

# MFPSEALS

MARTIN FLUID POWER



*Sealing In Success™*

ENGINEERING GUIDE

VOL. 3













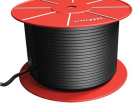



[www.mfpseals.com](http://www.mfpseals.com)




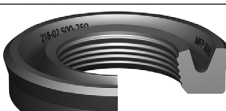
All stated data results from random tests taken from ongoing production. All data was established based on standard test-products according to ISO, DIN and ASTM standards, and basically can not be carried over to the completed seal.

Our applied technical advice, either oral, written or through tests is given according to our best knowledge. However, this information is to be considered as non-obligatory instruction, also in terms of any protective rights of a third party, and does not exempt you from testing our product in reference to its suitability for the intended process and purpose. Utilization, application and processing of the products occur entirely outside of our control and are therefore exclusively your responsibility. However, should a case of liability come into question, it will be limited to all damages in the value of the product which we delivered and you used. By all means, we do warrant the impeccable quality of our products in accordance with our general sales and delivery conditions.

Descriptions, specifications, compounds and products are subject to change without notice. Errors and omissions are subject to correction.

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Prefix	Profile	C/S	Seal Name	Compounds Available*	Page
<b>INCH SEALS</b>					
<b>O-Rings</b>					<b>INCH</b>
<b>O-Ring Standard Sizes - AS 568D</b>					38 - 41
<b>O-Ring Gland Design - Inch Standard</b>					42
OR			AS 568D O-Ring	See Pages 43-44 for a list of compounds, specially formulated for O-Rings.	43-44
OR			O-Ring PTFE	T1000	45
OR			O-Ring Encapsulated	TES - FEP / Silicone TEV - FEP / Viton®	46
SR			Square Cut Ring	N6001	47 - 50
XR			X-Ring	N6014	51
ORC			Extruded O-Ring Cord Stock	N6001, N6003 V7525, V7550	52
SRC			Extruded Square Cut Cord Stock	N6001, N6003	53
XRC			Extruded X-Ring Cord Stock	N6001, N6003	54

Prefix	Profile	C/S	Seal Name	Compounds Available*	Page
<b>INCH SEALS</b>					
<b>Back-Up Rings</b>					<b>INCH</b>
BU			Contoured Back-Up Ring	N6003, V7165	55 - 62
BU			Split Back-Up Ring	T1000	63 - 66
BU			Solid Back-Up Ring	T1000	67 - 71
576			576 Back-Up Ring	M1001, M1002	72
BU			H2155 Back-Up Ring	H2155	73 - 79
<b>U-Cup - Symmetrical</b>					<b>INCH</b>
6226			AN6226 Symmetrical U-Cup	N6001, V7100	80 - 82
BV			Block Vee Symmetrical U-Cup	N6015, N6023	83 - 85
HU			HU Series Symmetrical U-Cup	U2145, U2150, U2151, U4150, H2155	86 - 92
XP			X-PAC® Symmetrical U-Cup Loaded B-Lip	Seal - U2145, U2150, U2151, U4150, H2155 X-Ring Expander - N6014	93 - 99
<b>U-Cup - Asymmetrical Rod Seal</b>					<b>INCH</b>
RTL			Asymmetrical Rod Seal U-Cup	U2150, U2151, U4150, H2155	100 - 102
SRS			Serrated Rod Seal U-Cup	N6015, N6023	103

For compound descriptions and temperature ranges, please refer to pages 26-37.



