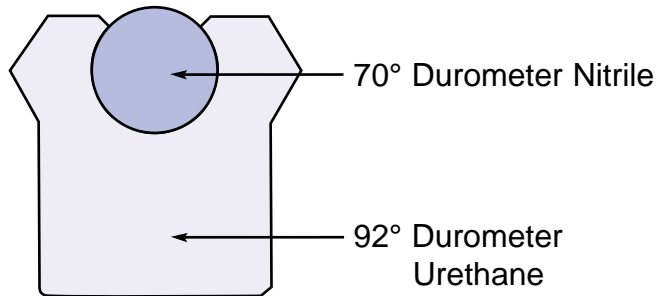


<b>Loaded Lip Seals .....</b>	<b>1</b>
<b>Standard.....</b>	<b>1</b>
<b>Type “B” .....</b>	<b>1</b>
<b>Deep Style .....</b>	<b>1</b>
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<b>Dimensions .....</b>	<b>3</b>
<b>Standard .....</b>	<b>3</b>
<b>Type “B” .....</b>	<b>8</b>
<b>Deep Style.....</b>	<b>13</b>
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# 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. American Packing Loaded Lip Seals are molded from 92 Durometer Urethane with a 70 Durometer Nitrile energizer. The energizer ensures constant pressure on the sealing lips.

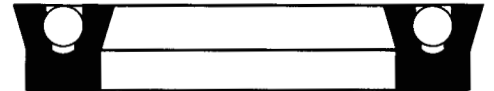
Temperature: -65° to +300°F

Pressure: 0 to 5000 psi

Fluids: Petroleum based Hydraulic Fluids

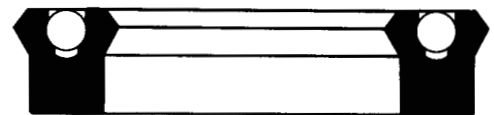
## Standard Loaded Lip Seal

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.



## Loaded Lip Seal 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.

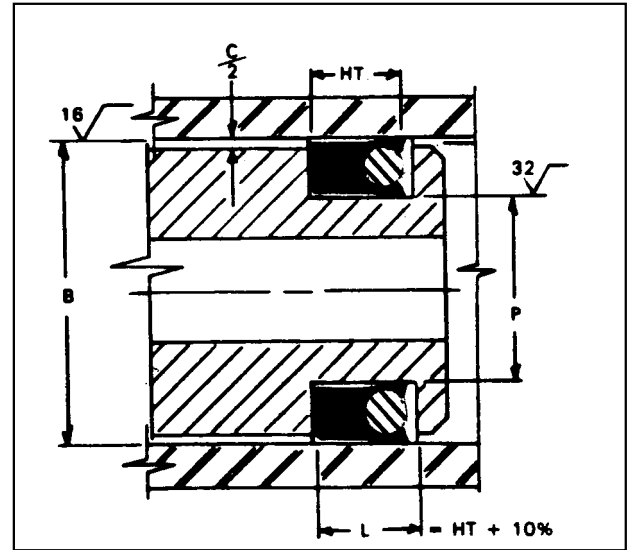
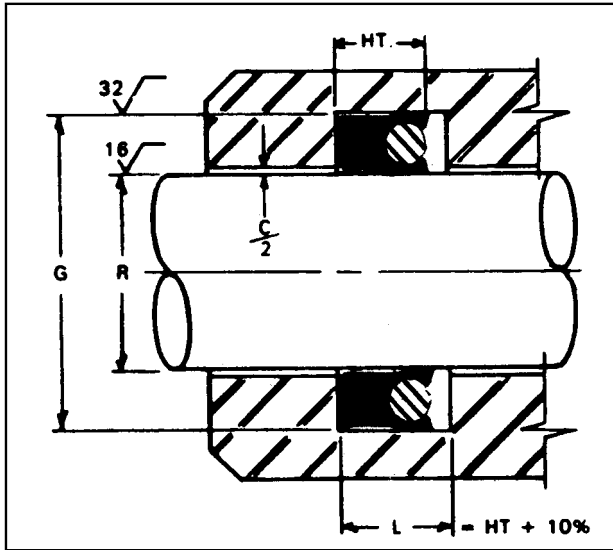


## Loaded Lip Seal – Deep Style

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. (Note: At the printing of this catalog, the Deep Style was not a stock item at American Packing, but was readily available. Please inquire.)



# 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 Dimensions

## Standard Loaded Lip Seals

Part Number	Inside Diameter (Inches)	Outside Diameter (Inches)
<b>1/8" Cross Section</b>		
**	1/16	5/16
**	3/32	11/32
L12500125	1/8	3/8
L12500187	3/16	7/16
L12500250	1/4	1/2
L12500312	5/16	9/16
**	23/64	39/64
L12500375	3/8	5/8
L12500437	7/16	11/16
L12500500	1/2	3/4
**	17/32	25/32
**	9/16	13/16
L12500625	5/8	7/8
**	11/16	15/16
L12500750	3/4	1
**	13/16	1 1/16
L12500875	7/8	1 1/8
**	29/32	1 5/32
**	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
**	1 7/16	1 11/16
L12501500	1 1/2	1 3/4
**	1 9/16	1 13/16
L12501625	1 5/8	1 7/8
**	1 11/16	1 15/16
L12501750	1 3/4	2
**	1 7/8	2 1/8
L12502000	2	2 1/4
**	2 1/8	2 3/8
L12502250	2 1/4	2 1/2
**	2 3/8	2 5/8
L12502500	2 1/2	2 3/4
**	2 5/8	2 7/8
L12502750	2 3/4	3
**	2 7/8	3 1/8
L12503000	3	3 1/4
L12503250	3 1/4	3 1/2
**	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)
<b>5/32" Cross Section</b>		
**	7/16	3/4
L15600750	3/4	1 1/16
**	15/16	1 1/4
L15601000	1	1 5/16
L15601187	1 3/16	1 1/2
L15601250	1 1/4	1 9/16
L15601375	1 3/8	1 11/16
**	2 1/16	2 3/8
<b>11/64" Cross Section</b>		
**	9/16	29/32
<b>3/16" Cross Section</b>		
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
**	9/16	15/16
L18700625	5/8	1
**	21/32	1 1/32
**	11/16	1 1/16
L18700750	3/4	1 1/8
**	13/16	1 3/16
L18700875	7/8	1 1/4
**	15/16	1 5/16
L18701000	1	1 3/8
**	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
**	1 9/16	1 15/16
L18701625	1 5/8	2
**	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
**	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)
<b>3/16" Cross Section (Continued)</b>		
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
<b>7/32" Cross Section</b>		
**	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
<b>1/4" Cross Section</b>		
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
**	11/16	1 3/16
L25000750	3/4	1 1/4
**	13/16	1 5/16
L25000875	7/8	1 3/8
**	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

# Standard Loaded Lip Seals (Continued)

Part Number	Inside Diameter (Inches)	Outside Diameter (Inches)
<b>1/4" Cross Section (Continued)</b>		
**	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
**	3.85	4.35
L25003875	3 7/8	4 3/8
L25004000	4	4 1/2
**	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
**	4 5/8	5 1/8
L25004750	4 3/4	5 1/4
**	4 7/8	5 3/8
L25005000	5	5 1/2
**	5 1/8	5 5/8
L25005250	5 1/4	5 3/4
**	5 3/8	5 7/8
L25005500	5 1/2	6
**	5 5/8	6 1/8
L25005750	5 3/4	6 1/4
**	5 7/8	6 3/8
L25006000	6	6 1/2
**	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
**	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
L25008500	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

Part Number	Inside Diameter (Inches)	Outside Diameter (Inches)
<b>1/4" Cross Section (Continued)</b>		
**	10 3/4	11 1/4
**	10 7/8	11 3/8
**	11	11 1/2
**	11 1/4	11 3/4
**	11 1/2	12
**	12	12 1/2
**	12 1/2	13
**	13	13 1/2
**	13 1/2	14
**	24 1/2	25
<b>9/32" Cross Section</b>		
**	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
**	5 7/16	6
**	6 7/16	7
**	8 1/2	9 1/16
<b>5/16" Cross Section</b>		
**	1/4	7/8
**	3/8	1
**	7/16	1 1/16
**	1/2	1 1/8
**	5/8	1 1/4
**	11/16	1 5/16
**	3/4	1 3/8
**	7/8	1 1/2
L31201000	1	1 5/8
**	1 1/16	1 11/16
L31201125	1 1/8	1 3/4
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
**	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)
<b>5/16" Cross Section (Continued)</b>		
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
**	5	5 5/8
**	5 1/8	5 3/4
L31205250	5 1/4	5 7/8
**	5 3/8	6
L31205500	5 1/2	6 1/8
**	5 7/8	6 1/2
L31206000	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
**	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
<b>11/32" Cross Section</b>		
**	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
<b>23/64" Cross Section</b>		
**	29/32	1 5/8
<b>3/8" Cross Section</b>		
**	1/2	1 1/4
**	5/8	1 3/8
**	3/4	1 1/2
**	7/8	1 5/8
**	15/16	1 11/16

# Standard Loaded Lip Seals (Continued)

Part Number	Inside Diameter (Inches)	Outside Diameter (Inches)
<b>3/8" Cross Section (Continued)</b>		
L37501000	1	1 3/4
**	1 1/8	1 7/8
L37501250	1 1/4	2
**	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
**	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
**	3 7/8	4 5/8
L37504000	4	4 3/4
**	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
**	4 7/8	5 5/8
L37505000	5	5 3/4
**	5 1/8	5 7/8
L37505250	5 1/4	6
**	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
L37506750	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
L37507750	7 3/4	8 1/2

Part Number	Inside Diameter (Inches)	Outside Diameter (Inches)
<b>3/8" Cross Section (Continued)</b>		
**	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
L37509000	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
L37510250	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
<b>13/32" Cross Section</b>		
**	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
<b>7/16" Cross Section</b>		
**	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)
<b>7/16" Cross Section (Continued)</b>		
**	4	4 7/8
**	4 1/2	5 3/8
**	4 3/4	5 5/8
**	5 1/8	6
**	5 1/2	6 3/8
<b>1/2" Cross Section</b>		
**	5/8	1 5/8
**	1	2
**	1 1/8	2 1/8
**	1 1/4	2 1/4
**	1 5/16	2 5/16
**	1 3/8	2 3/8
**	1 1/2	2 1/2
**	1 3/4	2 3/4
**	1 7/8	2 7/8
L50002000	2	3
**	2 1/4	3 1/4
**	2 3/8	3 3/8
L50002500	2 1/2	3 1/2
**	2 3/4	3 3/4
**	2 7/8	3 7/8
L50003000	3	4
**	3 1/4	4 1/4
L50003500	3 1/2	4 1/2
**	3 5/8	4 5/8
L50003750	3 3/4	4 3/4
L50004000	4	5
**	4 1/8	5 1/8
L50004250	4 1/4	5 1/4
**	4 5/16	5 5/16
**	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
**	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
L50008000	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

# Standard Loaded Lip Seals (Continued)

Part Number	Inside Diameter (Inches)	Outside Diameter (Inches)
<b>1/2" Cross Section (Continued)</b>		
**	9 3/4	10 3/4
**	10	11
**	10 1/2	11 1/2
**	10 3/4	11 3/4
**	10 7/8	11 7/8
L50011000	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
<b>9/16" Cross Section</b>		
**	2 1/2	3 5/8
**	5 1/2	6 5/8
**	6 3/4	7 7/8
<b>5/8" Cross Section</b>		
**	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
**	3 1/2	4 3/4
L62503750	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)
<b>5/8" Cross Section (Continued)</b>		
L62505000	5	6 1/4
**	5 1/2	6 3/4
**	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
<b>11/16" Cross Section</b>		
**	3	4 3/8
<b>3/4" Cross Section</b>		
**	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)
<b>3/4" Cross Section (Continued)</b>		
**	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
<b>7/8" Cross Section</b>		
**	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
<b>1" Cross Section</b>		
**	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
<b>1 1/16" Cross Section</b>		
**	4 1/2	6 5/8

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

# Loaded Lip Seals Type "B"

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
<b>1/8" Cross Section</b>			
**	1/8	3/8	1/4
L12500187250B	3/16	7/16	1/4
**	1/4	1/2	1/4
**	5/16	9/16	1/4
**	3/8	5/8	1/4
**	7/16	11/16	1/4
**	1/2	3/4	1/8
L12500500250B	1/2	3/4	1/4
**	9/16	13/16	1/4
**	5/8	7/8	3/16
L12500625250B	5/8	7/8	1/4
**	11/16	15/16	1/4
**	3/4	1	1/8
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
**	1	1 1/4	5/32
**	1	1 1/4	3/16
L12501000250B	1	1 1/4	1/4
L12501062250B	1 1/16	1 5/16	1/4
**	1 1/8	1 3/8	1/4
L12501187250B	1 3/16	1 7/16	1/4
**	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
**	1 7/16	1 11/16	1/4
L12501500250B	1 1/2	1 3/4	1/4
L12501750250B	1 3/4	2	1/4
L12501875250B	1 7/8	2 1/8	1/4
**	2	2 1/4	3/16
L12502125250B	2 1/8	2 3/8	1/4
L12502500250B	2 1/2	2 3/4	1/4
**	2 3/4	3	1/4

<b>3/16" Cross Section</b>			
**	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
**	9/16	15/16	5/16
L18700625312B	5/8	1	5/16
**	11/16	1 1/16	5/16
L18700750312B	3/4	1 1/8	5/16
**	13/16	1 3/16	5/16
L18700875312B	7/8	1 1/4	5/16
**	15/16	1 5/16	5/16
L18701000312B	1	1 3/8	5/16
**	1 1/16	1 7/16	5/16
L18701125312B	1 1/8	1 1/2	5/16
L18701187312B	1 3/16	1 9/16	5/16
**	1 1/4	1 5/8	1/4
L18701250312B	1 1/4	1 5/8	5/16
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

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
<b>3/16" Cross Section (Continued)</b>			
**	1 7/16	1 13/16	5/16
**	1 1/2	1 7/8	1/4
**	1 1/2	1 7/8	.260
L18701500312B	1 1/2	1 7/8	5/16
**	1 1/2	1 7/8	3/8
L18701625312B	1 5/8	2	5/16
L18701625375B	1 5/8	2	3/8
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
L18702125375B	2 1/8	2 1/2	3/8
L18702250375B	2 1/4	2 5/8	3/8
L18702375375B	2 3/8	2 3/4	3/8
**	2 3/8	2 3/4	7/16
**	2 1/2	2 7/8	1/4
L18702500375B	2 1/2	2 7/8	3/8
**	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
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
**	3 3/8	3 3/4	3/16
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
**	4	4 3/8	3/16
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
**	5 1/2	5 7/8	3/8

<b>1/4" Cross Section</b>			
**	1/4	3/4	3/8
**	.353	.853	3/8
**	7/16	15/16	3/8
**	.478	.978	3/8
L25000500375B	1/2	1	3/8
**	9/16	1 1/16	3/8
L25000625375B	5/8	1 1/8	3/8
**	11/16	1 3/16	3/8
L25000750375B	3/4	1 1/4	3/8
L25000875375B	7/8	1 3/8	3/8
L25001000375B	1	1 1/2	3/8
**	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

