L18700687	11/16	1 1/16
L18700750	3/4	1 1/8
L18700812	13/16	1 3/16
L18700875	7/8	1 1/4
**	15/16	1 5/16
L18701000	1	1 3/8
L18701062	1 1/16	1 7/16
L18701125	1 1/8	1 1/2
L18701187	1 3/16	1 9/16
L18701250	1 1/4	1 5/8
L18701312	1 5/16	1 11/16
L18701375	1 3/8	1 3/4
L18701437	1 7/16	1 13/16
L18701500	1 1/2	1 7/8
L18701562	1 9/16	1 15/16
L18701625	1 5/8	2
L18701687	1 11/16	2 1/16
L18701750	1 3/4	2 1/8
**	1 13/16	2 3/16
L18701875	1 7/8	2 1/4
**	1 15/16	2 5/16
L18702000	2	2 3/8
L18702062	2 1/16	2 7/16
L18702125	2 1/8	2 1/2
L18702250	2 1/4	2 5/8
L18702375	2 3/8	2 3/4
L18702500	2 1/2	2 7/8
L18702625	2 5/8	3
L18702750	2 3/4	3 1/8
L18702875	2 7/8	3 1/4
L18703000	3	3 3/8

Part Number	Inside Diameter (Inches)	Outside Diameter (Inches)
3/16" Cross Section (Continued)		
L18703125	3 1/8	3 1/2
L18703250	3 1/4	3 5/8
L18703375	3 3/8	3 3/4
L18703500	3 1/2	3 7/8
L18703625	3 5/8	4
L18703750	3 3/4	4 1/8
L18703875	3 7/8	4 1/4
L18704000	4	4 3/8
L18704125	4 1/8	4 1/2
L18704250	4 1/4	4 5/8
L18704375	4 3/8	4 3/4
L18704500	4 1/2	4 7/8
**	4 3/4	5 1/8
**	4 7/8	5 1/4
**	5 11/16	6 1/16
**	5 7/8	6 1/4
**	6	6 3/8
**	6 5/16	6 11/16
7/32" Cross Section		
**	5/16	3/4
**	7/16	7/8
**	9/16	1
**	3/4	1 3/16
**	15/16	1 3/8
**	1 3/4	2 3/16
**	2 1/16	2 1/2
**	2 1/2	2 5/16
**	2 9/16	3
**	2 13/16	3 1/4
**	3	3 7/16
1/4" Cross Section		
L25000250	1/4	3/4
L25000312	5/16	13/16
L25000375	3/8	7/8
L25000437	7/16	15/16
L25000500	1/2	1
L25000562	9/16	1 1/16
L25000625	5/8	1 1/8
L25000687	11/16	1 3/16
L25000750	3/4	1 1/4
L25000812	13/16	1 5/16
L25000875	7/8	1 3/8
L25000937	15/16	1 7/16
L25001000	1	1 1/2
**	1 1/16	1 9/16
**	1 3/32	1 19/32
L25001125	1 1/8	1 5/8
L25001187	1 3/16	1 11/16
L25001250	1 1/4	1 3/4
L25001312	1 5/16	1 13/16
L25001375	1 3/8	1 7/8

** Not currently an APG stock item. Call for availability.

Standard Loaded Lip Seals (Continued)

Part Number	Inside Diameter (Inches)	Outside Diameter (Inches)
1/4" Cross Section (Continued)		
**	1 7/16	1 15/16
L25001500	1 1/2	2
L25001625	1 5/8	2 1/8
L25001750	1 3/4	2 1/4
L25001875	1 7/8	2 3/8
L25002000	2	2 1/2
L25002125	2 1/8	2 5/8
L25002250	2 1/4	2 3/4
L25002375	2 3/8	2 7/8
L25002500	2 1/2	3
L25002625	2 5/8	3 1/8
L25002750	2 3/4	3 1/4
L25002875	2 7/8	3 3/8
L25003000	3	3 1/2
L25003125	3 1/8	3 5/8
L25003250	3 1/4	3 3/4
L25003375	3 3/8	3 7/8
L25003500	3 1/2	4
L25003625	3 5/8	4 1/8
L25003750	3 3/4	4 1/4
L25003875	3 7/8	4 3/8
L25004000	4	4 1/2
L25004125	4 1/8	4 5/8
L25004250	4 1/4	4 3/4
L25004375	4 3/8	4 7/8
L25004500	4 1/2	5
L25004625	4 5/8	5 1/8
L25004750	4 3/4	5 1/4
L25004875	4 7/8	5 3/8
L25005000	5	5 1/2
**	5 1/8	5 5/8
L25005250	5 1/4	5 3/4
L25005375	5 3/8	5 7/8
L25005500	5 1/2	6
L25005625	5 5/8	6 1/8
L25005750	5 3/4	6 1/4
L25005875	5 7/8	6 3/8
L25006000	6	6 1/2
L25006250	6 1/4	6 3/4
L25006500	6 1/2	7
**	6 3/4	7 1/4
L25007000	7	7 1/2
**	7 1/8	7 5/8
L25007250	7 1/4	7 3/4
L25007500	7 1/2	8
**	7 3/4	8 1/4
**	7 13/16	8 5/16
L25008000	8	8 1/2
**	8 1/2	9
**	8 3/4	9 1/4
L25009000	9	9 1/2
**	9 1/4	9 3/4
L25009500	9 1/2	10
**	9 3/4	10 1/4
**	10	10 1/2
**	10 1/2	11
**	10 3/4	11 1/4

Part Number	Inside Diameter (Inches)	Outside Diameter (Inches)
1/4" Cross Section (Continued)		
**	10 7/8	11 3/8
**	11	11 1/2
**	11 1/4	11 3/4
**	11 1/2	12
**	12	12 1/2
L25012500	12 1/2	13
**	13	13 1/2
**	13 1/2	14
**	24 1/2	25
9/32" Cross Section		
**	3/16	3/4
**	11/16	1 1/4
**	2 5/16	2 7/8
**	2 9/16	3 1/8
**	4 7/16	5
**	5	5 9/16
L28105437	5 7/16	6
**	6 7/16	7
**	8 1/2	9 1/16
5/16" Cross Section		
**	1/4	7/8
**	3/8	1
**	7/16	1 1/16
L31200500	1/2	1 1/8
L31200625	5/8	1 1/4
L31200687	11/16	1 5/16
L31200750	3/4	1 3/8
L31200875	7/8	1 1/2
L31201000	1	1 5/8
L31201062	1 1/16	1 11/16
L31201125	1 1/8	1 3/4
L31201187	1 3/16	1 13/16
L31201250	1 1/4	1 7/8
L31201312	1 5/16	1 15/16
L31201375	1 3/8	2
L31201500	1 1/2	2 1/8
L31201625	1 5/8	2 1/4
**	1 11/16	2 5/16
L31201750	1 3/4	2 3/8
L31201875	1 7/8	2 1/2
L31201937	1 15/16	2 9/16
L31202000	2	2 5/8
L31202125	2 1/8	2 3/4
L31202250	2 1/4	2 7/8
**	2 5/16	2 15/16
L31202375	2 3/8	3
L31202500	2 1/2	3 1/8
**	2 9/16	3 3/16
**	2 5/8	3 1/4
L31202750	2 3/4	3 3/8
L31202875	2 7/8	3 1/2
L31203000	3	3 5/8
L31203125	3 1/8	3 3/4
L31203250	3 1/4	3 7/8
L31203375	3 3/8	4
L31203500	3 1/2	4 1/8

Part Number	Inside Diameter (Inches)	Outside Diameter (Inches)
5/16" Cross Section (Continued)		
L31203625	3 5/8	4 1/4
L31203750	3 3/4	4 3/8
L31203875	3 7/8	4 1/2
L31204000	4	4 5/8
L31204125	4 1/8	4 3/4
L31204250	4 1/4	4 7/8
L31204375	4 3/8	5
L31204500	4 1/2	5 1/8
L31204750	4 3/4	5 3/8
L31204875	4 7/8	5 1/2
L31205000	5	5 5/8
L31205125	5 1/8	5 3/4
L31205250	5 1/4	5 7/8
**	5 3/8	6
**	5 1/2	6 1/8
**	5 7/8	6 1/2
**	6	6 5/8
**	6 1/8	6 3/4
**	6 1/4	6 7/8
**	6 3/8	7
**	6 1/2	7 1/8
**	6 5/8	7 1/4
**	6 3/4	7 3/8
**	7	7 5/8
**	7 1/4	7 5/8
L31207375	7 3/8	8
**	7 1/2	8 1/8
**	8	8 5/8
**	8 7/8	9 1/2
**	10 1/8	10 3/4
**	12 3/4	13 3/8
**	13 3/8	14
**	14 1/4	14 7/8
**	14 7/8	15 1/2
**	15 7/8	16 1/2
**	21 13/16	22 7/16
11/32" Cross Section		
**	3/4	1 7/16
**	1 1/16	1 3/4
**	1 5/16	2
**	1 13/16	2 1/2
**	2 5/16	3
**	2 1/2	3 3/16
**	2 11/16	3 3/8
**	9 5/16	10
23/64" Cross Section		
**	29/32	1 5/8
3/8" Cross Section		
L37500500	1/2	1 1/4
L37500625	5/8	1 3/8
L37500750	3/4	1 1/2
**	7/8	1 5/8
**	15/16	1 11/16

** Not currently an APG stock item. Call for availability.

Standard Loaded Lip Seals (Continued)

Part Number	Inside Diameter (Inches)	Outside Diameter (Inches)
3/8" Cross Section (Continued)		
L37501000	1	1 3/4
L37501125	1 1/8	1 7/8
L37501250	1 1/4	2
L37501312	1 5/16	2 1/16
L37501375	1 3/8	2 1/8
**	1 7/16	2 3/16
L37501500	1 1/2	2 1/4
**	1 9/16	2 5/16
L37501625	1 5/8	2 3/8
L37501750	1 3/4	2 1/2
L37501875	1 7/8	2 5/8
L37502000	2	2 3/4
**	2 1/16	2 13/16
L37502125	2 1/8	2 7/8
L37502250	2 1/4	3
L37502375	2 3/8	3 1/8
**	2 7/16	3 3/16
L37502500	2 1/2	3 1/4
L37502625	2 5/8	3 3/8
**	2 11/16	3 7/16
L37502750	2 3/4	3 1/2
**	2 7/8	3 5/8
**	2 15/16	3 11/16
L37503000	3	3 3/4
L37503125	3 1/8	3 7/8
L37503250	3 1/4	4
L37503375	3 3/8	4 1/8
L37503500	3 1/2	4 1/4
**	3 5/8	4 3/8
L37503750	3 3/4	4 1/2
**	3 27/32	4 19/32
L37503875	3 7/8	4 5/8
L37504000	4	4 3/4
L37504125	4 1/8	4 7/8
L37504250	4 1/4	5
L37504375	4 3/8	5 1/8
L37504500	4 1/2	5 1/4
L37504625	4 5/8	5 3/8
L37504750	4 3/4	5 1/2
L37504875	4 7/8	5 5/8
L37505000	5	5 3/4
**	5 1/8	5 7/8
L37505250	5 1/4	6
L37505375	5 3/8	6 1/8
L37505500	5 1/2	6 1/4
**	5 5/8	6 3/8
L37505750	5 3/4	6 1/2
**	5 7/8	6 5/8
L37506000	6	6 3/4
L37506250	6 1/4	7
L37506500	6 1/2	7 1/4
**	6 3/4	7 1/2
L37507000	7	7 3/4
L37507250	7 1/4	8
L37507500	7 1/2	8 1/4
**	7 5/8	8 3/8
**	7 3/4	8 1/2

Part Number	Inside Diameter (Inches)	Outside Diameter (Inches)
3/8" Cross Section (Continued)		
**	8	8 3/4
**	8 1/4	9
L37508500	8 1/2	9 1/4
**	8 5/8	9 3/8
**	8 3/4	9 1/2
**	9	9 3/4
L37509250	9 1/4	10
**	9 1/2	10 1/4
**	9 3/4	10 1/2
**	9 7/8	10 5/8
**	10	10 3/4
**	10 1/4	11
**	10 1/2	11 1/4
**	11	11 3/4
L37511250	11 1/4	12
**	11 1/2	12 1/4
**	11 3/4	12 1/2
**	12	12 3/4
**	12 1/4	13
**	12 1/2	13 1/4
**	12 3/4	13 1/2
**	13	13 3/4
**	13 1/4	14
**	13 1/2	14 1/4
**	13 3/4	14 1/2
**	14	14 3/4
**	14 1/2	15 1/4
**	14 3/4	15 1/2
**	15	15 3/4
**	15 1/2	16 1/4
**	16 1/4	17
**	17 1/4	18
**	23	23 3/4
13/32" Cross Section		
**	1 3/16	2
**	1 7/16	2 1/4
**	1 11/16	2 1/2
**	1 3/4	2 9/16
**	2 11/16	3 1/2
**	7 3/16	8
7/16" Cross Section		
L43701000	1	1 7/8
**	1 3/8	2 1/4
**	1 7/16	2 5/16
**	1 1/2	2 3/8
**	1 3/4	2 5/8
**	1 7/8	2 3/4
**	2	2 7/8
**	2 1/8	3
**	2 1/2	3 3/8
**	2 7/8	3 3/4
**	3	3 7/8
**	3 1/8	4
**	3 1/4	4 1/8
**	3 5/8	4 1/2

Part Number	Inside Diameter (Inches)	Outside Diameter (Inches)
7/16" Cross Section (Continued)		
**	4	4 7/8
L43704500	4 1/2	5 3/8
**	4 3/4	5 5/8
**	5 1/8	6
L43705500	5 1/2	6 3/8
1/2" Cross Section		
**	5/8	1 5/8
L50001000	1	2
**	1 1/8	2 1/8
L50001250	1 1/4	2 1/4
L50001312	1 5/16	2 5/16
**	1 3/8	2 3/8
L50001500	1 1/2	2 1/2
**	1 3/4	2 3/4
L50001875	1 7/8	2 7/8
L50002000	2	3
L50002250	2 1/4	3 1/4
**	2 3/8	3 3/8
L50002500	2 1/2	3 1/2
L50002750	2 3/4	3 3/4
L50002875	2 7/8	3 7/8
L50003000	3	4
L50003250	3 1/4	4 1/4
L50003500	3 1/2	4 1/2
L50003625	3 5/8	4 5/8
**	3 3/4	4 3/4
L50004000	4	5
L50004125	4 1/8	5 1/8
L50004250	4 1/4	5 1/4
**	4 5/16	5 5/16
L50004375	4 3/8	5 3/8
L50004500	4 1/2	5 1/2
L50004750	4 3/4	5 3/4
L50005000	5	6
**	5 1/8	6 1/8
**	5 1/4	6 1/4
**	5 3/8	6 3/8
**	5 7/16	6 7/16
L50005500	5 1/2	6 1/2
L50005750	5 3/4	6 3/4
L50006000	6	7
**	6 1/4	7 1/4
**	6 3/8	7 3/8
L50006500	6 1/2	7 1/2
**	6 3/4	7 3/4
L50007000	7	8
**	7 1/4	8 1/4
L50007500	7 1/2	8 1/2
**	7 3/4	8 3/4
**	8	9
**	8 1/8	9 1/8
**	8 1/4	9 1/4
L50008500	8 1/2	9 1/2
**	8 3/4	9 3/4
L50009000	9	10
**	9 1/2	10 1/2

** Not currently an APG stock item. Call for availability.

Standard Loaded Lip Seals (Continued)

Part Number	Inside Diameter (Inches)	Outside Diameter (Inches)
1/2" Cross Section (Continued)		
**	9 3/4	10 3/4
L50010000	10	11
**	10 1/2	11 1/2
**	10 3/4	11 3/4
**	10 7/8	11 7/8
**	11	12
**	11 1/4	12 1/4
**	11 1/2	12 1/2
**	11 3/4	12 3/4
**	12	13
**	12 3/4	13 3/4
**	13	14
**	13 1/4	14 1/4
**	14	15
**	14 1/2	15 1/2
**	15	16
**	15 1/2	16 1/2
**	15 3/4	16 3/4
**	16 1/2	17 1/2
**	17	18
**	17 1/2	18 1/2
**	19	20
**	19 1/2	20 1/2
**	20	21
**	21	22
**	21 1/8	22 1/8
**	23	24
**	28	29
**	31	32
**	32	33
9/16" Cross Section		
**	2 1/2	3 5/8
**	5 1/2	6 5/8
**	6 3/4	7 7/8
5/8" Cross Section		
**	1 1/4	2 1/2
**	1 3/4	3
**	1 13/16	3 1/16
**	2	3 1/4
**	2 1/4	3 1/2
**	2 3/8	3 5/8
**	2 1/2	3 3/4
**	2 3/4	4
**	2 13/16	4 1/16
**	3	4 1/4
**	3 1/4	4 1/2
**	3 3/8	4 5/8
L62503500	3 1/2	4 3/4
**	3 3/4	5
**	3 7/8	5 1/8
**	4	5 1/4
L62504250	4 1/4	5 1/2
**	4 1/2	5 3/4
**	4 5/8	5 7/8
L62504750	4 3/4	6

Part Number	Inside Diameter (Inches)	Outside Diameter (Inches)
5/8" Cross Section (Continued)		
L62505000	5	6 1/4
**	5 1/2	6 3/4
L62505750	5 3/4	7
**	6	7 1/4
**	6 1/4	7 1/2
**	6 1/2	7 3/4
**	6 5/8	7 7/8
**	6 3/4	8
**	6 13/16	8 1/16
**	6 7/8	8 1/8
**	7	8 1/4
**	7 3/4	9
**	8	9 1/4
**	8 3/16	9 7/16
**	8 1/4	9 1/2
**	8 3/8	9 5/8
**	8 1/2	9 3/4
**	8 5/8	9 7/8
**	8 3/4	10
**	9	10 1/4
**	9 1/4	10 1/2
**	9 3/4	11
**	10	11 1/4
**	10 1/4	11 1/2
**	10 1/2	11 3/4
**	11	12 1/2
**	12	13 1/4
**	12 3/4	14
**	14 3/4	16
**	15	16 1/4
**	16 3/4	18
**	18 3/4	20
**	20	21 1/4
**	24 3/4	26
11/16" Cross Section		
**	3	4 3/8
3/4" Cross Section		
**	3	4 1/2
**	3 1/2	5
**	3 3/4	5 1/4
**	4	5 1/2
**	4 1/2	6
**	5	6 1/2
**	5 1/2	7
**	6	7 1/2
**	6 1/2	8
**	7	8 1/2
**	7 1/2	9
**	8	9 1/2
**	8 1/4	9 3/4
**	8 1/2	10
**	9	10 1/2
**	9 1/2	11
**	10	11 1/2
**	10 1/2	12

Part Number	Inside Diameter (Inches)	Outside Diameter (Inches)
3/4" Cross Section (Continued)		
**	10 3/4	12 1/4
**	11	12 1/2
**	12	13 1/2
**	12 1/2	14
**	13	14 1/2
**	13 1/2	15
**	13 3/4	15 1/4
**	14	15 1/2
**	14 1/4	15 3/4
**	14 1/2	16
**	14 3/4	16 1/4
**	16	17 1/2
**	18	19 1/2
**	19 1/2	21
**	20 1/2	22
**	22	23 1/2
**	22 1/2	24
**	25 1/2	27
**	26	27 1/2
**	34 1/4	35 3/4
**	58	59 1/2
7/8" Cross Section		
**	7 3/4	9 1/2
**	8 1/2	10 1/4
**	9 3/4	11 1/2
**	16 1/4	18
**	19 1/4	21
**	20	21 3/4
1" Cross Section		
**	2	4
**	3	5
**	4	6
**	4 1/4	6 1/4
**	5	7
**	6	8
**	7	9
**	7 1/2	9 1/2
**	8	10
**	9	11
**	10	12
**	11	13
**	11 3/4	13 3/4
**	12	14
**	12 1/2	14 1/2
**	13	15
**	14	16
**	14 1/2	16 1/2
**	15	17
**	16	18
**	18 1/2	20 1/2
**	28	30
1 1/16" Cross Section		
**	4 1/2	6 5/8

**Not currently an APG stock item. Call for availability.

Standard Loaded Lip Seals (Continued)

Part Number	Inside Diameter (Inches)	Outside Diameter (Inches)
1 1/16" Cross Section (Continued)		
**	14	16 1/8
1 1/8" Cross Section		
**	10	12 1/4
**	12	14 1/4
**	30	32 1/4
1 3/16" Cross Section		
**	12 7/8	15 1/4

** Not currently an APG stock item. Call for availability.

Loaded Lip Seals Type "B"

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
1/8" Cross Section			
L12500125250B	1/8	3/8	1/4
L12500187250B	3/16	7/16	1/4
L12500250250B	1/4	1/2	1/4
L12500312250B	5/16	9/16	1/4
L12500375250B	3/8	5/8	1/4
L12500437250B	7/16	11/16	1/4
L12500500125B	1/2	3/4	1/8
L12500500250B	1/2	3/4	1/4
L12500562250B	9/16	13/16	1/4
L12500625187B	5/8	7/8	3/16
L12500625250B	5/8	7/8	1/4
L12500687250B	11/16	15/16	1/4
L12500750125B	3/4	1	1/8
L12500750187B	3/4	1	3/16
L12500750250B	3/4	1	1/4
**	13/16	1 1/16	1/8
L12500812250B	13/16	1 1/16	1/4
L12500875250B	7/8	1 1/8	1/4
**	15/16	1 3/16	1/4
L12501000125B	1	1 1/4	1/8
L12501000187B	1	1 1/4	3/16
L12501000250B	1	1 1/4	1/4
L12501062250B	1 1/16	1 5/16	1/4
L12501125250B	1 1/8	1 3/8	1/4
L12501187250B	1 3/16	1 7/16	1/4
L12501250187B	1 1/4	1 1/2	3/16
L12501250250B	1 1/4	1 1/2	1/4
**	1 5/16	1 9/16	3/16
L12501375250B	1 3/8	1 5/8	1/4
L12501375312B	1 3/8	1 5/8	5/16
L12501437250B	1 7/16	1 11/16	1/4
L12501500250B	1 1/2	1 3/4	1/4
L12501750250B	1 3/4	2	1/4
L12501875125B	1 7/8	2 1/8	1/8
L12501875250B	1 7/8	2 1/8	1/4
L12502000250B	2	2 1/4	1/4
L12502125250B	2 1/8	2 3/8	1/4
L12502250250B	2 1/4	2 1/2	1/4
L12502500250B	2 1/2	2 3/4	1/4
L12502750250B	2 3/4	3	1/4
3/16" Cross Section			
L18700250312B	1/4	5/8	5/16
L18700312312B	5/16	11/16	5/16
L18700375312B	3/8	3/4	5/16
L18700437312B	7/16	13/16	5/16
L18700500312B	1/2	7/8	5/16
L18700562312B	9/16	15/16	5/16
L18700625312B	5/8	1	5/16
L18700687312B	11/16	1 1/16	5/16
L18700750312B	3/4	1 1/8	5/16
L18700750375B	3/4	1 1/8	3/8
L18700812312B	13/16	1 3/16	5/16
L18700875312B	7/8	1 1/4	5/16
L18700937312B	15/16	1 5/16	5/16
L18701000312B	1	1 3/8	5/16
L18701062312B	1 1/16	1 7/16	5/16
L18701125187B	1 1/8	1 1/2	3/16

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
3/16" Cross Section (Continued)			
L18701125312B	1 1/8	1 1/2	5/16
L18701125375B	1 1/8	1 1/2	3/8
L18701187312B	1 3/16	1 9/16	5/16
L18701250250B	1 1/4	1 5/8	1/4
L18701250312B	1 1/4	1 5/8	5/16
L18701250375B	1 1/4	1 5/8	3/8
L18701312312B	1 5/16	1 11/16	5/16
L18701375250B	1 3/8	1 3/4	1/4
L18701375312B	1 3/8	1 3/4	5/16
L18701375375B	1 3/8	1 3/4	3/8
L18701437312B	1 7/16	1 13/16	5/16
L18701500187B	1 1/2	1 7/8	3/16
L18701500250B	1 1/2	1 7/8	1/4
L18701500312B	1 1/2	1 7/8	5/16
L18701500375B	1 1/2	1 7/8	3/8
L18701625312B	1 5/8	2	5/16
L18701625375B	1 5/8	2	3/8
L18701750312B	1 3/4	2 1/8	5/16
L18701750375B	1 3/4	2 1/8	3/8
L18701875375B	1 7/8	2 1/4	3/8
L18702000312B	2	2 3/8	5/16
L18702000375B	2	2 3/8	3/8
L18702125187B	2 1/8	2 1/2	3/16
L18702125250B	2 1/8	2 1/2	1/4
L18702125375B	2 1/8	2 1/2	3/8
L18702250312B	2 1/4	2 5/8	5/16
L18702250375B	2 1/4	2 5/8	3/8
L18702375375B	2 3/8	2 3/4	3/8
L18702375437B	2 3/8	2 3/4	7/16
L18702500250B	2 1/2	2 7/8	1/4
L18702500375B	2 1/2	2 7/8	3/8
L18702625281B	2 5/8	3	9/32
L18702625375B	2 5/8	3	3/8
**	2 3/4	3 1/8	3/16
L18702750375B	2 3/4	3 1/8	3/8
L18702875281B	2 7/8	3 1/4	9/32
L18702875375B	2 7/8	3 1/4	3/8
**	3	3 3/8	1/4
L18703000375B	3	3 3/8	3/8
L18703125375B	3 1/8	3 1/2	3/8
L18703250375B	3 1/4	3 5/8	3/8
L18703375375B	3 3/8	3 3/4	3/8
L18703500375B	3 1/2	3 7/8	3/8
L18703625375B	3 5/8	4	3/8
L18703750375B	3 3/4	4 1/8	3/8
L18703875375B	3 7/8	4 1/4	3/8
L18704000375B	4	4 3/8	3/8
L18704125375B	4 1/8	4 1/2	3/8
L18704250375B	4 1/4	4 5/8	3/8
L18704375375B	4 3/8	4 3/4	3/8
L18704500375B	4 1/2	4 7/8	3/8
L18704625375B	4 5/8	5	3/8
L18704750375B	4 3/4	5 1/8	3/8
L18705000375B	5	5 3/8	3/8
**	5 1/2	5 7/8	3/8

** Not currently an APG stock item. Call for availability.

Loaded Lip Seals Type "B" (Continued)

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
1/4" Cross Section			
L25000250375B	1/4	3/4	3/8
L25000437375B	7/16	15/16	3/8
L25000500375B	1/2	1	3/8
**	9/16	1 1/16	3/8
L25000625375B	5/8	1 1/8	3/8
L25000687250B	11/16	1 3/16	3/8
L25000750375B	3/4	1 1/4	3/8
L25000812375B	13/16	1 5/16	3/8
L25000875375B	7/8	1 3/8	3/8
L25001000375B	1	1 1/2	3/8
L25001125375B	1 1/8	1 5/8	3/8
L25001250375B	1 1/4	1 3/4	3/8
**	1 5/16	1 13/16	3/8
L25001375375B	1 3/8	1 7/8	3/8
**	1 15/32	1 31/32	3/8
**	1 1/2	2	1/4
**	1 1/2	2	5/16
L25001500375B	1 1/2	2	3/8
**	1 1/2	2	1/2
L25001625375B	1 5/8	2 1/8	3/8
L25001750375B	1 3/4	2 1/4	3/8
L25001875375B	1 7/8	2 3/8	3/8
**	1 15/16	2 7/16	3/8
L25002000250B	2	2 1/2	1/4
L25002000375B	2	2 1/2	3/8
L25002125375B	2 1/8	2 5/8	3/8
L25002250375B	2 1/4	2 3/4	3/8
L25002375375B	2 3/8	2 7/8	3/8
L25002500250B	2 1/2	3	1/4
L25002500375B	2 1/2	3	3/8
L25002562375B	2 9/16	3 1/16	3/8
L25002625375B	2 5/8	3 1/8	3/8
L25002750375B	2 3/4	3 1/4	3/8
L25002875375B	2 7/8	3 3/8	3/8
L25003000250B	3	3 1/2	1/4
L25003000375B	3	3 1/2	3/8
L25003125375B	3 1/8	3 5/8	3/8
L25003250375B	3 1/4	3 3/4	3/8
L25003375375B	3 3/8	3 7/8	3/8
L25003500375B	3 1/2	4	3/8
L25003625375B	3 5/8	4 1/8	3/8
L25003750375B	3 3/4	4 1/4	3/8
L25003750562B	3 3/4	4 1/4	9/16
L25003875375B	3 7/8	4 3/8	3/8
L25004000375B	4	4 1/2	3/8
**	4	4 1/2	1/2
L25004000562B	4	4 1/2	9/16
**	4 1/16	4 9/16	3/8
L25004125375B	4 1/8	4 5/8	3/8
**	4 1/8	4 5/8	9/16
L25004250375B	4 1/4	4 3/4	3/8
L25004250562B	4 1/4	4 3/4	9/16
L25004375562B	4 3/8	4 7/8	9/16
**	4 7/16	4 15/16	3/8
**	4 1/2	5	1/2
L25004500375B	4 1/2	5	3/8
L25004500562B	4 1/2	5	9/16
**	4 5/8	5 1/8	1/4
L25004625562B	4 5/8	5 1/8	9/16
L25004750375B	4 3/4	5 1/4	3/8

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
1/4" Cross Section (Continued)			
L25004750562B	4 3/4	5 1/4	9/16
L25004875375B	4 7/8	5 3/8	3/8
L25004875562B	4 7/8	5 3/8	9/16
L25005000375B	5	5 1/2	3/8
L25005000562B	5	5 1/2	9/16
L25005250375B	5 1/4	5 3/4	3/8
L25005250562B	5 1/4	5 3/4	9/16
**	5 7/16	5 15/16	3/8
L25005500375B	5 1/2	6	3/8
L25005500562B	5 1/2	6	9/16
L25005625562B	5 5/8	6 1/8	9/16
L25005750562B	5 3/4	6 1/4	9/16
L25006000375B	6	6 1/2	3/8
**	6	6 1/2	7/16
L25006000562B	6	6 1/2	9/16
**	6 1/4	6 3/4	9/16
L25006500375B	6 1/2	7	3/8
L25006500562B	6 1/2	7	9/16
L25006750375B	6 3/4	7 1/4	3/8
L25006750562B	6 3/4	7 1/4	9/16
L25007000375B	7	7 1/2	3/8
L25007000562B	7	7 1/2	9/16
L25007250562B	7 1/4	7 3/4	9/16
L25007250625B	7 1/4	7 3/4	5/8
L25007500562B	7 1/2	8	9/16
L25007750562B	7 3/4	8 1/4	9/16
L25008000562B	8	8 1/2	9/16
L25008125562B	8 1/8	8 5/8	9/16
**	8 1/4	8 3/4	3/8
**	8 1/4	8 3/4	7/16
**	8 1/4	8 3/4	9/16
L25008500562B	8 1/2	9	9/16
L25009500562B	9 1/2	10	9/16
**	9 3/4	10 1/4	3/8
**	9 3/4	10 1/4	9/16
**	10	10 1/2	9/16
**	11	11 1/2	9/16
**	11 1/4	11 3/4	9/16
**	12 3/4	13 1/4	9/16
**	19 1/8	19 5/8	9/16
9/32" Cross Section			
**	2 1/4	2 13/16	3/8
**	2 15/16	3 1/2	1/2
**	3 7/16	4	1/2
**	3 15/16	4 1/2	1/2
**	4 7/16	5	1/2
**	4 11/16	5 1/4	5/8
**	4 15/16	5 1/2	11/32
**	4 15/16	5 1/2	1/2
**	5 15/16	6 1/2	1/2
**	6 15/16	7 1/2	1/2
**	8 1/4	8 13/16	5/8
**	8 15/16	9 1/2	1/2

** Not currently an APG stock item. Call for availability.

Loaded Lip Seals Type "B" (Continued)

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
5/16" Cross Section			
L31200750500B	3/4	1 3/8	1/2
L31201000500B	1	1 5/8	1/2
L31201125500B	1 1/8	1 3/4	3/8
**	1 1/4	1 7/8	3/8
L31201250500B	1 1/4	1 7/8	1/2
**	1 3/8	2	3/8
L31201375500B	1 3/8	2	1/2
**	1 7/16	2 1/16	1/2
L31201500375B	1 1/2	2 1/8	3/8
L31201500500B	1 1/2	2 1/8	1/2
L31201625500B	1 5/8	2 1/4	1/2
**	1 11/16	2 5/16	1/2
L31201750375B	1 3/4	2 3/8	3/8
L31201750500B	1 3/4	2 3/8	1/2
L31201875500B	1 7/8	2 1/2	1/2
**	2	2 5/8	3/8
L31202000500B	2	2 5/8	1/2
**	2 1/8	2 3/4	1/2
L31202125625B	2 1/8	2 3/4	5/8
L31202250500B	2 1/4	2 7/8	1/2
L31202375500B	2 3/8	3	1/2
L31202500500B	2 1/2	3 1/8	1/2
L31202625500B	2 5/8	3 1/4	1/2
L31202750500B	2 3/4	3 3/8	1/2
L31202875500B	2 7/8	3 1/2	1/2
L31203000500B	3	3 5/8	1/2
L31203250500B	3 1/4	3 7/8	1/2
L31203375500B	3 3/8	4	1/2
L31203500500B	3 1/2	4 1/8	1/2
L31203625500B	3 5/8	4 1/4	1/2
**	3 3/4	4 3/8	3/8
L31203750500B	3 3/4	4 3/8	1/2
L31203750625B	3 3/4	4 3/8	5/8
L31204000562B	4	4 5/8	9/16
L31204125500B	4 1/8	4 3/4	1/2
**	4 1/8	4 3/4	9/16
L31204250562B	4 1/4	4 7/8	9/16
L31204375562B	4 3/8	5	9/16
L31204375625B	4 3/8	5	5/8
L31204500562B	4 1/2	5 1/8	9/16
L31204500625B	4 1/2	5 1/8	5/8
L31204625625B	4 5/8	5 1/4	5/8
L31204750625B	4 3/4	5 3/8	5/8
L31205000625B	5	5 5/8	5/8
**	5 1/8	5 3/4	5/8
L31205250625B	5 1/4	5 7/8	5/8
L31205500625B	5 1/2	6 1/8	5/8
L31205750625B	5 3/4	6 3/8	5/8
L31206000625B	6	6 5/8	5/8
**	6 3/8	7	5/8
**	6 1/2	7 1/8	5/8
**	6 5/8	7 1/4	5/8
**	6 3/4	7 3/8	5/8
**	7	7 5/8	5/8
**	7 1/4	7 7/8	5/8
**	7 7/8	8 1/2	5/8
**	8	8 5/8	5/8
**	9 1/4	9 7/8	5/8
**	9 3/8	10	5/8

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
3/8" Cross Section			
L37501250625B	1 1/4	2	5/8
L37501375625B	1 3/8	2 1/8	5/8
L37501500500B	1 1/2	2 1/8	1/2
L37501500625B	1 1/2	2 1/4	5/8
L37501625625B	1 5/8	2 3/8	5/8
L37501750500B	1 3/4	2 1/2	1/2
L37501750625B	1 3/4	2 1/2	5/8
L37502000500B	2	2 5/8	1/2
L37502000625B	2	2 3/4	5/8
L37502125625B	2 1/8	2 3/4	5/8
L37502250500B	2 1/4	3	1/2
L37502250625B	2 1/4	3	5/8
L37502375625B	2 3/8	3 1/8	5/8
L37502500500B	2 1/2	3 1/4	1/2
L37502500625B	2 1/2	3 1/4	5/8
L37502625625B	2 5/8	3 3/8	5/8
L37502750500B	2 3/4	3 1/2	1/2
L37502750625B	2 3/4	3 1/2	5/8
L37502875625B	2 7/8	3 5/8	5/8
L37503000500B	3	3 3/4	1/2
L37503000625B	3	3 3/4	5/8
**	3 1/8	3 7/8	5/8
L37503250500B	3 1/4	4	1/2
L37503250625B	3 1/4	4	5/8
L37503375625B	3 3/8	4 1/8	5/8
L37503500500B	3 1/2	4 1/2	1/2
L37503500625B	3 1/2	4 1/4	5/8
L37503625625B	3 5/8	4 3/8	5/8
L37503750625B	3 3/4	4 1/2	5/8
L37503875625B	3 7/8	4 5/8	5/8
**	4	4 3/4	1/2
L37504000625B	4	4 3/4	5/8
L37504125625B	4 1/8	4 7/8	5/8
L37504250625B	4 1/4	5	5/8
L37504375625B	4 3/8	5 1/8	5/8
L37504500625B	4 1/2	5 1/4	5/8
L37504625625B	4 5/8	5 3/8	5/8
L37504750625B	4 3/4	5 1/2	5/8
**	4 7/8	5 5/8	5/8
L37505000500B	5	5 3/4	1/2
L37505000625B	5	5 3/4	5/8
**	5 1/8	5 7/8	5/8
L37505250625B	5 1/4	6	5/8
L37505375625B	5 3/8	6 1/8	5/8
L37505500625B	5 1/2	6 1/4	5/8
**	5 5/8	6 3/8	5/8
L37505750625B	5 3/4	6 1/2	5/8
**	5 7/8	6 5/8	5/8
**	6	6 3/4	1/2
L37506000625B	6	6 3/4	5/8
L37506250500B	6 1/4	7	1/2
L37506250625B	6 1/4	7	5/8
**	6 1/2	7 1/4	1/2
L37506500625B	6 1/2	7 1/4	5/8
**	6 3/4	7 1/2	1/2
L37506750625B	6 3/4	7 1/2	5/8
**	6 7/8	7 5/8	5/8
**	7	7 3/4	1/2
L37507000625B	7	7 3/4	5/8
L37507250625B	7 1/4	8	5/8

** Not currently an APG stock item. Call for availability.

Loaded Lip Seals Type "B" (Continued)

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
3/8" Cross Section (Continued)			
**	7 3/8	8 1/8	1/2
L37507500625B	7 1/2	8 1/4	5/8
**	7 3/4	8 1/2	1/2
L37507750625B	7 3/4	8 1/2	5/8
**	8	8 3/4	1/2
**	8	8 3/4	5/8
L37508250625B	8 1/4	9	5/8
**	8 1/2	9 1/4	5/8
**	8 3/4	9 1/2	1/2
**	8 3/4	9 1/2	3/4
**	8 7/8	9 5/8	5/8
**	9	9 3/4	5/8
L37509250625B	9 1/4	10	5/8
**	9 1/2	10 1/4	5/8
**	10	10 3/4	5/8
**	10 1/4	11	1/2
**	10 1/4	11	3/4
**	10 1/2	11 1/4	5/8
**	10 3/4	11 1/2	5/8
**	11 1/2	12 1/4	5/8
**	11 3/4	12 1/2	5/8
**	11 3/4	12 1/2	3/4
**	12	12 3/4	5/8
**	12 1/4	13	5/8
**	12 3/4	13 1/2	5/8
**	13	13 3/4	5/8
7/16" Cross Section			
**	1 1/8	2	1/2
**	2 1/4	3 1/8	5/8
**	2 1/2	3 3/4	5/8
**	3 1/8	4	11/16
**	3 7/8	4 3/4	3/4
**	4	4 7/8	5/8
**	4 1/2	5 3/8	3/4
**	4 3/4	5 5/8	3/4
**	4 7/8	5 3/4	9/16
**	5	5 7/8	3/4
**	19 3/8	20 1/4	1/2
1/2" Cross Section			
**	1 1/8	2 1/8	3/4
**	1 1/2	2 1/2	3/4
L50001750750B	1 3/4	2 3/4	3/4
L50002000750B	2	3	3/4
L50002500750B	2 1/2	3 1/2	3/4
L50003000750B	3	4	3/4
L50003250750B	3 1/4	4 1/4	3/4
L50003500750B	3 1/2	4 1/2	3/4
L50003750750B	3 3/4	4 3/4	.690
**	3 7/8	4 7/8	3/4
L50004000750B	4	5	3/4
L50004250750B	4 1/4	5 1/4	3/4
**	4 3/8	5 3/8	5/8
**	4 3/8	5 3/8	3/4
L50004500750B	4 1/2	5 1/2	3/4
L50004750750B	4 3/4	5 3/4	3/4
L50005000750B	5	6	3/4
**	5 1/4	6 1/4	1/2
L50005250750B	5 1/4	6 1/4	3/4
L50005500750B	5 1/2	6 1/2	3/4