Prefix	Profile	C/S	Seal Name	Compounds Available*	Page
<b>INCH SEALS</b>					
<b>U-Cup - Asymmetrical Rod Seal</b>					<b>INCH</b>
XPAR			X-PAC® Loaded Rod Seal U-Cup, with Anti-Extrusion Ring	Seal - U2151 X-Ring Expander - N6014 Anti-Extrusion Ring - M1001	104 - 105
XPR			X-PAC® Loaded Rod Seal U-Cup, Twin-Lip	Seal - U2150, U2151, U4150, H2155 X-Ring Expander - N6014	106
XPRA			X-PAC® Loaded Rod Seal U-Cup, with Twin-Lip & Anti-Extrusion Ring	Seal - U2150, U2151, U4150, H2155 X-Ring Expander - N6014 Anti-Extrusion Ring - M1000, M1001	107
<b>U-Cup - Asymmetrical Piston Seal</b>					<b>INCH</b>
PUC			Asymmetrical Piston Seal U-Cup	U2145, U2150, U2151, U4150, H2155	108
PUE			Asymmetrical Piston Seal U-Cup	Seal - U2145, U2150, U2151, U4150, H2155 Anti-Extrusion Ring - M1001	109
<b>Piston Cups</b>					<b>INCH</b>
PCD			Double Acting Piston Cup	N8097 / Carbon Steel	110
PCF			Fabric & Rubber Piston Cup	M1009	111 - 112
<b>Rod Assemblies</b>					<b>INCH</b>
CGLR			Capped Asymmetrical Rod Seal (3 PC.)	Energizer - N6020 Cap - T5100 Backup - M1000	113
CGTR			Capped GT Rod Seal (4 PC.)	Energizer - N6023 Cap - T5100 Backup - M1000	114
CRX			CRX Rod Seal® (2 PC.)	Piston Seal - U2145, U2150, U2151, U4150 O-Ring Expander - N6001	115



















Prefix	Profile	C/S	Seal Name	Compounds Available*	Page
<b>INCH SEALS</b>					
<b>Rod Assemblies</b>					<b>INCH</b>
GTR			GT Ring (3 PC.) Rod Seal	Seal - N6001 Back-Up Rings - M1001	116 - 117
RS10			RS10 (2 PC.) Rotary Rod Seal	Rotary Rod Seal - T5100 O-Ring Expander - N6001	118 - 120
<b>Piston Assemblies</b>					<b>INCH</b>
CGT			Capped GT (4 PC.) Piston Seal	Energizer - N6023 Cap - T5100 Backup - M1001	121 - 122
NCGT			Narrow Capped GT (4 PC.) Piston Seal	Energizer - N6023 Cap - T5100 Backup - M1001	123
HPX			HPX Piston Seal™ (2 PC.)	Piston Seal - U2150, H2155 Expander - NBR	124
PSA			PSA (5 PC.) Piston Seal	Piston Seal - NBR80 Back-Up Rings - Polyester Elastomer Guide Rings - POM	125
PSQ			PSQ (3 PC.) Piston Seal	Piston Seal - T5100 Square-Ring - N6001 X-Ring Expander - N6014	126
PT			PT (2 PC.) Piston Seal	Piston Seal - T5100 O-Ring Expander - N6001	127
RS11			RS11 (2 PC.) Rotary Piston Seal	Piston Seal - T5100 O-Ring Expander - N6001	128 - 130
SCP			Step Cut (2 PC.) Piston Seal	Filled Nylon®	131

Prefix	Profile	C/S	Seal Name	Compounds Available*	Page
<b>INCH SEALS</b>					
<b>Piston Assemblies</b>					<b>INCH</b>
CPX			CPX Piston Seal® (2 PC.)	Piston Seal - U2145, U2150, U2151, U4150 O-Ring Expander - N6001	132
			Wide Base CPX Piston Seal® (2 PC.)		
GTP			GT Ring (3 PC.) Piston Seal	Seal - N6001 Back-Up Rings - M1001	133 - 135
TPR			TPR Rectangular (2 PC.) Piston Seal	Rectangular Piston Ring - T5100 O-Ring Expander - N6001	136 - 137
TPM			TPM Midsize Ring (2 PC.) Piston Seal	Midsize Piston Ring - T5100 O-Ring Expander - N6001	138 - 139
TPS			TPS Square (2 PC.) Piston Seal	Square Piston Ring - T5100 O-Ring Expander - N6001	140 - 142
<b>Buffer Rings</b>					<b>INCH</b>
BRS			BRS Rod Buffer Seal	Rod Buffer Seal - T5100 O-Ring Expander - N6001	143- 146
<b>Rod Wipers</b>					<b>INCH</b>
AN			AN Style Rod Wiper	U2145, U2150, U2151, U4150, H2155	147 - 148
D			D Style Rod Wiper	U2145, U2150, U2151, U4150, H2155	149 - 151
DM			DM Style Rod Wiper	U2145, U2150, U2151, U4150, H2155	152