# Loaded Lip Seals Type "B" (Continued)

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
<b>1/4" Cross Section (Continued)</b>			
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
**	2	2 1/2	1/4
L25002000375B	2	2 1/2	3/8
**	2 1/8	2 5/8	1/4
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
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
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
L25004000375B	4	4 1/2	3/8
**	4	4 1/2	1/2
**	4	4 1/2	9/16
**	4 1/16	4 9/16	3/8
**	4 1/8	4 5/8	9/16
L25004250375B	4 1/4	4 3/4	3/8
**	4 1/4	4 3/4	9/16
**	4 7/16	4 15/16	3/8
**	4 1/2	5	1/2
L25004500375B	4 1/2	5	3/8
**	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
**	4 3/4	5 1/4	9/16
L25004875375B	4 7/8	5 3/8	3/8
**	4 7/8	5 3/8	9/16
L25005000375B	5	5 1/2	3/8
**	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
**	5 1/2	6	9/16
**	5 5/8	6 1/8	9/16
**	5 3/4	6 1/4	9/16
L25006000375B	6	6 1/2	3/8
**	6	6 1/2	7/16
**	6	6 1/2	9/16
**	6 1/4	6 3/4	9/16
L25006500375B	6 1/2	7	3/8
**	6 1/2	7	9/16
**	6 3/4	7 1/4	3/8
**	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

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
<b>1/4" Cross Section (Continued)</b>			
L25007500562B	7 1/2	8	9/16
L25007750562B	7 3/4	8 1/4	9/16
L25008000562B	8	8 1/2	9/16
**	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
**	8 1/2	9	9/16
**	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
<b>9/32" Cross Section</b>			
**	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
<b>5/16" Cross Section</b>			
**	3/4	1 3/8	1/2
L31201000500B	1	1 5/8	1/2
**	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
**	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
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
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

# Loaded Lip Seals Type "B" (Continued)

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
<b>5/16" Cross Section (Continued)</b>			
L3120337500B	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
**	4 1/8	4 3/4	9/16
L31204250562B	4 1/4	4 7/8	9/16
L31204375562B	4 3/8	5	9/16
L31204500625B	4 1/2	5 1/8	5/8
**	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
L31206500625B	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
<b>3/8" Cross Section</b>			
**	1 1/4	2	5/8
**	1 3/8	2 1/8	5/8
L37501500625B	1 1/2	2 1/4	5/8
**	1 5/8	2 3/8	5/8
L37501750625B	1 3/4	2 1/2	5/8
L37502000625B	2	2 3/4	5/8
L37502250625B	2 1/4	3	5/8
L37502375625B	2 3/8	3 1/8	5/8
L37502500625B	2 1/2	3 1/4	5/8
L37502625625B	2 5/8	3 3/8	5/8
L37502750625B	2 3/4	3 1/2	5/8
L37502875625B	2 7/8	3 5/8	5/8
**	3	3 3/4	1/2
L37503000625B	3	3 3/4	5/8
**	3 1/8	3 7/8	5/8
**	3 1/4	4	1/2
L37503250625B	3 1/4	4	5/8
L37503375625B	3 3/8	4 1/8	5/8
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
**	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

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
<b>3/8" Cross Section (Continued)</b>			
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
L37505625625B	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
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
**	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
L37508000625B	8	8 3/4	5/8
L37508250625B	8 1/4	9	5/8
L37508500625B	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
L37509000625B	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
<b>7/16" Cross Section</b>			
**	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

# Loaded Lip Seals Type "B" (Continued)

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
<b>7/16" Cross Section (Continued)</b>			
**	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
<b>1/2" Cross Section</b>			
**	1 1/8	2 1/8	3/4
**	1 1/2	2 1/2	3/4
**	1 3/4	2 3/4	3/4
L50002000750B	2	3	3/4
**	2 1/2	3 1/2	3/4
L50003000750B	3	4	3/4
**	3 1/4	4 1/4	3/4
L50003500750B	3 1/2	4 1/2	3/4
**	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
**	4 3/4	5 3/4	3/4
L50005000750B	5	6	3/4
**	5 1/4	6 1/4	1/2
**	5 1/4	6 1/4	3/4
L50005500750B	5 1/2	6 1/2	3/4
L50005750750B	5 3/4	6 3/4	3/4
L50006000750B	6	7	3/4
**	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
**	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
**	10	11	3/4
**	10 1/4	11 1/4	3/4
**	10 1/2	11 1/2	3/4
L500011000750B	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

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
<b>1/2" Cross Section (Continued)</b>			
**	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
<b>9/16" Cross Section</b>			
**	2 3/8	3 1/2	7/8
**	12 9/16	13 11/16	7/8
<b>5/8" Cross Section</b>			
**	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
**	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
<b>3/4" Cross Section</b>			
**	8	9 1/2	1 1/4
**	8 1/2	10	1 1/8
**	9 3/4	11 1/4	1 1/4

# Loaded Lip Seals Type "B" (Continued)

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
<b>3/4" Cross Section (Continued)</b>			
**	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
<b>1" Cross Section</b>			
**	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

**Remember:**

**Same or next day shipment on stock items.**

# Loaded Lip Seals - Deep Style

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
<b>1/8" Cross Section</b>			
**	1/4	1/2	1/4
**	5/16	9/16	1/4
**	7/16	11/16	1/4
**	1/2	3/4	1/4
L12500562250	9/16	13/16	1/4
**	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
L12501750250	1 3/4	2	1/4
**	2	2 1/4	1/4
**	2 3/8	2 5/8	1/4
**	2 1/2	2 3/4	1/4
**	3	3 1/4	1/4
<b>3/16" Cross Section</b>			
**	1/4	5/8	5/16
**	3/8	3/4	5/16
L18700625312	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
L18700875312	7/8	1 1/4	5/16
**	7/8	1 1/4	3/8
**	1	1 3/8	1/4
L18701000312	1	1 3/8	5/16
**	1 1/16	1 7/16	5/16
**	1 1/8	1 1/2	5/16
L18701250312	1 1/4	1 5/8	5/16
**	1 3/8	1 3/4	5/16
**	1 7/16	1 13/16	5/16
**	1 1/2	1 7/8	9/32
L18701500375	1 1/2	1 7/8	3/8
**	1 9/16	1 15/16	1/4
**	1 5/8	2	5/16
L18701625375	1 5/8	2	3/8
**	1 11/16	2 1/16	3/8
**	1 3/4	2 1/8	5/16
L18701750375	1 3/4	2 1/8	3/8
L18701875375	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
**	2 3/16	2 9/16	3/8
**	2 1/4	2 5/8	3/8
L18702375375	2 3/8	2 3/4	3/8
L18702500375	2 1/2	2 7/8	3/8
**	2 5/8	3	3/8

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
<b>3/16" Cross Section (Continued)</b>			
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
L18703625375	3 5/8	4	3/8
**	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
<b>1/4" Cross Section</b>			
**	7/16	15/16	3/8
L2500500375	1/2	1	3/8
**	5/8	1 1/8	3/8
**	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
**	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
**	3 7/8	4 3/8	3/8
L25004000562	4	4 1/2	3/8
**	4	4 1/2	9/16
**	4 1/4	4 3/4	9/16
L25004375562	4 3/8	4 7/8	3/8
**	4 3/8	4 7/8	9/16
L25004500562	4 1/2	5	3/8
**	4 1/2	5	9/16
L25004750562	4 3/4	5 1/4	9/16
**	4 7/8	5 3/8	9/16
**	5	5 1/2	3/8
**	5	5 1/2	1/2
L25005000562	5	5 1/2	9/16
**	5 1/4	5 3/4	3/8
**	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

# Loaded Lip Seals - Deep Style (Continued)

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
<b>1/4" Cross Section (Continued)</b>			
**	5 3/4	6 1/4	9/16
**	6	6 1/2	9/16
**	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
L25007500562	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
<b>9/32" Cross Section</b>			
**	3 11/16	4 1/4	3/8
**	3 7/8	4 7/16	1/2
<b>5/16" Cross Section</b>			
**	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
**	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
**	2 3/8	3	1/2
L31202500500	2 1/2	3 1/8	1/2
**	2 5/8	3 1/4	1/2
**	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
**	3 1/2	4 1/8	1/2
L31203875500	3 7/8	4 1/2	1/2
**	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

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
<b>5/16" Cross Section (Continued)</b>			
**	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
**	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
<b>3/8" Cross Section</b>			
**	3/4	1 1/2	5/8
**	1	1 3/4	5/8
L37501250625	1 1/4	2	5/8
**	1 5/16	2 1/16	7/16
**	1 7/8	2 5/8	5/8
**	2	2 3/4	1/2
**	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
**	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
**	5 1/4	6	1/2
L37505250625	5 1/4	6	5/8
**	5 1/2	6 1/4	5/8
**	5 5/8	6 3/8	5/8
**	5 3/4	6 1/2	1/2
**	5 3/4	6 1/2	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
L37506750625	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
L37507500625	7 1/2	8 1/4	5/8
**	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

# Loaded Lip Seals - Deep Style (Continued)

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
<b>3/8" Cross Section (Continued)</b>			
**	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
<b>13/32" Cross Section</b>			
**	10 3/16	11	1/2
<b>7/16" Cross Section</b>			
**	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
<b>1/2" Cross Section</b>			
**	1	2	3/4
**	1 3/4	2 3/4	3/4
L50002500750	2 1/2	3 1/2	3/4
L50003000750	3	4	3/4
**	3 3/8	4 3/8	5/8
**	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
**	5 1/2	6 1/2	3/4
**	6	7	3/4
**	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
**	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

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
<b>1/2" Cross Section (Continued)</b>			
**	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
<b>9/16" Cross Section</b>			
**	1 7/8	3	7/8
**	2 7/8	4	7/8
**	9 1/2	10 5/8	1 1/4
<b>5/8" Cross Section</b>			
**	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
**	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

# Loaded Lip Seals - Deep Style (Continued)

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
<b>11/16" Cross Section</b>			
**	9 3/8	10 3/4	1
<b>3/4" Cross Section</b>			
**	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
<b>13/16" Cross Section</b>			
**	12 1/4	13 7/8	1 1/8
**	17 3/8	19	1 1/8
<b>7/8" Cross Section</b>			
**	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
<b>15/16" Cross Section</b>			
**	9 5/8	11 1/2	1 1/2
**	28	29 7/8	1 1/2
<b>1" Cross Section</b>			
**	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

Part Number	Inside Diam. (Inches)	Outside Diam. (Inches)	Depth (Inches)
<b>1 1/8" Cross Section</b>			
**	38	40 1/4	1 1/2

# 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.

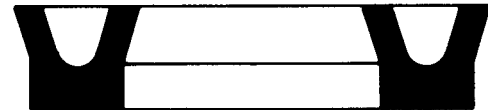
## 8400 Series U-Cups

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



## 6226 Series U-Cups

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

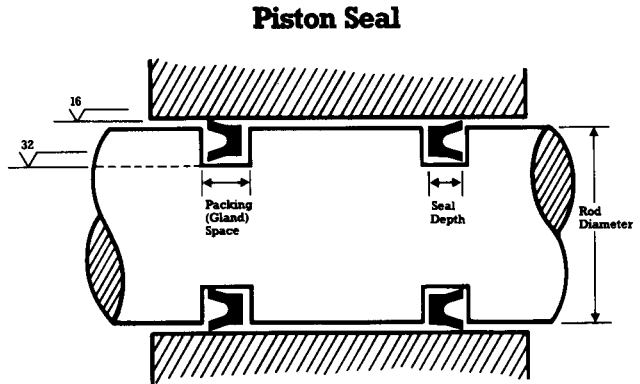
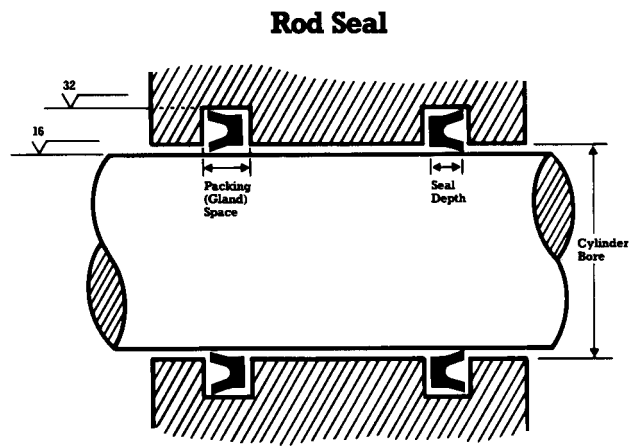


## U-Cup Installation Data

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

**Need assistance?  
Ask our experienced sales staff.**

**We are here to help!**

**8400 Series  
80 Durometer**

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
NU8404-0100	711080	1	1 1/4	1/8
NU8404-0093	711811	15/16	1 3/16	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
NU8407-0300	703023	3	3 7/16	7/32
NU8407-0306	711836	3 1/16	3 1/2	7/32
NU8408-0337	711839	3 3/8	3 7/8	1/4
NU8408-0350	711841	3 1/2	4	1/4
NU8408-0425	711845	4 1/4	4 3/4	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

**6226 Series  
70 Durometer**

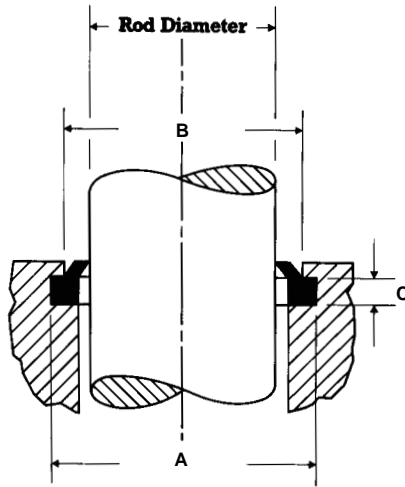
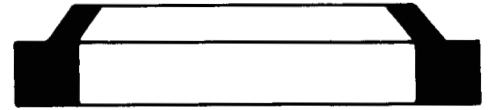
Part Number	Inside Diameter (inches)	Outside Diameter (inches)	Width (inches)
NU6226-1	1/8	1/2	3/16
NU6226-2	3/16	9/16	3/16
NU6226-3	1/4	5/8	3/16
NU6226-4	5/16	11/16	3/16
NU6226-5	3/8	3/4	3/16
NU6226-6	7/16	13/16	3/16
NU6226-7	1/2	7/8	3/16
NU6226-8	1/4	3/4	1/4
NU6226-9	5/16	13/16	1/4
NU6226-10	3/8	7/8	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
NU6226-17	13/16	1 5/16	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
NU6226-33	2 1/4	2 7/8	5/16
NU6226-34	2 3/8	3	5/16
NU6226-35	2 1/2	3 1/8	5/16
NU6226-36	2 1/2	3 1/4	3/8
NU6226-37	2 5/8	3 3/8	3/8
NU6226-38	2 3/4	3 1/2	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

# 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 Rod Wipers

One-piece snap-in type rod wiper scrapers for heavy duty applications. WD wipers are continuous (not split) and conform with wear and side motion for effective wiping action over the entire life span of the seal. Part Numbers listed below are molded from 90 durometer urethane for maximum strength and abrasion resistance. American Packing also stocks selected sizes in 90 durometer fluoroelastomer. Please inquire.