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
1/2" Cross Section (Continued)			
L50005750750B	5 3/4	6 3/4	3/4
L50006000750B	6	7	3/4
L50006250750B	6 1/4	7 1/4	3/4
L50006500750B	6 1/2	7 1/2	3/4
**	6 3/4	7 3/4	3/4
L50007000750B	7	8	3/4
**	7 1/4	8 1/4	3/4
**	7 3/4	8 3/4	3/4
L50008000750B	8	9	3/4
L50008500750B	8 1/2	9 1/2	3/4
L50008750750B	8 3/4	9 3/4	3/4
L50009000750B	9	10	3/4
**	9 1/4	10 1/4	3/4
**	9 1/2	10 1/2	3/4
L5001000750B	10	11	3/4
**	10 1/4	11 1/4	3/4
**	10 1/2	11 1/2	3/4
L5001100750B	11	12	3/4
**	11 3/8	12 3/8	3/4
**	11 1/2	12 1/2	3/4
**	12	13	3/4
**	12 1/8	13 1/8	3/4
**	12 1/4	13 1/4	3/4
**	12 1/2	13 1/2	3/4
**	13	14	3/4
**	14	15	3/4
**	15	16	3/4
**	15 1/2	16 1/2	3/4
**	16 1/2	17 1/2	3/4
**	16 3/4	17 3/4	3/4
**	17	18	3/4
**	17 1/2	18 1/2	3/4
**	18	19	3/4
**	19 5/8	20 5/8	3/4
**	20	21	3/4
**	24	25	3/4
**	24 7/8	25 7/8	3/4
**	26 1/8	27 1/8	3/4
**	29	30	3/4
**	38	39	3/4
**	38 3/4	39 3/4	3/4
**	42	43	3/4
**	43 1/2	44 1/2	3/4
**	44 1/8	45 1/8	3/4
**	47 1/2	48 1/2	3/4
9/16" Cross Section			
**	2 3/8	3 1/2	7/8
**	12 9/16	13 11/16	7/8
5/8" Cross Section			
**	2 3/4	4	1
**	2 7/8	4 1/8	1
**	3 1/4	4 1/2	1
**	3 3/4	5	1
**	4 1/4	5 1/2	1
**	5	6 1/4	1
**	5 1/2	6 3/4	1
**	5 3/4	7	1
**	6	7 1/4	1
**	6 3/4	8	1

** Not currently an APG stock item. Call for availability.

Loaded Lip Seals Type "B" (Continued)

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
5/8" Cross Section (Continued)			
**	7	8 1/4	1
**	7 1/4	8 1/2	1
**	7 1/2	8 3/4	1
**	7 3/4	9	1
**	8 1/4	9 1/2	1
**	8 1/2	9 3/4	1
**	9	10 1/4	1
**	9 3/4	11	1
**	10 1/2	11 3/4	3/4
**	11 1/4	12 1/2	1
**	11 1/2	12 3/4	1
**	12	13 1/4	1
**	12 1/4	13 1/2	1
**	13 1/2	14 3/4	3/4
**	15 1/2	16 3/4	1
**	16 1/2	17 3/4	1
**	17 3/4	19	1
**	18 3/4	20	1
**	19 3/4	21	1
**	30	31 1/4	1
3/4" Cross Section			
**	8	9 1/2	1 1/4
**	8 1/2	10	1 1/8
**	9 3/4	11 1/4	1 1/4
**	10	11 1/2	1 1/4
**	10 1/2	12	1
**	11 1/2	13	1 1/4
**	12	13 1/2	1 1/4
**	12 1/2	14	1 1/4
**	13	14 1/2	1
**	14	15 1/2	1 1/4
**	15 5/8	17 1/8	1 1/4
**	17 5/8	19 1/8	1 1/4
**	19	20 1/2	1 1/4
**	20	21 1/2	1
**	20	21 1/2	1 1/4
**	20 1/2	22	1
**	23 1/2	25	1 1/4
**	31	32 1/2	1
**	31 1/2	33	1 1/4
1" Cross Section			
**	12	14	1 1/2
**	15	17	1 1/2
**	16	18	1 1/4
**	21 1/4	23 1/4	1 1/2
**	24	26	1 1/2
**	26	28	1 1/2
**	30	32	1 1/2
**	30 3/4	32 3/4	1 1/2
**	33 3/8	35 3/8	1 1/2
**	34	36	1 1/2
**	38	40	1 1/2
**	39	41	1 1/2

**Not currently an APG stock item. Call for availability.

Loaded Lip Seals - Deep Style

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
1/8" Cross Section			
L12500250250	1/4	1/2	1/4
L12500312250	5/16	9/16	1/4
**	7/16	11/16	1/4
**	1/2	3/4	1/4
**	9/16	13/16	1/4
L12500625187	5/8	7/8	3/16
L12500625250	5/8	7/8	1/4
**	11/16	15/16	1/4
L12500750250	3/4	1	1/4
**	7/8	1 1/8	3/16
L12500875250	7/8	1 1/8	1/4
L12501000250	1	1 1/4	1/4
L12501125250	1 1/8	1 3/8	1/4
**	1 3/16	1 7/16	3/16
L12501250250	1 1/4	1 1/2	1/4
L12501375250	1 3/8	1 5/8	1/4
**	1 7/16	1 11/16	1/4
L12501500250	1 1/2	1 3/4	1/4
L12501625250	1 5/8	1 7/8	1/4
L12501750250	1 3/4	2	1/4
L12502000250	2	2 1/4	1/4
**	2 3/8	2 5/8	1/4
L12502500250	2 1/2	2 3/4	1/4
L12503000250	3	3 1/4	1/4
L12503500250	3 1/2	3 3/4	1/4
3/16" Cross Section			
**	1/4	5/8	5/16
**	3/8	3/4	5/16
**	5/8	1	5/16
**	3/4	1 1/8	1/4
L18700750312	3/4	1 1/8	5/16
**	13/16	1 3/16	5/16
**	7/8	1 1/4	5/16
L18700875375	7/8	1 1/4	3/8
L18701000250	1	1 3/8	1/4
L18701000312	1	1 3/8	5/16
**	1 1/16	1 7/16	5/16
L18701125312	1 1/8	1 1/2	5/16
L18701250312	1 1/4	1 5/8	5/16
L18701375312	1 3/8	1 3/4	5/16
**	1 7/16	1 13/16	5/16
**	1 1/2	1 7/8	9/32
L18701500312	1 1/2	1 7/8	5/16
L18701500375	1 1/2	1 7/8	3/8
**	1 9/16	1 15/16	1/4
L18701625250	1 5/8	2	1/4
L18701625312	1 5/8	2	5/16
L18701625375	1 5/8	2	3/8
L18701687375	1 11/16	2 1/16	3/8
L18701750250	1 3/4	2 1/8	1/4
**	1 3/4	2 1/8	5/16
L18701750375	1 3/4	2 1/8	3/8
L1870175375	1 7/8	2 1/4	3/8
**	1 15/16	2 5/16	3/8
L18702000375	2	2 3/8	3/8
L18702125375	2 1/8	2 1/2	3/8

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
3/16" Cross Section (Continued)			
**	2 3/16	2 9/16	3/8
L18702250375	2 1/4	2 5/8	3/8
L18702375375	2 3/8	2 3/4	3/8
L18702500312	2 1/2	2 7/8	5/16
L18702500375	2 1/2	2 7/8	3/8
**	2 5/8	3	3/8
L18702750375	2 3/4	3 1/8	3/8
L18703000375	3	3 3/8	3/8
L18703125375	3 1/8	3 1/2	3/8
**	3 3/8	3 3/4	3/8
L18703500375	3 1/2	3 7/8	3/8
**	3 5/8	4	3/8
L18703875375	3 7/8	4 1/4	3/8
L18704125375	4	4 3/8	3/8
**	4 1/8	4 1/2	3/8
**	4 3/8	4 3/4	3/8
**	4 1/2	4 7/8	3/8
**	4 5/8	5	3/8
**	5	5 3/8	3/8
**	6	6 3/8	3/8
**	7 1/2	7 7/8	1/4
1/4" Cross Section			
L25000375375	3/8	7/8	3/8
L25000437375	7/16	15/16	3/8
L25000500375	1/2	1	3/8
L25000625375	5/8	1 1/8	3/8
L25000750375	3/4	1 1/4	3/8
**	7/8	1 3/8	3/8
L25001000375	1	1 1/2	3/8
L25001125375	1 1/8	1 5/8	3/8
L25001250375	1 1/4	1 3/4	3/8
L25001375375	1 3/8	1 7/8	3/8
L25001500375	1 1/2	2	3/8
L25001750375	1 3/4	2 1/4	3/8
L25002000375	2	2 1/2	3/8
**	2 1/8	2 5/8	3/8
L25002250375	2 1/4	2 3/4	3/8
L25002500375	2 1/2	3	3/8
L25002625375	2 5/8	3 1/8	3/8
L25002750375	2 3/4	3 1/4	3/8
L25003000375	3	3 1/2	3/8
**	3 1/8	3 5/8	3/8
L25003250375	3 1/4	3 3/4	3/8
**	3 3/8	3 7/8	3/8
L25003500375	3 1/2	4	3/8
**	3 5/8	4 1/8	3/8
L25003750375	3 3/4	4 1/4	3/8
L25003875375	3 7/8	4 3/8	3/8
L25004000375	4	4 1/2	3/8
L25004000500	4	4 1/2	1/2
L25004000562	4	4 1/2	9/16
**	4 1/4	4 3/4	9/16
**	4 3/8	4 7/8	3/8
L25004375562	4 3/8	4 7/8	9/16
L25004500375	4 1/2	5	3/8
L25004500562	4 1/2	5	9/16
L25004750562	4 3/4	5 1/4	9/16
L25004875562	4 7/8	5 3/8	9/16
L25005000375	5	5 1/2	3/8

** Not currently an APG stock item. Call for availability.

Loaded Lip Seals - Deep Style (Continued)

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
1/4" Cross Section (Continued)			
**	5	5 1/2	1/2
L25005000562	5	5 1/2	9/16
**	5 1/4	5 3/4	3/8
L25005250562	5 1/4	5 3/4	9/16
**	5 3/8	5 7/8	3/8
**	5 1/2	6	3/8
L25005500562	5 1/2	6	9/16
**	5 3/4	6 1/4	9/16
**	6	6 1/2	9/16
L25006250562	6 1/4	6 3/4	9/16
**	6 1/2	7	3/8
**	6 1/2	7	9/16
**	6 5/8	7 1/8	3/8
**	6 3/4	7 1/4	9/16
**	7	7 1/2	3/8
**	7	7 1/2	9/16
**	7 1/2	8	9/16
**	7 3/4	8 1/4	3/8
**	8 1/2	9	9/16
**	9	9 1/2	3/8
**	9 1/2	10	9/16
**	10 1/2	11	1/2
**	13	13 1/2	9/16
**	14	14 1/2	3/8
**	14 1/2	15	3/8
**	16	16 1/2	3/8
**	16	16 1/2	9/16
**	16 1/2	17	1/4
**	19 1/2	20	5/16
**	21	21 1/2	5/16
**	22 1/2	23	5/16
**	29 3/16	29 11/16	3/8
**	30 5/8	31 1/8	3/8
9/32" Cross Section			
**	3 11/16	4 1/4	3/8
**	3 7/8	4 7/16	1/2
5/16" Cross Section			
**	3/4	1 3/8	1/2
**	1	1 5/8	1/2
**	1 1/8	1 3/4	1/2
**	1 3/16	1 13/16	1/2
**	1 1/4	1 7/8	1/2
L31201375500	1 3/8	2	1/2
L31201500500	1 1/2	2 1/8	1/2
**	1 3/4	2 3/8	1/2
**	1 7/8	2 1/2	1/2
L31202000500	2	2 5/8	1/2
**	2 1/8	2 3/4	1/2
L31202250500	2 1/4	2 7/8	1/2
L31202375500	2 3/8	3	1/2
L31202500500	2 1/2	3 1/8	1/2
**	2 5/8	3 1/4	1/2
L31203000500	3	3 5/8	1/2
**	3	3 5/8	9/16
**	3 1/4	3 7/8	1/2
L31203375500	3 3/8	4	1/2
L31203500500	3 1/2	4 1/8	1/2
**	3 7/8	4 1/2	1/2

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
5/16" Cross Section (Continued)			
**	4	4 5/8	1/2
**	4	4 5/8	9/16
**	4 1/8	4 3/4	9/16
**	4 1/4	4 7/8	9/16
**	4 3/8	5	1/2
**	4 3/8	5	9/16
L31204625625	4 5/8	5 1/4	5/8
**	5 1/8	5 3/4	5/8
L31205375625	5 3/8	6	5/8
L31205500375	5 1/2	6 1/8	3/8
**	6 3/8	7	5/8
**	6 1/2	7 1/8	5/8
**	7 1/2	8 1/8	5/8
**	7 5/8	8 1/4	1/2
**	9	9 5/8	1/2
3/8" Cross Section			
**	3/4	1 1/2	5/8
L37501000625	1	1 3/4	5/8
L37501250625	1 1/4	2	5/8
**	1 5/16	2 1/16	7/16
L37501875625	1 7/8	2 5/8	5/8
**	2	2 3/4	1/2
L37502000625	2	2 3/4	5/8
**	2 1/8	2 7/8	5/8
L37502250625	2 1/4	3	5/8
L37502500625	2 1/2	3 1/4	5/8
**	2 3/4	3 1/2	1/2
**	2 3/4	3 1/2	5/8
L37503000625	3	3 3/4	5/8
L37503250625	3 1/4	4	5/8
L37503500625	3 1/2	4 1/4	5/8
L37503750625	3 3/4	4 1/2	5/8
L37504000625	4	4 3/4	5/8
**	4 1/4	5	1/2
L37504250625	4 1/4	5	5/8
**	4 3/8	5 1/8	5/8
L37504500625	4 1/2	5 1/4	5/8
L37504625625	4 5/8	5 3/8	5/8
**	4 3/4	5 1/2	1/2
**	4 3/4	5 1/2	5/8
L37505000625	5	5 3/4	5/8
L37505500625	5 1/4	6	1/2
L37505250625	5 1/4	6	5/8
**	5 1/2	6 1/4	5/8
L37505625625	5 5/8	6 3/8	5/8
**	5 3/4	6 1/2	1/2
L37505750625	5 3/4	6 1/2	5/8
L37506000625	6	6 5/8	5/8
**	6 1/4	7	1/2
L37506250625	6 1/4	7	5/8
**	6 1/2	7 1/4	1/2
**	6 1/2	7 1/4	5/8
**	6 3/4	7 1/2	9/16
**	6 3/4	7 1/2	5/8
**	7	7 3/4	5/8
L37507250625	7 1/4	8	5/8
**	7 1/2	8 1/4	1/2
**	7 1/2	8 1/4	5/8

** Not currently an APG stock item. Call for availability.

Loaded Lip Seals - Deep Style (Continued)

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
3/8" Cross Section (Continued)			
**	7 3/4	8 1/2	1/2
**	7 3/4	8 1/2	5/8
**	8	8 3/4	1/2
**	8 1/4	9	5/8
**	8 3/4	9 1/2	5/8
**	9	9 3/4	5/8
**	9 1/4	10	5/8
**	9 5/8	10 3/8	5/8
**	9 3/4	10 1/2	1/2
**	9 3/4	10 1/2	5/8
**	10 1/4	11	5/8
**	10 3/4	11 1/2	5/8
**	11 1/4	12	5/8
**	11 1/2	12 1/4	5/8
**	12 1/4	13	5/8
**	12 1/2	13 1/4	5/8
**	14 3/4	15 1/2	5/8
**	14 7/8	15 5/8	5/8
**	15 1/4	16	5/8
**	24	24 3/4	5/8
**	26 3/4	27 1/2	5/8
**	29	29 3/4	5/8
**	35	35 3/4	5/8
**	37	37 3/4	5/8
**	40	40 3/4	5/8
13/32" Cross Section			
**	10 3/16	11	1/2
7/16" Cross Section			
**	1	1 7/8	9/16
**	2 1/4	3 1/8	3/8
**	3	3 7/8	11/16
**	4	4 7/8	5/8
**	4 3/4	5 5/8	5/8
**	5 1/8	6	1/2
**	6 3/4	7 5/8	3/4
1/2" Cross Section			
**	1	2	3/4
**	1 3/4	2 3/4	3/4
**	2 1/2	3 1/2	3/4
**	3	4	3/4
**	3 3/8	4 3/8	5/8
L50003500750	3 1/2	4 1/2	3/4
**	3 3/4	4 3/4	11/16
L50004000750	4	5	3/4
**	4 3/8	5 3/8	3/4
**	4 1/2	5 1/2	3/4
**	4 3/4	5 3/4	3/4
L50005000750	5	6	3/4
**	5 1/8	6 1/8	3/4
L50005500750	5 1/2	6 1/2	3/4
**	6	7	3/4
L50006500750	6 1/2	7 1/2	3/4
L50007000750	7	8	3/4
**	7 1/2	8 1/2	3/4
**	8	9	3/4

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
1/2" Cross Section (Continued)			
**	8 1/4	9 1/4	3/4
**	8 1/2	9 1/2	3/4
**	8 7/8	9 7/8	3/4
**	9	10	3/4
**	9 1/2	10 1/2	3/4
**	10	11	3/4
**	10 1/2	11 1/2	3/4
**	10 5/8	11 5/8	3/4
**	10 3/4	11 3/4	3/4
**	11	12	3/4
**	11 1/2	12 1/2	3/4
**	12 1/2	13 1/2	3/4
**	13 1/4	14 1/4	3/4
**	13 1/2	14 1/2	3/4
**	14	15	3/4
**	15	16	3/4
**	15 1/2	16 1/2	3/4
**	16	17	3/4
**	17	18	3/4
**	17 1/2	18 1/2	1
**	18	19	3/4
**	18 1/2	19 1/2	3/4
**	19	20	3/4
**	20	21	3/4
**	20 1/2	21 1/2	3/4
**	21	22	3/4
**	21 1/2	22 1/2	3/4
**	22 3/4	23 3/4	5/8
**	25 1/4	26 1/4	3/4
**	27	28	3/4
**	27 1/2	28 1/2	3/4
**	28 1/2	29 1/2	3/4
**	29	30	3/4
**	30	31	5/8
**	30 1/4	31 1/4	3/4
**	33	34	3/4
**	37	38	3/4
9/16" Cross Section			
**	1 7/8	3	7/8
**	2 7/8	4	7/8
**	9 1/2	10 5/8	1 1/4
5/8" Cross Section			
**	1 7/8	3 1/8	1
**	2 3/4	4	1
**	2 7/8	4 1/8	1
**	4 3/4	6	3/4
**	4 3/4	6	1
**	5 1/2	6 3/4	1
**	6 1/2	7 3/4	1
**	6 3/4	8	1
**	8 3/4	10	1
**	10	11 1/4	1
**	11	12 1/4	1
**	12	13 1/4	1
**	12 1/2	13 3/4	1

** Not currently an APG stock item. Call for availability.

Loaded Lip Seals - Deep Style (Continued)

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
5/8" Cross Section (Continued)			
**	12 3/4	14	1
**	17 1/2	18 3/4	1
**	18	19 1/4	1 1/4
**	22 1/2	23 3/4	1
11/16" Cross Section			
**	9 3/8	10 3/4	1
3/4" Cross Section			
**	2	3 1/2	1 1/8
**	2 3/4	4 1/4	1 1/8
**	5 1/2	7	1 1/4
**	6 1/4	7 3/4	1 1/4
**	6 1/2	8	1 1/4
**	7	8 1/2	1 1/4
**	7 1/2	9	1 1/4
**	8 1/2	10	1 1/4
**	9	10 1/2	1 1/4
**	9 13/16	11 5/16	1 1/4
**	11	12 1/2	1 1/4
**	15	16 1/2	1 1/4
**	16 1/2	18	1 1/4
**	18	19 1/2	1 1/4
**	20	21 1/2	1 1/4
**	21	22 1/2	1 1/4
**	21 1/2	23	1 1/4
**	22	23 1/2	1 1/4
**	22 1/2	24	1 1/4
**	23	24 1/2	1 1/4
**	24	25 1/2	1 1/4
**	25 1/2	27	7/8
**	29 1/2	31	1 1/2
**	32	33 1/2	7/8
**	36	37 1/2	1 1/4
**	49	50 1/2	1 1/4
13/16" Cross Section			
**	12 1/4	13 7/8	1 1/8
**	17 3/8	19	1 1/8
7/8" Cross Section			
**	5	6 3/4	1
**	13	14 3/4	1 3/8
**	14	15 3/4	1 1/2
**	16	17 3/4	1 1/4
**	16	17 3/4	1 3/8
**	18	19 3/4	1 1/4
**	24	25 3/4	1 1/4
**	41	42 3/4	1 1/2
15/16" Cross Section			
**	9 5/8	11 1/2	1 1/2
**	28	29 7/8	1 1/2

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
1" Cross Section			
**	8	10	1 1/2
**	16	18	1 1/4
**	19	21	1 1/16
**	20	22	1 1/2
**	26	28	1 1/2
**	32 1/2	34 1/2	1 1/2
1 1/8" Cross Section			
**	38	40 1/4	1 1/2

** Not currently an APG stock item. Call for availability.

Loaded Lip Seals – L9011 (Metric)

Part Number	Inside Diam. (mm)	Outside Diam. (mm)	Cross Section (mm)	Height (mm)
L9011-008-016-06.3	8	16	4	5.7
L9011-010-018-05.7	10	18	4	5.7
L9011-012-020-05.7	12	20	4	6.4
L9011-014-024-06.3	14	24	5	5.7
L9011-020-026-07	20	26	3	5.0
L9011-020-028-05.7	20	28	4	5.7
L9011-020-030-08	20	30	5	8.0
L9011-022-030-07	22	30	4	7.0
L9011-022-032-08	22	32	5	8.0
L9011-022-032-7.3	22	32	5	7.3
L9011-025-033-05.7	25	33	4	5.7
L9011-025-033-08	25	33	4	8.0
L9011-025-035-08	25	35	5	8.0
L9011-025-038-08	25	38	6.5	8.0
L9011-025-040-11	25	40	7.5	10.0
L9011-028-036-08	28	36	4	8.0
L9011-028-038-08	28	38	5	8.0
L9011-028-038-7.3	28	38	5	7.3
L9011-030-038-09	30	38	4	8.0
L9011-030-040-10	30	40	5	10.0
L9011-032-040-09	32	40	4	8.0
L9011-032-042-08	32	42	5	8.0
L9011-032-042-10	32	42	5	10.0
L9011-032-042-7.3	32	42	5	7.3
L9011-035-043-09	35	43	4	8.0
L9011-035-050-11	35	50	7.5	10.0
L9011-036-044-08	36	44	4	8.0
L9011-036-046-10	36	46	5	10.0
L9011-036-046-7.3	36	46	5	7.3
L9011-040-048-08	40	48	4	8.0
L9011-040-050-11	40	50	5	10.0
L9011-040-050-7.3	40	50	5	7.3
L9011-040-052-09	40	52	6	8.0
L9011-040-060-13	40	60	10	12.0
L9011-045-053-09	45	53	4	8.0
L9011-045-055-08	45	55	5	8.0
L9011-045-055-10	45	55	5	10.0
L9011-045-060-11	45	60	7.5	10.0
L9011-048-063-11	48	63	7.5	10.0
L9011-050-058-08	50	58	4	8.0
L9011-050-060-08	50	60	5	8.0
L9011-050-060-11	50	60	5	10.0
L9011-050-063-11	50	63	6.5	10.0
L9011-050-065-12.5	50	65	7.5	11.4
L9011-053-063-08	53	63	5	8.0
L9011-055-065-11	55	65	5	10.0
L9011-055-070-11	55	70	7.5	10.0
L9011-056-064-08	56	64	4	8.0
L9011-056-066-10	56	66	5	10.0
L9011-056-071-11.4	56	71	7.5	11.4
L9011-060-068-08	60	68	4	8.0
L9011-060-070-11	60	70	5	10.0
L9011-060-070-13	60	70	5	12.0
L9011-063-071-08	63	71	4	8.0
L9011-063-073-12	60	73	6.5	12.0
L9011-063-078-11.4	63	78	7.5	11.4
L9011-065-080-13	65	80	7.5	12.0
L9011-070-078-08	70	78	4	8.0
L9011-070-080-13	70	80	5	12.0

Part Number	Inside Diam. (mm)	Outside Diam. (mm)	Cross Section (mm)	Height (mm)
L9011-070-085-12.5	70	85	7.5	11.4
L9011-075-085-13	75	85	5	12.0
L9011-080-088-08	80	88	4	8.0
L9011-080-090-12	80	90	5	12.0
L9011-080-095-12.5	80	95	7.5	12.0
L9011-090-098-08	90	98	4	8.0
L9011-090-105-11.4	90	105	7.5	11.4
L9011-090-105-13	90	105	7.5	12.0
L9011-090-110-16	90	110	10	14.5
L9011-100-108-08	100	108	4	8.0
L9011-100-115-13	100	115	7.5	12.0
L9011-100-120-16	100	120	10	14.5
L9011-110-130-14.5	110	130	10	14.5
L9011-125-145-14.5	125	145	10	14.5
L9011-130-150-16.5	130	150	10	16.5
L9011-140-160-14.5	140	160	10	14.5
L9011-160-185-18.2	160	185	12.5	18.0
L9011-200-225-18.2	200	225	12.5	18.0
L9011-200-250-22.7	200	250	25	22.5

U-Cups

U-Cups derive their name from their shape and are self-sealing on both the inside diameter and outside diameter. They are most often used for sealing rams or rods and are very popular due to the small gland space required. They are especially adapted to low speed, low pressure environments for both pneumatic and hydraulic cylinders. They provide an extremely smooth, steady movement because of their inherent low friction.

The seal is obtained by means of the flared, flexible lips coming in contact with the rod or cylinder wall. Clearance is provided at the heel for minimum friction. Through this design, the packing is *preloaded* when installed. Sealing effectiveness is increased by internal pressure of the air or fluid against the inner surface of the lips. For continued sealing effectiveness and long seal life, the surface finish of the working surface of either rods or bores should be a maximum of 16 micro-inches. It is not recommended that U-cups or any other single lip seal be used in any application where there is excessive side loading.

8400 Series

The 8400 Series U-Cup has a chamfered lip and is available at APG in 80 Durometer Nitrile.



6226 Series

The 6226 Series U-Cup has a flat sealing lip and is available at APG in 70 Durometer Nitrile.



L9000 Series (Metric)

The Metric L9000 Series U-Cup has a chamfered lip and is available at APG in 94 Durometer Urethane. The symmetrical section allows the L9000 U-Cup to be employed as a rod or piston seal.

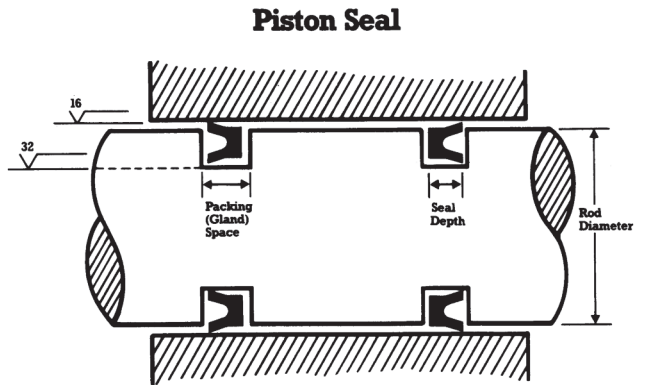
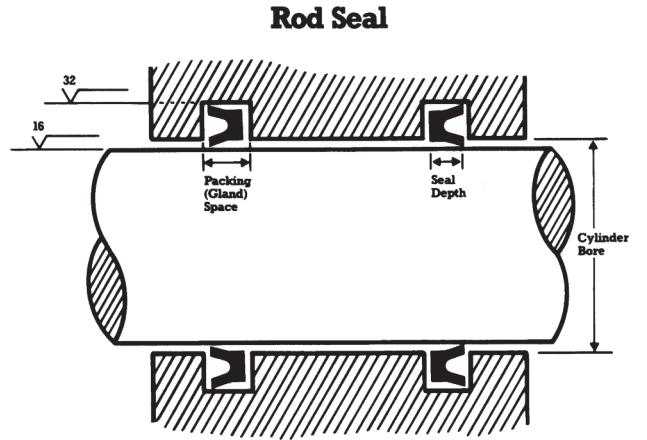


U-Cup Installation Data

The lips of the U-Cup should always be toward the pressure force.

The U-Cup is a floating seal which means the height of the U-Cup should be between .015" to .090" shorter than the depth of the gland. (See the Packing Space Chart below). The added gland space allows the pressure to equalize on both lips, thus keeping the U-Cup from rolling.

The surface finish for a static seal surface should be 32 RMS maximum. The dynamic surface should be in the range of 8 to 16 RMS. Finishes rougher than 16 RMS could cause premature lip wear and finishes finer than 8 RMS can result in failure of the seal due to loss of lubrication.



Packing Space Chart

Seal Depth	1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4
Packing	.137	.206	.274	.342	.411	.548	.685	.822
Space	.142	.212	.281	.351	.421	.560	.700	.839

U-Cup Dimensional Data

8400 Series 80 Durometer Nitrile

Part Number	CR Block V Number Cross Reference	Inside Diameter (inches)	Outside Diameter (inches)	Width (inches)
NU8402-0031	711800	5/16	7/16	1/16
NU8403-0012	711800	1/8	5/16	3/32
NU8403-0018	711802	3/16	3/8	3/32
NU8403-0031	700054	5/16	1/2	3/32
NU8404-0025	711803	1/4	1/2	1/8
NU8404-0037	711805	3/8	5/8	1/8
NU8404-0050	711806	1/2	3/4	1/8
NU8404-0056	710696	9/16	13/16	1/8
NU8404-0062	710212	5/8	7/8	1/8
NU8404-0075	711825	3/4	1	1/8
NU8404-0087	711810	7/8	1 1/8	1/8
NU8404-0093	711811	15/16	1 3/16	1/8
NU8404-0100	711080	1	1 1/4	1/8
NU8405-0100	701084	1	1 5/16	5/32
NU8405-0106	711814	1 1/16	1 3/8	5/32
NU8405-0118	711817	1 3/16	1 1/2	5/32
NU8405-0125	710989	1 1/4	1 9/16	5/32
NU8405-0131	711818	1 5/16	1 5/8	5/32
NU8405-0137	711826	1 3/8	1 11/16	5/32
NU8405-0143	711820	1 7/16	1 3/4	5/32
NU8406-0150	711822	1 1/2	1 7/8	3/16
NU8406-0162	711823	1 5/8	2	3/16
NU8406-0175	702011	1 3/4	2 1/8	3/16
NU8406-0187	711824	1 7/8	2 1/4	3/16
NU8406-0212	710087	2 1/8	2 1/2	3/16
NU8406-0237	711828	2 3/8	2 3/4	3/16
NU8407-0256	711831	2 9/16	3	7/32
NU8407-0275	711832	2 3/4	3 3/16	7/32
NU8407-0281	711834	2 13/16	3 1/4	7/32
NU8407-0306	711836	3 1/16	3 1/2	7/32
NU8408-0350	711841	3 1/2	4	1/4
NU8408-0450	711857	4 1/2	5	1/4
NU8410-0537	711850	5 3/8	6	5/16
NU8410-0637	711852	6 3/8	7	5/16
NU8410-0737	711853	7 3/8	8	5/16

For availability of sizes not listed, please inquire.

6226 Series 70 Durometer Nitrile

Part Number	Inside Diameter (inches)	Outside Diameter (inches)	Width (inches)
NU6226-1	1/8	1/2	3/16
NU6226-2	3/16	9/16	3/16
NU6226-3	1/4	5/8	3/16
NU6226-4	5/16	11/16	3/16
NU6226-5	3/8	3/4	3/16
NU6226-6	7/16	13/16	3/16
NU6226-7	1/2	7/8	3/16
NU6226-8	1/4	3/4	1/4
NU6226-9	5/16	13/16	1/4
NU6226-10	3/8	7/8	1/4
NU6226-11	7/16	15/16	1/4
NU6226-12	1/2	1	1/4
NU6226-13	9/16	1 1/16	1/4
NU6226-14	5/8	1 1/8	1/4
NU6226-16	3/4	1 1/4	1/4
NU6226-18	7/8	1 3/8	1/4
NU6226-19	15/16	1 7/16	1/4
NU6226-20	1	1 1/2	1/4
NU6226-22	1 1/8	1 5/8	1/4
NU6226-23	1 3/16	1 11/16	1/4
NU6226-24	1 1/4	1 3/4	1/4
NU6226-25	1 1/4	1 7/8	5/16
NU6226-26	1 3/8	2	5/16
NU6226-27	1 1/2	2 1/8	5/16
NU6226-28	1 5/8	2 1/4	5/16
NU6226-29	1 3/4	2 3/8	5/16
NU6226-30	1 7/8	2 1/2	5/16
NU6226-31	2	2 5/8	5/16
NU6226-32	2 1/8	2 3/4	5/16
NU6226-34	2 3/8	3	5/16
NU6226-35	2 1/2	3 1/8	5/16
NU6226-37	2 5/8	3 3/8	3/8
NU6226-38	2 3/4	3 1/2	3/8
NU6226-39	2 7/8	3 5/8	3/8
NU6226-41	1/8	3/8	1/8
NU6226-42	3/16	7/16	1/8
NU6226-43	1/4	1/2	1/8
NU6226-44	5/16	9/16	1/8
NU6226-45	3/8	5/8	1/8
NU6226-46	7/16	11/16	1/8
NU6226-47	1/2	3/4	1/8
NU6226-48	5/8	1	3/16
NU6226-49	3/4	1 1/8	3/16
NU6226-50	7/8	1 1/4	3/16
NU6226-51	1	1 3/8	3/16
NU6226-52	1 1/8	1 1/2	3/16
NU6226-53	1 1/4	1 5/8	3/16

For availability of sizes not listed, please inquire.

U-Cup Dimensional Data (Continued)

L9000 Series (Metric) 94 Durometer Urethane

Part Number	Inside Diameter (mm)	Outside Diameter (mm)	Depth (mm)
L9000 - 004 - 010 - 05	4	10	5
L9000 - 004 - 011 - 05.5	4	11	5.5
L9000 - 005 - 012 - 05	5	12	5
L9000 - 005 - 012 - 06.5	5	12	6.5
L9000 - 005 - 017 - 10	5	17	10
L9000 - 006 - 012 - 06	6	12	6
L9000 - 007 - 014 - 04.2	7	14	4.2
L9000 - 007 - 015 - 08	7	15	8
L9000 - 008 - 014 - 07	8	14	7
L9000 - 008 - 015 - 09	8	15	9
L9000 - 008 - 018 - 10	8	18	10
L9000 - 008 - 022 - 09	8	22	9
L9000 - 009 - 015 - 09	9	15	9
L9000 - 010 - 016 - 06.5	10	16	6.5
L9000 - 010 - 018 - 06	10	18	6
L9000 - 010 - 018 - 07	10	18	7
L9000 - 010 - 020 - 06	10	20	6
L9000 - 011 - 021 - 07	11	21	7
L9000 - 012 - 018 - 07	12	18	7
L9000 - 012 - 020 - 09	12	20	9
L9000 - 012 - 024 - 10	12	24	10
L9000 - 014 - 022 - 07	14	22	7
L9000 - 014 - 022 - 09	14	22	9
L9000 - 015 - 025 - 09	15	25	9
L9000 - 015 - 027 - 07	15	27	7
L9000 - 016 - 022 - 04.5	16	22	4.5
L9000 - 016 - 026 - 06	16	26	6
L9000 - 016 - 026 - 09	16	26	9
L9000 - 016 - 028 - 07	16	28	7
L9000 - 016 - 032 - 09	16	32	9
L9000 - 017 - 025 - 11	17	25	11
L9000 - 018 - 025 - 05	18	25	5
L9000 - 018 - 025 - 05.5	18	25	5.5
L9000 - 018 - 026 - 07.5	18	26	7.5
L9000 - 018 - 028 - 09	18	28	9
L9000 - 020 - 028 - 05	20	28	5
L9000 - 020 - 030 - 09	20	30	9
L9000 - 020 - 030 - 11	20	30	11
L9000 - 020 - 035 - 13	20	35	13
L9000 - 020 - 040 - 11	20	40	11
L9000 - 022 - 030 - 07	22	30	7
L9000 - 022 - 035 - 11	22	35	11
L9000 - 022 - 040 - 11	22	40	11
L9000 - 024 - 032 - 08	24	32	8
L9000 - 024 - 034 - 09.5	24	34	9.5
L9000 - 025 - 033 - 08	24	33	8
L9000 - 025 - 035 - 05.5	25	35	5.5
L9000 - 025 - 036 - 08	25	35	8
L9000 - 025 - 036 - 06	25	36	6
L9000 - 025 - 038 - 11	25	38	11
L9000 - 025 - 040 - 11	25	40	11
L9000 - 028 - 035 - 05.5	28	35	5.5
L9000 - 028 - 038 - 09	28	38	9
L9000 - 030 - 038 - 06.5	30	38	6.5
L9000 - 030 - 038 - 09	30	38	9
L9000 - 030 - 040 - 05.5	30	40	5.5
L9000 - 030 - 040 - 08	30	40	8

Part Number	Inside Diameter (mm)	Outside Diameter (mm)	Depth (mm)
L9000 - 030 - 045 - 11	30	45	11
L9000 - 030 - 050 - 11	30	50	11
L9000 - 032 - 040 - 06	32	40	6
L9000 - 032 - 040 - 09	32	40	9
L9000 - 032 - 050 - 13	32	50	13
L9000 - 033 - 043 - 11	33	43	11
L9000 - 035 - 045 - 09	35	45	9
L9000 - 035 - 045 - 11	35	45	11
L9000 - 036 - 046 - 08	36	46	8
L9000 - 036 - 048 - 09	36	48	9
L9000 - 038 - 045 - 05.5	38	45	5.5
L9000 - 038 - 055 - 11	38	55	11
L9000 - 040 - 050 - 06	40	50	6
L9000 - 040 - 050 - 07.5	40	50	7.5
L9000 - 040 - 050 - 09	40	50	9
L9000 - 040 - 055 - 11	40	55	11
L9000 - 042 - 053 - 10	42	53	10
L9000 - 042 - 062 - 13	42	62	13
L9000 - 045 - 055 - 07.5	45	55	7.5
L9000 - 045 - 055 - 11	45	55	11
L9000 - 045 - 058 - 10	45	58	10
L9000 - 045 - 060 - 11	45	60	11
L9000 - 050 - 058 - 09	50	58	9
L9000 - 050 - 060 - 11	50	60	11
L9000 - 050 - 063 - 07	50	63	7
L9000 - 050 - 065 - 11	50	65	11
L9000 - 050 - 070 - 13	50	70	13
L9000 - 053 - 063 - 07.5	53	63	7.5
L9000 - 055 - 065 - 11	55	65	11
L9000 - 055 - 075 - 13	55	75	13
L9000 - 055 - 080 - 13	55	80	13
L9000 - 056 - 076 - 13	56	76	13
L9000 - 060 - 070 - 09	60	70	9
L9000 - 060 - 070 - 11	60	70	11
L9000 - 060 - 077 - 12	60	77	12
L9000 - 060 - 080 - 13	60	80	13
L9000 - 060 - 085 - 13.5	60	85	13.5
L9000 - 063 - 075 - 11	63	75	11
L9000 - 063 - 078 - 11	63	78	11
L9000 - 063 - 083 - 16	63	83	16
L9000 - 065 - 080 - 12	65	80	12
L9000 - 070 - 080 - 06	70	80	6
L9000 - 070 - 080 - 09	70	80	9
L9000 - 070 - 090 - 13	70	90	13
L9000 - 075 - 090 - 11	75	90	11
L9000 - 075 - 090 - 13	75	90	13
L9000 - 080 - 090 - 11	80	90	11
L9000 - 080 - 095 - 13	80	95	13
L9000 - 085 - 100 - 10	85	100	10
L9000 - 085 - 105 - 13	85	105	13
L9000 - 090 - 110 - 13	90	110	13
L9000 - 090 - 115 - 23	90	115	23
L9000 - 100 - 120 - 13	100	120	13
L9000 - 125 - 145 - 16	125	145	16
L9000 - 140 - 155 - 16	140	155	16
L9000 - 140 - 160 - 16	140	160	16

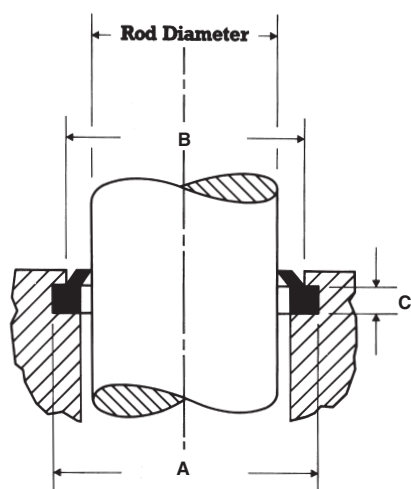
For availability of sizes not listed, please inquire.