Prefix	Profile	C/S	Seal Name	Compounds Available*	Page
<b>INCH SEALS</b>					
<b>Rod Wipers</b>					<b>INCH</b>
H			H Style Rod Wiper	U2145, U2150, U2151, U4150, H2155, CN80, VT90	153 - 154
K			K Style Rod Wiper	U2145, U2150, U2151, U4150, H2155	155 - 156
S			Metallic Rod Wiper Style S	Cushion - FKM Scraper Rings - Brass or Bronze	157 - 158
SW			Metallic Rod Wiper Style SW	Cushion - FKM Scraper Rings - Brass or Bronze	159 - 160
SC			Metallic Rod Wiper Style SC	Case - Bronze Cushion - FKM Scraper Rings - Brass or Bronze	161
SWC			Metallic Rod Wiper Style SWC	Case - Bronze Cushion - FKM Scraper Rings - Brass or Bronze	162
SWCP			Metallic Rod Wiper Style SWCP	Case - Bronze Cushion - Brown Viton® / T1000 Scraper Rings - Brass	163
MC			Metal Clad Rod Wiper	U2146 / Carbon Steel	164
				NBR / Carbon Steel	165 - 166
ODW			ODW Style Rod Wiper	Wiper - T5100 O-Ring Expander - N6001	167 - 170
<b>Wear Rings</b>					<b>INCH</b>
WR			Tight Tolerance Composite Guide Ring	C1000, C2000, C4000	171 - 176

Prefix	Profile	C/S	Seal Name	Compounds Available*	Page
<b>INCH SEALS</b>					
<b>Wear Rings</b>					<b>INCH</b>
WR			Tight Tolerance Piston Guide Ring	M1005	177 - 181
WRR			Tight Tolerance Rod Guide Ring		182 - 183
PWS			Tight Tolerance Composite Wear Strip	C4000	184
TWS			Tight Tolerance PTFE Wear Strip	T5100	185 - 186
<b>Spring Energized Seals</b>					<b>INCH</b>
XS			XS Seal® Spring Energized Seal	Seal Jacket - Compound varies by design. Spring - Elgiloy, Hastelloy, Stainless Steel Spring Style - V, Helical, Slanted Coil Other materials available.	187 - 188
<b>METRIC SEALS</b>					
<b>O-Rings</b>					<b>METRIC</b>
Metric O-Ring Sizes - BS4518					190 - 191
Metric O-Ring Sizes - GB/T 3452.1					192 - 195
Metric O-Ring Sizes - J.I.S. B2401					196 - 197
Metric O-Ring Sizes - Standard					198 - 204
Metric O-Ring Sizes - SMS 1586					205 - 206
Quick Metric O-Ring Gland Design					207
MOR			Metric O-Ring	See Pages 208-209 for a list of compounds, specially formulated for O-Rings.	208 - 209
MORC			Metric Extruded O-Ring Cord Stock	N6001, N6003, V7525, V7550	210
<b>Metric Back-Up Seals</b>					<b>METRIC</b>
MBU			Metric Back-Up Ring	T1000	211 - 215
<b>Metric Back-Up Rings J.I.S. Size Chart</b>					216