Groove Dimensions meet  
ANS/B93.35 1978  
specifications. (NFPA-T3-197.3R1).

WD Dash Number	Rod Diameter (inches)	Groove Dimensions		
		A (inches) +.006 -.000	B (inches) +.010 -.000	C (inches) +.004 -.000
WD0250	1/4	.497	.410	.124
WD0312	5/16	.560	.475	.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	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	1-3/8	1.747	1.620	.187

WD Dash Number	Rod Diameter (inches)	Groove Dimensions		
		A (inches) +.006 -.000	B (inches) +.010 -.000	C (inches) +.004 -.000
**	1-7/16	1.810	1.685	.187
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	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	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	2-1/2	2.997	2.827	.249
**	2-9/16	3.060	2.890	.249

\*\* Not currently an American Packing stock item. Call for availability.

## Style WD Rod Wipers (Continued)

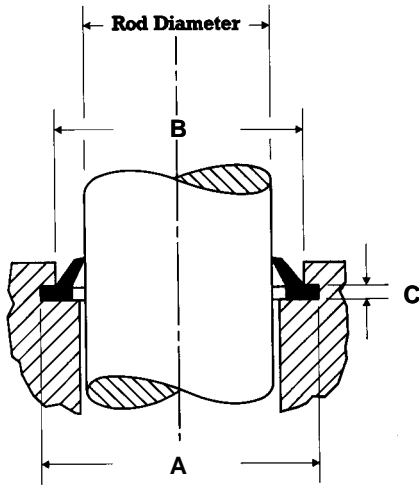
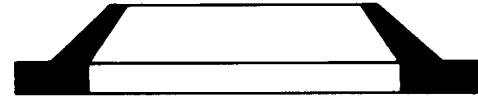
WD Dash Number	Rod Diameter (inches)	Groove Dimensions		
		A	B	C
		(inches) +.006 -.000	(inches) +.010 -.000	(inches) +.004 -.000
WD2625	2-5/8	3.122	2.952	.249
**	2-11/16	3.185	3.015	.249
WD2750	2-3/4	3.247	3.077	.249
**	2-13/16	3.310	3.140	.249
WD2875	2-7/8	3.372	3.202	.249
**	2-15/16	3.435	3.265	.249
WD3000	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	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	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
**	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
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
WD7750	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
**	8-3/4	9.497	9.243	.374
WD9000	9	9.747	9.493	.374
WAN63.5	9-1/4	9.997	9.743	.374
WD9500	9-1/2	10.247	9.993	.374
**	9-3/4	10.497	10.243	.374
WD10000	10	10.997	10.659	.499
**	10-1/4	11.247	10.909	.499
WD10500	10-1/2	11.497	11.159	.499
**	10-3/4	11.747	11.409	.499
WD11000	11	11.997	11.659	.499
**	11-1/4	12.247	11.909	.499
WD11500	11-1/2	12.497	12.159	.499
**	11-3/4	12.747	12.409	.499
**	12	12.997	12.659	.499
**	12-1/2	13.497	13.159	.499
**	13	13.997	13.659	.499

**Special Needs?**  
**Just ask. We can help!**

\*\* Not currently an American Packing stock item. Call for availability.

# 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 American Packing for AN6231 retrofit. Part Numbers listed below are made from 90 durometer urethane for maximum strength and abrasion resistance. American Packing also stocks selected sizes in 90 durometer fluoroelastomer. Please Inquire.



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

WAN Dash Number	Rod Diameter (inches)	Groove Dimensions		
		A (inches) +.005 -.000	B (inches) +.010 -.000	C (inches) +.003 -.000
WAN01	1/2	.760	.647	.107
WAN02	9/16	.823	.710	.107
WAN03	5/8	.885	.772	.107
WAN04	11/16	.948	.834	.107
WAN05	3/4	1.010	.897	.107
WAN06	13/16	1.084	.960	.107
WAN07	7/8	1.147	1.023	.107
WAN08	15/16	1.209	1.085	.107
WAN09	1	1.272	1.148	.107
WAN10	1 1/16	1.334	1.210	.107
WAN11	1 1/8	1.397	1.273	.107
WAN12	1 3/16	1.459	1.335	.107
WAN13	1 1/4	1.522	1.398	.107
WAN14	1 5/16	1.614	1.480	.107
WAN15	1 3/8	1.677	1.542	.107
WAN16	1 7/16	1.739	1.605	.107
WAN17	1 1/2	1.802	1.668	.107
WAN17.5	1 9/16	1.865	1.731	.107
WAN18	1 5/8	1.927	1.793	.107
**	1 11/16	1.990	1.856	.107
WAN19	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
**	1 15/16	2.240	2.106	.107

WAN Dash Number	Rod Diameter (inches)	Groove Dimensions		
		A (inches) +.005 -.000	B (inches) +.010 -.000	C (inches) +.003 -.000
WAN21	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
**	1 3/16	2.490	2.366	.107
WAN23	2 1/4	2.552	2.428	.107
WAN23.5	2 5/16	2.615	2.491	.107
WAN24	2 3/8	2.677	2.553	.107
WAN24.5	2 7/16	2.740	2.616	.107
WAN25	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
**	2 11/16	3.052	2.897	.122
WAN27	2 3/4	3.114	2.959	.122
**	2 13/16	3.177	3.022	.122
WAN28	2 7/8	3.239	3.084	.122
WAN29	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	3 1/2	3.864	3.709	.122
WAN34	3 5/8	3.989	3.834	.122
WAN35	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 American Packing stock item. Call for availability.

## Style WAN Rod Wipers (Continued)

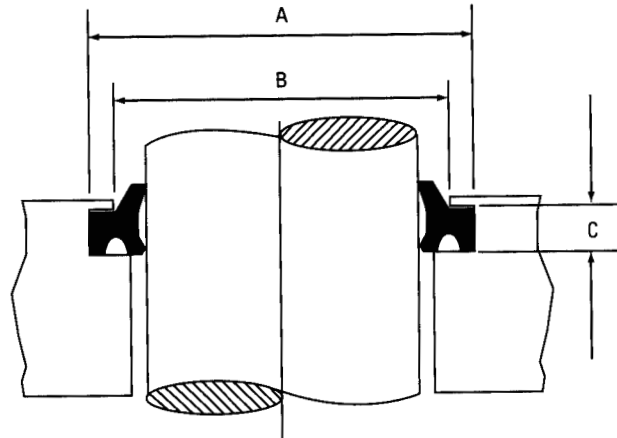
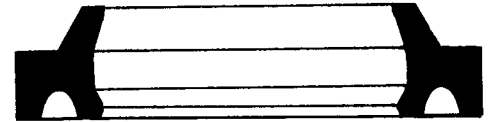
WAN Dash Number	Rod Diameter (inches)	Groove Dimensions		
		A	B	C
		(inches) +.005 -.000	(inches) +.010 -.000	(inches) +.003 -.000
WAN38	4 1/8	4.552	4.365	.138
WAN39	4 1/4	4.677	4.490	.138
WAN40	4 3/8	4.802	4.615	.138
WAN41	4 1/2	4.927	4.740	.138
WAN42	4 5/8	5.052	4.865	.138
WAN43	4 3/4	5.177	4.990	.138
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
WAN60	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
**	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
WAN68	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

**Save Time!**  
**Fax us your orders.**  
**or quote requests.**

\*\* Not currently an American Packing stock item. Call for availability.

## 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. Molded from 90 Durometer Urethane for maximum strength abrasion resistance.



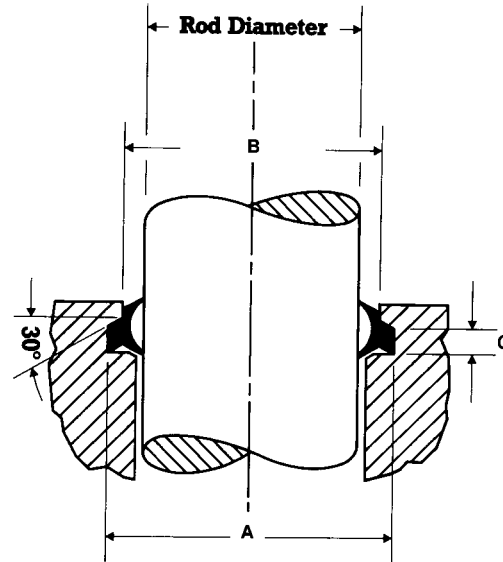
WH Dash Number	Rod Diameter (inches)	Groove Dimensions (inches)		
		A +.003 -.000	B +.003 -.000	C +.004 -.000
**	3/8	.677	.495	.203
WH0500	1/2	.802	.620	.203
WH0625	5/8	.927	.745	.203
WH0750	3/4	1.052	.870	.203
WH0875	7/8	1.240	1.010	.218
WH1000	1	1.365	1.135	.218
WH1125	1 1/8	1.490	1.260	.218
WH1250	1 1/4	1.615	1.385	.218
WH1375	1 3/8	1.740	1.510	.218
WH1500	1 1/2	1.865	1.635	.218
WH1625	1 5/8	1.990	1.760	.218
WH1750	1 3/4	2.115	1.885	.218
WH1875	1 7/8	2.240	2.010	.218
WH2000	2	2.365	2.135	.218
WH2125	2 1/8	2.490	2.260	.218
WH2250	2 1/4	2.745	2.385	.281
WH2375	2 3/8	2.870	2.510	.281
WH2500	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	3	3.495	3.135	.281
WH3250	3 1/4	3.745	3.385	.281
WH3500	3 1/2	3.995	3.635	.281
**	3 5/8	4.120	3.760	.281

WH Dash Number	Rod Diameter (inches)	Groove Dimensions (inches)		
		A +.003 -.000	B +.003 -.000	C +.004 -.000
WH3750	3 3/4	4.245	3.885	.281
WH3875	3 7/8	4.370	4.010	.281
WH4000	4	4.495	4.135	.281
**	4 1/4	4.745	4.385	.281
WH4500	4 1/2	4.995	4.635	.281
**	4 3/4	5.245	4.885	.281
WH5000	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 American Packing 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.



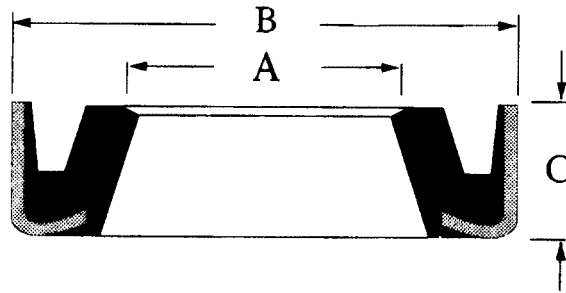
WK Dash Number	Rod Diameter (inches)	Groove Dimensions (inches)		
		A +.005 -.000	B +.000 -.005	C +.005 -.000
WK0500	1/2	.760	.625	.155
WK0625	5/8	.885	.750	.155
WK0750	3/4	1.135	.832	.195
WK0875	7/8	1.260	.957	.195
WK1000	1	1.385	1.082	.195
WK1125	1 1/8	1.510	1.207	.195
WK1250	1 1/4	1.635	1.332	.195
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
WK2625	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
WK3250	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
WK4500	4 1/2	5.010	4.657	.255
**	4 3/4	5.260	4.907	.255
WK5000	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
WK6000	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
WK7000	7	7.510	7.157	.255
**	7 1/2	8.010	7.657	.255
WK8000	8	8.510	8.157	.255
**	8 1/2	9.010	8.657	.255
**	9	9.510	9.157	.255

\*\* Not currently an American Packing stock item. Call for availability.

## Metal Clad Wipers

These rod wipers are molded from urethane and encased in a heavy duty metal case. This gives them exceptional abrasion resistance and outstanding endurance under difficult operating conditions. Highly effective in removing dirt and contaminants from the rod. The dimensions for Metal Clad Wipers stocked by American Packing are listed below. For availability of additional sizes not listed, please inquire.



Part Number	A	B	C
	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
MCW1252	1 1/4	2 1/16	3/8
MCW1375	1 3/8	1 7/8	5/16
MCW1500	1 1/2	2	5/16
MCW1502	1 1/2	2 1/8	5/16
MCW1504	1 1/2	2 1/4	3/8
MCW1625	1 5/8	2 1/8	5/16
MCW1750	1 3/4	2 1/4	5/16
MCW1875	1 7/8	2 3/8	5/16
MCW2000	2	2 1/2	5/16
MCW2007	2	2 3/4	3/8
MCW2250	2 1/4	2 3/4	5/16
MCW2253	2.250	2.997	3/8
MCW2375	2 3/8	2 7/8	5/16
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
MCW2753	2 3/4	3 1/2	3/8

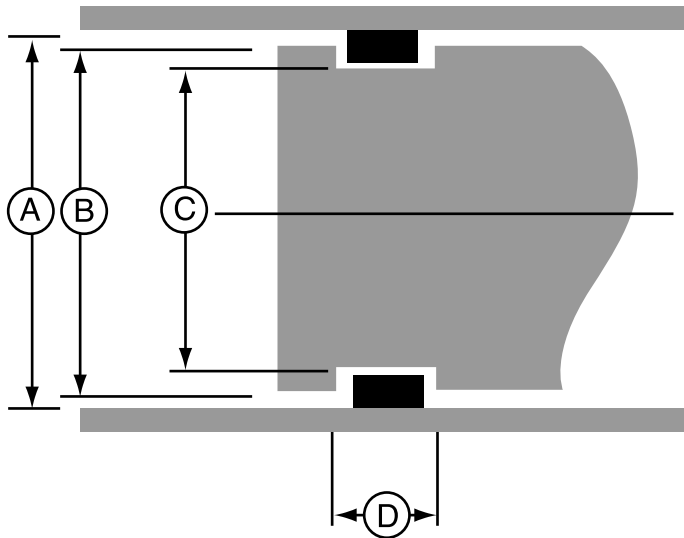
Part Number	A	B	C
	Rod Diameter (inches)	Bore Diameter (inches)	Height (inches)
MCW3000	3	3 1/2	5/16
MCW3003	3	3.751	3/8
MCW3004	3	4	1/2
MCW3250	3 1/4	3 3/4	5/16
MCW3253	3 1/4	3 7/8	5/16
MCW3254	3 1/4	4 1/4	1/2
MCW3500	3 1/2	4	5/16
MCW3502	3 1/2	4 1/8	5/16
MCW3505	3 1/2	4 1/2	1/2
MCW3750	3 3/4	4 3/8	5/16
MCW3754	3 3/4	4 1/2	5/16
MCW4000	4	4 5/8	5/16
MCW4002	4	4 3/4	5/16
MCW4005	4	5	1/2
MCW4250	4 1/4	4 3/4	3/16
MCW4500	4 1/2	5 1/8	5/16
MCW4506	4 1/2	5 1/4	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
MCW5500	5 1/2	6 1/8	3/8
MCW5506	5 1/2	6 1/4	5/16
MCW5750	5 3/4	6 3/8	3/8
MCW6000	6	6 5/8	3/8