Rod Wipers

The main function of the Rod Wiper is to keep the rod and cylinder clean and free from foreign matter; thus preventing premature failure. The Rod Wiper is not a pressure sealing element, yet it avoids possible abrasive effects which may result if contaminants were to reach the sealing and rod bearing elements.

Style WD (RWD)

One-piece snap-in type rod wiper scrapers for heavy duty applications. WD (RWD) wipers are continuous (not split) and conform with wear and side motion for effective wiping action over the entire life span of the seal. APG stocks WD (RWD) Rod Wipers in 90 Durometer Urethane and in 90 Durometer Fluoroelastomer.



Note: The majority of Style WD (RWD) will be furnished with the Slotted Head configuration. This design prevents extrusion of snap-in wipers caused by pressure build up due to excessive rod seal leakage. There are a few sizes that are not tooled in this design.



Groove dimensions meet ANSI/B93.35 1978 specifications. (NFPA-T3-197.3R1)..

WD (RWD) Dimensional Data

Dash Number		Rod Diameter (inches)	Groove Dimensions		
90 Durometer			A (inches)	B (inches)	C (inches)
Urethane	Fluoro-elastomer	+0.006 -0.000	+0.010 -0.000	+0.004 -0.000	
WD0250	**	1/4	.497	.410	.124
WD0375	**	3/8	.622	.535	.124
WD0437	**	7/16	.685	.600	.124
WD0500	**	1/2	.747	.660	.124
WD0562	**	9/16	.810	.725	.124
WD0625	**	5/8	.872	.785	.124
WD0687	**	11/16	.935	.850	.124
WD0750	**	3/4	1.122	.995	.187
WD0812	**	13/16	1.185	1.060	.187
WD0875	**	7/8	1.247	1.120	.187
WD0937	**	15/16	1.310	1.185	.187
WD1000	RWD100VT90	1	1.372	1.245	.187
WD1062	**	1-1/16	1.435	1.310	.187
WD1125	**	1-1/8	1.497	1.370	.187
WD1187	**	1-3/16	1.560	1.435	.187
WD1250	**	1-1/4	1.622	1.495	.187
**	**	1-5/16	1.685	1.560	.187
WD1375	RWD137VT90	1-3/8	1.747	1.620	.187
**	**	1-7/16	1.810	1.685	.187

Dash Number		Rod Diameter (inches)	Groove Dimensions		
90 Durometer			A (inches)	B (inches)	C (inches)
Urethane	Fluoro-elastomer	+0.006 -0.000	+0.010 -0.000	+0.004 -0.000	
WD1500	**	1-1/2	1.872	1.745	.187
**	**	1-9/16	1.935	1.810	.187
WD1625	**	1-5/8	1.997	1.870	.187
**	**	1-11/16	2.060	1.935	.187
WD1750	**	1-3/4	2.122	1.995	.187
**	**	1-13/16	2.185	2.060	.187
WD1875	**	1-7/8	2.247	2.120	.187
**	**	1-15/16	2.310	2.185	.187
WD2000	RWD2000VT90	2	2.497	2.327	.249
**	**	2-1/16	2.560	2.390	.249
WD2125	**	2-1/8	2.622	2.452	.249
**	**	2-3/16	2.685	2.515	.249
WD2250	RWD2250VT90	2-1/4	2.747	2.577	.249
**	**	2-5/16	2.810	2.640	.249
WD2375	**	2-3/8	2.872	2.702	.249
**	**	2-7/16	2.935	2.765	.249
WD2500	RWD2500VT90	2-1/2	2.997	2.827	.249
**	**	2-9/16	3.060	2.890	.249

** Not currently an APG stock item. Call for availability.

Note: A part that is also available in a Slotted Head Design will have an "SH" suffix in the part number.

Refer to current APG price lists.

Style WD (RWD) Dimensional Data (Continued)

Dash Number		Rod Diameter (inches)	Groove Dimensions		
90 Durometer			A (inches)	B (inches)	C (inches)
Urethane	Fluoro-elastomer		+ .006 - .000	+ .010 - .000	+ .004 - .000
WD2625	**	2-5/8	3.122	2.952	.249
**	**	2-11/16	3.185	3.015	.249
WD2750	**	2-3/4	3.247	3.077	.249
**	**	2-13/16	3.310	3.140	.249
WD2875	**	2-7/8	3.372	3.202	.249
**	**	2-15/16	3.435	3.265	.249
WD3000	RWD3000VT90	3	3.497	3.327	.249
WD3125	**	3-1/8	3.622	3.452	.249
WD3250	**	3-1/4	3.747	3.577	.249
WD3375	**	3-3/8	3.872	3.702	.249
WD3500	**	3-1/2	3.997	3.827	.249
WD3625	**	3-5/8	4.122	3.952	.249
WD3750	**	3-3/4	4.247	4.077	.249
WD3875	**	3-7/8	4.372	4.202	.249
WD4000	RWD4000VT90	4	4.497	4.327	.249
WD4125	**	4-1/8	4.622	4.452	.249
WD4250	**	4-1/4	4.747	4.577	.249
WD4375	**	4-3/8	4.872	4.702	.249
WD4500	**	4-1/2	5.247	4.993	.374
WD4625	**	4-5/8	5.372	5.118	.374
WD4750	**	4-3/4	5.497	5.243	.374
WD4875	**	4-7/8	5.622	5.368	.374
WD5000	RWD5000VT90	5	5.747	5.493	.374
WD5125	**	5-1/8	5.872	5.618	.374
WD5250	**	5-1/4	5.997	5.743	.374
WD5375	**	5-3/8	6.122	5.868	.374
WD5500	**	5-1/2	6.247	5.993	.374
WD5625	**	5-5/8	6.372	6.118	.374
WD5750	**	5-3/4	6.497	6.243	.374
WD5875	**	5-7/8	6.622	6.368	.374
WD6000	**	6	6.747	6.493	.374
WD6250	**	6-1/4	6.997	6.743	.374
WD6500	**	6-1/2	7.247	6.993	.374
WD6625	**	6 5/8	7.372	7.118	.374
WD6750	**	6-3/4	7.497	7.243	.374
WD7000	**	7	7.747	7.493	.374
WD7250	**	7-1/4	7.997	7.743	.374
WD7500	**	7-1/2	8.247	7.993	.374
**	**	7-3/4	8.497	8.243	.374
WD8000	**	8	8.747	8.493	.374
**	**	8-1/4	8.997	8.743	.374
WD8500	**	8-1/2	9.247	8.993	.374
WD8750	**	8-3/4	9.497	9.243	.374
WD9000	**	9	9.747	9.493	.374
**	**	9-1/4	9.997	9.743	.374
**	**	9-1/2	10.247	9.993	.374
WD9750	**	9-3/4	10.497	10.243	.374
**	**	10	10.997	10.659	.499
**	**	10-1/4	11.247	10.909	.499
**	**	10-1/2	11.497	11.159	.499
**	**	10-3/4	11.747	11.409	.499
**	**	11	11.997	11.659	.499
**	**	11-1/4	12.247	11.909	.499
**	**	11-1/2	12.497	12.159	.499
**	**	11-3/4	12.747	12.409	.499
WD12000	**	12	12.997	12.659	.499
**	**	12-1/2	13.497	13.159	.499
**	**	13	13.997	13.659	.499

** Not currently an APG stock item. Call for availability.

Note: A part that is also available in a Slotted Heel Design will have an "SH" suffix in the part number. Refer to current APG price lists.

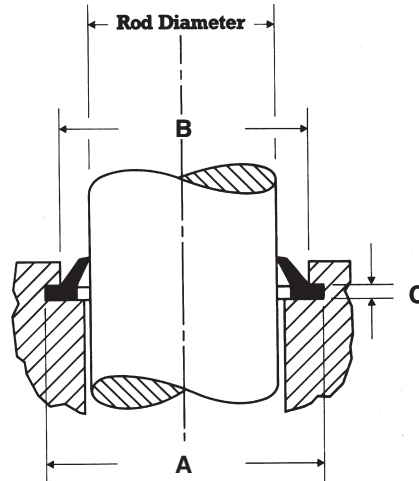
Style WAN Rod Wipers

Designed for light duty applications where style WD wipers are not required. Interchangeable with corresponding dash numbers of MS28776 wiper rings. Consult APG for AN6231 retrofit. APG stocks WAN Rod Wipers in 90 Durometer Urethane and in 90 Durometer Fluoroelastomer.



Note: The majority of Style WD (RWD) will be furnished with the Slotted Head configuration. This design prevents extrusion of snap-in wipers caused by pressure build up due to excessive rod seal leakage. There are a few sizes that are not tooled in this design.

Groove dimensions meet ANSI/B93.35 1978 specifications. (NFPA-T3-197.3R1).



WAN Dimensional Data

WAN Dash Number		Rod Diameter (inches)	Groove Dimensions		
90 Durometer			A (inches)	B (inches)	C (inches)
Urethane	Fluoro-elastomer				
WAN01	**	1/2	.760	.647	.107
WAN02	**	9/16	.823	.710	.107
WAN03	WAN03V90	5/8	.885	.772	.107
WAN04	**	11/16	.948	.834	.107
WAN05	WAN05V90	3/4	1.010	.897	.107
WAN06	**	13/16	1.084	.960	.107
WAN07	WAN07V90	7/8	1.147	1.023	.107
WAN08	**	15/16	1.209	1.085	.107
WAN09	WAN09V90	1	1.272	1.148	.107
WAN10	**	1 1/16	1.334	1.210	.107
WAN11	WAN11V90	1 1/8	1.397	1.273	.107
WAN12	**	1 3/16	1.459	1.335	.107
WAN13	WAN13V90	1 1/4	1.522	1.398	.107
WAN14	**	1 5/16	1.614	1.480	.107
WAN15	WAN15V90	1 3/8	1.677	1.542	.107
WAN16	**	1 7/16	1.739	1.605	.107
WAN17	WAN17V90	1 1/2	1.802	1.668	.107
WAN17.5	**	1 9/16	1.865	1.731	.107
WAN18	WAN18V90	1 5/8	1.927	1.793	.107
WAN19	**	1 11/16	1.990	1.856	.107
WAN19	WAN19V90	1 3/4	2.052	1.918	.107
WAN19.5	**	1 13/16	2.115	1.981	.107
WAN20	**	1 7/8	2.177	2.043	.107
WAN20	**	1 15/16	2.240	2.106	.107

WAN Dash Number		Rod Diameter (inches)	Groove Dimensions		
90 Durometer			A (inches)	B (inches)	C (inches)
Urethane	Fluoro-elastomer				
WAN21	WAN21V90	2	2.302	2.178	.107
WAN21.5	**	2 1/16	2.365	2.241	.107
WAN22	**	2 1/8	2.427	2.303	.107
WAN23	**	1 3/16	2.490	2.366	.107
WAN23	WAN23V90	2 1/4	2.552	2.428	.107
WAN23.5	**	2 5/16	2.615	2.491	.107
WAN24	WAN24V90	2 3/8	2.677	2.553	.107
WAN24.5	**	2 7/16	2.740	2.616	.107
WAN25	WAN25V90	2 1/2	2.802	2.678	.107
WAN25.5	**	2 9/16	2.865	2.741	.107
WAN26	**	2 5/8	2.989	2.834	.122
WAN27	**	2 11/16	3.052	2.897	.122
WAN28	**	2 3/4	3.114	2.959	.122
WAN29	**	2 13/16	3.177	3.022	.122
WAN29	**	2 7/8	3.239	3.084	.122
WAN29	WAN29V90	3	3.364	3.209	.122
WAN30	**	3 1/8	3.489	3.334	.122
WAN31	**	3 1/4	3.614	3.459	.122
WAN32	**	3 3/8	3.739	3.584	.122
WAN33	WAN33V90	3 1/2	3.864	3.709	.122
WAN34	**	3 5/8	3.989	3.834	.122
WAN35	WAN35V90	3 3/4	4.114	3.959	.122
WAN36	**	3 7/8	4.239	4.084	.122
WAN37	**	4	4.427	4.240	.138

** Not currently an APG stock item. Call for availability.

Note: A part that is also available in a Slotted Head Design will have an "SH" suffix in the part number. Refer to current APG price lists.

Style WAN Rod Wipers (Continued)

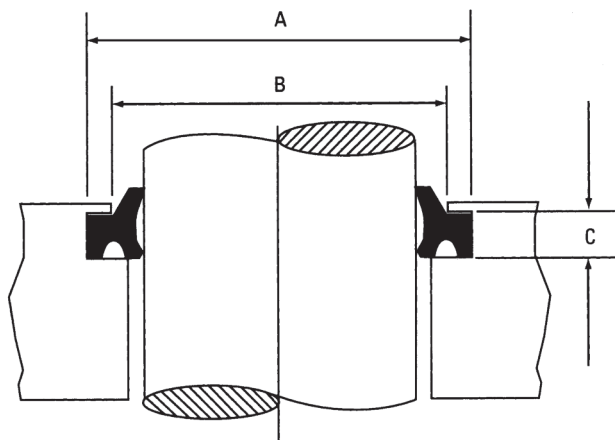
WAN Dash Number 90 Durometer		Rod Diameter (inches)	Groove Dimensions		
Urethane	Fluoro-elastomer		A (inches) +.005 -.000	B (inches) +.010 -.000	C (inches) +.003 -.000
WAN38	**	4 1/8	4.552	4.365	.138
WAN39	**	4 1/4	4.677	4.490	.138
WAN40	**	4 3/8	4.802	4.615	.138
WAN41	**	4 1/2	4.927	4.740	.138
WAN42	**	4 5/8	5.052	4.865	.138
WAN43	**	4 3/4	5.177	4.990	.138
WAN44	**	4 7/8	5.302	5.115	.138
WAN45	**	5	5.427	5.240	.138
WAN46	**	5 1/8	5.552	5.365	.138
WAN47	**	5 1/4	5.677	5.490	.138
WAN48	**	5 3/8	5.802	5.615	.138
WAN49	**	5 1/2	5.927	5.740	.138
WAN50	**	5 5/8	6.114	5.896	.154
WAN51	**	5 3/4	6.239	6.022	.154
WAN52	**	5 7/8	6.364	6.146	.154
WAN53	**	6	6.489	6.272	.154
WAN54	**	6 1/4	6.739	6.522	.154
WAN55	**	6 1/2	6.989	6.772	.154
WAN56	**	6 3/4	7.239	7.022	.154
WAN57	**	7	7.489	7.272	.154
WAN58	**	7 1/4	7.739	7.522	.154
WAN59	**	7 1/2	7.989	7.772	.154
	**	7 3/4	8.239	8.022	.154
WAN61	**	8	8.489	8.272	.154
	**	8 1/4	8.739	8.522	.154
WAN62	**	8 1/2	8.989	8.772	.154
	**	8 3/4	9.239	9.022	.154
WAN63	**	9	9.489	9.272	.154
WAN63.5	**	9 1/4	9.739	9.522	.154
WAN64	**	9 1/2	9.989	9.772	.154
	**	9 3/4	10.239	10.022	.154
WAN65	**	10	10.489	10.272	.154
	**	10 1/4	10.739	10.522	.154
WAN66	**	10 1/2	10.989	10.772	.154
	**	10 3/4	11.239	11.022	.154
WAN67	**	11	11.489	11.272	.154
	**	11 1/4	11.739	11.522	.169
	**	11 1/2	11.989	11.772	.169
	**	11 3/4	12.239	12.022	.169
	**	12	12.489	12.272	.169
	**	12 1/4	12.739	12.522	.169
	**	12 1/2	12.989	12.772	.169
	**	12 3/4	13.239	13.022	.169
	**	13	13.489	13.272	.169

** Not currently an APG stock item. Call for availability.

Note: A part that is also available in a Slotted Heel Design will have an "SH" suffix in the part number. Refer to current APG price lists.

Style WH Rod Wipers

Designed for medium duty applications and can provide both wiping and sealing action in one component in low pressure systems. The external lip scrapes foreign matters from the rod, and the other lips act as an effective pressure seal in low pressure applications. This wiper can also be used as a secondary seal to trap slight leakage from the primary seal. This creates a very dry rod system. APG stocks WH Rod Wipers in 90 Durometer Urethane, 90 Durometer Fluoroelastomer and 90 Durometer Nitrile. In Fluoroelastomer and Nitrile, the WH Rod Wiper is also known as Series 8600.



WH Dimensional Data

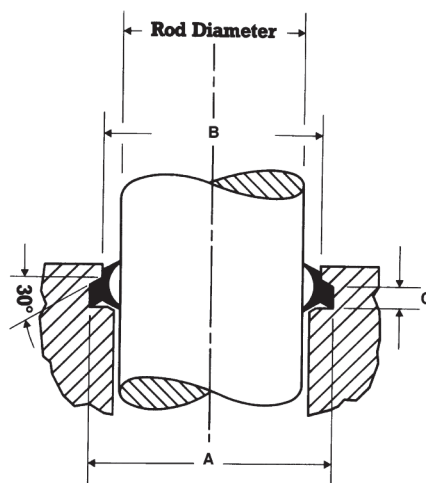
WH Dash Number			Rod Diameter (inches)	Groove Dimensions (inches)		
90 Durometer				A	B	C
Urethane	Fluoroelastomer	Nitrile		+ .003 - .000	+ .003 - .000	+ .004 - .000
**	**	**	3/8	.677	.495	.203
WH0500	**	RWH0500H90	1/2	.802	.620	.203
WH0625	RWH0625VT90	RWH0625H90	5/8	.927	.745	.203
WH0750	**	RWH0750H90	3/4	1.052	.870	.203
**	**	RWH0812H90	13/16	1.177	.947	.218
WH0875	**	RWH0875H90	7/8	1.240	1.010	.218
WH1000	RWH1000VT90	RWH1000H90	1	1.365	1.135	.218
WH1125	**	**	1 1/8	1.490	1.260	.218
**	**	RWH1187H90	1 3/16	1.552	1.322	.218
WH1250	**	RWH1250H90	1 1/4	1.615	1.385	.218
WH1375	RWH1375VT90	RWH1375H90	1 3/8	1.740	1.510	.218
WH1500	**	RWH1500H90	1 1/2	1.865	1.635	.218
WH1625	**	**	1 5/8	1.990	1.760	.218
**	**	RWH1687H90	1 11/16	2.052	1.823	.218
WH1750	RWH1750VT90	RWH1750H90	1 3/4	2.115	1.885	.218
WH1875	**	**	1 7/8	2.240	2.010	.218
WH2000	RWH2000VT90	RWH2000H90	2	2.365	2.135	.218
WH2125	**	**	2 1/8	2.490	2.260	.218
**	**	RWH2187H90	2 3/16	2.683	2.323	.281
WH2250	**	**	2 1/4	2.745	2.385	.281
WH2375	**	**	2 3/8	2.870	2.510	.281
WH2500	RWH2500VT90	RWH2500H90	2 1/2	2.995	2.635	.281
WH2625	**	**	2 5/8	3.120	2.760	.281
WH2750	**	**	2 3/4	3.245	2.885	.281
**	**	**	2 7/8	3.370	3.010	.281
WH3000	**	RWH3000H90	3	3.495	3.135	.281
WH3250	**	**	3 1/4	3.745	3.385	.281
WH3500	RWH3500VT90	RWH3500H90	3 1/2	3.995	3.635	.281

WH Dash Number			Rod Diameter (inches)	Groove Dimensions (inches)		
90 Durometer				A	B	C
Urethane	Fluoroelastomer	Nitrile		+ .003 - .000	+ .003 - .000	+ .004 - .000
**	**	RWH3625H90	3 5/8	4.120	3.760	.281
WH3750	**	RWH3750H90	3 3/4	4.245	3.885	.281
WH3875	**	**	3 7/8	4.370	4.010	.281
WH4000	**	RWH4000H90	4	4.495	4.135	.281
**	**	RWH4125H90	4 1/8	4.620	4.260	.281
**	**	RWH4250H90	4 1/4	4.745	4.385	.281
WH4500	**	RWH4500H90	4 1/2	4.995	4.635	.281
**	**	RWH4750H90	4 3/4	5.245	4.885	.281
WH5000	**	RWH5000H90	5	5.495	5.135	.281
**	**	**	5 1/4	5.745	5.385	.281
**	**	**	5 3/8	5.870	5.510	.281
WH5500	**	**	5 1/2	5.995	5.635	.281
**	**	**	5 3/4	6.245	5.885	.281
WH6000	**	**	6	6.495	6.135	.281
**	**	**	6 1/4	6.745	6.385	.281
WH6500	**	**	6 1/2	6.995	6.635	.281
**	**	**	6 5/8	7.120	6.760	.281
**	**	**	6 3/4	7.245	6.885	.281
WH7000	**	**	7	7.495	7.135	.281
**	**	**	7 1/4	7.745	7.385	.281
**	**	**	7 1/2	7.995	7.635	.281
**	**	**	7 3/4	8.245	7.885	.281
WH8000	**	**	8	8.495	8.135	.281
**	**	**	8 1/4	8.745	8.385	.281
**	**	**	8 1/2	8.995	8.635	.281
**	**	**	8 3/4	9.245	8.885	.281
**	**	**	9	9.495	9.135	.281

** Not currently an APG stock item. Call for availability.

Style WK Rod Wipers

Double lip design provides the ultimate in wiper action to remove foreign material from the exposed rod while still maintaining an adequate lubricating film. It protects both the rod and the primary seal. Molded in 90 Durometer Urethane for maximum strength abrasion resistance.



WK Dimensional Data

WK Dash Number	Rod Diameter (inches)	Groove Dimensions (inches)		
		A +.005 -.000	B +.000 -.005	C +.005 -.000
**	1/2	.760	.625	.155
WK0625	5/8	.885	.750	.155
WK0750	3/4	1.135	.832	.195
WK0875	7/8	1.260	.957	.195
WK1000	1	1.385	1.082	.195
WK1125	1 1/8	1.510	1.207	.195
WK1250	1 1/4	1.635	1.332	.195
WK1375	1 3/8	1.760	1.457	.195
WK1500	1 1/2	1.885	1.582	.195
**	1 5/8	2.010	1.707	.195
WK1750	1 3/4	2.135	1.832	.195
WK1875	1 7/8	2.260	1.957	.195
WK2000	2	2.385	2.082	.195
WK2125	2 1/8	2.510	2.207	.195
WK2250	2 1/4	2.760	2.407	.255
**	2 3/8	2.885	2.532	.255
WK2500	2 1/2	3.010	2.657	.255
**	2 5/8	3.135	2.782	.255
WK2750	2 3/4	3.260	2.907	.255
**	2 7/8	3.385	3.032	.255
WK3000	3	3.510	3.157	.255
**	3 1/4	3.760	3.407	.255

WK Dash Number	Rod Diameter (inches)	Groove Dimensions (inches)		
		A +.005 -.000	B +.000 -.005	C +.005 -.000
WK3500	3 1/2	4.010	3.657	.255
**	3 5/8	4.135	3.782	.255
WK3750	3 3/4	4.260	3.907	.255
**	3 7/8	4.385	4.032	.255
WK4000	4	4.510	4.157	.255
**	4 1/4	4.760	4.407	.255
**	4 1/2	5.010	4.657	.255
**	4 3/4	5.260	4.907	.255
**	5	5.510	5.157	.255
**	5 1/4	5.760	5.407	.255
**	5 3/8	5.885	5.532	.255
WK5500	5 1/2	6.010	5.657	.255
**	5 3/4	6.260	5.907	.255
**	6	6.510	6.157	.255
**	6 1/4	6.760	6.407	.255
**	6 1/2	7.010	6.657	.255
**	6 3/4	7.260	6.907	.255
**	7	7.510	7.157	.255
**	7 1/2	8.010	7.657	.255
**	8	8.510	8.157	.255
**	8 1/2	9.010	8.657	.255
**	9	9.510	9.157	.255

**Not currently an APG stock item. Call for availability.

Metal Clad Wipers

Description:

The metal clad wiper consists of a polyurethane or nitrile scraper element encased in a metal shell to enable it to be pressed into an open face gland without the aid of other retention devices such as snap rings or face plates. The elastomeric element is bonded to the metal shell by adhesive means. The metal shell is carbon steel which has been treated to prevent corrosion.



Material Description:

The standard material for the scraper element is 90 durometer urethane. APG also stocks a number of sizes with a 90 durometer nitrile scraper element.

Advantages Over Conventional Wipers:

Due to the use of tough, abrasion resistant polyurethane materials, the APG wiper is excellent for use in severe environmental service. The canned wiper is resistant to damage from frozen or dried mud, grit, sand, and light weld splatter.

Metal Cased Urethane

Part Number	Rod Diameter (inches)	Bore Diameter (inches)	Height (inches)
MCW0625	5/8	1 1/8	5/16
MCW0750	3/4	1 1/4	5/16
MCW0875	7/8	1 3/8	5/16
MCW1000	1	1 1/2	5/16
MCW1125	1 1/8	1 5/8	5/16
MCW1250	1 1/4	1 3/4	5/16
MCW1375	1 3/8	1 7/8	5/16
MCW1500	1 1/2	2	5/16
MCW1625	1 5/8	2 1/8	5/16
MCW1750	1 3/4	2 1/4	5/16
MCW2000	2	2 1/2	5/16
MCW2250	2 1/4	2 3/4	5/16
MCW2253	2.250	2.997	3/8
MCW2500	2 1/2	3	5/16
MCW2503	2 1/2	3 1/4	3/8
MCW2625	2 5/8	3 1/8	1/4
MCW2750	2 3/4	3 1/4	5/16
MCW3000	3	3 1/2	5/16
MCW3004	3	4	1/2
MCW3250	3 1/4	3 3/4	5/16
MCW3253	3 1/4	3 7/8	5/16
MCW3254	3 1/4	4 1/4	1/2
MCW3500	3 1/2	4	5/16
MCW3502	3 1/2	4 1/8	5/16
MCW3505	3 1/2	4 1/2	1/2
MCW3750	3 3/4	4 3/8	5/16
MCW4000	4	4 5/8	5/16
MCW4002	4	4 3/4	5/16
MCW4005	4	5	1/2
MCW4500	4 1/2	5 1/8	5/16
MCW4507	4 1/2	5 1/2	1/2
MCW5000	5	5 5/8	5/16
MCW5005	5	5 3/4	5/16

Metal Cased Nitrile

Part Number	Rod Diameter (inches)	Bore Diameter (inches)	Height (inches)
MCN-0501	1/2	3/4	1/8
MCN-0626	5/8	7/8	1/8
MCN-0751	3/4	1	1/8
MCN-0873	7/8	1 1/8	1/8
MCN-1001	1	1 1/4	1/8
MCN-1006	1	1 3/16	1/8
MCN-1003	1	1 3/8	3/16
MCN-1005	1	1 1/2	3/16
MCN-1126	1 1/8	1 3/8	1/8
MCN-1125	1 1/8	1 5/8	1/4
MCN-1251	1 1/4	1 1/2	1/8
MCN-1254	1 1/4	1 3/4	1/4
MCN-1375	1 3/8	1 3/4	3/16
MCN-1503	1 1/2	1 7/8	3/16
MCN-1500	1 1/2	2	1/4
MCN-1753	1 3/4	2 1/8	3/16
MCN-1500	2	2 1/2	1/4
MCN-2000	2	2 5/8	1/4
MCN-2250	2 1/4	2 5/8	3/16
MCN-2500	2 1/2	3	1/4

Metric Wipers

Style M

Incorporates an external metal case with an 80 Durometer Nitrile lip. Designed for press-in fitting in open housings.



Style P6

One piece snap-in wiper for heavy duty applications. Metric equivalent to the WD Style (inch dimensions). Available in 80 Durometer Urethane, 92 Durometer Urethane, and 85 Durometer Fluoroelastomer. At time of publication of this catalog, Style P6 Wipers were not stock items at APG. Please inquire regarding current availability.



Style P7

Incorporates a metal insert for reinforcement. Capable of bridging a large tolerance and cannot seize due to rust. Available in 80 Durometer Nitrile.



Style P8

Similar to the P6 Style but has a step profile that provides an excellent interference fit in its groove and provides the wiper lip additional support. APG stocks the P8 Style in 80 Durometer Nitrile. May also be available in 93 Durometer Urethane. Please inquire for availability.



Metric Wiper Dimensional Data

Part Number	Inside Diam. (mm)	Outside Diam. (mm)	Shoulder Height (mm)	Overall Height (mm)
Style M				
MWM - 014 - 022 - 3/4	14	22	3	4
MWM - 016 - 022 - 3/4	16	22	3	4
MWM - 016 - 026 - 5/8	16	26	5	8
MWM - 020 - 028 - 3.5/5	20	28	3.5	5
MWM - 020 - 030 - 7/10	20	30	7	10
MWM - 025 - 035 - 7/10	25	35	7	10
MWM - 030 - 040 - 7/10	30	40	7	10
MWM - 030 - 045 - 5/8	30	45	5	8
MWM - 030 - 045 - 7/10	30	45	7	10
MWM - 032 - 042 - 7/10	32	42	7	10
MWM - 035 - 045 - 7/10	35	45	7	10
MWM - 040 - 050 - 7/10	40	50	7	10
MWM - 040 - 052 - 7/10	40	52	7	10
MWM - 045 - 055 - 7/10	45	55	7	10
MWM - 050 - 060 - 7/10	50	60	7	10
MWM - 050 - 065 - 7/10	50	65	7	10
MWM - 055 - 063 - 7/10	55	63	7	10
MWM - 055 - 065 - 7/10	55	65	7	10
MWM - 063 - 073 - 5/7	63	73	5	7
MWM - 065 - 075 - 7/10	65	75	7	10
MWM - 070 - 080 - 7/10	70	80	7	10
MWM - 075 - 085 - 7/10	75	85	7	10
MWM - 080 - 090 - 7/10	80	90	7	10
MWM - 085 - 095 - 7/10	85	95	7	10
MWM - 090 - 100 - 7/10	90	100	7	10
MWM - 105 - 115 - 7/10	105	115	7	10
MWM - 150 - 165 - 9/12	150	165	9	12
MWM - 180 - 195 - 10/14	180	195	10	14

For availability of sizes not listed, please inquire.

Metric Wiper Dimensional Data (Continued)

Part Number	Inside Diam. (mm)	Outside Diam. (mm)	Shoulder Height (mm)	Overall Height (mm)
Style P7				
MWP7 - 008 - 014 - 3.5 / 5	8	14	3.5	5
MWP7 - 010 - 016 - 3.5 / 5	10	16	3.5	5
MWP7 - 010 - 016 - 3.5 / 5 - V	10	16	3.5	5
MWP7 - 012 - 018 - 3.5 / 5	12	18	3.5	5
MWP7 - 012 - 018 - 3.5 / 5 - V	12	18	3.5	5
MWP7 - 012 - 020 - 4/6	12	20	4	6
MWP7 - 012 - 022 - 5/8	12	22	5	8
MWP7 - 014 - 020 - 3.5 / 5	14	20	3.5	5
MWP7 - 016 - 022 - 3.5 / 5	16	22	3.5	5
MWP7 - 016 - 022 - 3.5 / 5 - V	16	22	3.5	5
MWP7 - 018 - 028 - 5/7	18	28	5	7
MWP7 - 018 - 028 - 7/10	18	28	7	10
MWP7 - 020 - 030 - 4/6	20	30	4	6
MWP7 - 020 - 030 - 5/7	20	30	5	7
MWP7 - 022 - 032 - 5/7	22	32	5	7
MWP7 - 022 - 032 - 7/10	22	32	7	10
MWP7 - 025 - 035 - 5/7	25	35	5	7
MWP7 - 025 - 035 - 5/7 - V	25	35	5	7
MWP7 - 028 - 038 - 5/7	28	38	5	7
MWP7 - 030 - 040 - 5/7	30	40	5	7
MWP7 - 030 - 040 - 7/10	30	40	7	10
MWP7 - 032 - 042 - 5/7	32	42	5	7
MWP7 - 032 - 042 - 5/7 - V	32	42	5	7
MWP7 - 032 - 045 - 7/10	32	45	7	10
MWP7 - 035 - 045 - 7/10	35	45	7	10
MWP7 - 040 - 050 - 5/8	40	50	5	8
MWP7 - 045 - 055 - 5/7	45	55	5	7
MWP7 - 050 - 060 - 5/7	50	60	5	7
MWP7 - 050 - 060 - 5/8	50	60	5	8
MWP7 - 050 - 060 - 7/10	50	60	7	10
MWP7 - 050 - 065 - 7/10	50	65	7	10
MWP7 - 055 - 065 - 5/7	55	65	5	7
MWP7 - 060 - 070 - 5/7	60	70	5	7
MWP7 - 060 - 070 - 7/10	60	70	7	10
MWP7 - 063 - 073 - 5/7	63	73	5	7
MWP7 - 065 - 075 - 5/7	65	75	5	7
MWP7 - 070 - 080 - 5/7	70	80	5	7
MWP7 - 075 - 083 - 7/10	75	83	7	10
MWP7 - 080 - 090 - 7/10	80	90	7	10
Style P8				
MWP8 - 024 - 032 - 4/7	24	32	4	7
MWP8 - 028 - 036 - 4/7	28	36	4	7
MWP8 - 032 - 040 - 4/7	32	40	4	7
MWP8 - 038 - 046 - 4/7 - U	38	46	4	7
MWP8 - 040 - 048 - 4/7	40	48	4	7
MWP8 - 045 - 053 - 4/7	45	53	4	7
MWP8 - 100 - 108 - 4/7	100	108	4	7

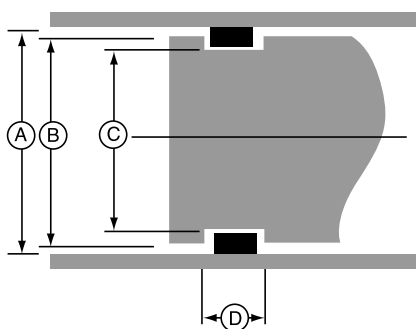
For availability of sizes not listed, please inquire.

Wear Rings

APG Wear Rings are Glass Filled Nylon. The high compressive strength and load bearing capabilities of this material meet or exceed that of most metals used for wear rings. The use of these non-metallic wear rings totally eliminates metal-to-metal contact and the subsequent galling and scoring of cylinder bores and rods. These wear rings readily ingest harmful metal flakes, burrs and small chips. They will not generate contamination as is common with metallic wear rings. They are compatible with all common hydraulic oils, water emulsions, water glycol, and phosphate ester fluids. Operating temperature to 350° F. Butt cut – standard stocking configuration.



Wear Ring Piston Installation



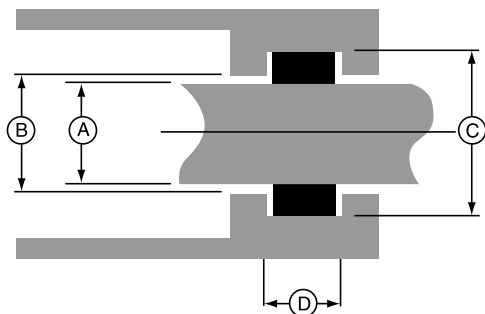
Formula for Calculating Piston Wear Ring Grooves

1. (C) Max. Groove Dia. = (A) Min. Bore - 2 (Max. Wear Ring C/S).
(C) Tolerance = + .000/- .005
2. (B) Max. Piston Dia. = [(C) Min. Groove + 2 (Min. Wear Ring C/S)] - 2
(Min. Radial Clearance of .005) (B) Tolerance = + .000/- .005
3. (D) Groove Length = Actual Part Ht. + .010 (D) Tolerance = + .010/- .000

Notes:

The piston diameter (B) will not correspond to diameters called out for the piston seals. Additional clearances are required for wear ring use. Be sure the entire outside diameter of the piston is no larger than (B). Be sure the piston seal compound is considered to prevent extrusion of the piston seal with the new increased diametral clearance.

Wear Ring Rod Installation



Formula For Calculating Rod Wear Ring Grooves

1. (C) Min. Groove Dia. = (A) Max. Rod Dia. +2 (Max. Wear Ring C/S).
(C) Tolerance = + .003/- .000
2. (B) Min. Throat Dia. = [(C - 2 (Min. Wear Ring CS)] + 2
(Min. Radial Clearance of .005). (B) Tolerance = + .003/- .000
3. (D) Groove Length = Actual Part Ht. + .010 (D) Tolerance = + .010/- .000

Notes:

1. Rod throat diameter (B) is a new diameter over and above the diameter which is normally called out for the rod seal. Additional diametral clearance is required as noted for the wear ring to function properly. Since a larger clearance gap results, consideration as to the rod seal compounds must be made to avoid rod seal extrusion.
2. Also consider wear ring groove design for small diameter sizes. Installation problems on small sizes will occur if the groove design is not compensated.