Prefix	Profile	C/S	Seal Name	Compounds Available*	Page
<b>METRIC SEALS</b>					
<b>Metric Back-Up Seals</b>					<b>METRIC</b>
MBTU			Metric Back-Up Ring	T5100	217 - 220
<b>Metric U-Cup - Symmetrical</b>					<b>METRIC</b>
MSUC			Metric Symmetrical U-Cup	U2145, U2150, U2151, U4150, H2155	221 - 223
MXP			Metric X-PAC® Loaded B-Lip Symmetrical U-Cup	Seal - U2145, U2150, U2151, U4150, H2155 X-Ring Expander - N6014	224 - 235
<b>Metric U-Cup - Asymmetrical Rod Seal</b>					<b>METRIC</b>
MRTL			Metric Asymmetrical Twin-Lip Rod Seal U-Cup	U2150, U2151, U4150, H2155	236 - 237
MXPRA			Metric X-PAC® Loaded Rod Seal U-Cup, with Twin-Lip & Anti-Extrusion Ring	Seal - U2150, U2151, U4150, H2155 X-Ring Expander - N6014 Anti-Extrusion Ring - M1000, M1001	238
<b>Metric U-Cup - Asymmetrical Piston Seal</b>					<b>METRIC</b>
MPUC			Metric Asymmetrical Piston Seal U-Cup	U2145, U2150, U2151, U4150, H2155	239
<b>Metric Piston Assemblies</b>					<b>METRIC</b>
MPST			Metric (2 P.C.) Piston Seal	Piston Seal - T5100 O-Ring Expander - N6001	240 - 242
MPSP			Metric (2 P.C.) Piston Seal	Piston Seal - U2151 O-Ring Expander - N6001	243 - 244
<b>Metric Buffer Rings</b>					<b>METRIC</b>
MBRS			Metric Rod Buffer Seal	Rod Buffer - T5100 O-Ring Expander - N6001	245 - 246

For compound descriptions and temperature ranges, please refer to pages 26-37.

Prefix	Profile	C/S	Seal Name	Compounds Available*	Page
<b>METRIC SEALS</b>					
<b>Metric Rod Wiper</b>					<b>METRIC</b>
MDRW			MDRW Metric Rod Wiper	U2145, U2150, U2151, U4150, H2155	247 - 248
MHRW			MHRW Metric H Rod Wiper	U2145, U2150, U2151, U4150, H2155	249 - 250
MOHW			MOHW Metric Rod Wiper	Rod Wiper - T5100 O-Ring Expander - N6001	251 - 252
MRCM			MRCM Metric Metal Clad Rod Wiper	N6003 / Steel	253 - 254
MSRW			MSRW Metric Stepped Ribbed Rod Wiper	U2145, U2150, U2151, U4150, H2155	255 - 256
<b>Metric Swivel Seal</b>					<b>METRIC</b>
MSS			MSS Metric Swivel Seal	U2151	257
<b>Metric Wear Rings</b>					<b>METRIC</b>
MPWS			Tight Tolerance Metric Composite Wear Strip	C4000	258 - 259
MTWS			Tight Tolerance Metric PTFE Wear Strip	T5100	260 - 263
MWRP			Tight Tolerance Metric Guide Ring	C1000	264 - 286
<b>Metric Spring Energized Seals</b>					<b>METRIC</b>
MXS			Metric XS Seal® Spring Energized Seal	Seal Jacket - Compound varies by design. Spring - Elgiloy, Hastelloy, Stainless Steel Spring Style - V, Helical, Slanted Coil Other materials available.	287 - 288

### ENGINEERING & SUPPORT SERVICES

MFP Seals and our worldwide manufacturing partners, retain engineering support to help you solve difficult and unique problems. Let us look at your total sealing program, and offer solutions based on new technology and modern materials. As you can see from our product offerings, we are the complete sealing supplier, if it's a seal, MFP Seals has it!

Our in house manufacturing includes CNC machining of seals, bearings, back-up rings, wipers, and all related sealing devices. Our modern machining centers can make that special part, up to 28 inches on the OD. To support this service, we maintain one of the largest tubing and rod stock supplies of rubber, and plastic raw material in North America. Stock materials include urethane, Hytrel®, Delrin®, Nylon®, NBR and FKM rubber, and a very wide assortment of Teflon® and filled PTFE materials. We can make that prototype or special part you need without tooling charges. Our engineering staff will help you with materials, tolerances and design.

For larger quantities, we offer in-house injection molding. Our presses can manufacture parts from many plastic materials, including Nylon®, Delrin®, Hytrel® & Urethane. Molds can be produced in house for fast and affordable service. Let us make those special parts, in your special color, or with your part number and/or logo in the part.

Our gasket cutting division will cut one or ten thousand of your standard or special gasket. We stock all the raw materials for fast deliveries to you, the customer. Let us help you solve those gasket problems, or just help you reduce your costs!

Sealing devices are our only product, but as you can see, we offer more than "off the shelf" solutions. If it is a standard part, and available off the shelf, we have it. If it is not, we can manufacture it. We are the total seal solution company. Contact any of our Martin Fluid Power branches for help with any of your sealing needs!