# Wear Rings

American Packing 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 Data



### 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 Piston Installation Data (Continued)

Part Number	Wear Ring Dimensions (inches)			Piston Installation Groove Data (inches)			
	Outside Diameter	Width	Cross Section	Bore Diameter	Piston Diameter +.000 -.005	Groove Diameter +.000 -.005	Groove Length +.010 -.000
				A	B	C	D
**	7/8	1/4	1/8	7/8	0.850	0.625	0.260
**	1	1/4	1/8	1	0.975	0.750	0.260
**	1	3/8	1/8	1	0.975	0.750	0.385
WR21000500	1	1/2	1/8	1	0.975	0.750	0.510
**	1 1/16	3/8	1/8	1 1/16	1.037	0.787	0.385
**	1 1/8	3/8	1/8	1 1/8	1.100	0.875	0.385
**	1 1/8	1/2	1/8	1 1/8	1.100	0.875	0.510
**	1 1/4	1/4	1/8	1 1/4	1.225	1.000	0.260
WR21250375	1 1/4	3/8	1/8	1 1/4	1.225	1.000	0.385
WR21250500	1 1/4	1/2	1/8	1 1/4	1.225	1.000	0.510
WR21250625	1 1/4	5/8	1/8	1 1/4	1.225	1.000	0.635
WR21250750	1 1/4	3/4	1/8	1 1/4	1.225	1.000	0.760
**	1 1/4	1	1/8	1 1/4	1.225	1.000	1.010
WR21375500	1 3/8	1/2	1/8	1 3/8	1.350	1.125	0.510
**	1 1/2	3/16	1/8	1 1/2	1.475	1.250	0.197
**	1 1/2	1/4	1/8	1 1/2	1.475	1.250	0.260
WR21500375	1 1/2	3/8	1/8	1 1/2	1.475	1.250	0.385
**	1 1/2	7/16	1/8	1 1/2	1.475	1.250	0.447
WR21500500	1 1/2	1/2	1/8	1 1/2	1.475	1.250	0.510
WR21500625	1 1/2	5/8	1/8	1 1/2	1.475	1.250	0.635
WR21500750	1 1/2	3/4	1/8	1 1/2	1.475	1.250	0.760
**	1 1/2	1	1/8	1 1/2	1.475	1.250	1.010
**	1 9/16	3/8	1/8	1 9/16	1.537	1.313	0.385
**	1 9/16	1/2	1/8	1 9/16	1.537	1.313	0.510
**	1 5/8	1/4	1/8	1 5/8	1.600	1.375	0.260
**	1 5/8	3/8	1/8	1 5/8	1.600	1.375	0.385
WR21625500	1 5/8	1/2	1/8	1 5/8	1.600	1.375	0.510
**	1 5/8	3/4	1/8	1 5/8	1.600	1.375	0.760
**	1 3/4	1/4	1/8	1 3/4	1.725	1.500	0.260
WR21750375	1 3/4	3/8	1/8	1 3/4	1.725	1.500	0.385
WR21750500	1 3/4	1/2	1/8	1 3/4	1.725	1.500	0.510
WR21750625	1 3/4	5/8	1/8	1 3/4	1.725	1.500	0.635
WR21750750	1 3/4	3/4	1/8	1 3/4	1.725	1.500	0.760
**	1 3/4	1	1/8	1 3/4	1.725	1.500	1.010
WR21875500	1 7/8	1/2	1/8	1 7/8	1.850	1.625	0.510
**	2	3/16	1/8	2	1.975	1.750	0.197
**	2	1/4	1/8	2	1.975	1.750	0.260
WR22000375	2	3/8	1/8	2	1.975	1.750	0.385
WR22000500	2	1/2	1/8	2	1.975	1.750	0.510
WR22000625	2	5/8	1/8	2	1.975	1.750	0.635
WR22000750	2	3/4	1/8	2	1.975	1.750	0.760
**	2	1	1/8	2	1.975	1.750	1.010
**	2 1/8	1/4	1/8	2 1/8	2.100	1.875	0.260
**	2 1/8	3/8	1/8	2 1/8	2.100	1.875	0.385
**	2 1/8	1/2	1/8	2 1/8	2.100	1.875	0.510
**	2 1/8	3/4	1/8	2 1/8	2.100	1.875	0.760
**	2 1/4	3/16	1/8	2 1/4	2.225	2.000	0.197
**	2 1/4	1/4	1/8	2 1/4	2.225	2.000	0.260
**	2 1/4	5/16	1/8	2 1/4	2.225	2.000	0.322
WR22250375	2 1/4	3/8	1/8	2 1/4	2.225	2.000	0.385
WR22250500	2 1/4	1/2	1/8	2 1/4	2.225	2.000	0.510
WR22250625	2 1/4	5/8	1/8	2 1/4	2.225	2.000	0.635
WR22250750	2 1/4	3/4	1/8	2 1/4	2.225	2.000	0.760
**	2 1/4	1	1/8	2 1/4	2.225	2.000	1.010
**	2 3/8	3/8	1/8	2 3/8	2.350	2.125	0.385

# Wear Ring Piston Installation Data (Continued)

Part Number	Wear Ring Dimensions (inches)			Piston Installation Groove Data (inches)			
	Outside Diameter	Width	Cross Section	Bore Diameter	Piston Diameter +.000 -.005	Groove Diameter +.000 -.005	Groove Length +.010 -.000
				A	B	C	D
WR22375500	2 3/8	1/2	1/8	2 3/8	2.350	2.125	0.510
**	2 3/8	5/8	1/8	2 3/8	2.350	2.125	0.635
**	2 3/8	3/4	1/8	2 3/8	2.350	2.125	0.760
**	2 3/8	1	1/8	2 3/8	2.350	2.125	1.010
**	2 1/2	1/4	1/8	2 1/2	2.475	2.250	0.260
**	2 1/2	5/16	1/8	2 1/2	2.475	2.225	0.322
WR22500375	2 1/2	3/8	1/8	2 1/2	2.475	2.250	0.385
WR22500500	2 1/2	1/2	1/8	2 1/2	2.475	2.250	0.510
WR22500625	2 1/2	5/8	1/8	2 1/2	2.475	2.250	0.635
WR22500750	2 1/2	3/4	1/8	2 1/2	2.475	2.250	0.760
WR225001000	2 1/2	1	1/8	2 1/2	2.475	2.250	1.010
**	2 5/8	1/4	1/8	2 5/8	2.600	2.375	0.260
**	2 5/8	5/16	1/8	2 5/8	2.600	2.375	0.322
**	2 5/8	3/8	1/8	2 5/8	2.600	2.375	0.385
WR22625500	2 5/8	1/2	1/8	2 5/8	2.600	2.375	0.510
**	2 5/8	5/8	1/8	2 5/8	2.600	2.375	0.635
**	2 5/8	3/4	1/8	2 5/8	2.600	2.375	0.760
**	2 5/8	1	1/8	2 5/8	2.600	2.375	1.010
**	2 11/16	5/16	1/8	2 11/16	2.663	2.438	0.322
**	2 11/16	3/8	1/8	2 11/16	2.663	2.438	0.385
**	2 3/4	1/4	1/8	2 3/4	2.725	2.500	0.260
**	2 3/4	5/16	1/8	2 3/4	2.725	2.500	0.322
WR22750375	2 3/4	3/8	1/8	2 3/4	2.725	2.500	0.385
WR22750500	2 3/4	1/2	1/8	2 3/4	2.725	2.500	0.510
WR22750625	2 3/4	5/8	1/8	2 3/4	2.725	2.500	0.635
WR22750750	2 3/4	3/4	1/8	2 3/4	2.725	2.500	0.760
**	2 3/4	1	1/8	2 3/4	2.725	2.500	1.010
**	2 7/8	3/8	1/8	2 7/8	2.850	2.625	0.385
**	2 7/8	1/2	1/8	2 7/8	2.850	2.625	0.510
**	2 7/8	1	1/8	2 7/8	2.850	2.625	1.010
**	3	3/16	1/8	3	2.975	2.750	0.197
**	3	1/4	1/8	3	2.975	2.750	0.260
WR23000375	3	3/8	1/8	3	2.975	2.750	0.385
WR23000500	3	1/2	1/8	3	2.975	2.750	0.510
WR23000625	3	5/8	1/8	3	2.975	2.750	0.635
WR23000750	3	3/4	1/8	3	2.975	2.750	0.760
WR230001000	3	1	1/8	3	2.975	2.750	1.010
**	3 1/8	1/2	1/8	3 1/8	3.100	2.875	0.510
**	3 1/8	5/8	1/8	3 1/8	3.100	2.875	0.635
**	3 1/8	1	1/8	3 1/8	3.100	2.875	1.010
**	3 1/4	1/4	1/8	3 1/4	3.225	3.000	0.260
**	3 1/4	5/16	1/8	3 1/4	3.225	3.000	0.322
WR23250375	3 1/4	3/8	1/8	3 1/4	3.225	3.000	0.385
WR23250500	3 1/4	1/2	1/8	3 1/4	3.225	3.000	0.510
WR23250625	3 1/4	5/8	1/8	3 1/4	3.225	3.000	0.635
WR23250750	3 1/4	3/4	1/8	3 1/4	3.225	3.000	0.760
**	3 1/4	1	1/8	3 1/4	3.225	3.000	1.010
**	3 3/8	1/2	1/8	3 3/8	3.350	3.125	0.510
**	3 3/8	5/8	1/8	3 3/8	3.350	3.125	0.635
**	3 3/8	3/4	1/8	3 3/8	3.350	3.125	0.760
**	3 1/2	3/16	1/8	3 1/2	3.475	3.250	0.197
**	3 1/2	1/4	1/8	3 1/2	3.475	3.250	0.260
**	3 1/2	5/16	1/8	3 1/2	3.475	3.250	0.322
WR23500375	3 1/2	3/8	1/8	3 1/2	3.475	3.250	0.385
**	3 1/2	7/16	1/8	3 1/2	3.475	3.250	0.447

# Wear Ring Piston Installation Data (Continued)

Part Number	Wear Ring Dimensions (inches)			Piston Installation Groove Data (inches)			
	Outside Diameter	Width	Cross Section	Bore Diameter	Piston Diameter +.000 -.005	Groove Diameter +.000 -.005	Groove Length +.010 -.000
				A	B	C	D
WR23500500	3 1/2	1/2	1/8	3 1/2	3.475	3.250	0.510
**	3 1/2	9/16	1/8	3 1/2	3.475	3.250	0.572
WR23500625	3 1/2	5/8	1/8	3 1/2	3.475	3.250	0.635
WR23500750	3 1/2	3/4	1/8	3 1/2	3.475	3.250	0.760
**	3 1/2	7/8	1/8	3 1/2	3.475	3.250	0.885
WR235001000	3 1/2	1	1/8	3 1/2	3.475	3.250	1.010
**	3 5/8	1/4	1/8	3 5/8	3.600	3.375	0.260
**	3 5/8	3/8	1/8	3 5/8	3.600	3.375	0.385
WR23625500	3 5/8	1/2	1/8	3 5/8	3.600	3.375	0.510
**	3 5/8	5/8	1/8	3 5/8	3.600	3.375	0.635
**	3 5/8	3/4	1/8	3 5/8	3.600	3.375	0.760
**	3 5/8	1	1/8	3 5/8	3.600	3.375	1.010
**	3 11/16	1/2	1/8	3 11/16	3.663	3.438	0.510
**	3 3/4	1/4	1/8	3 3/4	3.725	3.500	0.260
WR23750375	3 3/4	3/8	1/8	3 3/4	3.725	3.500	0.385
WR23750500	3 3/4	1/2	1/8	3 3/4	3.725	3.500	0.510
WR23750625	3 3/4	5/8	1/8	3 3/4	3.725	3.500	0.635
WR23750750	3 3/4	3/4	1/8	3 3/4	3.725	3.500	0.760
**	3 3/4	1	1/8	3 3/4	3.725	3.500	1.010
**	3 7/8	1/4	1/8	3 7/8	3.850	3.625	0.260
**	3 7/8	3/8	1/8	3 7/8	3.850	3.625	0.385
**	3 7/8	1/2	1/8	3 7/8	3.850	3.625	0.510
**	3 7/8	5/8	1/8	3 7/8	3.850	3.625	0.635
**	3 7/8	3/4	1/8	3 7/8	3.850	3.625	0.760
**	3 7/8	1	1/8	3 7/8	3.850	3.625	1.010
**	3 15/16	1/2	1/8	3 15/16	3.913	3.688	0.510
**	4	3/16	1/8	4	3.975	3.750	0.197
**	4	1/4	1/8	4	3.975	3.750	0.260
**	4	5/16	1/8	4	3.975	3.750	0.322
WR24000375	4	3/8	1/8	4	3.975	3.750	0.385
WR24000500	4	1/2	1/8	4	3.975	3.750	0.510
WR24000625	4	5/8	1/8	4	3.975	3.750	0.635
WR24000750	4	3/4	1/8	4	3.975	3.750	0.760
WR240001000	4	1	1/8	4	3.975	3.750	1.010
**	4 1/8	3/8	1/8	4 1/8	4.100	3.875	0.385
**	4 1/8	1/2	1/8	4 1/8	4.100	3.875	0.510
**	4 1/8	5/8	1/8	4 1/8	4.100	3.875	0.635
**	4 1/8	3/4	1/8	4 1/8	4.100	3.875	0.760
**	4 1/8	1	1/8	4 1/8	4.100	3.875	1.010
**	4 1/4	1/4	1/8	4 1/4	4.225	4.000	0.260
WR24250375	4 1/4	3/8	1/8	4 1/4	4.225	4.000	0.385
WR24250500	4 1/4	1/2	1/8	4 1/4	4.225	4.000	0.510
WR24250625	4 1/4	5/8	1/8	4 1/4	4.225	4.000	0.635
WR24250750	4 1/4	3/4	1/8	4 1/4	4.225	4.000	0.760
WR242501000	4 1/4	1	1/8	4 1/4	4.225	4.000	1.010
**	4 3/8	1/2	1/8	4 3/8	4.350	4.125	0.510
**	4 3/8	5/8	1/8	4 3/8	4.350	4.125	0.635
**	4 1/2	1/4	1/8	4 1/2	4.475	4.250	0.260
WR24500375	4 1/2	3/8	1/8	4 1/2	4.475	4.250	0.385
WR24500500	4 1/2	1/2	1/8	4 1/2	4.475	4.250	0.510
WR24500625	4 1/2	5/8	1/8	4 1/2	4.475	4.250	0.635
WR24500750	4 1/2	3/4	1/8	4 1/2	4.475	4.250	0.760
WR245001000	4 1/2	1	1/8	4 1/2	4.475	4.250	1.010
**	4 1/2	1 1/4	1/8	4 1/2	4.475	4.250	1.260
**	4 5/8	1/2	1/8	4 5/8	4.600	4.375	0.510