Wear Ring Dimensional Data

Part Number	Thickness	Outside Diameter	Height
WR21000375	1/8	1	3/8
WR21000500	1/8	1	1/2
WR212501000	1/8	1 1/4	1
WR21250375	1/8	1 1/4	3/8
WR21250500	1/8	1 1/4	1/2
WR21500375	1/8	1 1/2	3/8
WR21500500	1/8	1 1/2	1/2
WR21625500	1/8	1 5/8	1/2
WR217501000	1/8	1 3/4	3/4
WR21750375	1/8	1 3/4	3/8
WR21750500	1/8	1 3/4	1/2
WR22000375	1/8	2	3/8
WR22000500	1/8	2	1/2
WR22000625	1/8	2	5/8
WR22000750	1/8	2	3/4
WR22125375	1/8	2 1/8	3/8
WR22125750	1/8		3/4
WR22250500	1/8	2 1/4	1/2
WR22375750	1/8	2 3/8	3/4
WR22500250	1/8	2 1/2	1/4
WR22500375	1/8	2 1/2	3/8
WR22500500	1/8	2 1/2	1/2
WR22500625	1/8	2 1/2	5/8
WR22500750	1/8	2 1/2	3/4
WR227501000	1/8	2 3/4	1
WR22750500	1/8	2 3/4	1/2
WR23000500	1/8	3	1/2
WR23000750	1/8	3	3/4
WR23250312	1/8	3 1/4	5/16
WR23250500	1/8	3 1/4	1/2
WR23250750	1/8	3 1/4	3/4
WR23375750	1/8	3 3/8	3/4
WR235001000	1/8	3 1/2	1
WR23500500	1/8	3 1/2	1/2
WR23500750	1/8	3 1/2	3/4
WR23750250	1/8	3 3/4	1/4
WR23750375	1/8	3 3/4	3/8
WR23750500	1/8	3 3/4	1/2
WR23750625	1/8	3 3/4	5/8
WR23750750	1/8	3 3/4	3/4
WR240001000	1/8	4	1
WR24000375	1/8	4	3/8
WR24000500	1/8	4	1/2
WR24000625	1/8	4	5/8
WR24000750	1/8	4	3/4
WR24250750	1/8	4 1/4	3/4
WR24500250	1/8	4 1/2	1/4
WR24500375	1/8	4 1/2	3/8
WR24500500	1/8	4 1/2	1/2
WR24500625	1/8	4 1/2	5/8
WR24500750	1/8	4 1/2	3/4
WR24625500	1/8	4 5/8	1/2
WR247502000	1/8	4 3/4	2
WR24750500	1/8	4 3/4	1/2
WR25000375	1/8	5	3/8

Part Number	Thickness	Outside Diameter	Height
WR25000500	1/8	5	1/2
WR25000625	1/8	5	5/8
WR25250500	1/8	5 1/2	1/2
WR25500500	1/8	5 1/2	1/2
WR25500750	1/8	5 1/2	3/4
WR25625500	1/8	5 5/8	1/2
WR25625625	1/8	5 5/8	5/8
WR25625750	1/8	5 5/8	3/4
WR25750375	1/8	5 3/4	3/8
WR25750500	1/8	5 3/4	1/2
WR25750750	1/8	5 3/4	3/4
WR26000500	1/8	6	1/2
WR26250750	1/8	6 1/4	3/4
WR26500500	1/8	6 1/2	1/2
WR26750625	1/8	6 3/4	5/8
WR27000500	1/8	7	1/2
WR27500500	1/8	7 1/2	1/2
WR28000500	1/8	6	1/2
WR28750625	1/8	6 3/4	5/8
WR29000500	1/8	9	1/2
WR29000750	1/8	9	3/4
WR29250625	1/8	9 1/4	5/8
WR29250750	1/8	9 1/4	3/4
WR29500625	1/8	9 1/2	5/8
WR29750750	1/8	9 3/4	3/4
WR2110001000	1/8	11	1
WR212001000	1/8	12	1

For availability of sizes not listed, please inquire.

Wear Strips

Wear strips are designed to eliminate scoring in hydraulic and pneumatic applications by preventing metal to metal contact. They are used in reciprocating, rotary, and oscillating motion environments and are composed of PTFE and a fortified 40% Bronze material. They are supplied in continuous rolls that allow the product to be installed economically in both new assemblies and repair operations.



Wear Strips Dimensional Data

Inch Sizes		
Part Number	Width (Inches)	Thickness (Inches)
WRS39 A 0250	1/4	1/8
WRS39 A 0500	1/2	1/8
WRS39 A 0625	5/8	1/8
WRS39 A 0750	3/4	1/8
WRS39 A 1000	1	1/8
WRS39 D 0500	1/2	1/16
WRS39 D 0625	5/8	1/16
WRS39 D 1000	1	1/16
WRS39 F 0375	3/8	3/32
WRS39 F 0500	1/2	3/32

Metric Sizes		
Part Number	Width (mm)	Thickness (mm)
WRS39 - 07.9 - 2.5	7.9	2.5
WRS39 - 09.5 - 2.5	9.5	2.5
WRS39 - 10.0 - 2.0	10.0	2.0
WRS39 - 12.0 - 2.5	12.0	2.5
WRS39 - 12.7 - 2.5	12.7	2.5
WRS39 - 15.0 - 2.0	15.0	2.0
WRS39 - 19.5 - 2.5	19.5	2.5
WRS39 - 20.0 - 2.0	20.0	2.0

For availability of sizes not listed, please inquire.

Original Physical Properties

Basic Properties	Data	Tested To:
Hardness, Shore D	60	ASTM D2240
Tensile Strength, PSI	3650	ASTM D4894/D4745
Ultimate Elongations, % min.	265	ASTM D4894/4745
Specific Gravity	3.06	ASTM D4894/4745
Color	Bronze	—

Piston Rings - Cast Iron

The Permaseal® piston ring provides high unit loading against the cylinder wall which ensures quick ring seating and ultimate oil control. Its unique overlapping, interlocking design prevents the ends of the ring from moving radially outward when passing open ports, while its bi-directionality reduces the number of the rings in double-acting applications.

- Manufactured of cast iron and other metals for increased life.
- Performs better in conditions of higher and lower temperatures than elastomers.
- Superior sealing performance with interlocking joint design.
- Resist wear better in rougher surface finishes than elastomers.
- Excellent high pressure sealing.
- Double-acting seal designed to pass open ports.
- Special features for specific applications.

Material

All ferrous piston rings have manganese phosphate applied as a standard protective coating. Other coatings and platings designed to improve lubricity or to increase wear resistance for sealing applications are available.

Piston rings are normally manufactured from cast iron. The material is specially alloyed to provide the best combination of wear characteristics, temperature stability and impact strength for new hydraulic and pneumatic applications.

Surface Coatings & Platings

The Standard Coating is manganese phosphate.

Additional Surface Platings	Thickness
Flash Chrome	.0002 / .0004
Hard Chrome	.0020 / .0060
Tin	.0002 / .0004
Tin Nickel	.0002 / .0004
Electroless Nickel - PTFE	.0002 / .0004
Silver Lead Indium	.0020 / .0029

Other materials are available at your request.

Material Specifications

- Grey Cast Iron
 - generally conforming to ASE J1236 or Class 40 Grey Iron
- Nodular Iron Standard Nomenclatures
 - 60-40-18
 - 65-45-12
 - 80-55-06
 - 100-70-30
 - 120-90-02
- Leaded Tins Bronzes
 - C92800
 - C92700
- High Leaded Tins Bronzes

Piston Rings Dimensional Data

Part Number	Outside Diam. (inches)	Height/Width	Radial
RC01.500X125P	1.500	0.125	.052 / .067
RC02.000X125P	2.000	0.125	.060 / .075
RC02.000X187P	2.000	0.187	.060 / .075
RC04.500X187P	4.500	0.187	.145 / .160
RC05.000X187P	5.000	0.187	.160 / .175
RC05.250X250P	5.250	0.250	.166 / .181
RC06.500X312P	6.500	0.312	.211 / .226
RC06.750X250P	6.750	0.250	.219 / .234
RC07.500X312P	7.500	0.312	.244 / .259
RC2.250X125P	2.250	0.125	.070 / .085
RC2.500X187P	2.500	0.187	.082 / .097
RC2.500X250P	2.500	0.250	.082 / .097
RC2.750X125P	2.750	0.125	.091 / .106
RC2.750X156P	2.750	0.156	.091 / .106
RC2.750X187P	2.750	0.187	.091 / .106
RC2.750X250P	2.750	0.250	.091 / .106
RC3.000X125P	3.000	0.125	.095 / .110
RC3.000X187P	3.000	0.187	.095 / .110
RC3.000X250P	3.000	0.250	.095 / .110
RC3.250X125P	3.250	0.125	.103 / .118
RC3.250X187P	3.250	0.187	.103 / .118
RC3.500X187P	3.500	0.187	.109 / .124
RC4.000X125P	4.000	0.125	.127 / .142
RC4.000X187P	4.000	0.187	.127 / .142
RC4.000X250P	4.000	0.250	.127 / .142
RC4.000X312P	4.000	0.312	.127 / .142
RC4.250X250P	4.250	0.250	.135 / .150
RC4.500X250P	4.500	0.250	.145 / .160
RC4.500X312P	4.500	0.312	.145 / .160
RC4.750X250P	4.750	0.250	.152 / .157
RC5.000X250P	5.000	0.250	.160 / .175
RC5.000X312P	5.000	0.312	.160 / .175
RC5.000X375P	5.000	0.375	.175 / .190
RC5.500X187P	5.500	0.187	.175 / .190
RC5.500X250P	5.500	0.250	.175 / .190
RC6.000X250P	6.000	0.250	.191 / .260
RC6.000X312P	6.000	0.312	.191 / .206

Piston Seals - Glass Filled PTFE

Two-part seal requiring no lubrication. Piston design is simplified; and sticking, slipping, and breakaway problems are eliminated. Damage associated with cast iron or phenolic piston ring particles is eliminated as well as cylinder wall scoring. Provides bi-directional sealing. Easy installation and removal, and can be cut in the field for easier installation. Interference fit assures positive sealing. Conforms to out-of-round bore conditions. Pressures to 5000 psi. APG provides piston seals with 70 Durometer Nitrile Expanders. Other compounds are available by special order.

Square Piston Seals Style TPS1400

Square profile 15% glass filled PTFE with 70 Durometer Nitrile O-Ring (Expander)



Rectangular Piston Seals Style TPR1800

Rectangular profile 15% glass filled PTFE with 70 Durometer Square Cut Ring (Expander)



Piston Seal Installation Data

1. Clean piston in solvent and dry. Inspect groove and end of piston for nicks or burrs which could damage the expander or piston ring.
2. Lubricate expander with a compatible lubricant for easier installation.
Caution: Be sure expander is not twisted or distorted in groove.
3. Install the piston ring over a 10° included angle mandrel onto the piston body and into the groove in a single motion as quickly as possible. **Do not use pry bars, screwdrivers, knife blades, or any metal object to install piston rings - this will damage piston and seal.**
4. After installation of the piston ring, carefully guide the piston into the chamfered cylinder bore carefully (check bore first for burrs, sharp edges and foreign material). If bore is not chamfered, use a smooth, lubricated and tapered piston ring compressor to facilitate installation.
5. To remove a worn piston ring, carefully cut through the PTFE piston ring and remove. Do not cut into the expander unless it is to be replaced also. **Use care not to damage groove walls and create burrs or sharp edges.**

Square Piston Seal Dimensional Data Style TPS1400

Part Number	Bore Diameter (inches)	Groove Diameter (inches)	Groove Width (inches)	Seal Cross Section (inches)	O-Ring Size (Dash No.)
TPS 1400 - 12	0.750	0.490	0.083	0.070	-013
TPS 1400 - 16	1.000	0.740	0.083	0.070	-017
TPS 1400 - 18	1.125	0.865	0.083	0.070	-019
TPS 1400 - 20	1.250	0.990	0.083	0.070	-022
TPS 1400 - 22	1.375	1.116	0.083	0.070	-023
TPS 1400 - 24	1.500	1.241	0.083	0.070	-025
TPS 1400 - 26	1.625	1.233	0.122	0.109	-123
TPS 1400 - 28	1.750	1.359	0.122	0.109	-125
TPS 1400 - 30	1.875	1.483	0.122	0.109	-127
TPS 1400 - 32	2.000	1.604	0.129	0.115	-129
TPS 1400 - 34	2.125	1.729	0.129	0.115	-131
TPS 1400 - 36	2.250	1.858	0.129	0.115	-133
TPS 1400 - 38	2.375	1.983	0.129	0.115	-135
TPS 1400 - 40	2.500	2.108	0.129	0.115	-137
TPS 1400 - 44	2.750	2.358	0.129	0.115	-141
TPS 1400 - 48	3.000	2.608	0.129	0.115	-145
TPS 1400 - 52	3.250	2.858	0.129	0.115	-149
TPS 1400 - 56	3.500	3.108	0.129	0.115	-151
TPS 1400 - 60	3.750	3.358	0.129	0.115	-152
TPS 1400 - 64	4.000	3.608	0.129	0.115	-153
TPS 1400 - 68	4.250	3.858	0.129	0.115	-154
TPS 1400 - 72	4.500	4.108	0.129	0.115	-155
TPS 1400 - 76	4.750	4.358	0.129	0.115	-156
TPS 1400 - 80	5.000	4.608	0.129	0.115	-157
TPS 1400 - 84	5.250	4.858	0.129	0.115	-158
TPS 1400 - 88	5.500	5.108	0.129	0.115	-159
TPS 1400 - 92	5.750	5.232	0.159	0.143	-251
TPS 1400 - 96	6.000	5.482	0.159	0.143	-253
TPS 1400 - 100	6.250	5.732	0.159	0.143	-255
TPS 1400 - 104	6.500	5.982	0.159	0.143	-257
TPS 1400 - 112	7.000	6.482	0.159	0.143	-259
TPS 1400 - 120	7.500	6.982	0.159	0.143	-261
TPS 1400 - 128	8.000	7.482	0.159	0.143	-263
TPS 1400 - 136	8.500	7.982	0.159	0.143	-265
TPS 1400 - 144	9.000	8.452	0.159	0.143	-267
TPS 1400 - 160	10.000	9.482	0.159	0.143	-271

For availability of sizes not listed, please inquire.

Rectangular Piston Seal Dimensional Data Style TPR1800

Part Number	Bore Diameter (inches)	Groove Diameter (inches)	Groove Width (inches)	Seal Width (Inches)	Seal Cross Section (inches)	Square Cut Ring Size (Dash No.)
TPR 1800 - 24	1.500	1.192	0.129	0.119	0.070	-123
TPR 1800 - 28	1.750	1.443	0.129	0.119	0.070	-127
TPR 1800 - 32	2.000	1.693	0.129	0.119	0.070	-131
TPR 1800 - 36	2.250	1.943	0.129	0.119	0.070	-135
TPR 1800 - 40	2.500	2.193	0.129	0.119	0.070	-139
TPR 1800 - 44	2.750	2.443	0.129	0.119	0.070	-143
TPR 1800 - 48	3.000	2.443	0.284	0.272	0.090	-333
TPR 1800 - 52	3.250	2.695	0.284	0.272	0.090	-335
TPR 1800 - 56	3.500	2.945	0.284	0.272	0.090	-337
TPR 1800 - 60	3.750	3.195	0.284	0.272	0.090	-339
TPR 1800 - 64	4.000	3.445	0.284	0.272	0.090	-341
TPR 1800 - 68	4.250	3.645	0.284	0.272	0.090	-343
TPR 1800 - 72	4.500	3.945	0.284	0.272	0.090	-345
TPR 1800 - 76	4.750	4.195	0.284	0.272	0.090	-347
TPR 1800 - 80	5.000	4.445	0.284	0.272	0.090	-349
TPR 1800 - 84	5.250	4.488	0.379	0.365	0.142	-425
TPR 1800 - 88	5.500	4.738	0.379	0.365	0.142	-427
TPR 1800 - 92	5.750	4.988	0.379	0.365	0.142	-429
TPR 1800 - 96	6.000	5.238	0.379	0.365	0.142	-431
TPR 1800 - 100	6.250	5.488	0.379	0.365	0.142	-433
TPR 1800 - 104	6.500	5.738	0.379	0.365	0.142	-435
TPR 1800 - 112	7.000	6.238	0.379	0.365	0.142	-438
TPR 1800 - 116	7.250	6.488	0.379	0.365	0.142	-439
TPR 1800 - 120	7.500	6.738	0.379	0.365	0.142	-440
TPR 1800 - 128	8.000	7.238	0.379	0.365	0.142	-442
TPR 1800 - 132	8.250	7.488	0.379	0.365	0.142	-443
TPR 1800 - 136	8.500	7.738	0.379	0.365	0.142	-444
TPR 1800 - 144	9.000	8.122	0.379	0.365	0.202	-445
TPR 1800 - 160	10.000	9.122	0.379	0.365	0.202	-447

For availability of sizes not listed, please inquire.

T-Seals

The T-Seal is compact and provides an excellent option to bulkier types of seals in a double or single acting application. It requires significantly less packing space than Vee Packings, V-Cups, or Piston Cups. The result is a compact, efficient and less costly overall component.

The T-Seal is used in reciprocating hydraulic and pneumatic equipment and in high-pressure applications. It is an excellent direct replacement for other packings (such as those in standard grooves). It fits into the same simple groove as an O-ring and eliminates rolling or spiraling, even under long stroke or dry rod conditions. It does not wedge into clearances or pinch off under motion or pressure and has good low-pressure sealing capabilities.

Because the T-Seal is supplied with a back-up on both sides of the sealing area, it functions very well in double acting applications. The back-ups are split for ease of installation.

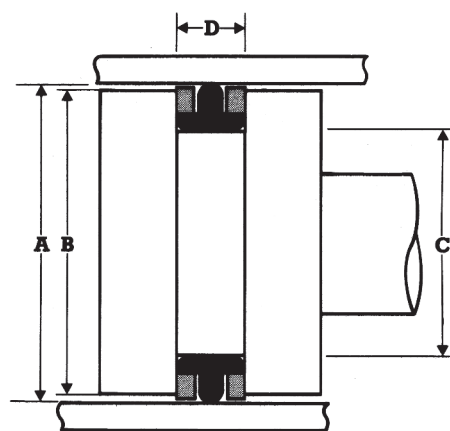
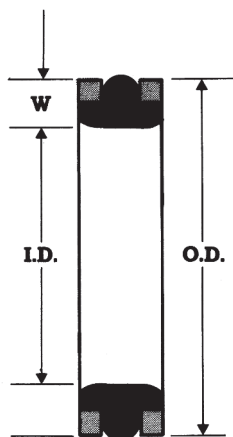
Like other similar packings, the T-Seal is compressed to eliminate low-pressure leakage. However, the back-up rings float between the T-Seal's flanges and the rod or bore, minimizing friction and wear. When pressure is applied, a bridge is formed before extrusion can occur.

The T-Seal's back-up utilizes hydraulic pressure to keep it in contact with the rod or cylinder wall. This prevents extrusion from occurring.

The T-Seal resists spiral failure. When piston or rod movement does occur, even under very low pressures, the design allows the back-up rings to lock the sealing element in place.

APG stocks 70 Durometer Nitrile T-Seals with Nylon back-ups. Call for availability of other compounds.

Piston T-Seal Dimensional Data (Inches)

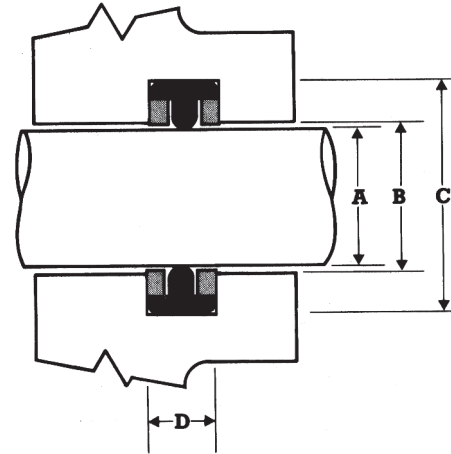
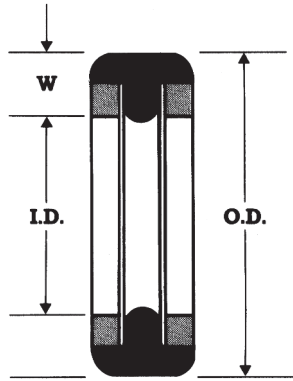


AS 568 O-Ring Dash Number	Part Number	Nominal Dimensions			A		B		C		D	
		O.D.	I.D.	W	Bore Diameter	Tolerance	Piston Diameter	Tolerance	Groove Diameter	Tolerance	Groove Width	Tolerance
-106	TP001H70	.375	.187	.093	.375		.371		.191		.152	
-108	TP002H70	.437	.250	.093	.437		.433		.253		.152	
-109	TP003H70	.500	.312	.093	.500		.496		.316		.152	
-203	TP004H70	.562	.312	.125	.562		.558		.318		.187	
-204	TP005H70	.625	.375	.125	.625		.621		.381		.187	
-205	TP006H70	.687	.437	.125	.687		.683		.443		.187	
-206	TP007H70	.750	.500	.125	.750		.746		.506		.187	
-207	TP008H70	.812	.562	.125	.812		.808		.568		.187	
-208	TP009H70	.875	.625	.125	.875		.871		.631		.187	
-209	TP010H70	.937	.687	.125	.937		.933		.693		.187	
-210	TP011H70	1.000	.750	.125	1.001		.997		.757		.187	
-211	TP012H70	1.062	.812	.125	1.063		1.059		.819		.187	
-212	TP013H70	1.125	.875	.125	1.126		1.122		.882		.187	
-213	TP014H70	1.187	.937	.125	1.188		1.184		.944		.187	
-214	TP015H70	1.250	1.000	.125	1.251		1.247		1.007		.187	
-215	TP016H70	1.312	1.062	.125	1.313	±.001	1.309	±.001	1.069	±.001	.187	+ .003
-216	TP017H70	1.375	1.125	.125	1.376		1.372		1.132		.187	- .002
-217	TP018H70	1.437	1.187	.125	1.438		1.434		1.194		.187	
-218	TP019H70	1.500	1.250	.125	1.501		1.497		1.257		.187	
-219	TP020H70	1.562	1.312	.125	1.563		1.559		1.319		.187	
-220	TP021H70	1.625	1.375	.125	1.626		1.622		1.382		.187	
-222	TP022H70	1.750	1.500	.125	1.751		1.747		1.507		.187	
-325	TP023H70	1.875	1.500	.187	1.876		1.872		1.503		.282	
-326	TP024H70	2.000	1.625	.187	2.001		1.997		1.628		.282	
-327	TP025H70	2.125	1.750	.187	2.126		2.122		1.753		.282	
-328	TP026H70	2.250	1.875	.187	2.251		2.247		1.878		.282	
-329	TP027H70	2.375	2.000	.187	2.376		2.372		2.003		.282	
-330	TP028H70	2.500	2.125	.187	2.501		2.497		2.128		.282	
-331	TP029H70	2.625	2.250	.187	2.626		2.620		2.253		.282	

Piston T-Seal Dimensional Data (inches) (Continued)

AS 568 O-Ring Dash Number	Part Number	Nominal Dimensions			A		B		C		D	
		O.D.	I.D.	W	Bore Diameter	Tolerance	Piston Diameter	Tolerance	Groove Diameter	Tolerance	Groove Width	Tolerance
-332	TP030H70	2.750	2.375	.187	2.751		2.745		2.378		.282	
-333	TP031H70	2.875	2.500	.187	2.876		2.870		2.503		.282	
-334	TP032H70	3.000	2.625	.187	3.001		2.995		2.628		.282	
-335	TP033H70	3.125	2.750	.187	3.126		3.120		2.753		.282	
-336	TP034H70	3.250	2.875	.187	3.251		3.245		2.878		.282	
-338	TP035H70	3.500	3.125	.187	3.502		3.496		3.129		.282	
-339	TP036H70	3.625	3.250	.187	3.627		3.621		3.254		.282	
-340	TP037H70	3.750	3.375	.187	3.752		3.746		3.379		.282	
-341	TP038H70	3.875	3.500	.187	3.877		3.871		3.504		.282	
-342	TP039H70	4.000	3.625	.187	4.002		3.996		3.629		.282	
-343	TP040H70	4.125	3.750	.187	4.127		4.121		3.754		.282	
-344	TP041H70	4.250	3.875	.187	4.252		4.246		3.879		.282	
-345	TP042H70	4.375	4.000	.187	4.377		4.371		4.004		.282	
-346	TP043H70	4.500	4.125	.187	4.502		4.496		4.129		.282	
-347	TP044H70	4.625	4.250	.187	4.627	±.002	4.621	±.002	4.254	±.002	.282	
-348	TP045H70	4.750	4.375	.187	4.752		4.746		4.379		.282	
-349	TP046H70	4.875	4.500	.187	4.877		4.871		4.504		.282	
-350	TP047H70	5.000	4.625	.187	5.003		4.997		4.630		.282	
-426	TP048H70	5.125	4.625	.250	5.128		5.122		4.650		.368	
-427	TP049H70	5.250	4.750	.250	5.253		5.247		4.775		.368	
-428	TP050H70	5.375	4.875	.250	5.378		5.372		4.890		.368	
-429	TP051H70	5.500	5.000	.250	5.503		5.497		5.025		.368	+ .003
-430	TP052H70	5.625	5.125	.250	5.628		5.622		5.150		.368	- .002
-431	TP053H70	5.750	5.250	.250	5.753		5.747		5.275		.368	
-432	TP054H70	5.875	5.375	.250	5.878		5.874		5.400		.368	
-433	TP055H70	6.000	5.500	.250	6.003		5.997		5.525		.368	
-434	TP056H70	6.125	5.625	.250	6.128		6.122		5.650		.368	
-435	TP057H70	6.250	5.750	.250	6.253		6.247		5.775		.368	
-437	TP058H70	6.500	6.000	.250	6.503		6.495		6.025		.368	
-438	TP059H70	6.750	6.250	.250	6.753		6.745		6.275		.368	
-439	TP060H70	7.000	6.500	.250	7.003		6.995		6.525		.368	
-440	TP061H70	7.250	6.750	.250	7.253		7.245		6.775		.368	
-441	TP062H70	7.500	7.000	.250	7.503		7.495		7.025		.368	
-442	TP063H70	7.750	7.250	.250	7.753		7.745		7.275		.368	
-443	TP064H70	8.000	7.500	.250	8.003		7.995		7.525		.368	
-444	TP065H70	8.250	7.750	.250	8.253		8.245		7.775		.368	
-445	TP066H70	8.500	8.000	.250	8.503	±.003	8.495	±.003	8.025	±.003	.368	
-446	TP067H70	9.000	8.500	.250	9.003		8.995		8.525		.368	
-447	TP068H70	9.500	9.000	.250	9.503		9.495		9.025		.368	
-448	TP069H70	10.000	9.500	.250	10.003		9.995		9.525		.368	
-449	TP070H70	10.500	10.000	.250	10.503		10.495		10.025		.368	
-450	TP071H70	11.000	10.500	.250	11.003		10.995		10.525		.368	
-451	TP072H70	11.500	11.000	.250	11.503		11.495		11.022		.368	
-452	TP073H70	12.000	11.500	.250	12.003		11.995		11.525		.368	

Rod T-Seal Dimensional Data (Inches)



AS 568 O-Ring Dash Number	Part Number	Nominal Dimensions			A		B		C		D	
		I.D.	O.D.	W	Rod Diameter	Tolerance	Bore Diameter	Tolerance	Groove Diameter	Tolerance	Groove Width	Tolerance
-106	TR001H70	.187	.375	.093	.186		.189		.369		.152	
-108	TR002H70	.250	.437	.093	.248		.251		.432		.152	
-109	TR003H70	.312	.500	.093	.310		.313		.494		.152	
-204	TR004H70	.375	.625	.125	.373		.376		.617		.187	
-205	TR005H70	.437	.687	.125	.435		.438		.679		.187	
-206	TR006H70	.500	.750	.125	.498		.501		.742		.187	
-207	TR007H70	.562	.812	.125	.560		.563		.804		.187	
-208	TR008H70	.625	.875	.125	.623		.626		.867		.187	
-209	TR009H70	.687	.937	.125	.685		.688		.929		.187	
-210	TR010H70	.750	1.000	.125	.747		.750		.991		.187	
-211	TR011H70	.812	1.062	.125	.809		.812		1.053		.187	
-212	TR012H70	.875	1.125	.125	.872		.875		1.116		.187	
-213	TR013H70	.937	1.187	.125	.934		.937		1.178		.187	
-214	TR014H70	1.000	1.250	.125	.997	±.001	1.000	±.001	1.241	±.001	.187	±.002
-215	TR015H70	1.062	1.312	.125	1.059		1.062		1.303		.187	
-216	TR016H70	1.125	1.375	.125	1.122		1.125		1.366		.187	
-217	TR017H70	1.187	1.437	.125	1.184		1.187		1.428		.187	
-218	TR018H70	1.250	1.500	.125	1.247		1.250		1.491		.187	
-219	TR019H70	1.312	1.562	.125	1.309		1.312		1.553		.187	
-220	TR020H70	1.375	1.625	.125	1.372		1.375		1.616		.187	
-221	TR021H70	1.437	1.687	.125	1.434		1.437		1.678		.187	
-222	TR022H70	1.500	1.750	.125	1.497		1.500		1.741		.187	
-325	TR023H70	1.500	1.875	.187	1.497		1.500		1.870		.282	
-326	TR024H70	1.625	2.000	.187	1.622		1.625		1.995		.282	
-327	TR025H70	1.750	2.125	.187	1.747		1.750		2.120		.282	
-328	TR026H70	1.875	2.250	.187	1.872		1.875		2.245		.282	
-329	TR027H70	2.000	2.375	.187	1.997		2.000		2.370		.282	
-330	TR028H70	2.125	2.500	.187	2.122		2.125		2.495		.282	
-331	TR029H70	2.250	2.625	.187	2.247		2.250		2.612		.282	

Rod T-Seal Dimensional Data (Inches) (Continued)

AS 568 O-Ring Dash Number	Part Number	Nominal Dimensions			A		B		C		D	
		I.D.	O.D.	W	Rod Diameter	Tolerance	Bore Diameter	Tolerance	Groove Diameter	Tolerance	Groove Width	Tolerance
-332	TR030H70	2.375	2.750	.187	2.372		2.377		2.745		.282	
-333	TR031H70	2.500	2.875	.187	2.497		2.502		2.870		.282	
-334	TR032H70	2.625	3.000	.187	2.622		2.627		2.995		.282	
-335	TR033H70	2.750	3.125	.187	2.747		2.752		3.120		.282	
-336	TR034H70	2.875	3.250	.187	2.872		2.877		3.245		.282	
-337	TR035H70	3.000	3.375	.187	2.996		3.001		3.369		.282	
-338	TR036H70	3.125	3.500	.187	3.121		3.126		3.494		.282	
-339	TR037H70	3.250	3.625	.187	3.246		3.251		3.619		.282	
-340	TR038H70	3.375	3.750	.187	3.371		3.376		3.744		.282	
-341	TR039H70	3.500	3.875	.187	3.496	±.002	3.501	±.002	3.869	±.002	.282	
-342	TR040H70	3.625	4.000	.187	3.621		3.626		3.994		.282	
-343	TR041H70	3.750	4.125	.187	3.746		3.751		4.119		.282	
-344	TR042H70	3.875	4.250	.187	3.871		3.876		4.244		.282	
-345	TR043H70	4.000	4.375	.187	3.996		4.001		4.369		.282	
-346	TR044H70	4.125	4.500	.187	4.121		4.126		4.494		.282	
-347	TR045H70	4.250	4.625	.187	4.246		4.251		4.619		.282	
-348	TR046H70	4.375	4.750	.187	4.371		4.376		4.744		.282	
-349	TR047H70	4.500	4.875	.187	4.496		4.501		4.869		.282	±.002
-429	TR048H70	5.000	5.500	.250	4.996		5.001		5.474		.368	
-431	TR049H70	5.250	5.750	.250	5.246		5.251		5.724		.368	
-433	TR050H70	5.500	6.000	.250	5.496		5.501		5.974		.368	
-434	TR051H70	5.625	6.125	.250	5.621		5.626		6.099		.368	
-437	TR052H70	6.000	6.500	.250	5.996		6.003		6.474		.368	
-438	TR053H70	6.250	6.750	.250	6.246		6.253		6.724		.368	
-439	TR054H70	6.500	7.000	.250	6.496		6.503		6.974		.368	
-440	TR055H70	6.750	7.250	.250	6.746		6.753		7.224		.368	
-441	TR056H70	7.000	7.500	.250	6.996	±.003	7.003	±.003	7.474	±.003	.368	
-442	TR057H70	7.250	7.750	.250	7.246		7.253		7.724		.368	
-443	TR058H70	7.500	8.000	.250	7.500		7.503		7.983		.368	
-445	TR059H70	8.000	8.500	.250	7.996		8.003		8.474		.368	
-447	TR060H70	9.000	9.500	.250	8.996		9.003		9.474		.368	
-448	TR061H70	9.500	10.000	.250	9.496		9.503		9.974		.368	
-449	TR062H70	10.000	10.500	.250	9.996		10.003		10.474		.368	
-451	TR063H70	11.000	11.500	.250	10.996		11.003		11.474		.368	

Vee Packings

APG Vee Packings are multiple-lip (chevron) seals comprised of a group of endless rings and are popular for sealing rods and pistons. They can be used for low or high pressure applications and with single or double acting cylinders.

APG presently stocks Female and Male Adapters (top and bottom) in fabric reinforced Nitrile and Nylon. V-Rings (center rings) are stocked in fabric reinforced Nitrile and in homogeneous 90 Durometer Nitrile. (Call for availability of other compounds) In general, fabric Vees are for high pressure, and homogeneous Vees are for low pressure. The selection of fabric or homogeneous compounds should be made on the basis of operating pressure, temperature, and the type of gaseous or fluid medium with which the packing must function.



Female Adapter (Top)



V-Ring (Center Ring)



Male Adapter (Bottom)

Installation Data

Properly installed Vee Packings will generally outperform other lip-type seals. They are always installed in sets. Each set contains a number of V-Rings (based upon the pressure) plus male and female adapters.

The V-Rings in each set are referred to as pressure rings. Refer to the table below to determine the number of V-Rings per set based on solid rings. This table applies to the majority of installations. There will be exceptions, depending upon special operating conditions, where the table guidelines do not apply.

Recommended Number of V-Rings per Set (Based on Solid Rings)	
Pressure (PSI)	Fabric Reinforced Nitrile
Zero to 500	3
500 to 1500	4
1500 to 3000	4
3000 to 5000	5
5000 to 10,000	6
10, 000 and over	—

Standard Vee Packings use a 90° included angle (commonly referred to as 45°) measured on one side only.

Contact APG to determine stack height.

Vee Packing Dimensional Data

Vee Packing Part Numbers ending in:

VF = V-Ring (Fabric Reinforced Nitrile)

FF = Female Adapter (Fabric Reinforced Nitrile)

MF = Male Adapter (Fabric Reinforced Nitrile)

VH = V-Ring (Homogeneous 90 Durometer Nitrile)

FN = Female Adapter (Nylon)

MN = Male Adapter (Nylon)

Part Number	Inside Diameter (inches)	Outside Diameter (inches)	Cross Section (inches)
VR 0250 X 0625 FF	1/4	5/8	3/16
VR 0250 X 0625 MF	1/4	5/8	3/16
VR 0250 X 0625 VF	1/4	5/8	3/16
VR 0250 X 0750 FF	1/4	3/4	1/4
VR 0250 X 0750 MF	1/4	3/4	1/4
VR 0250 X 0750 VF	1/4	3/4	1/4
VR 0250 X 0875 FF	1/4	7/8	5/16
VR 0250 X 0875 MF	1/4	7/8	5/16
VR 0250 X 0875 VF	1/4	7/8	5/16
VR 0375 X 0750 FF	3/8	3/4	3/16
VR 0375 X 0750 MF	3/8	3/4	3/16
VR 0375 X 0750 VF	3/8	3/4	3/16
VR 0375 X 0875 FF	3/8	7/8	1/4
VR 0375 X 0875 MF	3/8	7/8	1/4
VR 0375 X 0875 VF	3/8	7/8	1/4
VR 0375 X 1000 FF	3/8	1	5/16
VR 0375 X 1000 MF	3/8	1	5/16
VR 0375 X 1000 VF	3/8	1	5/16
VR 0500 X 0875 FF	1/2	7/8	3/16
VR 0500 X 0875 MF	1/2	7/8	3/16
VR 0500 X 0875 VF	1/2	7/8	3/16
VR 0500 X 1000 FF	1/2	1	1/4
VR 0500 X 1000 MF	1/2	1	1/4
VR 0500 X 1000 VF	1/2	1	1/4
VR 0500 X 1000 VH	1/2	1	1/4
VR 0500 X 1125 FF	1/2	1 1/8	5/16
VR 0500 X 1125 MF	1/2	1 1/8	5/16
VR 0500 X 1125 VF	1/2	1 1/8	5/16
VR 0625 X 1000 FF	5/8	1	3/16
VR 0625 X 1000 MF	5/8	1	3/16
VR 0625 X 1000 VF	5/8	1	3/16
VR 0625 X 1125 FF	5/8	1 1/8	1/4
VR 0625 X 1125 MF	5/8	1 1/8	1/4
VR 0625 X 1125 VF	5/8	1 1/8	1/4
VR 0625 X 1125 VH	5/8	1 1/8	1/4
VR 0625 X 1250 FF	5/8	1 1/4	5/16
VR 0625 X 1250 MF	5/8	1 1/4	5/16
VR 0625 X 1250 VF	5/8	1 1/4	5/16
VR 0750 X 1125 FF	3/4	1 1/8	3/16
VR 0750 X 1125 MF	3/4	1 1/8	3/16
VR 0750 X 1125 VF	3/4	1 1/8	3/16
VR 0750 X 1250 FF	3/4	1 1/4	1/4
VR 0750 X 1250 MF	3/4	1 1/4	1/4
VR 0750 X 1250 VF	3/4	1 1/4	1/4
VR 0750 X 1250 VH	3/4	1 1/4	1/4
VR 0750 X 1375 FF	3/4	1 3/8	5/16
VR 0750 X 1375 MF	3/4	1 3/8	5/16
VR 0750 X 1375 VF	3/4	1 3/8	5/16
VR 0750 X 1500 FF	3/4	1 1/2	3/8
VR 0750 X 1500 MF	3/4	1 1/2	3/8

Part Number	Inside Diameter (inches)	Outside Diameter (inches)	Cross Section (inches)
VR 0750 X 1500 VF	3/4	1 1/2	3/8
VR 0812 X 1312 FF	13/16	1 5/16	1/4
VR 0812 X 1312 MF	13/16	1 5/16	1/4
VR 0812 X 1312 VF	13/16	1 5/16	1/4
VR 0812 X 1312 VH	13/16	1 5/16	1/4
VR 0875 X 1375 FF	7/8	1 3/8	1/4
VR 0875 X 1375 MF	7/8	1 3/8	1/4
VR 0875 X 1375 VF	7/8	1 3/8	1/4
VR 0875 X 1375 VH	7/8	1 3/8	1/4
VR 0875 X 1500 FF	7/8	1 1/2	5/16
VR 0875 X 1500 MF	7/8	1 1/2	5/16
VR 0875 X 1500 VF	7/8	1 1/2	5/16
VR 0875 X 1500 VH	7/8	1 1/2	5/16
VR 0875 X 1625 VF	7/8	1 5/8	3/8
VR 1000 X 1375 FF	1	1 3/8	3/16
VR 1000 X 1375 MF	1	1 3/8	3/16
VR 1000 X 1375 VF	1	1 3/8	3/16
VR 1000 X 1375 VH	1	1 3/8	3/16
VR 1000 X 1500 FF	1	1 1/2	1/4
VR 1000 X 1500 MF	1	1 1/2	1/4
VR 1000 X 1500 VF	1	1 1/2	1/4
VR 1000 X 1500 VH	1	1 1/2	1/4
VR 1000 X 1625 FF	1	1 5/8	5/16
VR 1000 X 1625 MF	1	1 5/8	5/16
VR 1000 X 1625 VF	1	1 5/8	5/16
VR 1000 X 1625 VH	1	1 5/8	5/16
VR 1000 X 1750 FF	1	1 3/4	3/8
VR 1000 X 1750 MF	1	1 3/4	3/8
VR 1000 X 1750 VF	1	1 3/4	3/8
VR 1125 X 1625 FF	1 1/8	1 5/8	1/4
VR 1125 X 1625 MF	1 1/8	1 5/8	1/4
VR 1125 X 1625 VF	1 1/8	1 5/8	1/4
VR 1125 X 1750 FF	1 1/8	1 3/4	5/16
VR 1125 X 1750 MF	1 1/8	1 3/4	5/16
VR 1125 X 1750 VF	1 1/8	1 3/4	5/16
VR 1125 X 1750 VH	1 1/8	1 3/4	5/16
VR 1125 X 1875 FF	1 1/8	1 7/8	3/8
VR 1125 X 1875 MF	1 1/8	1 7/8	3/8
VR 1125 X 1875 VF	1 1/8	1 7/8	3/8
VR 1250 X 1750 FF	1 1/4	1 3/4	1/4
VR 1250 X 1750 FN	1 1/4	1 3/4	1/4
VR 1250 X 1750 MF	1 1/4	1 3/4	1/4
VR 1250 X 1750 VF	1 1/4	1 3/4	1/4
VR 1250 X 1750 VH	1 1/4	1 3/4	1/4
VR 1250 X 2000 FF	1 1/4	2	3/8
VR 1250 X 2000 MF	1 1/4	2	3/8
VR 1250 X 2000 VF	1 1/4	2	3/8
VR 1250 X 2000 VH	1 1/4	2	3/8
VR 1375 X 1875 FF	1 3/8	1 7/8	1/4
VR 1375 X 1875 MF	1 3/8	1 7/8	1/4

For availability of sizes not listed, please inquire.