# Wear Ring Piston Installation Data (Continued)

Part Number	Wear Ring Dimensions (inches)			Piston Installation Groove Data (inches)			
	Outside Diameter	Width	Cross Section	Bore Diameter	Piston Diameter +.000 -.005	Groove Diameter +.000 -.005	Groove Length +.010 -.000
				A	B	C	D
**	4 5/8	3/4	1/8	4 5/8	4.600	4.375	0.760
WR24750375	4 3/4	3/8	1/8	4 3/4	4.725	4.500	0.385
WR24750500	4 3/4	1/2	1/8	4 3/4	4.725	4.500	0.510
WR24750625	4 3/4	5/8	1/8	4 3/4	4.725	4.500	0.635
WR24750750	4 3/4	3/4	1/8	4 3/4	4.725	4.500	0.760
**	4 3/4	1	1/8	4 3/4	4.725	4.500	1.010
**	4 7/8	5/8	1/8	4 7/8	4.850	4.625	0.635
**	4 7/8	3/4	1/8	4 7/8	4.850	4.625	0.760
**	5	1/4	1/8	5	4.975	4.750	0.260
WR25000375	5	3/8	1/8	5	4.975	4.750	0.385
WR25000500	5	1/2	1/8	5	4.975	4.750	0.510
WR25000625	5	5/8	1/8	5	4.975	4.750	0.635
WR25000750	5	3/4	1/8	5	4.975	4.750	0.760
WR250001000	5	1	1/8	5	4.975	4.750	1.010
**	5 1/8	1/2	1/8	5 1/8	5.100	4.875	0.510
**	5 1/8	5/8	1/8	5 1/8	5.100	4.875	0.635
**	5 1/8	1	1/8	5 1/8	5.100	4.875	1.010
**	5 1/4	3/8	1/8	5 1/4	5.225	5.000	0.385
WR25250500	5 1/4	1/2	1/8	5 1/4	5.225	5.000	0.510
**	5 1/4	5/8	1/8	5 1/4	5.225	5.000	0.635
**	5 1/4	3/4	1/8	5 1/4	5.225	5.000	0.760
**	5 1/4	1	1/8	5 1/4	5.225	5.000	1.010
**	5 3/8	1/2	1/8	5 3/8	5.350	5.125	0.510
**	5 1/2	1/4	1/8	5 1/2	5.475	5.250	0.260
**	5 1/2	3/8	1/8	5 1/2	5.475	5.250	0.385
WR25500500	5 1/2	1/2	1/8	5 1/2	5.475	5.250	0.510
WR25500625	5 1/2	5/8	1/8	5 1/2	5.475	5.250	0.635
**	5 1/2	3/4	1/8	5 1/2	5.475	5.250	0.760
WR255001000	5 1/2	1	1/8	5 1/2	5.475	5.250	1.010
**	5 5/8	3/8	1/8	5 5/8	5.600	5.375	0.385
**	5 5/8	1/2	1/8	5 5/8	5.600	5.375	0.510
**	5 5/8	5/8	1/8	5 5/8	5.600	5.375	0.635
**	5 5/8	1	1/8	5 5/8	5.600	5.375	1.010
**	5 3/4	1/4	1/8	5 3/4	5.725	5.500	0.260
**	5 3/4	3/8	1/8	5 3/4	5.725	5.500	0.385
WR25750500	5 3/4	1/2	1/8	5 3/4	5.725	5.500	0.510
**	5 3/4	5/8	1/8	5 3/4	5.725	5.500	0.635
**	5 3/4	3/4	1/8	5 3/4	5.725	5.500	0.760
**	5 3/4	1	1/8	5 3/4	5.725	5.500	1.010
**	5 7/8	3/8	1/8	5 7/8	5.850	5.625	0.385
**	5 7/8	1/2	1/8	5 7/8	5.850	5.625	0.510
**	5 7/8	5/8	1/8	5 7/8	5.850	5.625	0.635
**	5 7/8	3/4	1/8	5 7/8	5.850	5.625	0.760
**	5 7/8	1	1/8	5 7/8	5.850	5.625	1.010
**	6	1/4	1/8	6	5.975	5.750	0.260
**	6	3/8	1/8	6	5.975	5.750	0.385
WR26000500	6	1/2	1/8	6	5.975	5.750	0.510
**	6	5/8	1/8	6	5.975	5.750	0.635
**	6	3/4	1/8	6	5.975	5.750	0.760
**	6	7/8	1/8	6	5.975	5.750	0.885
**	6	1	1/8	6	5.975	5.750	1.010
**	6 1/4	1/2	1/8	6 1/4	6.225	6.000	0.510
**	6 1/4	5/8	1/8	6 1/4	6.225	6.000	0.635
**	6 1/4	3/4	1/8	6 1/4	6.225	6.000	0.760
**	6 1/4	1	1/8	6 1/4	6.225	6.000	1.010

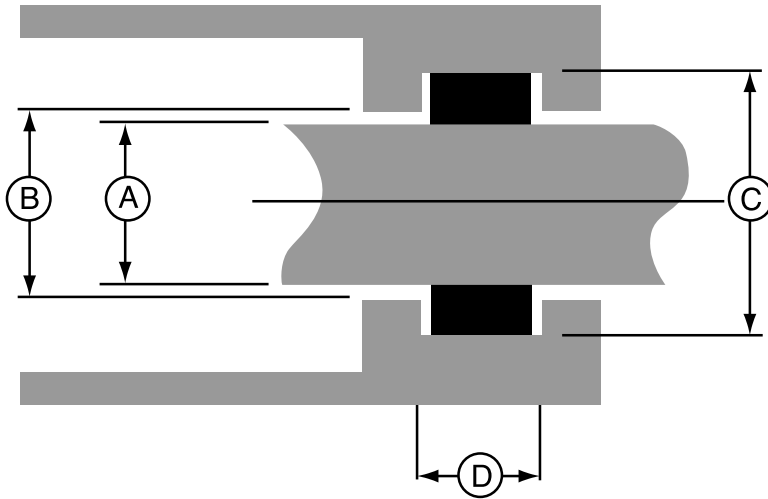
# Wear Ring Piston Installation Data (Continued)

Part Number	Wear Ring Dimensions (inches)			Piston Installation Groove Data (inches)			
	Outside Diameter	Width	Cross Section	Bore Diameter	Piston Diameter +.000 -.005	Groove Diameter +.000 -.005	Groove Length +.010 -.000
				A	B	C	D
WR26500500	6 1/2	1/2	1/8	6 1/2	6.475	6.250	0.510
**	6 1/2	5/8	1/8	6 1/2	6.475	6.250	0.635
**	6 1/2	3/4	1/8	6 1/2	6.475	6.250	0.760
**	6 1/2	1	1/8	6 1/2	6.475	6.250	1.010
WR26750500	6 3/4	1/2	1/8	6 3/4	6.725	6.500	0.510
**	6 3/4	5/8	1/8	6 3/4	6.725	6.500	0.635
**	6 3/4	3/4	1/8	6 3/4	6.725	6.500	0.760
**	6 3/4	1	1/8	6 3/4	6.725	6.500	1.010
WR27000500	7	1/2	1/8	7	6.975	6.750	0.510
**	7	5/8	1/8	7	6.975	6.750	0.635
**	7	3/4	1/8	7	6.975	6.750	0.760
**	7	1	1/8	7	6.975	6.750	1.010
**	7 1/4	3/8	1/8	7 1/4	7.225	7.000	0.385
**	7 1/4	1/2	1/8	7 1/4	7.225	7.000	0.510
**	7 1/4	5/8	1/8	7 1/4	7.225	7.000	0.635
**	7 1/4	3/4	1/8	7 1/4	7.225	7.000	0.760
**	7 1/4	1	1/8	7 1/4	7.225	7.000	1.010
**	7 1/2	3/8	1/8	7 1/2	7.475	7.250	0.385
WR27500500	7 1/2	1/2	1/8	7 1/2	7.475	7.250	0.510
**	7 1/2	5/8	1/8	7 1/2	7.475	7.250	0.635
**	7 1/2	3/4	1/8	7 1/2	7.475	7.250	0.760
**	7 1/2	1	1/8	7 1/2	7.475	7.250	1.010
**	7 5/8	3/4	1/8	7 5/8	7.600	7.375	0.760
**	7 3/4	3/8	1/8	7 3/4	7.725	7.500	0.385
**	7 3/4	1/2	1/8	7 3/4	7.725	7.500	0.510
**	7 3/4	5/8	1/8	7 3/4	7.725	7.500	0.635
**	7 3/4	3/4	1/8	7 3/4	7.725	7.500	0.760
**	7 3/4	1	1/8	7 3/4	7.725	7.500	1.010
**	8	3/8	1/8	8	7.975	7.750	0.385
WR28000500	8	1/2	1/8	8	7.975	7.750	0.510
**	8	5/8	1/8	8	7.975	7.750	0.635
**	8	3/4	1/8	8	7.975	7.750	0.760
**	8	7/8	1/8	8	7.975	7.750	0.885
**	8	1	1/8	8	7.975	7.750	1.010
**	8 1/8	1/2	1/8	8 1/8	8.100	7.875	0.510
**	8 1/8	3/4	1/8	8 1/8	8.100	7.875	0.760
**	8 1/4	1/2	1/8	8 1/4	8.225	8.000	0.510
**	8 1/4	5/8	1/8	8 1/4	8.225	8.000	0.635
**	8 1/4	3/4	1/8	8 1/4	8.225	8.000	0.760
**	8 1/4	1	1/8	8 1/4	8.225	8.000	1.010
**	8 3/8	3/4	1/8	8 3/8	8.350	8.125	0.760
**	8 3/8	1	1/8	8 3/8	8.350	8.125	1.010
**	8 7/16	5/8	1/8	8 7/16	8.412	8.187	0.635
**	8 7/16	3/4	1/8	8 7/16	8.412	8.187	0.760
WR28500500	8 1/2	1/2	1/8	8 1/2	8.475	8.250	0.510
**	8 1/2	5/8	1/8	8 1/2	8.475	8.250	0.635
**	8 1/2	3/4	1/8	8 1/2	8.475	8.250	0.760
**	8 1/2	1	1/8	8 1/2	8.475	8.250	1.010
**	8 5/8	1/2	1/8	8 5/8	8.600	8.375	0.510
**	8 5/8	1	1/8	8 5/8	8.600	8.375	1.010
WR29000500	9	1/2	1/8	9	8.975	8.750	0.510
**	9	5/8	1/8	9	8.975	8.750	0.635
**	9	3/4	1/8	9	8.975	8.750	0.760
**	9	1	1/8	9	8.975	8.750	1.010
**	9 1/8	3/4	1/8	9 1/8	9.100	8.875	0.760

# Wear Ring Piston Installation Data (Continued)

Part Number	Wear Ring Dimensions (inches)			Piston Installation Groove Data (inches)			
	Outside Diameter	Width	Cross Section	Bore Diameter	Piston Diameter +.000 -.005	Groove Diameter +.000 -.005	Groove Length +.010 -.000
				A	B	C	D
** WR29500500	9 1/8	1	1/8	9 1/8	9.100	8.875	1.010
**	9 1/2	1/2	1/8	9 1/2	9.475	9.250	0.510
**	9 1/2	5/8	1/8	9 1/2	9.475	9.250	0.635
**	9 1/2	3/4	1/8	9 1/2	9.475	9.250	0.760
**	9 1/2	1	1/8	9 1/2	9.475	9.250	1.010
**	9 3/4	3/8	1/8	9 3/4	9.725	9.500	0.385
**	9 3/4	1/2	1/8	9 3/4	9.725	9.500	0.510
**	9 3/4	5/8	1/8	9 3/4	9.725	9.500	0.635
**	9 3/4	3/4	1/8	9 3/4	9.725	9.500	0.760
**	9 3/4	1	1/8	9 3/4	9.725	9.500	1.010
** WR210000500	9 7/8	3/4	1/8	9 7/8	9.850	9.625	0.760
**	10	1/2	1/8	10	9.975	9.750	0.510
**	10	3/4	1/8	10	9.975	9.750	0.760
**	10	1	1/8	10	9.975	9.750	1.010
**	10 1/2	3/4	1/8	10 1/2	10.475	10.250	0.760
**	11	1	1/8	11	10.975	10.750	1.010
**	12	1/2	1/8	12	11.975	11.750	0.510

## Wear Ring Rod Installation Data



### 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 Height + .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.

Part Number	Wear Ring Dimensions (inches)			Rod Installation Groove Data (inches)			
	Inside Diameter	Width	Cross Section	Rod Diameter	Throat Diameter +.003 -.000	Groove Diameter +.003 -.000	Groove Length +.010 -.000
				A	B	C	D
**	5/8	1/4	1/8	5/8	0.648	0.875	0.260
**	3/4	1/4	1/8	3/4	0.773	1.000	0.260
**	3/4	3/8	1/8	3/4	0.773	1.000	0.385
WR21000500	3/4	1/2	1/8	3/4	0.773	1.000	0.510
**	13/16	3/8	1/8	13/16	0.810	1.037	0.385
**	7/8	3/8	1/8	7/8	0.898	1.125	0.385
**	7/8	1/2	1/8	7/8	0.898	1.125	0.510
**	1	1/4	1/8	1	1.023	1.250	0.260
WR21250375	1	3/8	1/8	1	1.023	1.250	0.385
WR21250500	1	1/2	1/8	1	1.023	1.250	0.510

# Wear Ring Rod Installation Data (Continued)

Part Number	Wear Ring Dimensions (inches)			Rod Installation Groove Data (inches)			
	Inside Diameter	Width	Cross Section	Rod Diameter	Throat Diameter +.003 -.000	Groove Diameter +.003 -.000	Groove Length +.010 -.000
				A	B	C	D
WR21250625	1	5/8	1/8	1	1.023	1.250	0.635
WR21250750	1	3/4	1/8	1	1.023	1.250	0.760
**	1	1	1/8	1	1.023	1.250	1.010
WR21375500	1 1/8	1/2	1/8	1 1/8	1.148	1.375	0.510
**	1 1/4	3/16	1/8	1 1/4	1.273	1.500	0.197
**	1 1/4	1/4	1/8	1 1/4	1.273	1.500	0.260
WR21500375	1 1/4	3/8	1/8	1 1/4	1.273	1.500	0.385
**	1 1/4	7/16	1/8	1 1/4	1.273	1.500	0.447
WR21500500	1 1/4	1/2	1/8	1 1/4	1.273	1.500	0.510
WR21500625	1 1/4	5/8	1/8	1 1/4	1.273	1.500	0.635
WR21500750	1 1/4	3/4	1/8	1 1/4	1.273	1.500	0.760
**	1 1/4	1	1/8	1 1/4	1.273	1.500	1.010
**	1 5/16	3/8	1/8	1 5/16	1.336	1.563	0.385
**	1 5/16	1/2	1/8	1 5/16	1.336	1.563	0.510
**	1 3/8	1/4	1/8	1 3/8	1.398	1.625	0.260
**	1 3/8	3/8	1/8	1 3/8	1.398	1.625	0.385
WR21625500	1 3/8	1/2	1/8	1 3/8	1.398	1.625	0.510
**	1 3/8	3/4	1/8	1 3/8	1.398	1.625	0.760
**	1 1/2	1/4	1/8	1 1/2	1.523	1.750	0.260
WR21750375	1 1/2	3/8	1/8	1 1/2	1.523	1.750	0.385
WR21750500	1 1/2	1/2	1/8	1 1/2	1.523	1.750	0.510
WR21750625	1 1/2	5/8	1/8	1 1/2	1.523	1.750	0.635
WR21750750	1 1/2	3/4	1/8	1 1/2	1.523	1.750	0.760
**	1 1/2	1	1/8	1 1/2	1.523	1.750	1.010
WR21875500	1 5/8	1/2	1/8	1 5/8	1.648	1.875	0.510
**	1 3/4	3/16	1/8	1 3/4	1.773	2.000	0.197
**	1 3/4	1/4	1/8	1 3/4	1.773	2.000	0.260
WR22000375	1 3/4	3/8	1/8	1 3/4	1.773	2.000	0.385
WR22000500	1 3/4	1/2	1/8	1 3/4	1.773	2.000	0.510
WR22000625	1 3/4	5/8	1/8	1 3/4	1.773	2.000	0.635
WR22000750	1 3/4	3/4	1/8	1 3/4	1.773	2.000	0.760
**	1 3/4	1	1/8	1 3/4	1.773	2.000	1.010
**	1 7/8	1/4	1/8	1 7/8	1.898	2.125	0.260
**	1 7/8	3/8	1/8	1 7/8	1.898	2.125	0.385
**	1 7/8	1/2	1/8	1 7/8	1.898	2.125	0.510
**	1 7/8	3/4	1/8	1 7/8	1.898	2.125	0.760
**	2	3/16	1/8	2	2.023	2.250	0.197
**	2	1/4	1/8	2	2.023	2.250	0.260
**	2	5/16	1/8	2	2.023	2.250	0.322
WR22250375	2	3/8	1/8	2	2.023	2.250	0.385
WR22250500	2	1/2	1/8	2	2.023	2.250	0.510
WR22250625	2	5/8	1/8	2	2.023	2.250	0.635
WR22250750	2	3/4	1/8	2	2.023	2.250	0.760
**	2	1	1/8	2	2.023	2.250	1.010
**	2 1/8	3/8	1/8	2 1/8	2.148	2.375	0.385
WR22375500	2 1/8	1/2	1/8	2 1/8	2.148	2.375	0.510
**	2 1/8	5/8	1/8	2 1/8	2.148	2.375	0.635
**	2 1/8	3/4	1/8	2 1/8	2.148	2.375	0.760
**	2 1/8	1	1/8	2 1/8	2.148	2.375	1.010
**	2 1/4	1/4	1/8	2 1/4	2.273	2.500	0.260
**	2 1/4	5/16	1/8	2 1/4	2.273	2.500	0.322
WR22500375	2 1/4	3/8	1/8	2 1/4	2.273	2.500	0.385
WR22500500	2 1/4	1/2	1/8	2 1/4	2.273	2.500	0.510
WR22500625	2 1/4	5/8	1/8	2 1/4	2.273	2.500	0.635
WR22500750	2 1/4	3/4	1/8	2 1/4	2.273	2.500	0.760

# Wear Ring Rod Installation Data (Continued)

Part Number	Wear Ring Dimensions (inches)			Rod Installation Groove Data (inches)			
	Inside Diameter	Width	Cross Section	Rod Diameter	Throat Diameter +.003 -.000	Groove Diameter +.003 -.000	Groove Length +.010 -.000
				A	B	C	D
WR225001000	2 1/4	1	1/8	2 1/4	2.273	2.500	1.010
**	2 3/8	1/4	1/8	2 3/8	2.398	2.625	0.260
**	2 3/8	5/16	1/8	2 3/8	2.398	2.625	0.322
**	2 3/8	3/8	1/8	2 3/8	2.398	2.625	0.385
WR22625500	2 3/8	1/2	1/8	2 3/8	2.398	2.625	0.510
**	2 3/8	5/8	1/8	2 3/8	2.398	2.625	0.635
**	2 3/8	3/4	1/8	2 3/8	2.398	2.625	0.760
**	2 3/8	1	1/8	2 3/8	2.398	2.625	1.010
**	2 7/16	5/16	1/8	2 7/16	2.461	2.688	0.322
**	2 7/16	3/8	1/8	2 7/16	2.461	2.688	0.385
**	2 1/2	1/4	1/8	2 1/2	2.523	2.750	0.260
**	2 1/2	5/16	1/8	2 1/2	2.523	2.750	0.322
WR22750375	2 1/2	3/8	1/8	2 1/2	2.523	2.750	0.385
WR22750500	2 1/2	1/2	1/8	2 1/2	2.523	2.750	0.510
WR22750625	2 1/2	5/8	1/8	2 1/2	2.523	2.750	0.635
WR22750750	2 1/2	3/4	1/8	2 1/2	2.523	2.750	0.760
**	2 1/2	1	1/8	2 1/2	2.523	2.750	1.010
**	2 5/8	3/8	1/8	2 5/8	2.648	2.875	0.385
**	2 5/8	1/2	1/8	2 5/8	2.648	2.875	0.510
**	2 5/8	1	1/8	2 5/8	2.648	2.875	1.010
**	2 3/4	3/16	1/8	2 3/4	2.773	3.000	0.197
**	2 3/4	1/4	1/8	2 3/4	2.773	3.000	0.260
WR23000375	2 3/4	3/8	1/8	2 3/4	2.773	3.000	0.385
WR23000500	2 3/4	1/2	1/8	2 3/4	2.773	3.000	0.510
WR23000625	2 3/4	5/8	1/8	2 3/4	2.773	3.000	0.635
WR23000750	2 3/4	3/4	1/8	2 3/4	2.773	3.000	0.760
WR230001000	2 3/4	1	1/8	2 3/4	2.773	3.000	1.010
**	2 7/8	1/2	1/8	2 7/8	2.898	3.125	0.510
**	2 7/8	5/8	1/8	2 7/8	2.898	3.125	0.635
**	2 7/8	1	1/8	2 7/8	2.898	3.125	1.010
**	3	1/4	1/8	3	3.023	3.250	0.260
**	3	5/16	1/8	3	3.023	3.250	0.322
WR23250375	3	3/8	1/8	3	3.023	3.250	0.385
WR23250500	3	1/2	1/8	3	3.023	3.250	0.510
WR23250625	3	5/8	1/8	3	3.023	3.250	0.635
WR23250750	3	3/4	1/8	3	3.023	3.250	0.760
**	3	1	1/8	3	3.023	3.250	1.010
**	3 1/8	1/2	1/8	3 1/8	3.148	3.375	0.510
**	3 1/8	5/8	1/8	3 1/8	3.148	3.375	0.635
**	3 1/8	3/4	1/8	3 1/8	3.148	3.375	0.760
**	3 1/4	3/16	1/8	3 1/4	3.273	3.500	0.197
**	3 1/4	1/4	1/8	3 1/4	3.273	3.500	0.260
**	3 1/4	5/16	1/8	3 1/4	3.273	3.500	0.322
WR23500375	3 1/4	3/8	1/8	3 1/4	3.273	3.500	0.385
**	3 1/4	7/16	1/8	3 1/4	3.273	3.500	0.447
WR23500500	3 1/4	1/2	1/8	3 1/4	3.273	3.500	0.510
**	3 1/4	9/16	1/8	3 1/4	3.273	3.500	0.572
WR23500625	3 1/4	5/8	1/8	3 1/4	3.273	3.500	0.635
WR23500750	3 1/4	3/4	1/8	3 1/4	3.273	3.500	0.760
**	3 1/4	7/8	1/8	3 1/4	3.273	3.500	0.885
WR235001000	3 1/4	1	1/8	3 1/4	3.273	3.500	1.010
**	3 3/8	1/4	1/8	3 3/8	3.398	3.625	0.260
**	3 3/8	3/8	1/8	3 3/8	3.398	3.625	0.385
WR23625500	3 3/8	1/2	1/8	3 3/8	3.398	3.625	0.510
**	3 3/8	5/8	1/8	3 3/8	3.398	3.625	0.635

# Wear Ring Rod Installation Data (Continued)

Part Number	Wear Ring Dimensions (inches)			Rod Installation Groove Data (inches)			
	Inside Diameter	Width	Cross Section	Rod Diameter	Throat Diameter	Groove Diameter	Groove Length
				A	B	C	D
**	3 3/8	3/4	1/8	3 3/8	3.398	3.625	0.760
**	3 3/8	1	1/8	3 3/8	3.398	3.625	1.010
**	3 7/16	1/2	1/8	3 7/16	3.461	3.688	0.510
**	3 1/2	1/4	1/8	3 1/2	3.523	3.750	0.260
WR23750375	3 1/2	3/8	1/8	3 1/2	3.523	3.750	0.385
WR23750500	3 1/2	1/2	1/8	3 1/2	3.523	3.750	0.510
WR23750625	3 1/2	5/8	1/8	3 1/2	3.523	3.750	0.635
WR23750750	3 1/2	3/4	1/8	3 1/2	3.523	3.750	0.760
**	3 1/2	1	1/8	3 1/2	3.523	3.750	1.010
**	3 5/8	1/4	1/8	3 5/8	3.648	3.875	0.260
**	3 5/8	3/8	1/8	3 5/8	3.648	3.875	0.385
**	3 5/8	1/2	1/8	3 5/8	3.648	3.875	0.510
**	3 5/8	5/8	1/8	3 5/8	3.648	3.875	0.635
**	3 5/8	3/4	1/8	3 5/8	3.648	3.875	0.760
**	3 5/8	1	1/8	3 5/8	3.648	3.875	1.010
**	3 11/16	1/2	1/8	3 11/16	3.711	3.938	0.510
**	3 3/4	3/16	1/8	3 3/4	3.773	4.000	0.197
**	3 3/4	1/4	1/8	3 3/4	3.773	4.000	0.260
**	3 3/4	5/16	1/8	3 3/4	3.773	4.000	0.322
WR24000375	3 3/4	3/8	1/8	3 3/4	3.773	4.000	0.385
WR24000500	3 3/4	1/2	1/8	3 3/4	3.773	4.000	0.510
WR24000625	3 3/4	5/8	1/8	3 3/4	3.773	4.000	0.635
WR24000750	3 3/4	3/4	1/8	3 3/4	3.773	4.000	0.760
WR240001000	3 3/4	1	1/8	3 3/4	3.773	4.000	1.010
**	3 7/8	3/8	1/8	3 7/8	3.898	4.125	0.385
**	3 7/8	1/2	1/8	3 7/8	3.898	4.125	0.510
**	3 7/8	5/8	1/8	3 7/8	3.898	4.125	0.635
**	3 7/8	3/4	1/8	3 7/8	3.898	4.125	0.760
**	3 7/8	1	1/8	3 7/8	3.898	4.125	1.010
**	4	1/4	1/8	4	4.023	4.250	0.260
WR24250375	4	3/8	1/8	4	4.023	4.250	0.385
WR24250500	4	1/2	1/8	4	4.023	4.250	0.510
WR24250625	4	5/8	1/8	4	4.023	4.250	0.635
WR24250750	4	3/4	1/8	4	4.023	4.250	0.760
WR242501000	4	1	1/8	4	4.023	4.250	1.010
**	4 1/8	1/2	1/8	4 1/8	4.148	4.375	0.510
**	4 1/8	5/8	1/8	4 1/8	4.148	4.375	0.635
**	4 1/4	1/4	1/8	4 1/4	4.273	4.500	0.260
WR24500375	4 1/4	3/8	1/8	4 1/4	4.273	4.500	0.385
WR24500500	4 1/4	1/2	1/8	4 1/4	4.273	4.500	0.510
WR24500625	4 1/4	5/8	1/8	4 1/4	4.273	4.500	0.635
WR24500750	4 1/4	3/4	1/8	4 1/4	4.273	4.500	0.760
WR245001000	4 1/4	1	1/8	4 1/4	4.273	4.500	1.010
**	4 1/4	1 1/4	1/8	4 1/4	4.273	4.500	1.260
**	4 3/8	1/2	1/8	4 3/8	4.398	4.625	0.510
**	4 3/8	3/4	1/8	4 3/8	4.398	4.625	0.760
WR24750375	4 1/2	3/8	1/8	4 1/2	4.523	4.750	0.385
WR24750500	4 1/2	1/2	1/8	4 1/2	4.523	4.750	0.510
WR24750625	4 1/2	5/8	1/8	4 1/2	4.523	4.750	0.635
WR24750750	4 1/2	3/4	1/8	4 1/2	4.523	4.750	0.760
**	4 1/2	1	1/8	4 1/2	4.523	4.750	1.010
**	4 5/8	5/8	1/8	4 5/8	4.648	4.875	0.635
**	4 5/8	3/4	1/8	4 5/8	4.648	4.875	0.760
**	4 3/4	1/4	1/8	4 3/4	4.773	5.000	0.260
WR25000375	4 3/4	3/8	1/8	4 3/4	4.773	5.000	0.385