Vee Packing Dimensional Data (Continued)

Part Number	Inside Diameter (inches)	Outside Diameter (inches)	Cross Section (inches)
VR 1375 X 1875 VF	1 3/8	1 7/8	1/4
VR 1375 X 2000 FF	1 3/8	2	5/16
VR 1375 X 2000 MF	1 3/8	2	5/16
VR 1375 X 2000 VF	1 3/8	2	5/16
VR 1375 X 2000 VH	1 3/8	2	5/16
VR 1375 X 2125 VF	1 3/8	2 1/8	3/8
VR 1437 X 1937 VF	1 7/16	1 15/16	1/4
VR 1500 X 1875 VF	1 1/2	1 7/8	3/16
VR 1500 X 2000 FF	1 1/2	2	1/4
VR 1500 X 2000 MF	1 1/2	2	1/4
VR 1500 X 2000 VF	1 1/2	2	1/4
VR 1500 X 2000 VH	1 1/2	2	1/4
VR 1500 X 2125 FF	1 1/2	2 1/8	5/16
VR 1500 X 2125 VF	1 1/2	2 1/8	5/16
VR 1500 X 2125 VH	1 1/2	2 1/8	5/16
VR 1500 X 2250 FF	1 1/2	2 1/4	3/8
VR 1500 X 2250 MF	1 1/2	2 1/4	3/8
VR 1500 X 2250 VF	1 1/2	2 1/4	3/8
VR 1625 X 2000 VF	1 5/8	2	3/16
VR 1625 X 2125 FF	1 5/8	2 1/8	1/4
VR 1625 X 2125 MF	1 5/8	2 1/8	1/4
VR 1625 X 2125 VF	1 5/8	2 1/8	1/4
VR 1625 X 2250 FF	1 5/8	2 1/4	5/16
VR 1625 X 2250 MF	1 5/8	2 1/4	5/16
VR 1625 X 2250 VF	1 5/8	2 1/4	5/16
VR 1625 X 2250 VH	1 5/8	2 1/4	5/16
VR 1625 X 2375 FF	1 5/8	2 3/8	3/8
VR 1625 X 2375 MF	1 5/8	2 3/8	3/8
VR 1625 X 2375 VF	1 5/8	2 3/8	3/8
VR 1625 X 2375 VH	1 5/8	2 3/8	3/8
VR 1750 X 2250 FF	1 3/4	2 1/4	1/4
VR 1750 X 2250 MF	1 3/4	2 1/4	1/4
VR 1750 X 2250 VF	1 3/4	2 1/4	1/4
VR 1750 X 2250 VH	1 3/4	2 1/4	1/4
VR 1750 X 2375 FF	1 3/4	2 3/8	5/16
VR 1750 X 2375 MF	1 3/4	2 3/8	5/16
VR 1750 X 2375 VF	1 3/4	2 3/8	5/16
VR 1750 X 2500 FF	1 3/4	2 1/2	3/8
VR 1750 X 2500 MF	1 3/4	2 1/2	3/8
VR 1750 X 2500 VF	1 3/4	2 1/2	3/8
VR 1750 X 2750 FF	1 3/4	2 3/4	1/2
VR 1750 X 2750 MF	1 3/4	2 3/4	1/2
VR 1750 X 2750 VF	1 3/4	2 3/4	1/2
VR 1875 X 2500 FF	1 7/8	2 1/2	5/16
VR 1875 X 2500 MF	1 7/8	2 1/2	5/16
VR 1875 X 2500 VF	1 7/8	2 1/2	5/16
VR 1875 X 2500 VH	1 7/8	2 1/2	5/16
VR 1875 X 2625 FF	1 7/8	2 5/8	3/8
VR 1875 X 2625 MF	1 7/8	2 5/8	3/8
VR 1875 X 2625 VF	1 7/8	2 5/8	3/8
VR 2000 X 2500 FF	2	2 1/2	1/4
VR 2000 X 2500 MF	2	2 1/2	1/4
VR 2000 X 2500 VF	2	2 1/2	1/4
VR 2000 X 2500 VH	2	2 1/2	1/4
VR 2000 X 2625 FF	2	2 5/8	5/16
VR 2000 X 2625 MF	2	2 5/8	5/16
VR 2000 X 2625 VF	2	2 5/8	5/16
VR 2000 X 2625 VH	2	2 5/8	5/16
VR 2000 X 2750 FF	2	2 3/4	3/8
VR 2000 X 2750 FN	2	2 3/4	3/8

Part Number	Inside Diameter (inches)	Outside Diameter (inches)	Cross Section (inches)
VR 2000 X 2750 MF	2	2 3/4	3/8
VR 2000 X 2750 VF	2	2 3/4	3/8
VR 2000 X 3000 FF	2	3	1/2
VR 2000 X 3000 MF	2	3	1/2
VR 2000 X 3000 VF	2	3	1/2
VR 2125 X 2750 FF	2 1/8	2 3/4	5/16
VR 2125 X 2750 MF	2 1/8	2 3/4	5/16
VR 2125 X 2750 VF	2 1/8	2 3/4	5/16
VR 2125 X 2875 FF	2 1/8	2 7/8	3/8
VR 2125 X 2875 MF	2 1/8	2 7/8	3/8
VR 2125 X 2875 VF	2 1/8	2 7/8	3/8
VR 2250 X 2750 FF	2 1/4	2 3/4	1/4
VR 2250 X 2750 MF	2 1/4	2 3/4	1/4
VR 2250 X 2750 VF	2 1/4	2 3/4	1/4
VR 2250 X 2750 VH	2 1/4	2 3/4	1/4
VR 2250 X 2875 FF	2 1/4	2 7/8	5/16
VR 2250 X 2875 MF	2 1/4	2 7/8	5/16
VR 2250 X 2875 VF	2 1/4	2 7/8	5/16
VR 2250 X 3000 FF	2 1/4	3	3/8
VR 2250 X 3000 MF	2 1/4	3	3/8
VR 2250 X 3000 VF	2 1/4	3	3/8
VR 2250 X 3000 VH	2 1/4	3	3/8
VR 2250 X 3250 FF	2 1/4	3 1/4	1/2
VR 2250 X 3250 MF	2 1/4	3 1/4	1/2
VR 2250 X 3250 VF	2 1/4	3 1/4	1/2
VR 2375 X 3000 FF	2 3/8	3	5/16
VR 2375 X 3000 MF	2 3/8	3	5/16
VR 2375 X 3000 VF	2 3/8	3	5/16
VR 2375 X 3125 FF	2 3/8	3 1/8	3/8
VR 2375 X 3125 MF	2 3/8	3 1/8	3/8
VR 2375 X 3125 VF	2 3/8	3 1/8	3/8
VR 2500 X 3000 FF	2 1/2	3	1/4
VR 2500 X 3000 MF	2 1/2	3	1/4
VR 2500 X 3000 VF	2 1/2	3	1/4
VR 2500 X 3000 VH	2 1/2	3	1/4
VR 2500 X 3125 FF	2 1/2	3 1/8	5/16
VR 2500 X 3125 MF	2 1/2	3 1/8	5/16
VR 2500 X 3125 VF	2 1/2	3 1/8	5/16
VR 2500 X 3250 FF	2 1/2	3 1/4	3/8
VR 2500 X 3250 MF	2 1/2	3 1/4	3/8
VR 2500 X 3250 VF	2 1/2	3 1/4	3/8
VR 2500 X 3500 FF	2 1/2	3 1/2	1/2
VR 2500 X 3500 MF	2 1/2	3 1/2	1/2
VR 2500 X 3500 VF	2 1/2	3 1/2	1/2
VR 2750 X 3250 FF	2 3/4	3 1/4	1/4
VR 2750 X 3250 MF	2 3/4	3 1/4	1/4
VR 2750 X 3250 VF	2 3/4	3 1/4	1/4
VR 2750 X 3250 VH	2 3/4	3 1/4	1/4
VR 2750 X 3375 FF	2 3/4	3 3/8	5/16
VR 2750 X 3375 MF	2 3/4	3 3/8	5/16
VR 2750 X 3375 VF	2 3/4	3 3/8	5/16
VR 2750 X 3500 FF	2 3/4	3 1/2	3/8
VR 2750 X 3500 MF	2 3/4	3 1/2	3/8
VR 2750 X 3500 VF	2 3/4	3 1/2	3/8
VR 2750 X 3750 FF	2 3/4	3 3/4	1/2
VR 2750 X 3750 MF	2 3/4	3 3/4	1/2
VR 2750 X 3750 VF	2 3/4	3 3/4	1/2
VR 2875 X 3500 FF	2 7/8	3 1/2	5/16
VR 2875 X 3500 MF	2 7/8	3 1/2	5/16
VR 2875 X 3500 VF	2 7/8	3 1/2	5/16

For availability of sizes not listed, please inquire.

Vee Packing Dimensional Data (Continued)

Part Number	Inside Diameter (Inches)	Outside Diameter (Inches)	Cross Section (Inches)
VR 3000 X 3500 FF	3	3 1/2	1/4
VR 3000 X 3500 MF	3	3 1/2	1/4
VR 3000 X 3500 VF	3	3 1/2	1/4
VR 3000 X 3500 VH	3	3 1/2	1/4
VR 3000 X 3625 MF	3	3 5/8	5/16
VR 3000 X 3625 VF	3	3 5/8	5/16
VR 3000 X 3750 FF	3	3 3/4	3/8
VR 3000 X 3750 MF	3	3 3/4	3/8
VR 3000 X 3750 VF	3	3 3/4	3/8
VR 3000 X 3875 VF	3	3 7/8	7/16
VR 3000 X 4000 FF	3	4	1/2
VR 3000 X 4000 MF	3	4	1/2
VR 3000 X 4000 VF	3	4	1/2
VR 3125 X 3500 FF	3 1/8	3 1/2	3/16
VR 3125 X 3500 MF	3 1/8	3 1/2	3/16
VR 3125 X 3500 VF	3 1/8	3 1/2	3/16
VR 3125 X 3750 FF	3 1/8	3 3/4	5/16
VR 3125 X 3750 MF	3 1/8	3 3/4	5/16
VR 3125 X 3750 VF	3 1/8	3 3/4	5/16
VR 3125 X 3875 VF	3 1/8	3 7/8	3/8
VR 3250 X 3625 VF	3 1/4	3 5/8	3/16
VR 3250 X 3750 FF	3 1/4	3 3/4	1/4
VR 3250 X 3750 MF	3 1/4	3 3/4	1/4
VR 3250 X 3750 VF	3 1/4	3 3/4	1/4
VR 3250 X 4000 FF	3 1/4	4	3/8
VR 3250 X 4000 MF	3 1/4	4	3/8
VR 3250 X 4000 VF	3 1/4	4	3/8
VR 3500 X 4000 FF	3 1/2	4	1/4
VR 3500 X 4000 MF	3 1/2	4	1/4
VR 3500 X 4000 VF	3 1/2	4	1/4
VR 3500 X 4000 VH	3 1/2	4	1/4
VR 3500 X 4125 FF	3 1/2	4 1/8	5/16
VR 3500 X 4125 MF	3 1/2	4 1/8	5/16
VR 3500 X 4125 VF	3 1/2	4 1/8	5/16
VR 3500 X 4250 FF	3 1/2	4 1/4	3/8
VR 3500 X 4250 MF	3 1/2	4 1/4	3/8
VR 3500 X 4500 FF	3 1/2	4 1/2	1/2
VR 3500 X 4500 MF	3 1/2	4 1/2	1/2
VR 3500 X 4500 VF	3 1/2	4 1/2	1/2
VR 3750 X 4250 VF	3 3/4	4 1/4	1/4
VR 3750 X 4500 VF	3 3/4	4 1/2	3/8
VR 3875 X 4375 FF	3 7/8	4 3/8	1/4
VR 3875 X 4375 MF	3 7/8	4 3/8	1/4
VR 3875 X 4375 VF	3 7/8	4 3/8	1/4
VR 3875 X 4500 VF	3 7/8	4 1/2	5/16
VR 4000 X 4500 FF	4	4 1/2	1/4
VR 4000 X 4500 MF	4	4 1/2	1/4
VR 4000 X 4500 VF	4	4 1/2	1/4
VR 4000 X 4500 VH	4	4 1/2	1/4
VR 4000 X 4750 FF	4	4 3/4	3/8
VR 4000 X 4750 MF	4	4 3/4	3/8
VR 4000 X 4750 VF	4	4 3/4	3/8
VR 4000 X 4875 FF	4	4 7/8	7/16
VR 4000 X 4875 MF	4	4 7/8	7/16
VR 4000 X 4875 VF	4	4 7/8	7/16
VR 4000 X 5000 FF	4	5	1/2
VR 4000 X 5000 MF	4	5	1/2
VR 4000 X 5000 VF	4	5	1/2
VR 4250 X 5000 FF	4 1/4	5	3/8

Part Number	Inside Diameter (Inches)	Outside Diameter (Inches)	Cross Section (Inches)
VR 4250 X 5000 MF	4 1/4	5	3/8
VR 4250 X 5000 VF	4 1/4	5	3/8
VR 4250 X 5250 FF	4 1/4	5 1/4	1/2
VR 4250 X 5250 MF	4 1/4	5 1/4	1/2
VR 4250 X 5250 VF	4 1/4	5 1/4	1/2
VR 4500 X 5000 FF	4 1/2	5	1/4
VR 4500 X 5000 MF	4 1/2	5	1/4
VR 4500 X 5000 VF	4 1/2	5	1/4
VR 4500 X 5000 VH	4 1/2	5	1/4
VR 4500 X 5375 FF	4 1/2	5 3/8	7/16
VR 4500 X 5375 MF	4 1/2	5 3/8	7/16
VR 4500 X 5375 VF	4 1/2	5 3/8	7/16
VR 4750 X 5750 FF	4 3/4	5 3/4	1/2
VR 4750 X 5750 MF	4 3/4	5 3/4	1/2
VR 4750 X 5750 VF	4 3/4	5 3/4	1/2
VR 5000 X 5500 FF	5	5 1/2	1/4
VR 5000 X 5500 MF	5	5 1/2	1/4
VR 5000 X 5500 VF	5	5 1/2	1/4
VR 5000 X 5500 VH	5	5 1/2	1/4
VR 5000 X 5750 FF	5	5 3/4	3/8
VR 5000 X 5750 MF	5	5 3/4	3/8
VR 5000 X 5750 VF	5	5 3/4	3/8
VR 5000 X 5750 VF	5	5 3/4	3/8
VR 5000 X 5750 VF	5	5 3/4	3/8
VR 5000 X 5750 VF	5	5 3/4	3/8
VR 5000 X 5750 VF	5	5 3/4	3/8
VR 5000 X 6000 FF	5	6	1/2
VR 5000 X 6000 MF	5	6	1/2
VR 5000 X 6000 VF	5	6	1/2
VR 5250 X 6000 FF	5 1/4	6	3/8
VR 5250 X 6250 FF	5 1/4	6 1/4	1/2
VR 5250 X 6250 MF	5 1/4	6 1/4	1/2
VR 5250 X 6250 VF	5 1/4	6 1/4	1/2
VR 5500 X 6000 FF	5 1/2	6	1/4
VR 5500 X 6000 MF	5 1/2	6	1/4
VR 5500 X 6000 VF	5 1/2	6	1/4
VR 5500 X 6500 FF	5 1/2	6 1/2	1/2
VR 5500 X 6500 MF	5 1/2	6 1/2	1/2
VR 5500 X 6500 VF	5 1/2	6 1/2	1/2
VR 6000 X 6500 FF	6	6 1/2	1/4
VR 6000 X 6500 MF	6	6 1/2	1/4
VR 6000 X 6500 VF	6	6 1/2	1/4
VR 6000 X 7000 FF	6	7	1/2
VR 6000 X 7000 MF	6	7	1/2
VR 6000 X 7000 VF	6	7	1/2
VR 6500 X 7000 FF	6 1/2	7	1/4
VR 6500 X 7000 MF	6 1/2	7	1/4
VR 6500 X 7000 VF	6 1/2	7	1/4
VR 7000 X 7500 FF	7	7 1/2	1/4
VR 7000 X 7500 MF	7	7 1/2	1/4
VR 7000 X 7500 VF	7	7 1/2	1/4
VR 7500 X 8000 FF	7 1/2	8	1/4
VR 7500 X 8000 MF	7 1/2	8	1/4
VR 7500 X 8000 VF	7 1/2	8	1/4
VR 8000 X 8500 FF	8	8 1/2	1/4
VR 8000 X 8500 MF	8	8 1/2	1/4
VR 8000 X 8500 VF	8	8 1/2	1/4

For availability of sizes not listed, please inquire.

Piston Cups

Piston Cups are primarily used on piston heads, plungers or rams in hydraulic or pneumatic service. Its mechanical sealing surface is at its periphery.



Piston Cups are commonly used because of economical cost, excellent service life, efficient assemble, universal acceptance, and simple accessories.

Homogeneous Piston Cups are recommended to handle low pressures (under 150 psi) in air, water, hydraulic fluids, and lubricating oils. Homogeneous Piston Cups stocked by APG are 80 Durometer Nitrile. They are also available in other homogeneous materials such as EPR, Fluoroelastomer, and Silicone.

Fabric reinforced Piston Cups prevent extrusion in medium pressure installations (up to 1000 psi) or where diametrical clearances are greater.

Piston Cup Installation Data

Figure 1 shows a Piston Cups packing (P) attached directly to a ram (R) without the use of a separate backing plate.

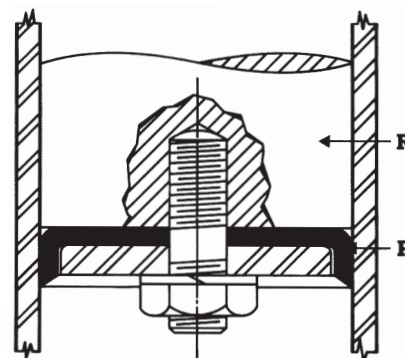
This is a proper method, as long as the rules of good design are observed. The cylinder should be correctly finished to close tolerances and the ram of a size and material that can be finished to leave only a minimum working clearance between it and the cylinder wall. The cylinder and ram must be of suitable material so that no scoring of the cylinder will take place.

Due to the nature of the work being done by a ram of this type, wear is inevitable and usually occurs to a great extent on one side. When this wear has progressed to a certain degree, the Piston Cup packing will not be properly supported.

To insure lip contact, Piston Cups generally are designed with the heel .010"-.015" under nominal O.D., and the lip diameter is .020"-.030" over nominal O.D. This insures heel clearance and full lip contact.

Heel clearance is needed so full pressure is not carried by this narrow area, or it wears excessively. Clearance between the piston and cylinder wall must be minimized to prevent extrusion at the cup's heel.

The seal between the bottom of the cup and the piston head is a compression seal, created by bolting or otherwise fastening the cup between the piston head (or backing plate) and follower plate. Do not over-tighten the follower nut especially when using homogenous Piston Cups. Over-tightening will cause heel to extrude cause premature failure.



**Figure 1
Piston Cup
Attached to Ram**

Piston Cup packings are installed with the sealing lips toward the pressure medium, thus the mechanical seal between the piston and the cylinder wall for which the cup is designed is created by the pressure applied against the cup. In the dynamic seal area indicated in Figure 2, make sure there is enough compression, with no gaps, to insure a seal. It is also important to be sure that the heel of the Piston Cup is thick enough to create compression between the areas of B and C.

Figure 2 illustrates two Piston Cup packings (A and A) which are installed back to back against a common backing plate C in a double-acting cylinder. B serves as the follower plate to compress the static seal. A good solid plate is provided which is a piston head. Packings should not be installed without a backing plate between them.

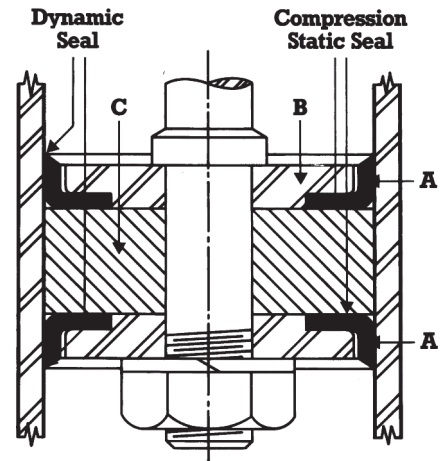


Figure 2
Proper Installation
of Piston Cups for
Double-Acting Piston

Piston Cup Dimensional Data

Homogenous Nitrile 80 Durometer

Part Number	Outside Diameter (inches)	Inside* Diameter (inches)	Height (inches)	Thickness (inches)
K52	1/2	(S)	1/2	1/32
K67	5/8	(S)	1/2	3/32
K101	1	(S)	1/2	1/8
K125	1-1/4	(S)	1/2	1/8
K138	1-3/8	(S)	7/16	1/8
K152	1-1/2	(S)	1/2	1/8
K176	1-3/4	(S)	1/2	1/8
K204	2	(S)	1/2	1/8
K226	2-1/4	(S)	1/2	1/8
K238	2-3/8	(S)	1/2	1/8
K251	2-1/2	(S)	1/2	1/8
K262	2-5/8	(S)	1/2	1/8
K276	2-3/4	(S)	1/2	1/8
K288	2 7/8	(S)	1/2	1/8
K303	3	(S)	1/2	1/8
K325	3-1/4	(S)	5/8	5/32
K349	3-1/2	(S)	1/2	1/8
K351	3-1/2	(S)	5/8	5/32
K362	3-5/8	(S)	5/8	5/32
K375	3-3/4	(S)	3/4	3/16
K400	4	(S)	3/4	3/16
K402	4	(S)	1/2	1/8
K403	4	(S)	5/8	5/32
K449	4-1/2	(S)	5/8	5/32
K475	4-3/4	(S)	3/4	5/32
K502	5	(S)	3/4	3/16
K550	5-1/2	(S)	3/4	3/16
K603	6	(S)	3/4	3/16

* The "S" in the I.D. column indicates that those items are stocked in a solid configuration, and any I.D. can be cut with a nominal charge.

Note: For availability of additional sizes, please inquire.

Fabric Reinforced Nitrile

Part Number	Outside Diameter (inches)	Inside* Diameter (inches)	Height (inches)	Thickness (inches)
K50	1/2	(S)	1/2	1/8
K62	5/8	(S)	9/32	3/32
K77	3/4	(S)	5/16	1/8
K100	1	(S)	1/2	1/8
K102	1	(S)	7/16	3/32
K103	1	(S)	1/4	1/8
K123	1 1/4	(S)	7/16	3/32
K124	1 1/4	(S)	1/2	1/8
K137	1 3/8	(S)	1/2	1/8
K150	1 1/2	(S)	1/2	1/8
K150 - 375	1 1/2	3/8	1/2	1/8
K150 - 750	1 1/2	3/4	1/2	1/8
K163	1 5/8	(S)	1/2	1/8
K174	1 3/4	(S)	3/8	1/8
K175	1 3/4	(S)	1/2	1/8
K203	2	(S)	1/2	1/8
K203 - 375	2	3/8	1/2	1/8
K203 - 500	2	1/2	1/2	1/8
K203 - 625	2	5/8	1/2	1/8
K203 - 750	2	3/4	1/2	1/8
K225	2 1/4	(S)	1/2	1/8
K237	2 3/8	(S)	1/2	1/8
K250	2 1/2	(S)	1/2	1/8
K250 - 375	2 1/2	3/8	1/2	1/8
K250 - 500	2 1/2	1/2	1/2	1/8
K250 - 750	2 1/2	3/4	1/2	1/8
K275	2 3/4	(S)	1/2	1/8
K287	2 7/8	(S)	1/2	1/8
K300	3	(S)	5/8	5/32
K300 - 625	3	5/8	1/2	1/8
K300 - 1000	3	1	5/8	5/32
K300 - 1375	3	1 3/8	5/8	5/32
K300 - 1500	3	1 1/2	5/8	5/32
K300 - 1625	3	1 5/8	5/8	5/32
K302	3	(S)	1/2	1/8
K324 - 875	3 1/4	7/8	5/8	5/32
K327	3 1/4	(S)	5/8	3/16
K327 - 875	3 1/4	7/8	5/8	3/16
K350	3 1/2	(S)	5/8	5/32
K350 - 500	3 1/2	1/2	5/8	5/32
K350 - 750	3 1/2	3/4	5/8	5/32
K353	3 1/2	(S)	1/2	1/8
K376	3 3/4	(S)	5/8	1/8
K401 - 500	4	1/2	5/8	5/32
K401 - 625	4	5/8	5/8	5/32
K401 - 1500	4	1 1/2	5/8	5/32
K404	4	(S)	1/2	1/8
K407	4	(S)	3/4	3/16
K425	4 1/4	(S)	5/8	5/32
K450	4 1/2	(S)	5/8	5/32
K450 - 750	4 1/2	3/4	5/8	5/32
K450 - 2500	4 1/2	2 1/2	5/8	5/32
K503	5	(S)	3/4	3/16
K503 - 1000	5	1	3/4	3/16
K525	5 1/4	(S)	3/4	3/16
K601	6	(S)	3/4	3/16
K601 - 500	6	1/2	3/4	3/16
K601 - 2750	6	2 3/4	3/4	3/16

Metric Compact Piston Seals

Style ERKO

Double-acting three piece piston seal. 80 Durometer Nitrile with fabric reinforced Nitrile and Nylon guide rings. The sealing action is effected by the fabric reinforced Nitrile member at the dynamic side. Lubricants such as oil and grease are able to penetrate the fabric and allow the seal to be highly wear resistant. Can easily be to one piece pistons.



Style EZE

Double-acting three piece piston seal. 80 Durometer Nitrile with fabric reinforced Nitrile and Nylon guide rings. Consists of a solid rubber element that is reinforced with fabric on both sides. This gives the seal excellent resistance to pressure surges.



Style EZM

Double-acting five piece piston seal. 80 Durometer Nitrile with Hytrel back-up rings and Nylon guide rings. Consists of a Nitrile rubber sealing element that effects both static and dynamic sealing. The back-up rings and the guide rings are of the split type. The low profile of the guide rings provides simple installation. Not suitable for retaining applications.



Style EZW

Double-acting three piece piston seal. 80 Durometer Nitrile with fabric reinforced Nitrile and Nylon guide rings. Heavy duty seal for multi-piece pistons. The robust profile and the sturdy right angle of the back-up/support rings give the seal high resistance to peak pressures and pressure surges. Rated to 7500 psi.



Style L43

Double-acting five piece piston seal. 80 Durometer Nitrile with Hytrel back-up rings and Nylon guide rings. The hardness of the materials used in the construction of each component of the seal increases from the inside component to the outside component. As a result, the performance of each individual component is optimized in performing the individual functions of sealing, bridging the gap, and guidance within the cylinder tube.



Contact Sales For Price and Availability

Metric Oil Seals

Low pressure seals for rotating shafts. APG stocks Oil Seals in both Nitrile and Fluoroelastomer Compounds.

Type R

The most popular type in today's industry. Available in almost all inch and metric sizes. Meets DIN 3760-A standard.



Type RST

Rubber covered oil seal with extra dust lip to prevent contamination from penetrating the system. Very popular type of oil seal that is available in many inch and metric sizes.



Type RZV

Springless oil seal with compact cross section developed to seal needle bearings. Good grease seal. Allows very compact constructions.



Type MZV

Metal cased springless oil seal with compact cross section developed to seal needle bearings. Good grease seal. Allows very compact constructions.



Type MST

Very popular type of oil seal with a single metal case and extra dust lip to prevent contamination from penetrating the system. If desired size is not available in MST, an RST may be used in most applications.



Metric Oil Seal Popular Interchanges

APG	R	RST	RZV	MZV	MST
Chicago Rawhide	HMS4	HMSA7		HM14	CRWA1
Dichtomatik	WA	WAS	WAO	WB0	WBS
Dichta	A	AS	A-O	DINA	BS
DIN 3760	A	AS			
Gaco	A	FA			
Garlock	92	94	91		78
Goetze	827N	827S	827 NO	822 NO	822 S
Kaco	DG	DGS	DE	DC	DFS
National	35	32	34	31	47
NOK	SC	TC	VC	VB	TB
Simrit/Fruenberg	BA	BASL	BAOF	B10F	B1SL
Stefa	CB	CC	CD		BC
Transcom	SC	TC	VC	VB	TB

Metric Nitrile Oil Seal Dimensional Data

Part Number	Dimensions			Part Number	Dimensions		
	Millimeters				Millimeters		
	Inside Diameter	Outside Diameter	Width		Inside Diameter	Outside Diameter	Width
MOS004 - 008 - 02 - R	4	8	2	MOS011 - 011 - 017 - R	11	17	4
MOS004 - 016 - 06 - R	4	16	6	MOS011 - 022 - 07 - RST	11	22	7
MOS005 - 015 - 06 - R	5	15	6	MOS011 - 011 - 026 - R	11	26	7
MOS006 - 010 - 02 - R	6	10	2	MOS012 - 016 - 03 - MZV	12	16	3
MOS006 - 010 - 02 - RZV	6	10	2	MOS012 - 016 - 03 - RZV	12	16	3
MOS006 - 015 - 06 - R	6	15	6	MOS012 - 017 - 02 - RZV	12	17	2
MOS006 - 015 - 07 - R	6	15	7	MOS012 - 018 - 03 - RZV	12	18	3
MOS006 - 016 - 07 - R	6	16	7	MOS012 - 019 - 03 - RZV	12	19	3
MOS006 - 019 - 06 - R	6	19	6	MOS012 - 019 - 05 - R	12	19	5
MOS006 - 019 - 07 - R	6	19	7	MOS012 - 020 - 04 - RST	12	20	4
MOS006 - 022 - 07 - R	6	22	7	MOS012 - 020 - 05 - R	12	20	5
MOS007 - 016 - 07 - R	7	16	7	MOS012 - 020 - 05 - RST	12	20	5
MOS007 - 019 - 06 - R	7	19	6	MOS012 - 020 - 07 - R	12	20	7
MOS007 - 022 - 07 - R	7	22	7	MOS012 - 021 - 04 - R	12	21	4
MOS007 - 022 - 07 - RST	7	22	7	MOS012 - 022 - 04 - R	12	22	4
MOS007 - 022 - 08 - R	7	22	8	MOS012 - 022 - 04.5 - R	12	22	4.5
MOS008 - 012 - 03 - RZV	8	12	3	MOS012 - 022 - 05 - R	12	22	5
MOS008 - 014 - 04 - R	8	14	4	MOS012 - 022 - 05 - RST	12	22	5
MOS008 - 015 - 03 - RZV	8	15	3	MOS012 - 022 - 06 - RST	12	22	6
MOS008 - 016 - 07 - R	8	16	7	MOS012 - 022 - 07 - M	12	22	7
MOS008 - 016 - 07 - RST	8	15	7	MOS012 - 022 - 07 - R	12	22	7
MOS008 - 018 - 05 - R	8	18	5	MOS012 - 022 - 07 - RST	12	22	7
MOS008 - 020 - 05 - RST	8	20	5	MOS012 - 022 - 08 - R	12	22	8
MOS008 - 022 - 07 - R	8	22	7	MOS012 - 023 - 08 - RST	12	23	8
MOS008 - 022 - 07 - RST	8	22	7	MOS012 - 024 - 06 - R	12	24	6
MOS008 - 022 - 08 - R	8	22	8	MOS012 - 024 - 07 - R	12	24	7
MOS008 - 024 - 07 - R	8	24	7	MOS012 - 024 - 07 - RST	12	24	7
MOS009 - 016 - 03 - RZV	9	16	3	MOS012 - 024 - 07 - RST	12	24	7
MOS009 - 017 - 04 - M	9	17	4	MOS012 - 025 - 05 - R	12	25	5
MOS009 - 019 - 05 - RST	9	19	5	MOS012 - 025 - 07 - RST	12	25	7
MOS009 - 022 - 07 - R	9	22	7	MOS012 - 025 - 08 - R	12	25	8
MOS009 - 024 - 07 - R	9	24	7	MOS012 - 025 - 10 - RST	12	25	10
MOS009 - 026 - 07 - R	9	26	7	MOS012 - 026 - 07 - R	12	26	7
MOS010 - 014 - 03 - RZV	10	14	3	MOS012 - 026 - 07 - RST	12	26	7
MOS010 - 016 - 04 - MZV	10	16	4	MOS012 - 026 - 08 - R	12	26	8
MOS010 - 016 - 04 - R	10	16	4	MOS012 - 028 - 07 - R	12	28	7
MOS010 - 016 - 05 - R	10	16	5	MOS012 - 028 - 07 - RST	12	28	7
MOS010 - 017 - 05 - M	10	17	5	MOS012 - 028 - 08 - RST	12	28	8
MOS010 - 018 - 05 - R	10	18	5	MOS012 - 030 - 10 - R	12	30	10
MOS010 - 018 - 06 - R	10	18	6	MOS012 - 030 - 07 - R	12	30	7
MOS010 - 019 - 07 - R	10	19	7	MOS012 - 030 - 08 - R	12	30	8
MOS010 - 020 - 04 - R	10	20	4	MOS012 - 032 - 07 - R	12	32	7
MOS010 - 020 - 05 - RST	10	20	5	MOS013 - 022 - 05 - R	13	22	5
MOS010 - 020 - 07 - RST	10	20	7	MOS013 - 025 - 07 - R	13	25	7
MOS010 - 022 - 06 - R	10	22	6	MOS013 - 026 - 05 - R	13	26	5
MOS010 - 022 - 06 - RST	10	22	6	MOS013 - 026 - 07 - RST	13	26	7
MOS010 - 022 - 07 - R	10	22	7	MOS013 - 030 - 08 - R	13	30	8
MOS010 - 022 - 07 - RST	10	22	7	MOS014 - 020 - 05 - R	14	20	5
MOS010 - 024 - 07 - R	10	24	7	MOS014 - 020 - 05 - RZV	14	20	5
MOS010 - 024 - 07 - RST	10	24	7	MOS014 - 022 - 04 - R	14	22	4
MOS010 - 024 - 07 - RST	10	24	7	MOS014 - 022 - 05 - R	14	22	5
MOS010 - 026 - 07 - R	10	26	7	MOS014 - 022 - 05 - RST	14	22	5
MOS010 - 026 - 07 - RSS	10	26	7	MOS014 - 024 - 05 - RST	14	24	5
MOS010 - 028 - 07 - R	10	28	7	MOS014 - 024 - 07 - R	14	24	7
MOS010 - 030 - 07 - R	10	30	7	MOS014 - 024 - 07 - RST	14	24	7
MOS010 - 030 - 08 - R	10	30	8	MOS014 - 025 - 07 - R	14	25	7

For availability of additional sizes not listed, please inquire.