# Wear Ring Rod Installation Data (Continued)

Part Number	Wear Ring Dimensions (inches)			Rod Installation Groove Data (inches)			
	Inside Diameter	Width	Cross Section	Rod Diameter	Throat Diameter +.003 -.000	Groove Diameter +.003 -.000	Groove Length +.010 -.000
				A	B	C	D
WR25000500	4 3/4	1/2	1/8	4 3/4	4.773	5.000	0.510
WR25000625	4 3/4	5/8	1/8	4 3/4	4.773	5.000	0.635
WR25000750	4 3/4	3/4	1/8	4 3/4	4.773	5.000	0.760
WR250001000	4 3/4	1	1/8	4 3/4	4.773	5.000	1.010
**	4 7/8	1/2	1/8	4 7/8	4.898	5.125	0.510
**	4 7/8	5/8	1/8	4 7/8	4.898	5.125	0.635
**	4 7/8	1	1/8	4 7/8	4.898	5.125	1.010
**	5	3/8	1/8	5	5.023	5.250	0.385
WR25250500	5	1/2	1/8	5	5.023	5.250	0.510
**	5	5/8	1/8	5	5.023	5.250	0.635
**	5	3/4	1/8	5	5.023	5.250	0.760
**	5	1	1/8	5	5.023	5.250	1.010
**	5 1/8	1/2	1/8	5 1/8	5.148	5.375	0.510
**	5 1/4	1/4	1/8	5 1/4	5.273	5.500	0.260
**	5 1/4	3/8	1/8	5 1/4	5.273	5.500	0.385
WR25500500	5 1/4	1/2	1/8	5 1/4	5.273	5.500	0.510
WR25500625	5 1/4	5/8	1/8	5 1/4	5.273	5.500	0.635
**	5 1/4	3/4	1/8	5 1/4	5.273	5.500	0.760
WR255001000	5 1/4	1	1/8	5 1/4	5.273	5.500	1.010
**	5 3/8	3/8	1/8	5 3/8	5.398	5.625	0.385
**	5 3/8	1/2	1/8	5 3/8	5.398	5.625	0.510
**	5 3/8	5/8	1/8	5 3/8	5.398	5.625	0.635
**	5 3/8	1	1/8	5 3/8	5.398	5.625	1.010
**	5 1/2	1/4	1/8	5 1/2	5.523	5.750	0.260
**	5 1/2	3/8	1/8	5 1/2	5.523	5.750	0.385
WR25750500	5 1/2	1/2	1/8	5 1/2	5.523	5.750	0.510
**	5 1/2	5/8	1/8	5 1/2	5.523	5.750	0.635
**	5 1/2	3/4	1/8	5 1/2	5.523	5.750	0.760
**	5 1/2	1	1/8	5 1/2	5.523	5.750	1.010
**	5 5/8	3/8	1/8	5 5/8	5.648	5.875	0.385
**	5 5/8	1/2	1/8	5 5/8	5.648	5.875	0.510
**	5 5/8	5/8	1/8	5 5/8	5.648	5.875	0.635
**	5 5/8	3/4	1/8	5 5/8	5.648	5.875	0.760
**	5 5/8	1	1/8	5 5/8	5.648	5.875	1.010
**	5 3/4	1/4	1/8	5 3/4	5.773	6.000	0.260
**	5 3/4	3/8	1/8	5 3/4	5.773	6.000	0.385
WR26000500	5 3/4	1/2	1/8	5 3/4	5.773	6.000	0.510
**	5 3/4	5/8	1/8	5 3/4	5.773	6.000	0.635
**	5 3/4	3/4	1/8	5 3/4	5.773	6.000	0.760
**	5 3/4	7/8	1/8	5 3/4	5.773	6.000	0.885
**	5 3/4	1	1/8	5 3/4	5.773	6.000	1.010
**	6	1/2	1/8	6	6.023	6.250	0.510
**	6	5/8	1/8	6	6.023	6.250	0.635
**	6	3/4	1/8	6	6.023	6.250	0.760
**	6	1	1/8	6	6.023	6.250	1.010
WR26500500	6 1/4	1/2	1/8	6 1/4	6.273	6.500	0.510
**	6 1/4	5/8	1/8	6 1/4	6.273	6.500	0.635
**	6 1/4	3/4	1/8	6 1/4	6.273	6.500	0.760
**	6 1/4	1	1/8	6 1/4	6.273	6.500	1.010
WR26750500	6 1/2	1/2	1/8	6 1/2	6.523	6.750	0.510
**	6 1/2	5/8	1/8	6 1/2	6.523	6.750	0.635
**	6 1/2	3/4	1/8	6 1/2	6.523	6.750	0.760
**	6 1/2	1	1/8	6 1/2	6.523	6.750	1.010
WR27000500	6 3/4	1/2	1/8	6 3/4	6.773	7.000	0.510
**	6 3/4	5/8	1/8	6 3/4	6.773	7.000	0.635

# Wear Ring Rod Installation Data (Continued)

Part Number	Wear Ring Dimensions (inches)			Rod Installation Groove Data (inches)			
	Inside Diameter	Width	Cross Section	Rod Diameter	Throat Diameter +.003 -.000	Groove Diameter +.003 -.000	Groove Length +.010 -.000
				A	B	C	D
**	6 3/4	3/4	1/8	6 3/4	6.773	7.000	0.760
**	6 3/4	1	1/8	6 3/4	6.773	7.000	1.010
**	7	3/8	1/8	7	7.023	7.250	0.385
**	7	1/2	1/8	7	7.023	7.250	0.510
**	7	5/8	1/8	7	7.023	7.250	0.635
**	7	3/4	1/8	7	7.023	7.250	0.760
**	7	1	1/8	7	7.023	7.250	1.010
**	7 1/4	3/8	1/8	7 1/4	7.273	7.500	0.385
WR27500500	7 1/4	1/2	1/8	7 1/4	7.273	7.500	0.510
**	7 1/4	5/8	1/8	7 1/4	7.273	7.500	0.635
**	7 1/4	3/4	1/8	7 1/4	7.273	7.500	0.760
**	7 1/4	1	1/8	7 1/4	7.273	7.500	1.010
**	7 3/8	3/4	1/8	7 3/8	7.398	7.625	0.760
**	7 1/2	3/8	1/8	7 1/2	7.523	7.750	0.385
**	7 1/2	1/2	1/8	7 1/2	7.523	7.750	0.510
**	7 1/2	5/8	1/8	7 1/2	7.523	7.750	0.635
**	7 1/2	3/4	1/8	7 1/2	7.523	7.750	0.760
**	7 1/2	1	1/8	7 1/2	7.523	7.750	1.010
**	7 3/4	3/8	1/8	7 3/4	7.773	8.000	0.385
WR28000500	7 3/4	1/2	1/8	7 3/4	7.773	8.000	0.510
**	7 3/4	5/8	1/8	7 3/4	7.773	8.000	0.635
**	7 3/4	3/4	1/8	7 3/4	7.773	8.000	0.760
**	7 3/4	7/8	1/8	7 3/4	7.773	8.000	0.885
**	7 3/4	1	1/8	7 3/4	7.773	8.000	1.010
**	7 7/8	1/2	1/8	7 7/8	7.898	8.125	0.510
**	7 7/8	3/4	1/8	7 7/8	7.898	8.125	0.760
**	8	1/2	1/8	8	8.023	8.250	0.510
**	8	5/8	1/8	8	8.023	8.250	0.635
**	8	3/4	1/8	8	8.023	8.250	0.760
**	8	1	1/8	8	8.023	8.250	1.010
**	8 1/8	3/4	1/8	8 1/8	8.148	8.375	0.760
**	8 1/8	1	1/8	8 1/8	8.148	8.375	1.010
**	8 3/16	5/8	1/8	8 3/16	8.210	8.437	0.635
**	8 3/16	3/4	1/8	8 3/16	8.210	8.437	0.760
WR28500500	8 1/4	1/2	1/8	8 1/4	8.273	8.500	0.510
**	8 1/4	5/8	1/8	8 1/4	8.273	8.500	0.635
**	8 1/4	3/4	1/8	8 1/4	8.273	8.500	0.760
**	8 1/4	1	1/8	8 1/4	8.273	8.500	1.010
**	8 3/8	1/2	1/8	8 3/8	8.398	8.625	0.510
**	8 3/8	1	1/8	8 3/8	8.398	8.625	1.010
WR29000500	8 3/4	1/2	1/8	8 3/4	8.773	9.000	0.510
**	8 3/4	5/8	1/8	8 3/4	8.773	9.000	0.635
**	8 3/4	3/4	1/8	8 3/4	8.773	9.000	0.760
**	8 3/4	1	1/8	8 3/4	8.773	9.000	1.010
**	8 7/8	3/4	1/8	8 7/8	8.898	9.125	0.760
**	8 7/8	1	1/8	8 7/8	8.898	9.125	1.010
WR29500500	9 1/4	1/2	1/8	9 1/4	9.273	9.500	0.510
**	9 1/4	5/8	1/8	9 1/4	9.273	9.500	0.635
**	9 1/4	3/4	1/8	9 1/4	9.273	9.500	0.760
**	9 1/4	1	1/8	9 1/4	9.273	9.500	1.010
**	9 1/2	3/8	1/8	9 1/2	9.523	9.750	0.385
**	9 1/2	1/2	1/8	9 1/2	9.523	9.750	0.510
**	9 1/2	5/8	1/8	9 1/2	9.523	9.750	0.635
**	9 1/2	3/4	1/8	9 1/2	9.523	9.750	0.760
**	9 1/2	1	1/8	9 1/2	9.523	9.750	1.010

# Wear Ring Rod Installation Data (Continued)

Part Number	Wear Ring Dimensions (inches)			Rod Installation Groove Data (inches)			
	Inside Diameter	Width	Cross Section	Rod Diameter	Throat Diameter +.003 -.000	Groove Diameter +.003 -.000	Groove Length +.010 -.000
				A	B	C	D
** WR210000500	9 5/8	3/4	1/8	9 5/8	9.648	9.875	0.760
	9 3/4	1/2	1/8	9 3/4	9.773	10.000	0.510
**	9 3/4	3/4	1/8	9 3/4	9.773	10.000	0.760
**	9 3/4	1	1/8	9 3/4	9.773	10.000	1.010
**	10 1/4	3/4	1/8	10 1/4	10.273	10.500	0.760
**	10 3/4	1	1/8	10 3/4	10.773	11.000	1.010
**	11 3/4	1/2	1/8	11 3/4	11.773	12.000	0.510

# 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.

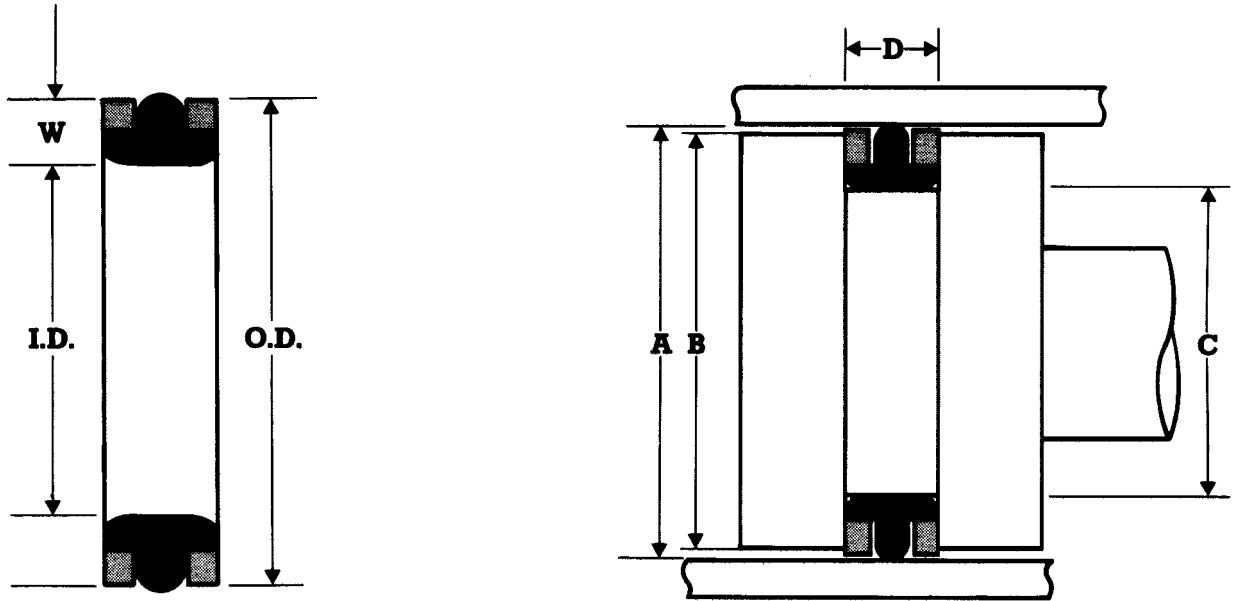
Like other similar packings, the T-Seal is compressed to eliminate low-pressure leakage. However, the back-up rings float between the T-Seal's flanges and the rod or bore, minimizing friction and wear. When pressure is applied, a bridge is formed before extrusion can occur.

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.

At present, American Packing stocks 70 Durometer Nitrile T-Seals with nylon back-ups. Call for availability of other compounds.

# Piston T-Seal Dimensional Data (Inches)

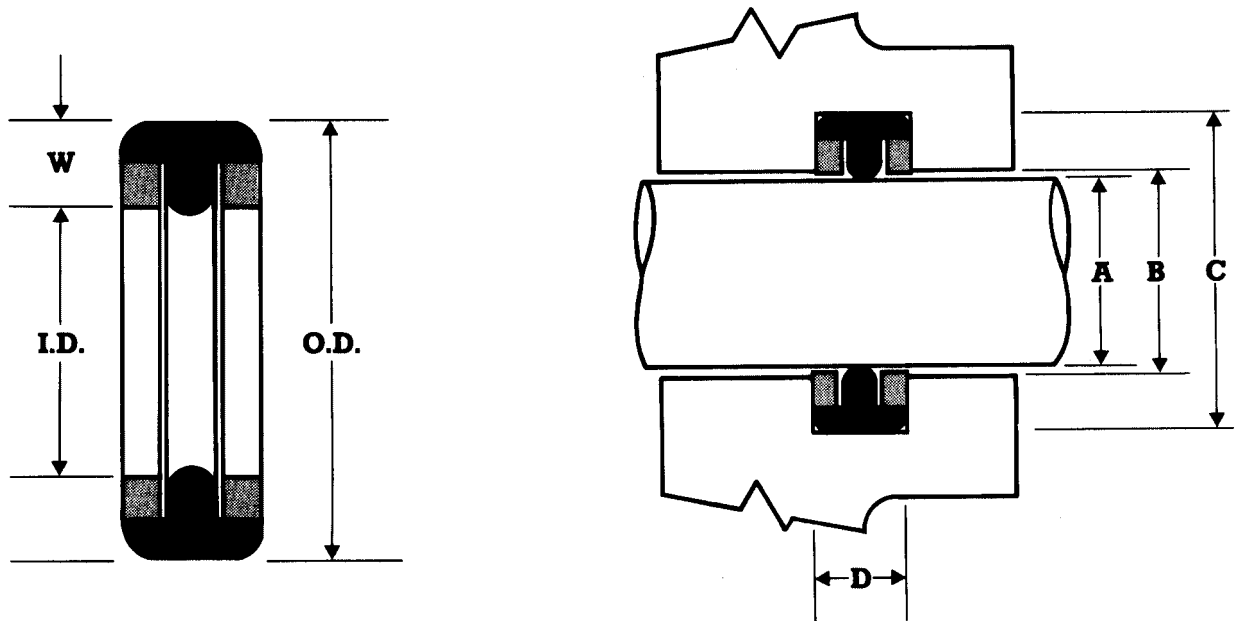


AS 568 O-Ring Dash Number	Part Number*	Nominal Dimensions			A		B		C		D	
		O.D.	I.D.	W	Bore Diameter	Tolerance	Piston Diameter	Tolerance	Groove Diameter	Tolerance	Groove Width	Tolerance
-106	TP001H70	.375	.187	.093	.375		.371		.191		.152	
-108	TP002H70	.437	.250	.093	.437		.433		.253		.152	
-109	TP003H70	.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	
-332	TP030H70	2.750	2.375	.187	2.751	±.002	2.745	±.002	2.378	±.002	.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
-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	±.002	4.246	±.002	3.879	±.002	.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		4.621		4.254		.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	
-332	TR030H70	2.375	2.750	.187	2.372	±.002	2.377	±.002	2.745	±.002	.282	
-333	TR031H70	2.500	2.875	.187	2.497		2.502		2.870		.282	

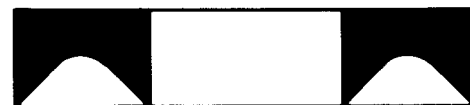
# Rod T-Seal Dimensional Data (Inches) (Continued)

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
-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

American Packing 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.

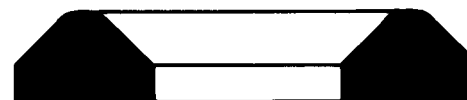
American Packing presently stocks Female and Male Adapters (top and bottom) in fabric reinforced nitrile and V-Rings (center rings) in fabric reinforced nitrile and in homogeneous 90 Durometer nitrile.\* In general, fabric Vees are for high pressure, and homogeneous Vees are for low pressure. The selection 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. (\*Call for availability of other compounds)



Female Adapter (Top)



V-Ring (Center Ring)



Male Adapter (Bottom)

## Installation

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.



# WV Packings

While similar to Vee Packings, the WV style provides sealing properties that are largely independent of stack packing pressure. The WV is designed so that it will provide a multiple lip seal in a fixed gland depth that is usually shorter than the gland depth required for a standard Vee packing. Because of the design of the WV packing, the lips of each ring are free to flex when in a nested stack so each lip automatically reacts to fluid or air pressure, providing a better seal in a given packing space. There is no compression adjustment required during the seal life.

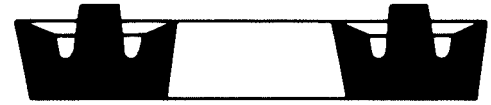
Since the WV packing is a multiple lip seal, it is recommended over a single lip seal for applications where side loading is a factor. The multiple lip also provides extra stability. If one seal fails, there will be another seal to serve as back-up.

There is an interference built into both the I.D. lips and the O.D. lips so that there will be sealing capabilities at low pressure.

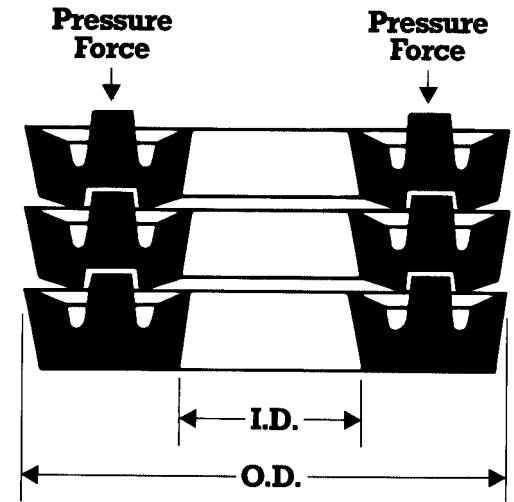
American Packing presently stocks Center Ring and Flat Back WV packings in homogenous Buna 90 Durometer and fabric reinforced Buna.



**Center Ring**



**Flat Back**



**Remember:**

**Same or next day  
shipment on stock items.**

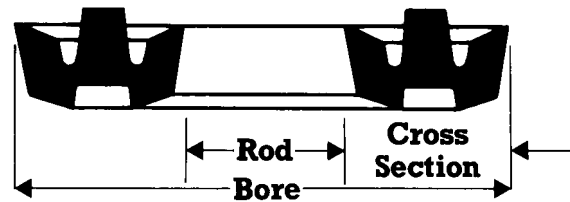
## WV Packing Installation Data

Since WV packings are designed to be free floating, it is not recommended that the rings be installed in a compressed state. This should be between .014" and .060" of area in the gland depth so that the rings are allowed to float. The amount of this free floating is determined by the ring cross section and the number of rings being installed. (See chart below).

For designs of medium to high pressure, it is recommended that fabric reinforced rings be utilized. The adjacent table is a guide to pressure rating of multiple rings. A homogeneous ring may be also used for sealing at low pressure. The homogeneous ring should not be included in calculating pressure rating.

Pressure Rating of Multiple Rings	
Pressure (PSI)	Number of Rings
250 to 500	3
500 to 2000	4
2000 to 5000	5
5000 to 8000	6

## WV Packing Nominal Stack Height and Gland Depth Required



### Nominal Ring Stack Height (A) Gland Depth Required $\pm .002$ " (B) (Inches)

Number of Rings	2		3		4		5		6		7	
	A	B	A	B	A	B	A	B	A	B	A	B
Cross Selection (inches)												
1/4	.266	.280	.375	.392	.484	.504	.594	.616	.704	.728	.814	.840
5/16	.332	.346	.469	.486	.605	.625	.742	.764	.879	.903	1.02	1.042
3/8	.398	.412	.562	.579	.726	.746	.890	.912	1.054	1.078	1.218	1.244
7/16	.468	.482	.656	.673	.848	.868	1.039	1.061	1.230	1.254	1.421	1.447
1/2	.531	.545	.750	.767	.969	.989	1.187	1.209	1.405	1.429	1.623	1.649
5/8	.667	.695	.943	.978	1.220	1.260	1.496	1.541	1.772	1.821	2.048	2.101
3/4	.800	.828	1.132	1.167	1.464	1.504	1.795	1.840	2.126	2.175	2.475	2.528

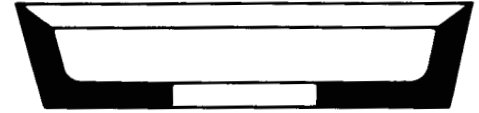
# Piston Cups

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 American Packing are 80 Durometer Nitrile. They are also available in other homogeneous materials such as EPR, fluorelastomer, and silicone.

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



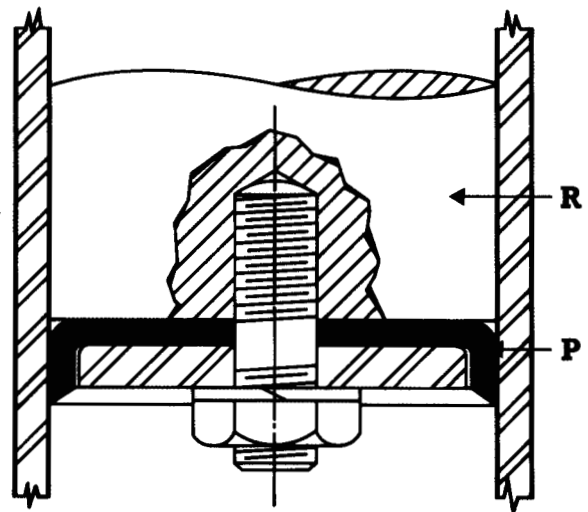
## Piston Cup Installation Data

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.



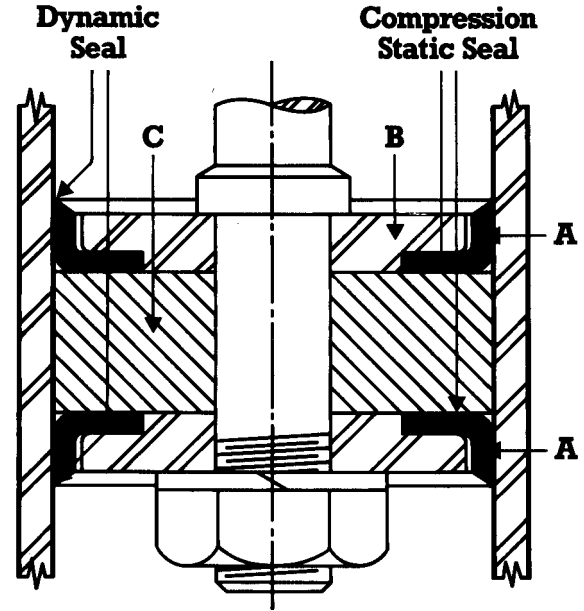
**Figure 1  
Piston Cup  
Attached to Ram**

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.

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

Dimensions for Piston Cups stocked by American Packing are listed below. For availability of additional sizes not listed, please inquire.

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
K303	3	(S)	1/2	1/8
K325	3-1/4	(S)	5/8	5/32
K351	3-1/2	(S)	5/8	5/32
K349	3-1/2	(S)	1/2	1/8
K362	3-5/8	(S)	5/8	5/32
K375	3-3/4	(S)	3/4	3/16
K402	4	(S)	1/2	1/8
K400	4	(S)	3/4	3/16
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 at no additional charge.

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
K100	1	(S)	1/2	1/8
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
K162	1-5/8	(S)	1/2	1/8
K163	1-5/8	(S)	1/2	1/8
K175	1-3/4	(S)	1/2	1/8
K203	2	(S)	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
K263	2-5/8	(S)	1/2	1/8
K275	2-3/4	(S)	1/2	1/8
K287	2-7/8	(S)	1/2	1/8
K302	3	(S)	1/2	1/8
K327	3-1/4	(S)	5/8	3/16
K350	3-1/2	(S)	5/8	5/32
K353	3-1/2	(S)	1/2	1/8
K363	3-5/8	(S)	5/8	5/32
K376	3-3/4	(S)	5/8	1/8
K404	4	(S)	1/2	1/8
K407	4	(S)	3/4	3/16
K450	4-1/2	(S)	5/8	5/32
K477	4-3/4	(S)	3/4	3/16
K503	5	(S)	3/4	3/16
K551	5-1/2	(S)	3/4	3/16
K601	6	(S)	3/4	3/16

## **Products Available**

### **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, and 90 Durometer  
Neoprene Cotton and Nylon Inserted  
Nitrile 50, 60, and 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)

### **Packing**

Aramid Filament  
Carbon/Graphite  
Carbon/TFE  
Flax and Flax/TFE  
General Service Packing  
G.F.O.®  
Hydraulic Coil  
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  
Ultra/Graphite

### **Mechanical Seal Components**

O-Ring Groove Seats  
Ceramic, Tungsten-Carbide, Silicon-Carbide

### **Extrusions - Square and Rectangular**

EPDM  
Fluoroelastomer  
Neoprene (White)  
Neoprene Sponge (Closed Cell)  
Silicone (Gray)

### **O-Rings U.S. Standard Sizes**

Aflas® 80 Durometer  
Chloroprene 70 Durometer  
E.P.R. 70 Durometer  
Fluoroelastomer (Black) 75 and 90 Durometer  
Fluoroelastomer (Brown) 75 and 90 Durometer  
HNBR (HSN) 70 Durometer (Green & Blue TFE Coated)  
Nitrile 50, 70 and 90 Durometer  
Nitrile (White) 70 Durometer (FDA Approved Materials)  
PTFE  
Silicone 70 Durometer  
Square Cut Rings Nitrile 70 Durometer  
Teflon® Encapsulated — Viton® Core  
Teflon® Encapsulated – Silicone Core  
Urethane 70 and 90 Durometer  
4 Lobe Q-Rings Nitrile 70 Durometer  
4 Lobe Q-Rings Fluoroelastomer 75 Durometer

### **O-Rings Metric Sizes**

Fluoroelastomer 75 Durometer  
Nitrile 70 and 90 Durometer

### **O-Ring Kits**

Standard Kits  
Metric Kits  
Speciality Kits

### **O-Ring Splicing Kits**

Fluoroelastomer  
Nitrile (Inch and Metric)

### **O-Ring Accessories**

Measuring Cone and Tape  
Sizing Charts  
Lubricants  
Picks

### **Back-Up Rings**

Fluoroelastomer 90 Durometer (Contoured)  
Nitrile 90 Durometer (Contoured)  
PTFE Single Turn and Solid  
PTFE Spiral  
Leather

### **Vulcanizing**

Made to Your Specifications:  
Special Size O-Rings  
Sleeves  
Gaskets

## **Products Available (Continued)**

### **O-Ring Cord**

Aflas® 75 Durometer  
E.P.R. 70 Durometer  
Fluoroelastomer 75 Durometer (Inch and Metric)  
Fluoroelastomer 75 Durometer (Square)  
Fluoroelastomer 90 Durometer  
Fluoroelastomer (Brown) 75 Durometer  
Neoprene 70 Durometer  
Neoprene Sponge (Closed Cell)  
Nitrile 70 and 90 Durometer (Inch and Metric)  
Nitrile 70 Durometer (Square)  
Silicone 70 Durometer  
4-Lobe Q-Rings Nitrile 70 Durometer  
4-Lobe Q-Rings Fluoroelastomer 75 Durometer

### **Hydraulic Seals**

Loaded Lip Seals  
Piston Cups  
Rod Wipers  
U-Cups  
T-Seals  
Vee Packings  
Wear Rings  
WV Packings

### **Glass-Industrial**

Tubular Gauge Glass:  
Standard, High Pressure, Red Line, Heavy Wall,  
Heavy Wall Red Line  
Borosilicate Flat Glass:  
Circle, Rectangular, Square  
Flat Gauge Glass:  
Plain, High Pressure, Reflex  
Vycor® Brand Flat Glass:  
Circle, Rectangular, Square  
Lubricator Glass  
Oil Cup Glass  
Pyrex® Brand Annular Edge Sight Glass:  
Annealed, Tempered  
Fused Quartz:  
Circle, Rectangular, Square  
Neoceram Super Heat Resistant Glass

### **Glass Accessories**

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

### **Couplings - For Industrial Hose**

Ball Valves  
Cam and Groove  
Combination Nipples  
Double Bolt Clamps  
Foot Valves  
Garden Hose  
Ground Joint  
High Pressure Clamps  
Menders  
Nipples  
Pin-lug  
Push-on Hose Barbs  
Standard Hose Barbs  
Quick-Disconnects  
Sandblast

Strainers  
Universal Crowfoot

### **Pressure Gauges**

### **Tools**

Gasket Cutters  
Gasket Knives  
Gauge Glass Cutters  
Packing Hooks  
Punches and Punch Sets

### **Tapes**

Fiberglass  
Kapton®  
Polyester  
Silicone and Adhesive Back (Solid and Sponge)  
Teflon® Fiberglass  
TFE Thread Sealant  
Flagging

### **Clamps and Accessories**

Preformed  
Open-end  
Strap and Buckles  
Worm Gear  
Cable Ties  
Tools

### **Spiral Wound Gaskets**

Type 304 Stainless Steel/Non-Asbestos  
Type 304 Stainless Steel/Grafoil®  
Type 316 Stainless Steel/Grafoil®  
Type 316 Stainless Steel/Non-Asbestos

### **Fabrication**

Gaskets  
Glass  
O-Rings  
Pipeline Scraper Discs  
Strip  
Sleeves  
Tank Strip & Gasket

### **Plastic Products**

Safety Visors  
Abrasive Blasting Replacement Lenses  
Plastics for the Printing Industry  
Custom Fabrication

### **Miscellaneous Items**

Adhesive/Sealants  
Anaerobics  
Cleaners  
Coatings  
Hand Cleaners  
Lubricants  
PTFE Flange Sealant  
RTV Silicones  
Pipe Repair Tape  
Threadlockers  
Thread Sealants