Metric Nitrile Oil Seal Dimensional Data (Continued)

Part Number	Dimensions			Part Number	Dimensions		
	Millimeters				Millimeters		
	Inside Diameter	Outside Diameter	Width		Inside Diameter	Outside Diameter	Width
MOS014 - 026 - 07 - R	14	26	7	MOS016 - 026 - 07 - RST	16	26	7
MOS014 - 026 - 08 - R	14	26	8	MOS016 - 028 - 07 - M	16	28	7
MOS014 - 028 - 07 - R	14	28	7	MOS016 - 028 - 07 - R	16	28	7
MOS014 - 030 - 07 - R	14	30	7	MOS016 - 028 - 07 - RST	16	28	7
MOS014 - 030 - 07 - RST	14	30	7	MOS016 - 028 - 08 - R	16	28	8
MOS014 - 030 - 08 - R	14	30	8	MOS016 - 030 - 07 - R	16	30	7
MOS014 - 032 - 07 - RST	14	32	7	MOS016 - 030 - 07 - RST	16	30	7
MOS014 - 035 - 07 - R	14	35	7	MOS016 - 032 - 07 - R	16	32	7
MOS015 - 021 - 03 - RZV	15	21	3	MOS016 - 035 - 07 - R	16	35	7
MOS015 - 021 - 04 - R	15	21	4	MOS016 - 035 - 07 - RST	16	35	7
MOS015 - 022 - 07 - R	15	22	7	MOS016 - 035 - 10 - R	16	35	10
MOS015 - 022.5 - 07 - R	15	22.5	7	MOS016 - 040 - 10 - R	16	40	10
MOS015 - 023 - 03 - RZV	15	23	3	MOS016 - 040 - 10 - RST	16	40	10
MOS015 - 024 - 05 - R	15	24	5	MOS017 - 024 - 07 - R	17	24	7
MOS015 - 024 - 07 - R	15	24	7	MOS017 - 025 - 03 - RZV	17	25	3
MOS015 - 024 - 07 - RST	15	24	7	MOS017 - 026 - 06 - R	17	26	6
MOS015 - 025 - 04 - RX	15.00	25.50	4.60	MOS017 - 026 - 07 - R	17	26	7
MOS015 - 025 - 05 - R	15	25	5	MOS017 - 027 - 06 - R	17	27	6
MOS015 - 025 - 07 - RST	15	25	7	MOS017 - 027 - 07 - R	17	27	7
MOS015 - 026 - 07 - R	15	26	7	MOS017 - 028 - 06 - R	17	28	6
MOS015 - 026 - 07 - RST	15	26	7	MOS017 - 028 - 07 - M	17	28	7
MOS015 - 027 - 07 - R	15	27	7	MOS017 - 028 - 07 - R	17	28	7
MOS015 - 028 - 07 - R	15	28	7	MOS017 - 028 - 07 - RST	17	28	7
MOS015 - 028 - 07 - RST	15	28	7	MOS017 - 029 - 05 - R	17	29	5
MOS015 - 030 - 04 - RX	15	30	4.50	MOS017 - 030 - 06 - RST	17	30	6
MOS015 - 030 - 05 - R	15	30	5	MOS017 - 030 - 07 - M	17	30	7
MOS015 - 030 - 05 - RST	15	30	5	MOS017 - 030 - 07 - R	17	30	7
MOS015 - 030 - 07 - R	15	30	7	MOS017 - 030 - 07 - RST	17	30	7
MOS015 - 030 - 07 - RST	15	30	7	MOS017 - 030 - 08 - R	17	30	8
MOS015 - 030 - 08 - R	15	30	8	MOS017 - 032 - 07 - R	17	32	7
MOS015 - 030 - 10 - R	15	30	10	MOS017 - 032 - 07 - RST	17	32	7
MOS015 - 035 - 05 - R	15	35	5	MOS017 - 032 - 08 - RST	17	32	8
MOS015 - 032 - 05 - RX	15	32	5.50	MOS017 - 033 - 08 - R	17	33	8
MOS015 - 032 - 07 - R	15	32	7	MOS017 - 034 - 04 - R	17	34	4
MOS015 - 032 - 07 - RST	15	32	7	MOS017 - 035 - 06 - RST	17	35	6
MOS015 - 035 - 07 - R	15	35	7	MOS017 - 035 - 07 - R	17	35	7
MOS015 - 035 - 07 - RST	15	35	7	MOS017 - 035 - 07 - RST	17	35	7
MOS015 - 035 - 08 - R	15	35	8	MOS017 - 035 - 08 - R	17	35	8
MOS015 - 035 - 10 - R	15	35	10	MOS017 - 035 - 08 - RST	17	35	8
MOS015 - 035 - 10 - RST	15	35	10	MOS017 - 035 - 10 - R	17	35	10
MOS015 - 040 - 10 - R	15	40	10	MOS017 - 037 - 07 - R	17	37	7
MOS015 - 042 - 07 - R	15	42	7	MOS017 - 037 - 07 - RST	17	37	7
MOS015 - 042 - 07 - RST	15	42	7	MOS017 - 038 - 07 - RST	17	38	7
MOS015 - 042 - 08 - R	15	42	8	MOS017 - 040 - 07 - R	17	40	7
MOS015 - 042 - 10 - R	15	42	10	MOS017 - 040 - 07 - RST	17	40	7
MOS016 - 022 - 03 - RZV	16	22	3	MOS017 - 040 - 10 - R	17	40	10
MOS016 - 022 - 04 - R	16	22	4	MOS017 - 047 - 08 - R	17	47	8
MOS016 - 022 - 06 - MZV	16	22	6	MOS017 - 047 - 10 - R	17	47	10
MOS016 - 024 - 03 - RZV	16	24	3	MOS018 - 024 - 03 - RZV	18	24	3
MOS016 - 024 - 04 - R	16	24	4	MOS018 - 024 - 04 - MSS	18	24	4
MOS016 - 024 - 05 - R	16	24	5	MOS018 - 025 - 07 - R	18	25	7
MOS016 - 024 - 06 - RST	16	24	6	MOS018 - 026 - 04 - RZV	18	26	4
MOS016 - 024 - 07 - R	16	24	7	MOS018 - 028 - 06 - R	18	28	6
MOS016 - 025 - 04 - MZV	16	25	4	MOS018 - 028 - 07 - R	18	28	7
MOS016 - 026 - 07 - R	16	26	7	MOS018 - 030 - 07 - R	18	30	7

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Metric Nitrile Oil Seal Dimensional Data (Continued)

Part Number	Dimensions			Part Number	Dimensions		
	Millimeters				Millimeters		
	Inside Diameter	Outside Diameter	Width		Inside Diameter	Outside Diameter	Width
MOS018 - 030 - 07 - RST	18	30	7	MOS020 - 038 - 08 - R	20	38	8
MOS018 - 032 - 06 - RST	18	32	6	MOS020 - 038 - 08 - RST	20	38	8
MOS018 - 032 - 07 - R	18	32	7	MOS020 - 040 - 07 - R	20	40	7
MOS018 - 032 - 08 - R	18	32	8	MOS020 - 040 - 07 - RST	20	40	7
MOS018 - 032 - 08 - RST	18	32	8	MOS020 - 040 - 08 - R	20	40	8
MOS018 - 035 - 06 - RST	18	35	6	MOS020 - 040 - 10 - R	20	40	10
MOS018 - 035 - 07 - R	18	35	7	MOS020 - 040 - 10 - RST	20	40	10
MOS018 - 035 - 08 - R	18	35	8	MOS020 - 042 - 06 - R	20	42	6
MOS018 - 035 - 10 - R	18	35	10	MOS020 - 042 - 07 - R	20	42	7
MOS018 - 040 - 07 - R	18	40	7	MOS020 - 042 - 07 - RST	20	42	7
MOS018 - 040 - 10 - R	18	40	10	MOS020 - 042 - 10 - R	20	42	10
MOS019 - 025 - 03 - MXV	19	25	3	MOS020 - 042 - 10 - RST	20	42	10
MOS019 - 027 - 06 - R	19	27	6	MOS020 - 045 - 08 - RST	20	45	8
MOS019 - 030 - 07 - M	19	30	7	MOS020 - 045 - 10 - R	20	45	10
MOS019 - 030 - 07 - RST	19	30	7	MOS020 - 047 - 07 - R	20	47	7
MOS019 - 032 - 07 - R	19	32	7	MOS020 - 047 - 07 - RST	20	47	7
MOS019 - 032 - 07 - RST	19	32	7	MOS020 - 047 - 08 - RST	20	47	8
MOS019 - 032 - 08 - RST	19	32	8	MOS020 - 047 - 10 - R	20	47	10
MOS019 - 035 - 07 - R	19	35	7	MOS020 - 047 - 10 - RST	20	47	10
MOS019 - 035 - 10 - R	19	35	10	MOS020 - 048 - 09 - R	20	48	9
MOS019 - 036 - 08 - R	19	36	8	MOS020 - 052 - 07 - R	20	52	7
MOS019 - 040 - 08 - R	19	40	8	MOS020 - 052 - 10 - R	20	52	10
MOS019 - 040 - 10 - R	19	40	10	MOS022 - 030 - 07 - R	22	30	7
MOS019 - 047 - 07 - RST	19	47	7	MOS022 - 032 - 05 - R	22	32	5
MOS020 - 026 - 04 - MZV	20	26	4	MOS022 - 032 - 07 - M	22	32	7
MOS020 - 026 - 04 - RST	20	26	4	MOS022 - 032 - 07 - R	22	32	7
MOS020 - 026 - 04 - RZV	20	26	4	MOS022 - 032 - 07 - RST	22	32	7
MOS020 - 028 - 04 - MZV	20	28	4	MOS022 - 034 - 05 - RX	22	34	5
MOS020 - 028 - 04 - R	20	28	4	MOS022 - 034 - 07 - RST	22	34	7
MOS020 - 028 - 06 - R	20	28	6	MOS022 - 035 - 05 - R	22	35	5
MOS020 - 028 - 07 - R	20	28	7	MOS022 - 035 - 06 - R	22	35	6
MOS020 - 030 - 04 - RX	20	30	4.70	MOS022 - 035 - 07 - R	22	35	7
MOS020 - 030 - 05 - R	20	30	5	MOS022 - 035 - 07 - RST	22	35	7
MOS020 - 030 - 05 - RST	20	30	5	MOS022 - 035 - 08 - R	22	35	8
MOS020 - 030 - 07 - R	20	30	7	MOS022 - 035 - 08 - RST	22	35	8
MOS020 - 030 - 07 - RST	20	30	7	MOS022 - 035 - 10 - R	22	35	10
MOS020 - 031 - 05 - RZV	20	31	5	MOS022 - 037 - 07 - R	22	37	7
MOS020 - 032 - 07 - R	20	32	7	MOS022 - 038 - 07 - R	22	38	7
MOS020 - 032 - 07 - RST	20	32	7	MOS022 - 038 - 08 - RST	22	38	8
MOS020 - 032 - 08 - RST	20	32	8	MOS022 - 040 - 07 - R	22	40	7
MOS020 - 033 - 08 - R	20	33	8	MOS022 - 040 - 07 - RST	22	40	7
MOS020 - 033 - 09 - R	20	33	9	MOS022 - 040 - 08 - R	22	40	8
MOS020 - 034 - 07 - RST	20	34	7	MOS022 - 040 - 08 - RST	22	40	8
MOS020 - 034 - 07 - RSTX	20	34	7	MOS022 - 040 - 10 - R	22	40	10
MOS020 - 035 - 06 - R	20	35	6	MOS022 - 042 - 07 - R	22	42	7
MOS020 - 035 - 07 - R	20	35	7	MOS022 - 042 - 07 - RST	22	42	7
MOS020 - 035 - 07 - RST	20	35	7	MOS022 - 042 - 10 - R	22	42	10
MOS020 - 035 - 08 - R	20	35	8	MOS022 - 043 - 08 - R	22	43	8
MOS020 - 035 - 08 - RST	20	35	8	MOS022 - 045 - 07 - R	22	45	7
MOS020 - 035 - 10 - R	20	35	10	MOS022 - 047 - 07 - R	22	47	7
MOS020 - 035 - 10 - RST	20	35	10	MOS022 - 047 - 10 - R	22	47	10
MOS020 - 036 - 07 - R	20	36	7	MOS022 - 052 - 10 - RST	22	52	10
MOS020 - 037 - 08 - R	20	37	8	MOS023 - 035 - 06 - R	23	35	6
MOS020 - 037 - 10 - D	20	37	10	MOS023 - 038 - 07 - R	23	38	7
MOS020 - 038 - 07 - R	20	38	7	MOS023 - 040 - 10 - R	23	40	10

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Metric Nitrile Oil Seal Dimensional Data (Continued)

Part Number	Dimensions			Part Number	Dimensions		
	Millimeters				Millimeters		
	Inside Diameter	Outside Diameter	Width		Inside Diameter	Outside Diameter	Width
MOS023 - 047 - 07 - RST	23	47	7	MOS025 - 040 - 08 - RST	25	40	8
MOS024 - 032 - 04 - RZV	24	32	4	MOS025 - 040 - 10 - R	25	40	10
MOS024 - 032 - 05 - R	24	32	5	MOS025 - 040 - 10 - RST	25	40	10
MOS024 - 032 - 07 - RST	24	32	7	MOS025 - 041 - 06 - RST	25	41	6
MOS024 - 034 - 07 - R	24	34	7	MOS025 - 042 - 06 - R	25	42	6
MOS024 - 035 - 07 - R	24	35	7	MOS025 - 042 - 07 - R	25	42	7
MOS024 - 035 - 07 - RST	24	35	7	MOS025 - 042 - 07 - RST	25	42	7
MOS024 - 036 - 07 - RST	24	36	7	MOS025 - 042 - 08 - M	25	42	8
MOS024 - 037 - 07 - R	24	37	7	MOS025 - 042 - 08 - R	25	42	8
MOS024 - 038 - 07 - RST	24	38	7	MOS025 - 042 - 08 - RST	25	42	8
MOS024 - 038 - 08 - RST	24	38	8	MOS025 - 042 - 10 - R	25	42	10
MOS024 - 040 - 07 - R	24	40	7	MOS025 - 042 - 10 - RST	25	42	10
MOS024 - 040 - 07 - RST	24	40	7	MOS025 - 044 - 07 - RST	25	44	7
MOS024 - 040 - 10 - R	24	40	10	MOS025 - 045 - 07 - R	25	45	7
MOS024 - 042 - 08 - R	24	42	8	MOS025 - 045 - 07 - RST	25	45	7
MOS024 - 042 - 08 - RST	24	42	8	MOS025 - 045 - 08 - RST	25	45	8
MOS024 - 042 - 10 - R	24	42	10	MOS025 - 045 - 10 - R	25	45	10
MOS024 - 044 - 07 - RST	24	44	7	MOS025 - 045 - 10 - RST	25	45	10
MOS024 - 045 - 08 - RST	24	45	8	MOS025 - 046 - 07 - R	25	46	7
MOS024 - 047 - 07 - R	24	47	7	MOS025 - 047 - 07 - R	25	47	7
MOS024 - 047 - 07 - RST	24	47	7	MOS025 - 047 - 07 - RST	25	47	7
MOS024 - 047 - 08 - RST	24	47	8	MOS025 - 047 - 08 - R	25	47	8
MOS024 - 047 - 10 - R	24	47	10	MOS025 - 047 - 10 - R	25	47	10
MOS024 - 050 - 10 - R	24	50	10	MOS025 - 047 - 10 - RST	25	47	10
MOS024 - 052 - 10 - R	24	52	10	MOS025 - 048 - 08 - R	25	48	8
MOS025 - 031 - 03 - RZV	25	31	3	MOS025 - 050 - 08 - RST	25	50	8
MOS025 - 032 - 04 - RZV	25	32	4	MOS025 - 050 - 10 - R	25	50	10
MOS025 - 032 - 07 - R	25	32	7	MOS025 - 052 - 07 - R	25	52	7
MOS025 - 032 - 07 - RST	25	32	7	MOS025 - 052 - 07 - RST	25	52	7
MOS025 - 033 - 04 - RZV	25	33	4	MOS025 - 052 - 08 - R	25	52	8
MOS025 - 033 - 07 - R	25	33	7	MOS025 - 052 - 08 - RST	25	52	8
MOS025 - 035 - 04 - RZV	25	35	4	MOS025 - 052 - 10 - R	25	52	10
MOS025 - 035 - 05 - R	25	35	5	MOS025 - 052 - 10 - RST	25	52	10
MOS025 - 035 - 06 - R	25	35	6	MOS025 - 052 - 12 - R	25	52	12
MOS025 - 035 - 06 - RST	25	35	6	MOS025 - 055 - 09 - RST	25	55	9
MOS025 - 035 - 07 - M	25	35	7	MOS025 - 062 - 07 - R	25	62	7
MOS025 - 035 - 07 - R	25	35	7	MOS025 - 062 - 08 - R	25	62	8
MOS025 - 035 - 07 - RST	25	35	7	MOS025 - 062 - 10 - R	25	62	10
MOS025 - 035 - 08 - RST	25	35	8	MOS025 - 062 - 10 - RST	25	62	10
MOS025 - 035 - 10 - R	25	35	10	MOS025 - 072 - 07 - R	25	72	7
MOS025 - 036 - 07 - R	25	36	7	MOS026 - 034 - 04 - RZV	26	34	4
MOS025 - 036 - 07 - RST	25	36	7	MOS026 - 036 - 07 - R	26	36	7
MOS025 - 036 - 10 - R	25	36	10	MOS026 - 037 - 07 - R	26	37	7
MOS025 - 037 - 07 - R	25	37	7	MOS026 - 037 - 07 - RST	26	37	7
MOS025 - 037 - 07 - RST	25	37	7	MOS026 - 038 - 05 - RST	26	38	5
MOS025 - 038 - 06 - RST	25	38	6	MOS026 - 038 - 08 - RST	26	38	8
MOS025 - 038 - 07 - R	25	38	7	MOS026 - 038 - 07 - R	26	38	7
MOS025 - 038 - 07 - RST	25	38	7	MOS026 - 040 - 06 - R	26	40	6
MOS025 - 038 - 08 - RST	25	38	8	MOS026 - 040 - 07 - RST	26	40	7
MOS025 - 040 - 05 - RST	25	40	5	MOS026 - 042 - 07 - R	26	42	7
MOS025 - 040 - 06 - R	25	40	6	MOS026 - 042 - 07 - RST	26	42	7
MOS025 - 040 - 07 - M	25	40	7	MOS026 - 042 - 08 - RST	26	42	8
MOS025 - 040 - 07 - R	25	40	7	MOS026 - 047 - 07 - R	26	47	7
MOS025 - 040 - 07 - RST	25	40	7	MOS027 - 035 - 04 - R	27	35	4
MOS025 - 040 - 08 - R	25	40	8	MOS027 - 037 - 07 - R	27	37	7

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Metric Nitrile Oil Seal Dimensional Data (Continued)

Part Number	Dimensions			Part Number	Dimensions		
	Millimeters				Millimeters		
	Inside Diameter	Outside Diameter	Width		Inside Diameter	Outside Diameter	Width
MOS027 - 038 - 07 - RST	27	38	7	MOS030 - 042 - 08 - RST	30	42	8
MOS027 - 040 - 08 - RST	27	40	8	MOS030 - 043 - 08 - M	30	43	8
MOS027 - 040 - 10 - R	27	40	10	MOS030 - 044 - 07 - RST	30	44	7
MOS027 - 041 - 10 - R	27	41	10	MOS030 - 044 - 10 - R	30	44	10
MOS027 - 042 - 10 - R	27	42	10	MOS030 - 045 - 05 - R	30	45	8
MOS027 - 042 - 10 - RST	27	42	10	MOS030 - 045 - 07 - R	30	45	7
MOS027 - 043 - 09 - R	27	43	9	MOS030 - 045 - 07 - RST	30	45	7
MOS027 - 043 - 09 - RST	27	43	9	MOS030 - 045 - 08 - R	30	45	8
MOS027 - 045 - 08 - RST	27	45	8	MOS030 - 045 - 08 - RST	30	45	8
MOS027 - 047 - 07 - R	27	47	7	MOS030 - 045 - 10 - R	30	45	10
MOS027 - 047 - 08 - R	27	47	8	MOS030 - 046 - 07 - RST	30	46	7
MOS027 - 047 - 10 - R	27	47	10	MOS030 - 046 - 08 - RST	30	46	8
MOS027 - 052 - 08 - R	27	52	8	MOS030 - 047 - 05 - R	30	47	5
MOS027 - 052 - 10 - R	27	52	10	MOS030 - 047 - 07 - R	30	47	7
MOS028 - 035 - 04 - RZV	28	35	4	MOS030 - 047 - 07 - RST	30	47	7
MOS028 - 037 - 04 - RZV	28	37	4	MOS030 - 047 - 08 - R	30	47	8
MOS028 - 037 - 06 - MZV	28	37	6	MOS030 - 047 - 08 - RST	30	47	8
MOS028 - 038 - 07 - R	28	38	7	MOS030 - 047 - 10 - R	30	47	10
MOS028 - 038 - 07 - RST	28	38	7	MOS030 - 047 - 10 - RST	30	47	10
MOS028 - 040 - 07 - R	28	40	7	MOS030 - 048 - 08 - R	30	48	8
MOS028 - 040 - 07 - RST	28	40	7	MOS030 - 048 - 08 - RST	30	48	8
MOS028 - 040 - 10 - R	28	40	10	MOS030 - 048 - 10 - R	30	48	10
MOS028 - 042 - 07 - R	28	42	7	MOS030 - 050 - 10 - RST	30	50	10
MOS028 - 042 - 07 - RST	28	42	7	MOS030 - 052 - 12 - RST	30	52	12
MOS028 - 042 - 08 - R	28	42	8	MOS030 - 050 - 07 - R	30	50	7
MOS028 - 042 - 08 - RST	28	42	8	MOS030 - 050 - 08 - R	30	50	8
MOS028 - 042 - 10 - R	28	42	10	MOS030 - 050 - 10 - R	30	50	10
MOS028 - 043 - 10 - R	28	43	10	MOS030 - 052 - 07 - R	30	52	7
MOS028 - 045 - 07 - RST	28	45	7	MOS030 - 052 - 07 - RST	30	52	7
MOS028 - 045 - 08 - R	28	45	8	MOS030 - 052 - 08 - RST	30	52	8
MOS028 - 045 - 10 - RST	28	45	10	MOS030 - 052 - 10 - M	30	52	10
MOS028 - 047 - 06 - RX	28	47	6	MOS030 - 052 - 10 - R	30	52	10
MOS028 - 047 - 07 - R	28	47	7	MOS030 - 052 - 10 - RST	30	52	10
MOS028 - 047 - 07 - RST	28	47	7	MOS030 - 052 - 12 - R	30	52	12
MOS028 - 047 - 10 - R	28	47	10	MOS030 - 054 - 10 - R	30	54	10
MOS028 - 047 - 10 - RST	28	47	10	MOS030 - 055 - 07 - R	30	55	7
MOS028 - 048 - 08 - RST	28	48	8	MOS030 - 055 - 07 - RST	30	55	7
MOS028 - 050 - 10 - R	28	50	10	MOS030 - 055 - 10 - R	30	55	10
MOS028 - 052 - 07 - R	28	52	7	MOS030 - 055 - 10 - RST	30	55	10
MOS028 - 052 - 07 - RST	28	52	7	MOS030 - 056 - 10 - R	30	56	10
MOS028 - 052 - 10 - R	28	52	10	MOS030 - 060 - 10 - R	30	60	10
MOS028 - 052 - 10 - RST	28	52	10	MOS030 - 062 - 07 - R	30	62	7
MOS029 - 046 - 10 - R	29	46	10	MOS030 - 062 - 07 - RST	30	62	7
MOS029 - 047 - 08 - R	29	47	8	MOS030 - 062 - 08 - R	30	62	8
MOS029 - 047 - 10 - R	29	47	10	MOS030 - 062 - 08 - RST	30	62	8
MOS029 - 062 - 10 - R	29	62	10	MOS030 - 062 - 10 - R	30	62	10
MOS030 - 037 - 04 - RZV	30	37	4	MOS030 - 062 - 10 - RST	30	62	10
MOS030 - 040 - 04 - RZV	30	40	4	MOS030 - 062 - 12 - R	30	62	12
MOS030 - 040 - 07 - M	30	40	7	MOS030 - 065 - 10 - R	30	65	10
MOS030 - 040 - 07 - R	30	40	7	MOS030 - 072 - 10 - R	30	72	10
MOS030 - 040 - 07 - RST	30	40	7	MOS030 - 072 - 10 - RST	30	72	10
MOS030 - 040 - 08 - R	30	40	8	MOS031 - 047 - 07 - R	31	47	7
MOS030 - 040 - 10 - R	30	40	10	MOS031 - 052 - 07 - R	31	52	7
MOS030 - 042 - 07 - R	30	42	7	MOS032 - 040 - 07 - R	32	40	7
MOS030 - 042 - 07 - RST	30	42	7	MOS032 - 042 - 04 - RST	32	42	4

For availability of additional sizes not listed, please inquire.

Metric Nitrile Oil Seal Dimensional Data (Continued)

Part Number	Dimensions			Part Number	Dimensions		
	Millimeters				Millimeters		
	Inside Diameter	Outside Diameter	Width		Inside Diameter	Outside Diameter	Width
MOS032 - 042 - 04 - RZV	32	42	4	MOS035 - 047 - 08 - R	35	47	8
MOS032 - 042 - 07 - M	32	42	7	MOS035 - 047 - 10 - R	35	47	10
MOS032 - 042 - 07 - R	32	42	7	MOS035 - 047 - 10 - RST	35	47	10
MOS032 - 042 - 07 - RST	32	42	7	MOS035 - 048 - 08 - R	35	48	8
MOS032 - 044 - 08 - RST	32	44	8	MOS035 - 048 - 08 - RST	35	48	8
MOS032 - 045 - 07 - R	32	45	7	MOS035 - 050 - 07 - R	35	50	7
MOS032 - 045 - 07 - RST	32	45	7	MOS035 - 050 - 07 - RST	35	50	7
MOS032 - 045 - 08 - RST	32	45	8	MOS035 - 050 - 08 - R	35	50	8
MOS032 - 045 - 10 - R	32	45	10	MOS035 - 050 - 08 - RST	35	50	8
MOS032 - 047 - 07 - R	32	47	7	MOS035 - 050 - 10 - R	35	50	10
MOS032 - 047 - 07 - RST	32	47	7	MOS035 - 050 - 10 - RST	35	50	10
MOS032 - 047 - 08 - R	32	47	8	MOS035 - 050 - 12 - R	35	50	12
MOS032 - 047 - 10 - R	32	47	10	MOS035 - 052 - 07 - R	35	52	7
MOS032 - 047 - 10 - RST	32	47	10	MOS035 - 052 - 07 - RST	35	52	7
MOS032 - 048 - 07 - R	32	48	7	MOS035 - 052 - 08 - R	35	52	8
MOS032 - 048 - 08 - RST	32	48	8	MOS035 - 052 - 10 - R	35	52	10
MOS032 - 050 - 08 - R	32	50	8	MOS035 - 052 - 10 - RST	35	52	10
MOS032 - 050 - 10 - R	32	50	10	MOS035 - 052 - 12 - R	35	52	12
MOS032 - 052 - 05 - R	32	52	5	MOS035 - 054 - 10 - R	35	54	10
MOS032 - 052 - 07 - R	32	52	7	MOS035 - 055 - 08 - R	35	55	8
MOS032 - 052 - 07 - RST	32	52	7	MOS035 - 055 - 08 - RST	35	55	8
MOS032 - 052 - 10 - R	32	52	10	MOS035 - 055 - 09 - RST	35	55	9
MOS032 - 052 - 10 - RST	32	52	10	MOS035 - 055 - 10 - R	35	55	10
MOS032 - 052 - 12 - R	32	52	12	MOS035 - 055 - 10 - RST	35	55	10
MOS032 - 054 - 08 - R	32	54	8	MOS035 - 055 - 11 - RST	35	55	11
MOS032 - 055 - 10 - R	32	55	10	MOS035 - 055 - 12 - R	35	55	12
MOS032 - 056 - 10 - R	32	56	10	MOS035 - 056 - 10 - R	35	56	10
MOS032 - 056 - 10 - RST	32	56	10	MOS035 - 056 - 12 - R	35	56	12
MOS032 - 062 - 10 - R	32	62	10	MOS035 - 056 - 12 - RST	35	56	12
MOS032 - 072 - 08 - RST	32	72	8	MOS035 - 058 - 10 - R	35	58	10
MOS032 - 072 - 10 - RST	32	72	10	MOS035 - 058 - 10 - RST	35	58	10
MOS033 - 044 - 08 - RST	33	44	8	MOS035 - 058 - 12 - R	35	58	12
MOS033 - 050 - 08 - R	33	50	8	MOS035 - 060 - 10 - R	35	60	10
MOS033 - 050 - 10 - R	33	50	10	MOS035 - 062 - 07 - R	35	62	7
MOS033 - 052 - 10 - R	33	52	10	MOS035 - 062 - 07 - RST	35	62	7
MOS034 - 045 - 07 - R	34	45	7	MOS035 - 062 - 08 - R	35	62	8
MOS034 - 046 - 10 - R	34	46	10	MOS035 - 062 - 08 - RST	35	62	8
MOS034 - 048 - 08 - R	34	48	8	MOS035 - 062 - 10 - R	35	62	10
MOS034 - 048 - 08 - RST	34	48	8	MOS035 - 062 - 10 - RST	35	62	10
MOS034 - 050 - 10 - R	34	50	10	MOS035 - 062 - 12 - RST	35	62	12
MOS034 - 052 - 07 - RX	34	52	7.50	MOS035 - 065 - 10 - R	35	65	10
MOS034 - 052 - 10 - R	34	52	10	MOS035 - 065 - 12 - R	35	65	12
MOS034 - 053 - 07 - RX	34	53	7	MOS035 - 068 - 06 - R	35	68	6
MOS034 - 054 - 11 - RST	34	54	11	MOS035 - 068 - 10 - R	35	68	10
MOS034 - 055 - 09 - R	34	55	9	MOS035 - 072 - 10 - R	35	72	10
MOS035 - 042 - 04 - MZV	35	42	4	MOS035 - 072 - 10 - RST	35	72	10
MOS035 - 042 - 08 - RST	35	42	8	MOS035 - 072 - 12 - M	35	72	12
MOS035 - 045 - 04 - RZV	35	45	4	MOS035 - 072 - 12 - R	35	72	12
MOS035 - 045 - 06 - R	35	45	6	MOS035 - 072 - 12 - RST	35	72	12
MOS035 - 045 - 07 - R	35	45	7	MOS035 - 080 - 10 - R	35	80	10
MOS035 - 045 - 07 - RST	35	45	7	MOS035 - 080 - 10 - RST	35	80	10
MOS035 - 045 - 10 - R	35	45	10	MOS036 - 047 - 07 - R	36	47	7
MOS035 - 047 - 07 - M	35	47	7	MOS036 - 050 - 07 - R	36	50	7
MOS035 - 047 - 07 - R	35	47	7	MOS036 - 050 - 10 - R	36	50	10
MOS035 - 047 - 07 - RST	35	47	7	MOS036 - 052 - 07 - R	36	52	7

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Metric Nitrile Oil Seal Dimensional Data (Continued)

Part Number	Dimensions			Part Number	Dimensions		
	Millimeters				Millimeters		
	Inside Diameter	Outside Diameter	Width		Inside Diameter	Outside Diameter	Width
MOS036 - 054 - 07 - RST	36	54	7	MOS040 - 052 - 10 - R	40	52	10
MOS036 - 054 - 07 - RX	36	54	7.50	MOS040 - 055 - 07 - R	40	55	7
MOS036 - 056 - 10 - R	36	56	10	MOS040 - 055 - 07 - RST	40	55	7
MOS036 - 058 - 12 - R	36	58	12	MOS040 - 055 - 08 - R	40	55	8
MOS036 - 062 - 07 - R	36	62	7	MOS040 - 055 - 08 - RST	40	55	8
MOS036 - 062 - 07 - RST	36	62	7	MOS040 - 055 - 10 - R	40	55	10
MOS036 - 062 - 10 - R	36	62	10	MOS040 - 056 - 07 - R	40	56	7
MOS036 - 062 - 12 - R	37	62	12	MOS040 - 056 - 07 - RST	40	56	7
MOS036 - 068 - 10 - R	36	68	10	MOS040 - 056 - 08 - R	40	56	8
MOS037 - 047 - 04 - RZV	37	47	4	MOS040 - 056 - 10 - R	40	56	10
MOS037 - 052 - 07 - R	37	52	7	MOS040 - 056 - 10 - RST	40	56	10
MOS037 - 052 - 10 - R	37	52	10	MOS040 - 056 - 12 - R	40	56	12
MOS037 - 052 - 12 - RST	37	52	12	MOS040 - 058 - 08 - RST	40	58	8
MOS037 - 058 - 13 - RST	37	58	13	MOS040 - 058 - 09 - R	40	58	9
MOS037 - 062 - 08 - R	37	62	8	MOS040 - 058 - 10 - R	40	58	10
MOS038 - 048 - 04 - RZV	38	48	4	MOS040 - 058 - 10 - RST	40	58	10
MOS038 - 050 - 07 - M	38	50	7	MOS040 - 058 - 12 - R	40	58	12
MOS038 - 050 - 07 - R	38	50	7	MOS040 - 060 - 07 - R	40	60	7
MOS038 - 050 - 07 - RST	38	50	7	MOS040 - 060 - 10 - R	40	60	10
MOS038 - 052 - 07 - R	38	52	7	MOS040 - 060 - 10 - RST	40	60	10
MOS038 - 052 - 07 - RST	38	52	7	MOS040 - 060 - 12 - R	40	60	12
MOS038 - 052 - 08 - R	38	52	8	MOS040 - 062 - 07 - R	40	62	7
MOS038 - 052 - 08 - RST	38	52	8	MOS040 - 062 - 07 - RST	40	62	7
MOS038 - 052 - 10 - R	38	52	10	MOS040 - 062 - 08 - R	40	62	8
MOS038 - 054 - 07 - RST	38	54	7	MOS040 - 062 - 08 - RST	40	62	8
MOS038 - 055 - 07 - R	38	55	7	MOS040 - 062 - 09 - RST	40	62	9
MOS038 - 055 - 07 - RST	38	55	7	MOS040 - 062 - 10 - R	40	62	10
MOS038 - 055 - 08 - RST	38	55	8	MOS040 - 062 - 10 - RST	40	62	10
MOS038 - 055 - 10 - R	38	55	10	MOS040 - 062 - 12 - R	40	62	12
MOS038 - 055 - 10 - RST	38	55	10	MOS040 - 064 - 12 - RST	40	64	12
MOS038 - 056 - 07 - R	38	56	7	MOS040 - 065 - 10 - R	40	65	10
MOS038 - 056 - 10 - R	38	56	10	MOS040 - 065 - 10 - RST	40	65	10
MOS038 - 056 - 12 - R	38	56	12	MOS040 - 065 - 12 - R	40	65	12
MOS038 - 058 - 10 - R	38	58	10	MOS040 - 068 - 07 - R	40	68	7
MOS038 - 058 - 10 - RST	38	58	10	MOS040 - 068 - 10 - R	40	68	10
MOS038 - 060 - 08 - RST	38	60	8	MOS040 - 068 - 10 - RST	40	68	10
MOS038 - 060 - 10 - R	38	60	10	MOS040 - 070 - 10 - R	40	70	10
MOS038 - 060 - 10 - RST	38	60	10	MOS040 - 070 - 10 - RST	40	70	10
MOS038 - 062 - 07 - R	38	62	7	MOS040 - 070 - 12 - R	40	70	12
MOS038 - 062 - 07 - RST	38	62	7	MOS040 - 072 - 07 - R	40	72	7
MOS038 - 062 - 08 - RST	38	62	8	MOS040 - 072 - 07 - RST	40	72	7
MOS038 - 062 - 10 - R	38	62	10	MOS040 - 072 - 08 - R	40	72	8
MOS038 - 065 - 10 - R	38	65	10	MOS040 - 072 - 10 - R	40	72	10
MOS038 - 070 - 10 - M	38	70	10	MOS040 - 072 - 10 - RST	40	72	10
MOS038 - 072 - 10 - R	38	72	10	MOS040 - 072 - 12 - R	40	72	12
MOS040 - 047 - 04 - RZV	40	47	4	MOS040 - 080 - 10 - R	40	80	10
MOS040 - 050 - 04 - RZV	40	50	4	MOS040 - 080 - 10 - RST	40	80	10
MOS040 - 050 - 07 - RST	40	50	7	MOS040 - 090 - 08 - R	40	90	8
MOS040 - 050 - 08 - R	40	50	8	MOS040 - 090 - 10 - RST	40	90	10
MOS040 - 052 - 05 - RST	40	52	5	MOS040 - 090 - 12 - RST	40	90	12
MOS040 - 052 - 05 - RZV	40	52	5	MOS042 - 055 - 07 - MST	42	55	7
MOS040 - 052 - 06 - R	40	52	6	MOS042 - 055 - 07 - R	42	55	7
MOS040 - 052 - 07 - R	40	52	7	MOS042 - 055 - 07 - RST	42	55	7
MOS040 - 052 - 07 - RST	40	52	7	MOS042 - 055 - 08 - R	42	55	8
MOS040 - 052 - 08 - RST	40	52	8	MOS042 - 055 - 08 - RST	42	55	8

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Metric Nitrile Oil Seal Dimensional Data (Continued)

Part Number	Dimensions			Part Number	Dimensions		
	Millimeters				Millimeters		
	Inside Diameter	Outside Diameter	Width		Inside Diameter	Outside Diameter	Width
MOS042 - 056 - 07 - R	42	56	7	MOS045 - 065 - 12 - RST	45	65	12
MOS042 - 058 - 08 - RST	42	58	8	MOS045 - 068 - 10 - R	45	68	10
MOS042 - 058 - 10 - R	42	58	10	MOS045 - 068 - 12 - R	45	68	12
MOS042 - 060 - 10 - R	42	60	10	MOS045 - 068 - 12 - RST	45	68	12
MOS042 - 060 - 12 - R	42	60	12	MOS045 - 070 - 10 - R	45	70	10
MOS042 - 062 - 07 - R	42	62	7	MOS045 - 070 - 10 - RST	45	70	10
MOS042 - 062 - 07 - RST	42	62	7	MOS045 - 070 - 12 - R	45	70	12
MOS042 - 062 - 08 - R	42	62	8	MOS045 - 072 - 08 - R	45	72	8
MOS042 - 062 - 08 - RST	42	62	8	MOS045 - 072 - 08 - RST	45	72	8
MOS042 - 062 - 10 - R	42	62	10	MOS045 - 072 - 10 - R	45	72	10
MOS042 - 062 - 10 - RST	42	62	10	MOS045 - 072 - 10 - RST	45	72	10
MOS042 - 062 - 12 - R	42	62	12	MOS045 - 072 - 12 - R	45	72	12
MOS042 - 065 - 10 - R	42	65	10	MOS045 - 075 - 08 - RST	45	75	8
MOS042 - 065 - 10 - RST	42	65	10	MOS045 - 075 - 10 - R	45	75	10
MOS042 - 068 - 10 - R	42	68	10	MOS045 - 075 - 10 - RST	45	75	10
MOS042 - 068 - 10 - RST	42	68	10	MOS045 - 080 - 10 - R	45	80	10
MOS042 - 072 - 08 - R	42	72	8	MOS045 - 080 - 10 - RST	45	80	10
MOS042 - 072 - 08 - RST	42	72	8	MOS045 - 080 - 13 - R	45	80	13
MOS042 - 072 - 10 - R	42	72	10	MOS045 - 085 - 10 - R	45	85	10
MOS042 - 080 - 10 - R	42	80	10	MOS045 - 085 - 10 - RST	45	85	10
MOS043 - 060 - 10 - R	43	60	10	MOS045 - 090 - 10 - R	45	90	10
MOS043 - 060 - 10 - RST	43	60	10	MOS046 - 064 - 09 - RST	46	64	9
MOS043 - 062 - 08 - RST	43	62	8	MOS046 - 065 - 09 - RST	46	65	9
MOS043 - 062 - 10 - R	43	62	10	MOS046 - 065 - 10 - R	46	65	10
MOS043 - 065 - 10 - R	43	65	10	MOS047 - 062 - 08 - RX	47	62	8
MOS043 - 066 - 10 - RST	43	66	10	MOS047 - 065 - 10 - R	47	65	10
MOS044 - 060 - 10 - R	44	60	10	MOS048 - 062 - 08 - M	48	62	8
MOS044 - 062 - 08 - RST	44	62	8	MOS048 - 062 - 08 - R	48	62	8
MOS044 - 062 - 10 - RST	44	62	10	MOS048 - 062 - 08 - RST	48	62	8
MOS044 - 065 - 10 - R	44	65	10	MOS048 - 062 - 10 - R	48	62	10
MOS044 - 072 - 10 - R	44	72	10	MOS048 - 065 - 08 - R	48	65	8
MOS045 - 052 - 04 - RZV	45	52	4	MOS048 - 065 - 10 - R	48	65	10
MOS045 - 055 - 07 - M	45	55	7	MOS048 - 065 - 10 - RST	48	65	10
MOS045 - 055 - 07 - R	45	55	7	MOS048 - 068 - 08 - RS	48	68	8
MOS045 - 058 - 07 - R	45	58	7	MOS048 - 068 - 10 - R	48	68	10
MOS045 - 058 - 07 - RST	45	58	7	MOS048 - 068 - 10 - RST	48	68	10
MOS045 - 059 - 10 - R	45	59	10	MOS048 - 070 - 09 - RST	48	70	9
MOS045 - 060 - 06 - RX	45	60	6.50	MOS048 - 070 - 10 - R	48	70	10
MOS045 - 060 - 07 - R	45	60	7	MOS048 - 072 - 07 - RST	48	72	7
MOS045 - 060 - 07 - RST	45	60	7	MOS048 - 072 - 08 - R	48	72	8
MOS045 - 060 - 08 - R	45	60	8	MOS048 - 072 - 08 - RST	48	72	8
MOS045 - 060 - 08 - RST	45	60	8	MOS048 - 072 - 10 - R	48	72	10
MOS045 - 060 - 10 - R	45	60	10	MOS048 - 072 - 12 - R	48	72	12
MOS045 - 062 - 07 - R	45	62	7	MOS048 - 072 - 12 - RST	48	72	12
MOS045 - 062 - 07 - RST	45	62	7	MOS048 - 080 - 10 - R	48	80	10
MOS045 - 062 - 08 - R	45	62	8	MOS048 - 080 - 10 - RST	48	80	10
MOS045 - 062 - 08 - RST	45	62	8	MOS048 - 090 - 10 - R	48	90	10
MOS045 - 062 - 10 - M	45	62	10	MOS049 - 076 - 12 - RST	49	76	12
MOS045 - 062 - 10 - R	45	62	10	MOS050 - 058 - 04 - RZV	50	58	4
MOS045 - 062 - 10 - RST	45	62	10	MOS050 - 060 - 08 - R	50	60	8
MOS045 - 062 - 12 - R	45	62	12	MOS050 - 060 - 10 - R	50	60	10
MOS045 - 065 - 08 - R	45	65	8	MOS050 - 062 - 05 - MZV	50	62	5
MOS045 - 065 - 08 - RST	45	65	8	MOS050 - 062 - 07 - R	50	62	7
MOS045 - 065 - 10 - R	45	65	10	MOS050 - 062 - 07 - RST	50	62	7
MOS045 - 065 - 10 - RST	45	65	10	MOS050 - 062 - 10 - R	50	62	10

For availability of additional sizes not listed, please inquire.

Metric Nitrile Oil Seal Dimensional Data (Continued)

Part Number	Dimensions			Part Number	Dimensions		
	Millimeters				Millimeters		
	Inside Diameter	Outside Diameter	Width		Inside Diameter	Outside Diameter	Width
MOS050 - 064 - 10 - RST	50	64	10	MOS055 - 070 - 09 - RST	55	70	9
MOS050 - 065 - 08 - R	50	65	8	MOS055 - 070 - 10 - R	55	70	10
MOS050 - 065 - 08 - RST	50	65	8	MOS055 - 072 - 08 - R	55	72	8
MOS050 - 065 - 10 - R	50	65	10	MOS055 - 072 - 08 - RST	55	72	8
MOS050 - 065 - 10 - RST	50	65	10	MOS055 - 072 - 10 - R	55	72	10
MOS050 - 068 - 08 - R	50	68	8	MOS055 - 072 - 10 - RST	55	72	10
MOS050 - 068 - 08 - RST	50	68	8	MOS055 - 072 - 12 - R	55	72	12
MOS050 - 068 - 10 - R	50	68	10	MOS055 - 075 - 10 - R	55	75	10
MOS050 - 068 - 10 - RST	50	68	10	MOS055 - 075 - 10 - RST	55	75	10
MOS050 - 070 - 08 - R	50	70	8	MOS055 - 075 - 12 - R	55	75	12
MOS050 - 070 - 10 - R	50	70	10	MOS055 - 076 - 12 - RST	55	76	12
MOS050 - 070 - 10 - RST	50	70	10	MOS055 - 078 - 10 - R	55	78	10
MOS050 - 070 - 12 - R	50	70	12	MOS055 - 078 - 10 - RST	55	78	10
MOS050 - 072 - 07 - RST	50	72	7	MOS055 - 078 - 12 - RST	55	78	12
MOS050 - 072 - 08 - R	50	72	8	MOS055 - 080 - 08 - R	55	80	8
MOS050 - 072 - 08 - RST	50	72	8	MOS055 - 080 - 08 - RST	55	80	8
MOS050 - 072 - 10 - R	50	72	10	MOS055 - 080 - 10 - R	55	80	10
MOS050 - 072 - 10 - RST	50	72	10	MOS055 - 080 - 10 - RST	55	80	10
MOS050 - 072 - 12 - R	50	72	12	MOS055 - 080 - 12 - R	55	80	12
MOS050 - 072 - 12 - RST	50	72	12	MOS055 - 080 - 13 - R	55	80	13
MOS050 - 075 - 10 - R	50	75	10	MOS055 - 085 - 08 - R	55	85	8
MOS050 - 075 - 10 - RST	50	75	10	MOS055 - 085 - 10 - R	55	85	10
MOS050 - 076 - 10 - R	50	76	10	MOS055 - 085 - 10 - RST	55	85	10
MOS050 - 080 - 08 - R	50	80	8	MOS055 - 090 - 08 - RST	55	90	8
MOS050 - 080 - 08 - RST	50	80	8	MOS055 - 090 - 10 - R	55	90	10
MOS050 - 080 - 10 - R	50	80	10	MOS055 - 090 - 10 - RST	55	90	10
MOS050 - 080 - 10 - RST	50	80	10	MOS055 - 100 - 10 - RST	55	100	10
MOS050 - 080 - 12 - R	50	80	12	MOS055 - 100 - 12 - R	55	100	12
MOS050 - 080 - 12 - RST	50	80	12	MOS056 - 070 - 08 - R	56	70	8
MOS050 - 080 - 13 - R	50	80	13	MOS056 - 072 - 08 - R	56	72	8
MOS050 - 080 - 13 - RST	50	80	13	MOS056 - 072 - 10 - R	56	72	10
MOS050 - 085 - 10 - R	50	85	10	MOS056 - 085 - 08 - R	56	85	8
MOS050 - 090 - 10 - MST	50	90	10	MOS058 - 072 - 08 - R	72	72	8
MOS050 - 090 - 10 - R	50	90	10	MOS058 - 075 - 05 - R	75	75	5
MOS050 - 090 - 10 - RST	50	90	10	MOS058 - 080 - 08 - R	80	80	8
MOS052 - 065 - 09 - RST	52	65	9	MOS058 - 080 - 10 - R	58	80	10
MOS052 - 068 - 08 - R	52	68	8	MOS058 - 080 - 10 - RST	58	80	10
MOS052 - 068 - 08 - RST	52	68	8	MOS058 - 080 - 13 - RST	58	80	13
MOS052 - 070 - 09 - RST	52	70	9	MOS058 - 085 - 10 - R	58	85	10
MOS052 - 072 - 08 - R	52	72	8	MOS058 - 090 - 10 - R	58	90	10
MOS052 - 072 - 08 - RST	52	72	8	MOS060 - 072 - 08 - M	60	72	8
MOS052 - 072 - 10 - R	52	72	10	MOS060 - 072 - 08 - R	60	72	8
MOS052 - 072 - 10 - RST	52	72	10	MOS060 - 075 - 08 - R	60	75	8
MOS052 - 075 - 10 - R	52	75	10	MOS060 - 075 - 08 - RST	60	75	8
MOS052 - 080 - 10 - R	52	80	10	MOS060 - 075 - 10 - R	60	75	10
MOS052 - 085 - 10 - R	52	85	10	MOS060 - 078 - 10 - R	60	78	10
MOS053 - 068 - 10 - R	53	68	10	MOS060 - 080 - 07 - RST	60	80	7
MOS054 - 072 - 05 - R	54	72	5	MOS060 - 080 - 08 - R	60	80	8
MOS054 - 072 - 10 - R	54	72	10	MOS060 - 080 - 08 - RST	60	80	8
MOS054 - 072 - 10 - RST	54	72	10	MOS060 - 080 - 08 - RSTD	60	80	8
MOS054 - 085 - 10 - RST	54	85	10	MOS060 - 080 - 10 - R	60	80	10
MOS055 - 068 - 08 - R	55	68	8	MOS060 - 080 - 10 - RST	60	80	10
MOS055 - 068 - 08 - RST	55	68	8	MOS060 - 080 - 12 - R	60	80	12
MOS055 - 070 - 08 - R	55	70	8	MOS060 - 080 - 12 - RST	60	80	12
MOS055 - 070 - 08 - RST	55	70	8	MOS060 - 080 - 13 - R	60	80	13

For availability of additional sizes not listed, please inquire.

Metric Nitrile Oil Seal Dimensional Data (Continued)

Part Number	Dimensions			Part Number	Dimensions		
	Millimeters				Millimeters		
	Inside Diameter	Outside Diameter	Width		Inside Diameter	Outside Diameter	Width
MOS060 - 085 - 08 - R	60	85	8	MOS068 - 085 - 10 - R	68	85	10
MOS060 - 085 - 08 - RST	60	85	8	MOS068 - 085 - 10 - RST	68	85	10
MOS060 - 085 - 10 - R	60	85	10	MOS068 - 090 - 10 - R	68	90	10
MOS060 - 085 - 10 - RST	60	85	10	MOS068 - 090 - 10 - RST	68	90	10
MOS060 - 085 - 12 - R	60	85	12	MOS068 - 090 - 12 - RST	68	90	12
MOS060 - 090 - 08 - R	60	90	8	MOS068 - 095 - 10 - R	68	95	10
MOS060 - 090 - 10 - R	60	90	10	MOS068 - 100 - 10 - R	68	100	10
MOS060 - 090 - 10 - RST	60	90	10	MOS070 - 085 - 08 - R	70	85	8
MOS060 - 090 - 13 - R	60	90	13	MOS070 - 085 - 08 - RST	70	85	8
MOS060 - 095 - 10 - R	60	95	10	MOS070 - 090 - 10 - M	70	90	10
MOS060 - 095 - 10 - RST	60	95	10	MOS070 - 090 - 10 - R	70	90	10
MOS060 - 100 - 10 - R	60	100	10	MOS070 - 090 - 10 - RST	70	90	10
MOS060 - 100 - 13 - R	60	100	13	MOS070 - 090 - 12 - R	70	90	12
MOS060 - 110 - 13 - R	60	110	13	MOS070 - 090 - 12 - RST	70	90	12
MOS062 - 080 - 09 - RST	62	80	9	MOS070 - 090 - 13 - R	70	90	13
MOS062 - 080 - 10 - R	62	80	10	MOS070 - 092 - 12 - RST	70	92	12
MOS062 - 082 - 10 - R	62	82	10	MOS070 - 095 - 10 - R	70	95	10
MOS062 - 085 - 10 - R	62	85	10	MOS070 - 095 - 12 - R	70	95	12
MOS062 - 085 - 10 - RST	62	85	10	MOS070 - 095 - 13 - R	70	95	13
MOS062 - 085 - 12 - R	62	85	12	MOS070 - 100 - 10 - R	70	100	10
MOS062 - 085 - 12 - RST	62	85	12	MOS070 - 100 - 10 - RST	70	100	10
MOS062 - 090 - 10 - R	62	90	10	MOS070 - 100 - 12 - R	70	100	12
MOS062 - 090 - 10 - RST	62	90	10	MOS070 - 100 - 12 - RST	70	100	12
MOS062 - 095 - 10 - R	62	95	10	MOS070 - 100 - 13 - R	70	100	13
MOS062 - 100 - 10 - R	62	100	10	MOS070 - 105 - 13 - R	70	105	13
MOS062 - 100 - 12 - R	62	100	12	MOS070 - 110 - 08 - R	70	110	8
MOS063 - 076 - 09 - RX	63	76	9	MOS070 - 110 - 10 - RST	70	110	10
MOS063 - 085 - 10 - R	63	85	10	MOS070 - 110 - 12 - R	70	110	12
MOS063 - 085 - 10 - RST	63	85	10	MOS070 - 110 - 13 - R	70	110	13
MOS063 - 090 - 10 - R	63	90	10	MOS070 - 120 - 13 - R	70	120	13
MOS064 - 080 - 08 - R	64	80	8	MOS070 - 125 - 12 - RST	70	125	12
MOS064 - 080 - 08 - RST	64	80	8	MOS072 - 090 - 08 - RST	72	90	8
MOS064 - 085 - 10 - R	64	85	10	MOS072 - 095 - 10 - R	72	95	10
MOS065 - 080 - 08 - R	65	80	8	MOS072 - 095 - 10 - RST	72	95	10
MOS065 - 080 - 08 - RST	65	80	8	MOS072 - 095 - 13 - R	72	95	13
MOS065 - 080 - 10 - R	65	80	10	MOS072 - 100 - 10 - R	72	100	10
MOS065 - 080 - 10 - RST	65	80	10	MOS072 - 100 - 12 - R	72	100	12
MOS065 - 080 - 12 - R	65	80	12	MOS075 - 090 - 08 - R	75	90	8
MOS065 - 085 - 10 - M	65	85	10	MOS075 - 090 - 08 - RST	75	90	8
MOS065 - 085 - 10 - R	65	85	10	MOS075 - 090 - 10 - R	75	90	10
MOS065 - 085 - 10 - RST	65	85	10	MOS075 - 090 - 10 - RST	75	90	10
MOS065 - 085 - 12 - R	65	85	12	MOS075 - 095 - 10 - R	75	95	10
MOS065 - 085 - 12 - RST	65	85	12	MOS075 - 095 - 10 - RST	75	95	10
MOS065 - 088 - 12 - RST	65	88	12	MOS075 - 095 - 12 - R	75	95	12
MOS065 - 090 - 10 - R	65	90	10	MOS075 - 095 - 12 - RST	75	95	12
MOS065 - 090 - 10 - RST	65	90	10	MOS075 - 095 - 13 - R	75	95	13
MOS065 - 090 - 12 - R	65	90	12	MOS075 - 100 - 10 - R	75	100	10
MOS065 - 090 - 13 - R	65	90	13	MOS075 - 100 - 10 - RST	75	100	10
MOS065 - 095 - 10 - R	65	95	10	MOS075 - 100 - 12 - R	75	100	12
MOS065 - 095 - 13 - R	65	95	13	MOS075 - 100 - 12 - RST	75	100	12
MOS065 - 100 - 10 - R	65	100	10	MOS075 - 100 - 13 - R	75	100	13
MOS065 - 100 - 10 - RST	65	100	10	MOS075 - 105 - 12 - R	75	105	12
MOS065 - 100 - 12 - R	65	100	12	MOS075 - 105 - 13 - RST	75	105	13
MOS065 - 100 - 12 - RST	65	100	12	MOS075 - 110 - 10 - RST	75	110	10
MOS065 - 110 - 10 - R	65	110	10	MOS075 - 110 - 12 - R	75	110	12

For availability of additional sizes not listed, please inquire.

Metric Nitrile Oil Seal Dimensional Data (Continued)

Part Number	Dimensions		
	Millimeters		
	Inside Diameter	Outside Diameter	Width
MOS075 - 110 - 13 - R	75	110	13
MOS075 - 120 - 12 - R	75	120	12
MOS078 - 100 - 10 - R	78	100	10
MOS078 - 100 - 10 - RST	78	100	10
MOS078 - 100 - 13 - R	78	100	13
MOS078 - 110 - 12 - R	78	110	12
MOS080 - 095 - 08 - R	80	95	8
MOS080 - 095 - 08 - RST	80	95	8
MOS080 - 100 - 07 - RST	80	100	7
MOS080 - 100 - 10 - R	80	100	10
MOS080 - 100 - 10 - RST	80	100	10
MOS080 - 100 - 12 - R	80	100	12
MOS080 - 100 - 13 - R	80	100	13
MOS080 - 100 - 13 - RST	80	100	13
MOS080 - 105 - 10 - R	80	105	10
MOS080 - 105 - 13 - R	80	105	13
MOS080 - 110 - 10 - R	80	110	10
MOS080 - 110 - 10 - RST	80	110	10
MOS080 - 110 - 12 - R	80	110	12
MOS080 - 110 - 12 - RST	80	110	12
MOS080 - 110 - 13 - R	80	110	13
MOS080 - 110 - 13 - RST	80	110	13
MOS080 - 115 - 10 - R	80	115	10
MOS080 - 115 - 13 - R	80	115	13
MOS080 - 115 - 13 - RST	80	115	13
MOS080 - 120 - 12 - R	80	120	12
MOS080 - 120 - 13 - R	80	120	13
MOS080 - 125 - 10 - RST	80	125	10
MOS080 - 125 - 12 - R	80	125	12
MOS080 - 130 - 13 - R	80	130	13
MOS082 - 105 - 10 - RST	82	105	10
MOS082 - 105 - 12 - R	82	105	12
MOS082 - 105 - 12 - RST	82	105	12
MOS082 - 105 - 13 - R	82	105	13
MOS082 - 110 - 12 - R	82	110	12
MOS084 - 100 - 13 - R	84	100	13
MOS085 - 100 - 09 - M	85	100	9
MOS085 - 102 - 13 - R	85	102	13
MOS085 - 105 - 10 - R	85	105	10
MOS085 - 105 - 13 - R	85	105	13
MOS085 - 110 - 12 - R	85	110	12
MOS085 - 110 - 12 - RST	85	110	12
MOS085 - 110 - 13 - R	85	110	13
MOS085 - 110 - 13 - RST	85	110	13
MOS085 - 115 - 13 - R	85	115	13
MOS085 - 120 - 12 - R	85	120	12
MOS085 - 120 - 12 - RST	85	120	12
MOS085 - 125 - 12 - R	85	125	12
MOS085 - 130 - 10 - RST	85	130	10
MOS085 - 130 - 12 - RST	85	130	12
MOS088 - 110 - 12 - R	88	110	12
MOS090 - 105 - 10 - R	90	105	10
MOS090 - 110 - 08 - R	90	110	8
MOS090 - 110 - 08 - RST	90	110	8
MOS090 - 110 - 10 - R	90	110	10

Part Number	Dimensions		
	Millimeters		
	Inside Diameter	Outside Diameter	Width
MOS090 - 110 - 10 - RST	90	110	10
MOS090 - 110 - 12 - R	90	110	12
MOS090 - 110 - 12 - RST	90	110	12
MOS090 - 110 - 13 - R	90	110	13
MOS090 - 110 - 13 - RST	90	110	13
MOS090 - 115 - 13 - R	90	115	13
MOS090 - 115 - 13 - RST	90	115	13
MOS090 - 120 - 12 - R	90	120	12
MOS090 - 120 - 12 - RST	90	120	12
MOS090 - 120 - 13 - RST	90	120	13
MOS090 - 125 - 13 - R	90	125	13
MOS090 - 130 - 13 - R	90	130	13
MOS090 - 140 - 10 - RST	90	140	10
MOS095 - 110 - 12 - R	95	110	12
MOS095 - 110 - 12 - RST	95	110	12
MOS095 - 115 - 12 - RST	95	115	12
MOS095 - 115 - 13 - EXT	95	115	13
MOS095 - 115 - 13 - R	95	115	13
MOS095 - 115 - 13 - RST	95	115	13
MOS095 - 120 - 12 - R	95	120	12
MOS095 - 120 - 12 - RST	95	120	12
MOS095 - 120 - 13 - R	95	120	13
MOS095 - 125 - 12 - R	95	125	12
MOS095 - 125 - 12 - RST	95	125	12
MOS095 - 130 - 12 - R	95	130	12
MOS095 - 130 - 12 - RST	95	130	12
MOS096 - 112 - 10 - R	96	112	10
MOS098 - 120 - 13 - R	98	120	13
MOS100 - 115 - 09 - R	100	115	9
MOS100 - 120 - 10 - R	100	120	10
MOS100 - 120 - 10 - RS	100	120	10
MOS100 - 120 - 12 - R	100	120	12
MOS100 - 120 - 12 - RST	100	120	12
MOS100 - 120 - 13 - R	100	120	13
MOS100 - 125 - 12 - R	100	125	12
MOS100 - 125 - 13 - R	100	125	13
MOS100 - 125 - 13 - RST	100	125	13
MOS100 - 130 - 10 - R	100	130	10
MOS100 - 130 - 12 - MST	100	130	12
MOS100 - 130 - 12 - R	100	130	12
MOS100 - 130 - 12 - RST	100	130	12
MOS100 - 130 - 13 - R	100	130	13
MOS100 - 130 - 13 - RST	100	130	13
MOS100 - 135 - 10 - RST	100	135	10
MOS100 - 135 - 12 - RST	100	135	12
MOS100 - 141 - 12 - R	100	140	12
MOS100 - 140 - 13 - R	100	140	13
MOS100 - 150 - 13 - RST	100	150	13
MOS101 - 150 - 13 - R	100	150	13
MOS105 - 125 - 13 - R	105	125	13
MOS105 - 125 - 13 - RST	105	125	13
MOS105 - 130 - 12 - R	105	130	12
MOS105 - 130 - 12 - RST	105	130	12
MOS105 - 130 - 13 - R	105	130	13
MOS105 - 130 - 13 - RST	105	130	13

For availability of additional sizes not listed, please inquire.

Metric Nitrile Oil Seal Dimensional Data (Continued)

Part Number	Dimensions			Part Number	Dimensions		
	Millimeters				Millimeters		
	Inside Diameter	Outside Diameter	Width		Inside Diameter	Outside Diameter	Width
MOS105 - 135 - 13 - R	105	135	13	MOS140 - 170 - 12 - R	140	170	12
MOS105 - 135 - 14 - RST	105	135	14	MOS140 - 170 - 13 - R	140	170	13
MOS105 - 140 - 12 - R	105	140	12	MOS140 - 170 - 15 - R	140	170	15
MOS105 - 140 - 12 - RST	105	140	12	MOS140 - 170 - 15 - RST	140	170	15
MOS105 - 140 - 13 - R	105	140	13	MOS140 - 175 - 15 - RST	140	175	15
MOS105 - 145 - 16 - R	105	145	16	MOS140 - 180 - 12 - R	140	180	12
MOS110 - 130 - 12 - R	110	130	12	MOS145 - 170 - 13 - RST	145	170	13
MOS110 - 130 - 12 - RST	110	130	12	MOS145 - 170 - 15 - R	145	170	15
MOS110 - 130 - 13 - R	110	130	13	MOS145 - 175 - 15 - R	145	175	15
MOS110 - 130 - 13 - RST	110	130	13	MOS145 - 180 - 12 - R	145	180	12
MOS110 - 135 - 13 - R	110	135	13	MOS150 - 170 - 15 - R	150	170	15
MOS110 - 140 - 12 - R	110	140	12	MOS150 - 180 - 12 - R	150	180	12
MOS110 - 140 - 12 - RST	110	140	12	MOS150 - 180 - 13 - R	150	180	13
MOS110 - 140 - 13 - R	110	140	13	MOS150 - 180 - 15 - R	150	180	15
MOS110 - 140 - 13 - RST	110	140	13	MOS150 - 180 - 15 - RST	150	180	15
MOS110 - 145 - 13 - R	110	145	13	MOS155 - 180 - 15 - R	155	180	15
MOS110 - 150 - 13 - R	110	150	13	MOS155 - 190 - 15 - R	155	190	15
MOS110 - 150 - 13 - RST	110	150	13	MOS155 - 200 - 15 - RST	155	200	15
MOS110 - 150 - 15 - R	110	150	15	MOS160 - 190 - 13 - R	160	190	13
MOS114 - 140 - 13 - R	112	140	13	MOS160 - 190 - 15 - R	160	190	15
MOS115 - 130 - 12 - R	115	130	12	MOS160 - 190 - 15 - RST	160	190	15
MOS115 - 140 - 12 - R	115	140	12	MOS162 - 190 - 12 - R	162	190	12
MOS115 - 140 - 12 - RST	115	140	12	MOS165 - 190 - 13 - R	165	190	13
MOS115 - 140 - 13 - R	115	140	13	MOS165 - 190 - 15 - RST	165	190	15
MOS115 - 145 - 13 - R	115	145	13	MOS165 - 200 - 15 - R	165	200	15
MOS115 - 145 - 14 - RST	115	145	14	MOS170 - 200 - 15 - MST	170	200	15
MOS120 - 150 - 12 - R	115	150	12	MOS170 - 200 - 15 - R	170	200	15
MOS120 - 140 - 13 - R	120	140	13	MOS170 - 200 - 15 - RST	170	200	15
MOS120 - 150 - 12 - R	120	150	12	MOS175 - 200 - 15 - R	175	200	15
MOS120 - 150 - 12 - RST	120	150	12	MOS180 - 200 - 15 - R	180	200	15
MOS120 - 150 - 13 - R	120	150	13	MOS180 - 210 - 15 - R	180	210	15
MOS120 - 150 - 15 - RST	120	150	15	MOS180 - 210 - 15 - RST	180	210	15
MOS120 - 160 - 12 - R	120	160	12	MOS180 - 220 - 15 - R	180	220	15
MOS120 - 160 - 15 - R	120	160	15	MOS185 - 210 - 13 - R	185	210	13
MOS120 - 180 - 15 - RST	120	180	15	MOS190 - 220 - 12 - RST	190	220	12
MOS122 - 150 - 13 - R	122	150	13	MOS190 - 220 - 15 - R	190	220	15
MOS125 - 150 - 12 - R	125	150	12	MOS190 - 220 - 15 - RST	190	220	15
MOS125 - 150 - 12 - RST	125	150	12	MOS193 - 223 - 15 - R	193	233	15
MOS125 - 150 - 13 - R	125	150	13	MOS200 - 225 - 15 - R	200	225	15
MOS125 - 155 - 14 - RST	125	155	14	MOS200 - 230 - 15 - R	200	230	15
MOS125 - 160 - 12 - R	125	160	12	MOS200 - 230 - 15 - RST	200	230	15
MOS125 - 160 - 12 - RST	125	160	12	MOS210 - 240 - 15 - R	210	240	15
MOS127 - 152 - 12 - RST	127	152	12	MOS210 - 250 - 16 - RST	210	250	16
MOS130 - 160 - 12 - R	130	160	12	MOS215 - 250 - 16 - R	215	250	16
MOS130 - 160 - 15 - R	130	160	15	MOS220 - 250 - 15 - R	220	250	15
MOS130 - 160 - 15 - RST	130	160	15	MOS220 - 250 - 15 - RST	220	250	15
MOS130 - 170 - 12 - R	130	170	12	MOS240 - 270 - 15 - R	240	270	15
MOS132 - 150 - 13 - R	132	150	13	MOS240 - 270 - 15 - RST	240	270	15
MOS135 - 160 - 12 - R	135	160	12	MOS250 - 280 - 15 - RST	250	280	15
MOS135 - 160 - 13 - R	135	160	13	MOS260 - 300 - 20 - R	260	300	20
MOS135 - 160 - 14 - R	135	160	14	MOS260 - 300 - 20 - RST	260	300	20
MOS135 - 165 - 12 - R	135	165	12	MOS280 - 320 - 20 - R	280	320	20
MOS135 - 170 - 12 - R	135	170	12	MOS300 - 340 - 16 - R	300	340	16
MOS135 - 170 - 15 - R	135	170	15	MOS300 - 340 - 20 - R	300	340	20
MOS140 - 160 - 13 - R	140	160	13	MOS300 - 340 - 20 - RST	300	340	20

For availability of additional sizes not listed, please inquire.

Metric Nitrile Oil Seal Dimensional Data (Continued)

Part Number	Dimensions		
	Millimeters		
	Inside Diameter	Outside Diameter	Width
MOS320 - 360 - 20 - RST	320	360	20
MOS340 - 380 - 20 - RST	340	380	20
MOS400 - 440 - 20 - R	400	440	20
MOS440 - 480 - 20 - R	440	480	20

For availability of additional sizes not listed, please inquire.

Metric Fluoroelastomer Oil Seal Dimensional Data

Part Number	Dimensions (Millimeters)			Part Number	Dimensions (Millimeters)		
	Inside Diameter	Outside Diameter	Width		Inside Diameter	Outside Diameter	Width
MOSV006 - 016 - 07 - R	6	16	7	MOSV040 - 068 - 10 - R	40	68	10
MOSV010 - 026 - 07 - R	10	26	7	MOSV040 - 080 - 10 - R	40	80	10
MOSV012 - 022 - 07 - R	12	22	7	MOSV042 - 055 - 07 - RST	42	55	7
MOSV014 - 024 - 07 - R	14	24	7	MOSV045 - 060 - 07 - R	45	60	7
MOSV015 - 021 - 03 - RZV	15	2	3	MOSV045 - 060 - 08 - RST	45	60	8
MOSV015 - 024 - 07 - RST	15	24	7	MOSV045 - 062 - 07 - R	45	62	7
MOSV015 - 030 - 07 - RST	15	30	7	MOSV045 - 062 - 07 - RST	45	62	7
MOSV017 - 028 - 07 - R	17	28	7	MOSV045 - 062 - 10 - RST	45	62	10
MOSV017 - 030 - 07 - R	17	30	7	MOSV045 - 065 - 08 - RST	45	65	8
MOSV017 - 040 - 07 - R	17	40	7	MOSV045 - 065 - 10 - RST	45	65	10
MOSV020 - 028 - 04 - RZV	20	28	4	MOSV045 - 068 - 10 - R	45	68	10
MOSV020 - 030 - 07 - R	20	30	7	MOSV048 - 062 - 08 - R	48	62	8
MOSV020 - 032 - 07 - R	20	32	7	MOSV050 - 062 - 07 - R	50	62	7
MOSV020 - 035 - 07 - RB	20	35	7	MOSV050 - 068 - 08 - R	50	68	8
MOSV020 - 035 - 07 - RST	20	35	7	MOSV050 - 068 - 10 - RST	50	68	10
MOSV020 - 040 - 07 - R	20	40	7	MOSV050 - 068 - 10 - R	50	68	10
MOSV020 - 040 - 07 - RST	20	40	7	MOSV050 - 080 - 08 - R	50	80	8
MOSV020 - 042 - 07 - RST	20	42	7	MOSV050 - 072 - 10 - R	50	72	10
MOSV020 - 047 - 07 - R	20	47	7	MOSV050 - 072 - 12 - RST	50	72	12
MOSV022 - 030 - 04 - RST	22	30	4	MOSV050 - 075 - 12 - RST	50	75	12
MOSV024 - 032 - 04 - RST	24	32	4	MOSV052 - 068 - 10 - R	52	68	10
MOSV024 - 035 - 07 - R	24	35	7	MOSV052 - 100 - 10 - RST	52	100	10
MOSV025 - 037 - 07 - R	25	37	7	MOSV055 - 072 - 08 - RST	55	72	8
MOSV025 - 040 - 07 - RST	25	40	7	MOSV055 - 072 - 10 - RST	55	72	10
MOSV025 - 040 - 10 - R	25	40	10	MOSV055 - 075 - 10 - R	55	75	10
MOSV025 - 042 - 07 - RST	25	42	7	MOSV055 - 090 - 10 - RST	55	90	10
MOSV025 - 042 - 08 - R	25	42	8	MOSV055 - 100 - 10 - R	55	100	10
MOSV025 - 045 - 10 - R	25	45	10	MOSV060 - 072 - 12 - R	60	75	12
MOSV025 - 047 - 07 - RST	25	47	7	MOSV060 - 080 - 08 - R	60	80	8
MOSV025 - 052 - 10 - R	25	52	10	MOSV060 - 082 - 12 - RST	60	82	12
MOSV028 - 038 - 07 - R	28	38	7	MOSV060 - 085 - 08 - RST	60	85	8
MOSV028 - 040 - 07 - R	28	40	7	MOSV060 - 085 - 10 - R	60	85	10
MOSV028 - 047 - 07 - RST	28	47	7	MOSV060 - 090 - 10 - RST	60	90	10
MOSV028 - 047 - 10 - R	28	47	10	MOSV060 - 095 - 12 - RST	60	95	12
MOSV030 - 040 - 07 - R	30	40	7	MOSV063 - 085 - 10 - R	63	85	10
MOSV030 - 040 - 07 - RST	30	40	7	MOSV065 - 080 - 10 - R	65	80	10
MOSV030 - 042 - 06 - RST	30	42	6	MOSV065 - 085 - 08 - R	65	85	8
MOSV030 - 042 - 07 - R	30	42	7	MOSV065 - 085 - 10 - R	65	85	10
MOSV030 - 045 - 08 - R	30	45	8	MOSV065 - 085 - 10 - RST	65	85	10
MOSV030 - 045 - 10 - R	30	45	10	MOSV065 - 090 - 10 - R	65	90	10
MOSV030 - 047 - 07 - RST	30	47	7	MOSV068 - 090 - 10 - RST	68	90	10
MOSV030 - 052 - 10 - R	30	52	10	MOSV070 - 085 - 08 - R	70	85	8
MOSV032 - 050 - 10 - R	32	50	10	MOSV070 - 090 - 10 - RST	70	90	10
MOSV032 - 052 - 07 - R	32	52	7	MOSV070 - 110 - 10 - R	70	110	10
MOSV032 - 052 - 10 - R	32	52	10	MOSV075 - 095 - 12 - RST	75	95	12
MOSV035 - 047 - 07 - R	35	47	7	MOSV075 - 100 - 10 - RST	75	100	10
MOSV035 - 050 - 07 - R	35	50	7	MOSV075 - 100 - 12 - RST	75	100	12
MOSV035 - 050 - 08 - RST	35	50	8	MOSV080 - 100 - 10 - R	80	100	10
MOSV035 - 050 - 10 - R	35	50	10	MOSV090 - 115 - 12 - R	90	115	12
MOSV035 - 052 - 10 - R	35	52	10	MOSV095 - 110 - 10 - R	95	110	10
MOSV035 - 055 - 10 - RST	35	55	10	MOSV095 - 115 - 13 - REXT	95	115	13
MOSV035 - 062 - 10 - R	35	62	10	MOSV100 - 102 - 12 - RST	100	120	12
MOSV040 - 052 - 07 - R	40	52	7	MOSV100 - 125 - 12 - R	100	125	12
MOSV040 - 052 - 07 - RST	40	52	7	MOSV100 - 130 - 12 - R	100	130	12
MOSV040 - 055 - 07 - R	40	55	7	MOSV100 - 130 - 12 - RST	100	130	12
MOSV040 - 058 - 10 - R	40	58	10	MOSV105 - 130 - 12 - RST	105	130	12
MOSV040 - 062 - 07 - R	40	62	7	MOSV120 - 140 - 13 - RST	120	140	13

For availability of additional sizes not listed, please inquire.

Metric Fluoroelastomer Oil Seal Dimensional Data (Continued)

Part Number	Dimensions (Millimeters)		
	Inside Diameter	Outside Diameter	Width
MOSV120 - 150 - 12 - R	120	150	12
MOSV125 - 150 - 12 - RST	125	150	12
MOSV130 - 160 - 13 - R	130	160	13
MOSV140 - 170 - 15 - R	140	170	15
MOSV150 - 180 - 13 - R	150	180	13
MOSV160 - 190 - 15 - R	160	190	15
MOSV170 - 190 - 15 - R	170	190	15
MOSV170 - 200 - 15 - R	170	200	15
MOSV170 - 200 - 15 - RST	170	200	15
MOSV190 - 220 - 15 - R	190	220	15
MOSV200 - 230 - 15 - R	200	200	15
MOSV200 - 230 - 15 - RST	200	230	15
MOSV210 - 240 - 15 - R	210	240	15
MOSV380 - 424 - 20 - RST	380	424	20

For availability of additional sizes not listed, please inquire.

Standard Nitrile Oil Seal Dimensional Data

Part Number	Dimensions (Millimeters)			Part Number	Dimensions (Millimeters)		
	Inside Diameter	Outside Diameter	Width		Inside Diameter	Outside Diameter	Width
MOS006 - 012 - 06 - RX	1/4	1/2	1/4	MOS031 - 053 - 07 - RX	1 1/4	2 1/8	5/16
MOS006 - 019 - 06 - RX	1/4	3/4	1/4	MOS031 - 057 - 09 - RX	1 1/4	2 1/4	3/8
MOS007 - 019 - 06 - RX	5/16	3/4	1/4	MOS033 - 047 - 06 - RX	1 5/16	1 7/8	1/4
MOS009 - 019 - 06 - RX	3/8	3/4	1/4	MOS034 - 047 - 07 - RX	1 3/4	1 7/8	7/16
MOS009 - 022 - 06 - RX	3/8	7/8	1/4	MOS034 - 050 - 07 - RX	1 3/4	2	5/16
MOS011 - 022 - 06 - RSTX	7/16	7/8	1/4	MOS034 - 050 - 12 - RX	1 3/4	2	1/2
MOS012 - 022 - 06 - RX	1/2	7/8	1/4	MOS034 - 052 - 12 - RX	1 3/4	2 1/16	1/2
MOS012 - 025 - 06 - MX	1/2	1	1/4	MOS034 - 053 - 09 - RX	1 3/4	2 1/8	3/8
MOS012 - 028 - 06 - RX	1/2	1 1/8	1/4	MOS034 - 057 - 09 - RX	1 3/4	2 1/4	3/8
MOS012 - 028 - 07 - RX	1/2	1 1/8	5/16	MOS034 - 057 - 12 - RX	1 3/4	2 1/4	1/2
MOS014 - 025 - 06 - MX	9/16	1	1/4	MOS034 - 063 - 12 - RX	1 3/4	2 1/2	1/2
MOS014 - 028 - 06 - MX	9/16	1 1/8	1/4	MOS036 - 053 - 06 - RX	1 7/16	2 1/8	1/4
MOS014 - 028 - 09 - RX	9/16	1 1/8	3/8	MOS036 - 054 - 07 - RX	1 7/16	2 1/8	5/16
MOS015 - 028 - 06 - RX	5/8	1 1/8	1/4	MOS038 - 050 - 06 - RX	1 1/2	2	1/4
MOS015 - 028 - 09 - RX	5/8	1 1/8	3/8	MOS038 - 052 - 06 - RX	1 1/2	2 1/16	1/4
MOS015 - 031 - 06 - RX	5/8	1 1/4	1/4	MOS038 - 057 - 07 - RX	1 1/2	2 1/4	5/16
MOS015 - 034 - 09 - RX	5/8	1 3/8	3/8	MOS038 - 057 - 09 - RX	1 1/2	2 1/4	3/8
MOS017 - 028 - 06 - RX	11/16	1 1/8	1/4	MOS038 - 060 - 09 - RSTX	1 1/2	2 3/8	3/8
MOS017 - 031 - 06 - RX	11/16	1 1/4	1/4	MOS038 - 060 - 12 - RX	1 1/2	2 3/8	1/2
MOS017 - 034 - 07 - MX	11/16	1 3/8	5/16	MOS038 - 063 - 12 - RX	1 1/2	2 1/2	1/2
MOS017 - 031 - 06 - RX	11/16	1 1/4	1/4	MOS038 - 063 - 09 - RX	1 1/2	2 1/2	3/8
MOS019 - 028 - 04 - RX	3/4	1 1/8	3/16	MOS038 - 063 - 12 - RX	1 1/2	2 1/2	1/2
MOS019 - 028 - 06 - RX	3/4	1 1/8	1/4	MOS039 - 060 - 09 - RX	1 9/16	2 3/8	3/8
MOS019 - 031 - 06 - RX	3/4	1 1/4	1/4	MOS041 - 060 - 07 - RX	1 5/8	2 3/8	5/16
MOS019 - 031 - 07 - RX	3/4	1 1/4	5/16	MOS041 - 060 - 09 - RX	1 5/8	2 3/8	3/8
MOS019 - 034 - 06 - RX	3/4	1 3/8	1/4	MOS044 - 057 - 09 - RX	1 3/4	2 1/4	3/8
MOS019 - 038 - 07 - RX	3/4	1 1/2	5/16	MOS044 - 063 - 09 - RX	1 3/4	2 1/2	3/8
MOS019 - 038 - 09 - RX	3/4	1 1/2	3/8	MOS044 - 069 - 09 - RX	1 3/4	2 3/4	3/8
MOS022 - 031 - 06 - RX	7/8	1 1/4	1/4	MOS044 - 073 - 12 - RX	1 3/4	2 7/8	1/2
MOS022 - 034 - 06 - RX	7/8	1 3/8	1/4	MOS047 - 063 - 07 - RX	1 7/8	2 1/2	5/16
MOS022 - 034 - 07 - RX	7/8	1 3/8	5/16	MOS047 - 069 - 09 - RX	1 7/8	2 3/4	3/8
MOS022 - 038 - 09 - RX	7/8	1 1/2	3/8	MOS047 - 069 - 12 - RX	1 7/8	2 3/4	1/2
MOS022 - 041 - 09 - RX	7/8	1 5/8	3/8	MOS049 - 063 - 09 - RX	1 15/16	2 1/2	3/8
MOS023 - 038 - 09 - RX	15/16	1 1/2	3/8	MOS049 - 069 - 09 - RX	1 15/16	2 3/4	3/8
MOS025 - 036 - 06 - RX	1	1 7/16	1/4	MOS050 - 069 - 06 - RX	2	2 3/4	1/4
MOS025 - 038 - 06 - RX	1	1 1/2	1/4	MOS050 - 069 - 09 - RX	2	2 3/4	3/8
MOS025 - 041 - 09 - RX	1	1 5/8	3/8	MOS050 - 069 - 12 - RX	2	2 3/4	1/2
MOS025 - 044 - 06 - RX	1	1 3/4	1/4	MOS050 - 076 - 12 - RX	2	3	1/2
MOS025 - 050 - 06 - RX	1	2	1/4	MOS052 - 073 - 09 - RX	2 1/16	2 7/8	3/8
MOS025 - 050 - 09 - RX	1	2	3/8	MOS052 - 076 - 09 - RX	2 1/16	3	3/8
MOS026 - 041 - 07 - RX	1 1/16	1 5/8	5/16	MOS053 - 068 - 07 - RX	2 1/8	2 11/16	5/16
MOS028 - 038 - 06 - RX	1 1/8	1 1/2	1/4	MOS053 - 073 - 09 - RX	2 1/8	2 7/8	3/8
MOS028 - 041 - 06 - RX	1 1/8	1 5/8	1/4	MOS053 - 076 - 12 - RX	2 1/8	3	1/2
MOS028 - 041 - 07 - RX	1 1/8	1 5/8	5/16	MOS057 - 073 - 09 - RX	2 1/4	2 7/8	3/8
MOS028 - 044 - 09 - RX	1 1/8	1 3/4	3/8	MOS057 - 076 - 09 - RX	2 1/4	3	3/8
MOS028 - 047 - 09 - RX	1 1/8	1 7/8	3/8	MOS057 - 082 - 12 - RX	2 1/4	3 1/4	1/2
MOS028 - 050 - 09 - RX	1 1/8	2	3/8	MOS057 - 085 - 12 - RX	2 1/4	3 3/8	1/2
MOS030 - 050 - 09 - RX	1 3/16	2	3/8	MOS063 - 076 - 09 - RX	2 1/2	3	3/8
MOS031 - 041 - 06 - RSTX	1 1/4	1 5/8	1/4	MOS063 - 082 - 09 - RX	2 1/2	3 1/4	3/8
MOS031 - 042 - 06 - RSTX	1 1/4	1 11/16	1/4	MOS063 - 082 - 12 - RX	2 1/2	3 1/4	1/2
MOS031 - 044 - 06 - MSTX	1 1/4	1 3/4	1/4	MOS063 - 085 - 12 - RX	2 1/2	3 3/8	1/2
MOS031 - 044 - 06 - RX	1 1/4	1 3/4	1/4	MOS063 - 088 - 09 - RX	2 1/2	3 1/2	3/8
MOS031 - 044 - 09 - RX	1 1/4	1 3/4	3/8	MOS065 - 085 - 09 - RX	2 9/16	3 3/8	3/8
MOS031 - 047 - 07 - RX	1 1/4	1 7/8	5/16	MOS066 - 085 - 09 - RX	2 5/8	3 3/8	3/8
MOS031 - 050 - 06 - MSTX	1 1/4	2	1/4	MOS069 - 088 - 09 - RX	2 3/4	3 1/2	3/8
MOS031 - 050 - 09 - MX	1 1/4	2	3/8	MOS069 - 095 - 12 - RX	2 3/4	3 3/4	1/2
MOS031 - 050 - 09 - RX	1 1/4	2	3/8	MOS069 - 101 - 12 - RX	2 3/4	4	1/2

For availability of additional sizes not listed, please inquire.

Standard Nitrile Oil Seal Dimensional Data (Continued)

Part Number	Dimensions (Millimeters)		
	Inside Diameter	Outside Diameter	Width
MOS073 - 092 - 09 - RX	2 7/8	3 5/8	3/8
MOS074 - 095 - 09 - RX	2 15/16	3 3/4	3/8
MOS076 - 095 - 09 - RX	3	3 3/4	3/8
MOS082 - 107 - 12 - RX	3 1/4	4/14	1/2
MOS082 - 114 - 12 - RX	3 1/4	4 1/2	1/2
MOS085 - 111 - 12 - RX	3 3/8	4 3/8	1/2
MOS088 - 114 - 12 - RX	3 1/2	4 1/2	1/2
MOS088 - 120 - 12 - RX	3 1/2	4 3/4	1/2
MOS088 - 120 - 14 - RSTX	3 1/2	4 3/4	9/16
MOS095 - 120 - 12 - RX	4 3/4	4 3/4	1/2
MOS101 - 127 - 12 - RX	4	5	1/2
MOS101 - 133 - 15 - RX	4	5 1/4	5/8
MOS107 - 133 - 12 - RX	4 1/4	5 1/4	1/2
MOS107 - 136 - 12 - RX	4 1/4	5 3/8	1/2
MOS111 - 136 - 12 - RX	4 3/8	5 3/8	1/2
MOS114 - 139 - 12 - RX	4 1/2	5 1/2	1/2
MOS120 - 146 - 12 - RX	4 3/4	5 3/4	1/2
MOS130 - 155 - 12 - RX	5 1/8	6 1/8	1/2
MOS139 - 165 - 12 - RX	5 1/2	6 1/2	1/2
MOS142 - 168 - 12 - RX	5 5/8	6 5/8	1/2
MOS152 - 177 - 12 - RX	6	7	1/2
MOS177 - 203 - 12 - RX	7	8	1/2

For availability of additional sizes not listed, please inquire.

Metric V Seals

V Seals are mounted directly on and rotate with the shaft, and the lip seals against the counterface. The body holds the lip in position and simultaneously seals against the shaft. As a result of the rotation of the V Seal, liquids, greases, oils, dirt, sand, and other solid materials are deflected from the sealing point. Therefore, the V Seal functions as both a deflector and lip seal. Since V Seals are made entirely of rubber, they are elastic and permit considerable misalignment of the shaft. This is not the case in most other shaft seals. V Seals are used with spherical rollers and plain bearings because they can absorb misalignment. V Seals are often used as a supplement with other seals to protect the shaft and the radial seal lip against dust, dirt, and other contaminants. They can also be used to supplement a stuffing box and labyrinth seals. V Seals at APG are available in both 60 Durometer Nitrile and 60 Durometer Fluoroelastomer.

Type A

Features a straight back that reduces spare requirements.



Type S

Features an inclined back.



Type L

Features a straight back with a chamfered corner.



Metric Nitrile V Seal Dimensional Data

Part Number	Shaft Diameter (mm)	Internal Ring Diameter (mm)	Profile Height (mm)
FVB - 0006 - A	5.5 - 6.5	5	2
FVB - 0006 - S	5.5 - 6.5	5	2
FVB - 0007 - A	6.5 - 8	6	2
FVB - 0007 - S	6.5 - 8	6	2
FVB - 0008 - A	8 - 9.5	7	2
FVB - 0008 - S	8 - 9.5	7	2
FVB - 0010 - A	9.5 - 11.5	9	3
FVB - 0012 - A	11.5 - 13.5	10.5	3
FVB - 0012 - S	11.5 - 13.5	10.5	3
FVB - 0013 - A	12.5 - 13.5	11.7	3
FVB - 0014 - A	13.5 - 15.5	12.5	3
FVB - 0014 - S	13.5 - 15.5	12.5	3
FVB - 0015 - A	14.5 - 15.5	13	3
FVB - 0016 - A	15.5 - 17.5	14	3
FVB - 0016 - S	15.5 - 17.5	14	3
FVB - 0018 - A	17.5 - 19	16	3
FVB - 0018 - S	17.5 - 19	16	3
FVB - 0020 - A	19 - 21	18	4
FVB - 0020 - S	19 - 21	18	4
FVB - 0022 - A	21 - 24	20	4
FVB - 0022 - S	21 - 24	20	4
FVB - 0025 - A	24 - 27	22	4
FVB - 0025 - S	24 - 27	22	4
FVB - 0028 - A	27 - 29	25	4
FVB - 0028 - S	27 - 29	25	4

Part Number	Shaft Diameter (mm)	Internal Ring Diameter (mm)	Profile Height (mm)
FVB - 0030 - A	29 - 31	27	4
FVB - 0030 - S	29 - 31	27	4
FVB - 0032 - A	31 - 33	29	4
FVB - 0032 - S	31 - 33	29	4
FVB - 0035 - A	33 - 36	31	4
FVB - 0035 - S	33 - 36	31	4
FVB - 0038 - A	36 - 38	34	4
FVB - 0038 - S	36 - 38	34	4
FVB - 0040 - A	38 - 43	36	5
FVB - 0040 - S	38 - 43	36	5
FVB - 0045 - A	43 - 48	40	5
FVB - 0045 - S	43 - 48	40	5
FVB - 0050 - A	48 - 53	45	5
FVB - 0050 - S	48 - 53	45	5
FVB - 0055 - A	53 - 58	49	5
FVB - 0055 - S	53 - 58	49	5
FVB - 0060 - A	58 - 63	54	5
FVB - 0060 - S	58 - 63	54	5
FVB - 0065 - A	63 - 68	58	6
FVB - 0065 - S	63 - 68	58	5
FVB - 0070 - A	68 - 73	63	6
FVB - 0070 - S	68 - 73	63	6
FVB - 0075 - A	73 - 78	67	6
FVB - 0075 - S	73 - 78	67	6
FVB - 0080 - A	78 - 83	72	6

For availability of additional sizes not listed, please inquire.

Metric Nitrile V Seal Dimensional Data (Continued)

Part Number	Shaft Diameter (mm)	Internal Ring Diameter (mm)	Profile Height (mm)
FVB - 0080 - S	78 - 83	72	6
FVB - 0085 - A	83 - 88	76	6
FVB - 0085 - S	83 - 88	76	6
FVB - 0090 - A	88 - 93	81	6
FVB - 0090 - S	88 - 93	81	6
FVB - 0095 - A	93 - 98	85	6
FVB - 0095 - S	93 - 98	85	6
FVB - 0100 - A	98 - 105	90	6
FVB - 0100 - S	98 - 105	90	6
FVB - 0110 - A	105 - 115	99	7
FVB - 0110 - S	105 - 115	99	7
FVB - 0120 - A	115 - 125	108	7
FVB - 0120 - L	115 - 125	108	6.5
FVB - 0120 - S	115 - 125	108	7
FVB - 0130 - A	125 - 135	117	7
FVB - 0130 - S	125 - 135	117	7
FVB - 0140 - A	135 - 145	126	7
FVB - 0140 - S	135 - 145	126	7
FVB - 0150 - A	145 - 155	135	7
FVB - 0150 - S	145 - 155	135	7
FVB - 0160 - A	155 - 165	144	8
FVB - 0160 - L	155 - 165	144	6.5
FVB - 0160 - S	155 - 165	144	8
FVB - 0170 - A	165 - 175	153	8
FVB - 0170 - L	165 - 175	153	6.5
FVB - 0170 - S	165 - 175	153	8
FVB - 0180 - A	175 - 185	162	8
FVB - 0180 - L	175 - 185	162	6.5
FVB - 0180 - S	175 - 185	162	8
FVB - 0190 - A	185 - 195	171	8
FVB - 0190 - L	185 - 195	171	6.5
FVB - 0190 - S	185 - 195	171	8
FVB - 0199 - A	195 - 210	180	8
FVB - 0199 - S	195 - 210	180	8
FVB - 0200 - A	190 - 210	180	15

Part Number	Shaft Diameter (mm)	Internal Ring Diameter (mm)	Profile Height (mm)
FVB - 0200 - L	195 - 210	182	6.5
FVB - 0220 - A	210 - 235	180	15
FVB - 0220 - L	210 - 233	198	6.5
FVB - 0250 - A	235 - 265	225	15
FVB - 0250 - L	233 - 260	225	6.5
FVB - 0275 - A	265 - 290	247	15
FVB - 0300 - A	290 - 310	270	15
FVB - 0300 - L	285 - 310	270	6.5
FVB - 0325 - A	310 - 335	292	15
FVB - 0350 - A	335 - 365	315	15
FVB - 0350 - L	335 - 365	315	6.5
FVB - 0375 - A	365 - 390	337	15
FVB - 0400 - A	390 - 430	360	15
FVB - 0400 - L	385 - 410	360	6.5
FVB - 0450 - A	430 - 480	405	15
FVB - 0450 - L	440 - 475	405	6.5
FVB - 0500 - A	480 - 530	450	15
FVB - 0550 - A	530 - 580	495	15
FVB - 0600 - L	585 - 610	560	6.5
FVB - 0650 - A	630 - 665	600	15
FVB - 0700 - A	665 - 705	630	15
FVB - 0725 - A	705 - 745	670	15
FVB - 0750 - A	745 - 785	705	15
FVB - 0800 - A	785 - 830	745	15
FVB - 0850 - A	830 - 875	785	15
FVB - 0900 - A	875 - 920	825	15
FVB - 0950 - A	920 - 965	865	15
FVB - 1150 - A	1115 - 1165	1045	15
FVB - 1250 - A	1215 - 1270	1135	15
FVB - 1400 - A	1370 - 1420	1270	15

For availability of additional sizes not listed, please inquire.

Metric Fluoroelastomer V Seal Dimensional Data

Part Number	Shaft Diameter (mm)	Internal Ring Diameter (mm)	Profile Height (mm)
FVV - 0003 - A	2.7 - 3.5	2.5	1.5
FVV - 0005 - A	4.5 - 5.5	4	2
FVV - 0006 - A	5.5 - 6.5	5	2
FVV - 0006 - S	5.5 - 6.5	5	2
FVV - 0007 - S	6.5 - 8.0	6	2
FVV - 0008 - A	7.9 - 9.4	7	2
FVV - 0010 - A	9.5 - 11.5	9	3
FVV - 0010 - S	9.5 - 11.5	9	3
FVV - 0012 - A	11.5 - 13.5	10.5	3
FVV - 0012 - S	11.5 - 13.5	10.5	3
FVV - 0013 - A	12.5 - 13.5	11.7	3
FVV - 0014 - A	13.5 - 15.5	12.5	3
FVV - 0014 - S	13.5 - 15.5	12.5	3
FVV - 0016 - A	15.5 - 17.5	14	3
FVV - 0018 - A	17.5 - 19	16	3
FVV - 0018 - S	17.5 - 19	16	3
FVV - 0020 - A	19 - 21	18	4
FVV - 0020 - S	19 - 21	18	4
FVV - 0022 - A	21 - 24	20	4
FVV - 0022 - S	21 - 24	20	4
FVV - 0025 - A	24 - 27	22	4
FVV - 0025 - S	24 - 27	22	4
FVV - 0028 - A	27 - 29	25	4
FVV - 0028 - S	27 - 29	25	4
FVV - 0030 - A	29 - 31	27	4
FVV - 0030 - S	29 - 31	27	4
FVV - 0032 - S	31 - 33	29	4
FVV - 0035 - A	33 - 36	31	4
FVV - 0035 - S	33 - 36	31	4
FVV - 0038 - A	36 - 38	34	4
FVV - 0040 - A	38 - 43	36	5
FVV - 0040 - S	38 - 43	36	5
FVV - 0045 - A	43 - 48	40	5
FVV - 0045 - S	43 - 48	40	5
FVV - 0050 - A	48 - 53	45	5
FVV - 0050 - S	48 - 53	45	5
FVV - 0055 - A	53 - 58	49	5
FVV - 0060 - A	58 - 63	54	5
FVV - 0060 - S	58 - 63	54	5
FVV - 0065 - A	63 - 68	58	6
FVV - 0065 - S	63 - 68	58	5
FVV - 0070 - A	68 - 73	63	6
FVV - 0070 - S	68 - 73	63	6
FVV - 0075 - A	73 - 78	67	6
FVV - 0075 - S	73 - 78	67	6
FVV - 0080 - A	78 - 83	72	6
FVV - 0080 - S	78 - 83	72	6
FVV - 0085 - A	83 - 88	76	6
FVV - 0085 - S	83 - 88	76	6
FVV - 0090 - A	88 - 93	81	6

Part Number	Shaft Diameter (mm)	Internal Ring Diameter (mm)	Profile Height (mm)
FVV - 0090 - S	88 - 93	81	6
FVV - 0095 - A	93 - 98	85	6
FVV - 0095 - S	93 - 98	85	6
FVV - 0100 - A	98 - 105	90	6
FVV - 0100 - S	98 - 105	90	6
FVV - 0110 - A	105 - 115	99	7
FVV - 0110 - S	105 - 115	99	7
FVV - 0120 - A	115 - 125	108	7
FVV - 0120 - S	115 - 125	108	7
FVV - 0130 - A	125 - 135	117	7
FVV - 0130 - S	125 - 135	117	7
FVV - 0140 - A	135 - 145	126	7
FVV - 0140 - S	135 - 145	126	7
FVV - 0150 - A	145 - 155	135	7
FVV - 0150 - S	145 - 155	135	7
FVV - 0160 - A	155 - 165	144	8
FVV - 0160 - S	155 - 165	144	8
FVV - 0170 - A	165 - 175	153	8
FVV - 0170 - L	165 - 175	153	6.5
FVV - 0170 - S	165 - 175	153	8
FVV - 0180 - A	175 - 185	162	8
FVV - 0180 - S	175 - 185	162	8
FVV - 0190 - A	185 - 195	171	8
FVV - 0190 - S	185 - 195	171	8
FVV - 0199 - A	195 - 210	180	8
FVV - 0199 - S	195 - 210	180	8
FVV - 0200 - A	190 - 210	180	15
FVV - 0220 - A	210 - 235	198	15
FVV - 0250 - A	235 - 265	225	15
FVV - 0250 - L	235 - 265	225	6.5
FVV - 0275 - A	265 - 290	247	15
FVV - 0275 - L	260 - 275	247	6.5
FVV - 0300 - A	290 - 310	270	15
FVV - 0300 - L	290 - 310	270	6.5
FVV - 0350 - A	335 - 365	315	15
FVV - 0375 - A	365 - 390	337	15
FVV - 0400 - A	390 - 430	360	15
FVV - 0400 - L	385 - 410	360	6.5
FVV - 0450 - L	440 - 475	405	6.5
FVV - 0500 - A	480 - 530	450	15
FVV - 0550 - A	530 - 580	495	15
FVV - 0550 - L	540 - 565	495	6.5
FVV - 0600 - A	580 - 630	540	15
FVV - 0600 - L	585 - 625	540	6.5
FVV - 0650 - A	630 - 665	600	15
FVV - 0750 - A	745 - 785	705	15
FVV - 0900 - L	875 - 925	785	6.5
FVV - 0950 - L	925 - 975	865	6.5
FVV - 1000 - L	975 - 1025	910	6.5

For availability of additional sizes not listed, please inquire.

Metric Bonded Seals

Offer extremely dependable sealing at high and low pressures with superior high and low temperature capabilities. Constructed with a metal ring that prevents excessive rubber compression and limits deformation of the elastomeric element. Also reduce bolt torque with no loss of tightening load, resulting in excellent pressure gaskets. APG Metric Bonded Seals are made of Nitrile with a metal ring.



Metric Bonded Seal Dimensional Data

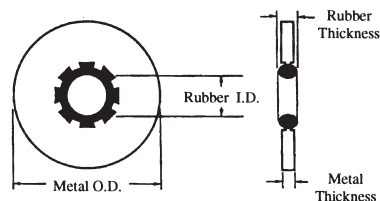
Part Number	Inside Diameter (mm)	Outside Diameter (mm)	Metal Thickness (mm)
MBS - 04.5 - 07.0 - 1.0	4.50	7.00	1.00
MBS - 05.7 - 10.0 - 1.0	5.70	10.00	1.00
MBS - 06.2 - 09.2 - 1.0	6.20	9.20	1.00
MBS - 06.7 - 10.0 - 1.0	6.70	10.00	1.00
MBS - 07.1 - 12.0 - 1.0	7.10	12.00	1.00
MBS - 08.7 - 13.0 - 1.0	8.70	13.00	1.00
MBS - 08.7 - 14.0 - 1.0	8.70	14.00	1.00
MBS - 09.3 - 13.3 - 1.0	9.30	13.30	1.00
MBS - 12.7 - 20.0 - 1.5	12.70	20.00	1.50
MBS - 13.7 - 20.6 - 2.1	13.70	20.60	2.10
MBS - 16.7 - 24.0 - 1.5	16.70	24.00	1.50
MBS - 18.7 - 26.0 - 1.5	18.70	26.00	1.50
MBS - 19.7 - 26.9 - 2.5	19.70	26.90	2.50
MBS - 21.5 - 28.5 - 2.5	21.50	28.50	2.50
MBS - 22.7 - 30.0 - 2.0	22.70	30.00	2.00
MBS - 23.5 - 31.8 - 2.5	23.50	31.80	2.50
MBS - 26.7 - 35.0 - 2.0	26.70	35.00	2.00
MBS - 27.0 - 35.0 - 2.5	27.00	35.00	2.50
MBS - 27.2 - 36.0 - 2.0	27.20	36.00	2.00
MBS - 31.0 - 39.0 - 2.0	31.00	39.00	2.00
MBS - 51.7 - 63.5 - 3.4	51.70	63.50	2.00

For availability of additional sizes not listed, please inquire.

Fastener Seals And Thread Seals

Fastener Seals

Fastener seals are one-piece, molded-in-place seals with the rubber sealing element mechanically locked to the metal retainer. They are designed to seal beneath the head of the fastener for both internal and external pressure systems.



The principle of controlled confinement is utilized in the design of fastener seals. As the fastener is tightened, the rubber seal is compressed, forcing the sealing surfaces securely around the fastener shank - but without squeezing the rubber beyond its elastic limit, or destroying its inherent memory. With fastener seals, there is full metal-to-metal contact at the joining surfaces.

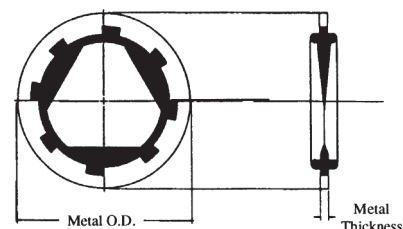
Faster seals provide self-centering for the seal, vacuum sealing, high-pressure sealing, long service, easy installation, moderate torquing, no retorquing, and quick visual inspection.

The 600-Series fastener seals at APG are 70 durometer nitrile and commercial zinc plated steel, or 70 durometer silicone and commercial zinc plated steel. They are available in standard sizes for bolts and screws as listed below.

SIZE DASH NUMBER	PART NUMBER		THREAD MAJOR DIAMETER	RUBBER I.D.	METAL O.D.	METAL THICKNESS	RUBBER THICKNESS
	NITRILE	SILICONE					
-6	AFS600-0101-6	*	.138	.130	.385	.040	.050
-8	*	*	.164	.156	.385	.040	.050
-10	AFS600-0101-10	*	.190	.180	.443	.050	.072
-10 O.S.	AFS600-0101-10OS	*	.190	.186	.468	.050	.072
-¼	AFS600-0101-¼	AFS600-6230-¼	.250	.240	.505	.050	.072
-¼ O.S.	AFS600-0101-¼ O.S.	*	.250	.245	.531	.050	.072
-⅝	AFS600-0101-⅝	*	.312	.301	.603	.050	.072
-¾	AFS600-0101-¾	AFS600-6230-¾	.375	.364	.666	.050	.072
-7/16	AFS600-0101-7/16	*	.438	.427	.760	.050	.072
-½	AFS600-0101-½	*	.500	.490	.880	.050	.072
-⅝	AFS600-0101-⅝	*	.562	.552	1.067	.050	.072
-⅞	AFS600-0101-⅞	*	.625	.615	1.193	.050	.072
-¾	AFS600-0101-¾	*	.750	.740	1.322	.064	.096
-7/8	AFS600-0101-7/8	*	.875	.864	1.510	.064	.096
-1	AFS600-0101-1	*	1.000	.988	1.760	.064	.096

* Not currently an APG stock item. Call for availability.

Thread Seals



Like fastener seals, thread seals are one-piece molded-in-place seals with the rubber sealing element mechanically locked to the metal retainer. They are designed to seal beneath the nut of the fastener and seal directly against the threads of the fastener. This design allows thread seals to block the spiral passage created by the threads that might permit the fluid to wind its way through the helix. When the thread seal is compressed between the nut and the mating surface, the squeeze on the crown causes the inside of the seal to bulge inward and hug the crest of the thread. This blocks the axial outside leak path. The thread seal also has three wedge-shaped protrusions inside the cylinder hole. Since all standard screw threads have only a single V-shaped spiral channel, one of these wedges will always be in a position to block the flow of fluid through this channel.

Thread seals are self-centering and non-directional. Their low cost can provide considerable savings because they make possible the use of low cost standard fasteners and full threaded fittings. No special tools or skills are needed for assembly.

The 7500-Series thread seals at APG are 70 durometer nitrile and commercial zinc plated steel, or 70 durometer fluorelastomer and commercial zinc plated steel. They are available in standard sizes for bolts and screws as listed below.

SIZE DASH NUMBER	PART NUMBER		METAL O.D.	METAL THICKNESS
	NITRILE	FLUORELASTOMER		
-6	*	*	.406	.051
-8	*	*	.406	.051
-10	ATS7500-10	*	.469	.051
-¼	ATS7500-¼	*	.562	.051
- $\frac{5}{16}$	ATS7500- $\frac{5}{16}$	*	.687	.064
- $\frac{3}{8}$	ATS7500- $\frac{3}{8}$	ATS7500- $\frac{3}{8}$ VT	.750	.064
- $\frac{7}{16}$	*	*	.906	.078
-½	ATS7500-½	*	1.000	.078
- $\frac{5}{8}$	*	*	1.094	.094
-¾	ATS7500-¾	ATS7500-¾VT	1.187	.094
-1	ATS7500-1	*	1.375	.109
		*	1.562	.109
		*	1.750	.120

* Not currently an APG stock item. Call for availability.

Machined Seals

Standard Items:

- **Back-Up Rings**
- **Wipers**
- **Guide Rings**
- **Piston Seals**
- **Rod Seals**
-

Red Urethane — Thermoplastic polyurethane (water resistant) suitable for use in high pressure hydraulic sealing applications. Extremely wear and extrusion resistant. Stabilized to prevent deterioration in water based fluids, therefore suitable in hydraulic applications utilizing water and water based fluids. 96 Durometer. Conforms to FDA CFR 21-177.2600.

Nylon — Thermoplastic widely used for sealing components such as back-up rings and special shapes. Low absorption of water (low swelling) and strong mechanical properties make this material ideal for bearings and guide-rings. 85 Durometer. Machinability is excellent. FDA food service approved.

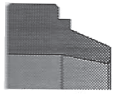
NBR (Nitrile; Buna-N) — Most commonly used compound for sealing applications. Highly abrasion resistant and highly elastic (allowing for ease of installation). Frequently used in hydraulic and pneumatic applications. 85 Durometer.

Fluorocarbon Rubber — Fluoroelastomer resistant to ozone and weathering; has excellent resistance to heat. Most chemically resistant material of all the elastomers. Typically used in HFD fluids (Phosphate Ester and Chlorinated Hydrocarbon based fluids). 85 Durometer. Black.

PTFE — Thermoplastic fluoroethylene offers a combination of qualities not found in any other material — chemical inertness, heat resistance, low friction, dielectric strength, weatherability, zero water absorption, toughness, and flexibility. White.

Machined Seals

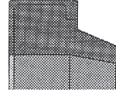
Standard Wiper Profiles



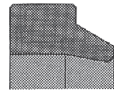
DA 101



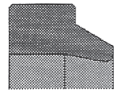
DA 102



DA 103



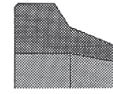
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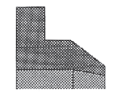
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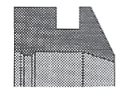
DA 106



DA 107



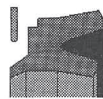
DA 108



DA 109



DA 211



DA 212



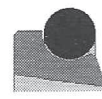
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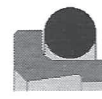
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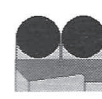
DA 114



DA 115



DA 116



DA 117



DA 118

Standard Piston Seal Profiles



DK 101



DK 102



DK 102R



DK 103



DK 104



DK 104R



DK 105



DK 205



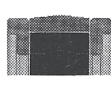
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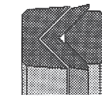
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DK 108



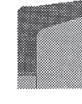
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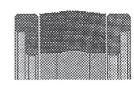
DK 110-112



DK 116



DK 216



DK 117



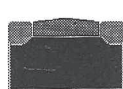
DK 118



DK 119



DK 120



DK 122



DK 222



DK 123



DK 124



DK 125



DK 126



DK 127



DK 138



DK 238



DK 139



DK 140



DK 141



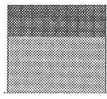
DK 142

Machined Seals

Standard Guide Ring Profiles



DF 101



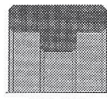
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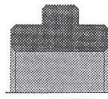
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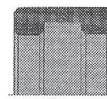
DF 104



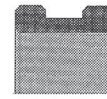
DF 105



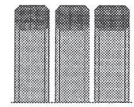
DF 106



DF 107



DF 108



DFB 102

Standard Rod Seal Profiles



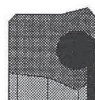
DS 101



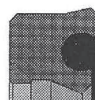
DS 102



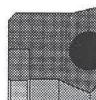
DS 102R



DS 103



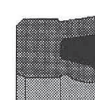
DS 104



DS 104R



DS 105



DS 205



DS 106



DS 107



DS 108



DS 109



DS 110-112



DS 116



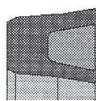
DS 216



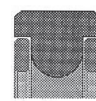
DS 117



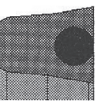
DS 117R



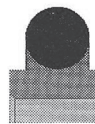
DS 119



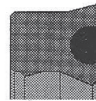
DS 120



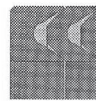
DS 121



DS 124



DS 125



DS 126-128



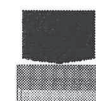
DS 129



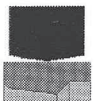
DS 130



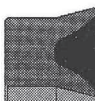
DS 131



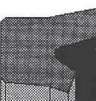
DS 138



DS 238



DS 139



DS 141



DS 142

The APG Product Line

Industrial Hose Couplings

Ball Valves
 Cam and Groove
 EVER-TITE®
 Tough-TITE™
 U-TITE®
 Clamps
 Double Bolt
 High Pressure
 Spiral
 Steel Bands
 Preformed
 Open-end
 Worm Gear
 Combination Nipples
 Foot Valves
 Garden Hose
 Gate Valves
 Ground Joint
 Menders
 Nipples
 Pin-lug
 Push-on Hose Barbs
 Standard Hose Barbs
 Quick Disconnects
 Sandblast
 Strainers
 Universal Crowfoot

Pressure Gauges

Dry – Black Steel w/Brass
 Connections
 Liquid Filled
 Stainless Steel Case w/ Brass
 Connections
 All Stainless Steel

O-Rings

Aflas® 80 Durometer
 Chloroprene 70 Durometer
 E.P.R. 70 Durometer
 Standard & Metric
 E.P.R. Peroxide Cured
 70 Durometer NSF
 Standard 80 Durometer
 Fluoroelastomer – Black
 Standard 75 & 90 Durometer
 Metric 75 & 90 Durometer
 Fluoroelastomer – Brown
 75 & 90 Durometer
 Fluorosilicone 70 Durometer
 Highly Saturated Nitrile
 Green 70 Durometer
 Standard & Metric
 Black 70 & 90 Durometer
 Blue TFE Coated 70
 Durometer

O-Rings (continued)

Kalraz® 4079
 Nitrile - Black
 Standard 50, 70, & 90
 Durometer
 Metric 70 & 90 Durometer
 Nitrile - Black - Peroxide Cured
 Large Cross Section
 70 Durometer
 90 Durometer
 Nitrile - White 70 Durometer
 Nitrile Metal Detectable (FDA)
 70 Durometer
 Nitrile FDA 70 Durometer
 PTFE
 Silicone 70 Durometer
 Standard & Metric
 Silicone FDA 70 Durometer
 Square Cut Rings
 Nitrile 70 Durometer
 Teflon® Encapsulated
 Viton® Core
 Silicone Core
 Urethane 70 & 90 Durometer
 4 Lobe Q-Rings
 Nitrile 70 Durometer
 Fluoroelastomer 75
 Durometer
 Minnesota Quad-Rings®
 Nitrile 70 Durometer
 Viton® 70 Durometer
 Non-Standard Sizes (Vulcanized)
 Kits
 Standard
 Metric
 Splicing
 Specialty
 O-Ring Accessories
 Measuring Devices
 (Cones)
 (Tapes)
 (Sizing Charts)
 (Gauges)
 (Compound Identifiers)
 Lubricants
 Picks

Back-Up Rings

PTFE
 Solid
 Split
 Spiral
 Contoured Back-Up Rings
 Nitrile 90 Durometer
 Fluoroelastomer 90
 Durometer
 Leather

O-Ring Cord

Aflas® 75 Durometer
 E.P.R. 70 Durometer
 Fluoroelastomer - Black
 Inch 75 & 90 Durometer
 Metric 75 Durometer
 Square 75 Durometer
 Fluoroelastomer – Brown
 75 Durometer
 Neoprene 70 Durometer
 Neoprene Sponge - Closed Cell
 Nitrile
 Inch – 50, 70, & 90 Durometer
 Metric – 70 & 90 Durometer
 Square – 70 Durometer
 Silicone 70 Durometer
 4-Lobe Q-Ring
 Nitrile 70 Durometer
 Fluoroelastomer 75
 Durometer

Extrusions

EPDM
 Fluoroelastomer
 Neoprene - White
 Neoprene Sponge - Closed Cell
 Silicone - Gray

Hydraulic Seals

Loaded Lip Seals
 Metal Clad Wipers
 Metric Bonded Seals
 Metric Compact Piston Seals
 Metric Oil Seals
 Metric U-Cups
 Metric V Seals
 Metric Wipers
 Piston Cups
 Rod Wipers
 T-Seals
 U-Cups
 Vee Packings
 Wear Rings
 Wear Strips
 WV Rings

Custom Molded Rubber Products

Mandrel Built & Lathe Cut
 Products
 Rubber Roll Coverings
 Rubber / Fabric Products
 Rubber to Metal Bonding

The APG Product Line (continued)

Sheet Material

Black Rubber Sponge -
 Open Cell
 Black Rubber - Cloth Inserted
 Butyl
 Chipboard
 Compressed Non-Asbestos
 Cork
 Cork and Buna-N
 Cork and Neoprene
 Cork and Neoprene Spiral
 Ribbon
 Cork and Synthetic Rubber -
 Adhesive Backed
 EPDM
 Felt – Gray, White, & Green
 Fibre-Cork
 Fiberglass Cloth
 Fiberglass Wire Inserted
 Tacky Cloth
 Filled PTFE
 Fish Paper
 Flexible Graphite
 Fluoroelastomer
 Fluoroelastomer - Nylon Inserted
 Gum Rubber
 Hypalon
 Leather
 Koroseal®
 Neoprene 40, 60, 70, &
 72 Durometer
 Neoprene Cotton and
 Nylon Inserted
 Nitrile 50, 60, & 90 Durometer
 Nitrile - White 50-65 Durometer
 Nitrile Sponge - Closed Cell
 Nitrile Nylon Inserted
 Nitrile - Transformer Grade
 Nomex® Paper
 Nylon
 PCTFE
 Plant (Vegetable) Fiber
 Red Rubber
 Silicone 50 and 70 Durometer
 Silicone Sponge
 Tank Gasket
 TFE and TFE Glass Filled
 Vinyl Matting
 Vulcanized Fiber –
 Bone Hard - Red

Fabrication

Gaskets
 Water-jet Cut
 Steel Rule Die Cut
 Industrial Glass
 Pipeline Scraper Discs

Fabrication (continued)

Stripping (with optional
 adhesive backing)
 Tank Strips & Gaskets
 Vulcanizing
 Non-Standard O-Rings
 Sleeves
 Gaskets

Spiral Wound Gaskets

304 Stainless Steel / Graphite
 316 Stainless Steel / Graphite

Packing

Aramid Filament
 Carbon / Graphite
 Carbon / TFE
 Flax and Flax / TFE
 General Service Packing
 G.F.O.®
 Graphite Filament
 Inconel Wire-Inserted
 Novoloid Fiber / PTFE
 Pre-Lubed TFE Yarn
 Pre-Lubed TFE Yarn (FDA)
 PTFE Cord Packing
 Stuffing Box Packing (S.B.S.)
 TFE Yarn
 Twisted Fiberglass Rope & Wick

Industrial Glass

Tubular Gauge Glass
 Standard
 High Pressure
 Red Line
 Heavy Wall
 Heavy Wall Red Line
 Borosilicate Flat Glass
 Circles
 Rectangles
 Squares
 Flat Gauge Glass
 Plain
 High Pressure
 Reflex
 Vycor® Brand Flat Glass
 Circles
 Rectangles
 Squares
 Pyrex® Brand Annular Edge
 Sight Glass
 Annealed
 Tempered
 Fused Quartz
 Circles
 Rectangles
 Squares

Industrial Glass (continued)

Glass Accessories
 Guard Rods – Brass
 Water Gauges – Brass
 Gauge Glass Cutters
 Gauge Glass Gaskets
 PCTFE Shields
 Mica Shields

Plastic Products

Die-Cut Plastic Products
 Replacement Safety Visors
 Safety Visor Headgear
 Safety Visor Hardhat
 Adapters
 Replacement Lenses for
 Sandblasting Helmets
 Plastics for the Printing
 Industry
 Custom Fabricated Die-Cut
 Plastic Products
 Machined Plastic Products

Specialty & Miscellaneous Products

Fastener Seals
 Thread Seals
 Tools
 Gasket Cutters
 Gasket Knives
 Gauge Glass Cutters
 Packing Hooks
 O-Ring Picks
 Punches & Punch Sets
 Clamping System Tools
 Tapes
 Fiberglass
 Kapton®
 Polyester
 Silicone Adhesive Backed –
 Solid
 Silicone Adhesive Backed –
 Sponge
 Teflon® Fiberglass
 TFE Pipe Thread Tape
 Adhesives
 PTFE Flange Sealant
 Stop-It® Pipe Repair System

Our Policy

Prices

Prices quoted are for acceptance within thirty days from date quoted. Unless specified, prices are based on our receiving order for quantities quoted.

Terms

Our terms of payment are 1% 10, net 30 days, unless other arrangements are made through our credit department.

Minimum Invoice

Orders consisting of O-Rings Only - \$5.00

Orders consisting of O-Rings and/or All Other Products (Excluding Plastic Products) - \$15.00

City Sales Counter - \$35.00

Plastic Products - \$50.00

Warranty

Products are warranted against defects in workmanship and defects in material. Products having such defects will be replaced or credited as APG elects. Liability is limited to the invoice value of the defective item. Our responsibility shall not exceed the original purchase price of the defective product. In any event, APG shall not be held responsible for any special or consequential damages. In all cases, please contact us for approval and routing of return items. All claims of shortage or damage must be made within 30 days after receipt of shipment.

Freight

All orders totaling less than \$1500 at NET prices are F.O.B. our warehouse with no freight allowance. Orders totaling \$1500 or more at NET prices, any product mix, receive full freight prepaid and allowed, provided such orders are for one shipment within the lower 48 continental United States and provided our normal freight modes are used. Special delivery charges incurred at the customer's request are for the customer's account. Exceptions to this freight prepaid and allowed policy: all glass products. These products are F.O.B. our warehouse with no freight allowance unless other items on the order total \$1500 or more at NET prices.

Catalog Information

Various information sources were used to compile this catalog. We offer this information only as a guide and cannot assume responsibility for accuracy of the data herein. Prices listed are current, subject to change.