### SHIPPING POLICY

Your order will be shipped from the nearest MFP Seals location which has the requested parts in stock.

UPS will be used in the USA whenever possible. However, should your order exceed UPS size or weight limits, "Common Carrier" will be selected to speed delivery to you. Please request FedEx, UPS Air, Next Day, 2nd or 3rd Day, preferred truck line, or any special instruction. We will promptly take care of your needs.

### BACKORDERS POLICY

Backorders will ship per customer request including freight charges.

### NON-CATALOG ITEMS

It is important to note that the range of product available from Martin Fluid Power is not limited to those shown in this catalog. Our factories have the ability to produce almost any size and type of seal required. Please contact customer service for any item not shown in this catalog.

### RETURN GOODS

Before any item can be returned, a Return Authorization Number must be obtained from our customer service department. This RA# must appear on all packages sent in to MFP, whatever the reason. Parts must be returned within 30 days of receipt of goods. Returned items are subject to a 20% restocking charge. All returns are subject to inspection by our Quality Control Department and may be rejected if not in resalable condition. Special order items are non-returnable.

### CANCELLATIONS

If you need to cancel an order, please contact the same location who received your order. Orders may be cancelled subject to payment of expenses incurred and only if production has not begun.

### WARRANTY

Martin Fluid Power's exclusive warranty is against defects in materials and workmanship at the time of shipment. It is in lieu of all other warranties. There is no implied warranty of merchantability or fitness for a particular purpose. The exclusive remedy is replacement of defective products or, at our option, refund of their purchase price. All damages exceeding the purchase price are excluded, whether consequential or otherwise, regardless of cause. The sale of our products under any other warranty or guarantee, expressed or implied, is not authorized by the company. All technical advice, services and recommendations rendered by Martin Fluid Power, or its affiliated companies are gratis. They are based on technical data which the seller believes to be reliable, and are intended to be used by persons having skill and know-how and ability to analyze the application where the product will be used and apply the information to it at their own discretion and risk. We cannot assume or accept any responsibility for results obtained or damages occurred from any installer's decisions or work, in whole or in part.

# MFPSEALS®

MARTIN FLUID POWER



## BUILDING MFP SEALS® FOR YOU

MFP Seals, a division of Martin Fluid Power, is focused on providing you superior customer service, an effortless experience and our broad network access to all of the sealing devices that are available worldwide.

Founded in January 1977, Martin Fluid Power includes five wholesale distribution locations in the United States, plus locations in Lincoln, England, Bogota, Colombia and Taipei, Taiwan. The MFP Seals division represents a culmination of our efforts to bring together, in-house, our Design, Engineering, CNC Machining, Injection Molding, Seal Kitting, and Die Cutting departments. Together as MFP Seals we are focused on designing, engineering and manufacturing the highest quality sealing devices, made in the USA.

Through Martin Fluid Power's stocking locations and our authorized distributors worldwide, you have access to our products when you need them, no matter where you are. So, when you're looking for the highest quality seals at the best prices, remember, we've built MFP Seals to be your best choice.

## CUSTOM MANUFACTURING

MFP Seals is committed to high quality and timely service. By employing talented personnel, investing in new machinery, and enhancing our capabilities through upgrades, we are able to offer a vast range of tooling for standard Hydraulic and Pneumatic seals. Our manufacturing capabilities include CNC machining with Y-axis travel for off-center milling, drilling and tapping, as well as the ability to custom mold virtually any shape or design. For all of your engineered shapes, manufactured to print or sample, we have the technology to supply you with product that exceeds your expectations.

- CNC Machining
- Compression Molding
- Injection Molding
- Rubber to Metal Bonding
- Transfer Molding

## OUR FOCUS

MFP Seals will provide you, our customer, with the best solutions for your sealing device problems - while maintaining the highest quality, best prices, and all the conveniences that a global manufacturer can provide.





## ELASTOMERS, COMPOSITES & THERMOPLASTICS

- AEM 87A
- Atlas® 85A
- Atlas® ED 85A
- C1000 Phenolic Composite
- C2000 Phenolic Composite w/Graphite
- C4000 Polyester Composite w/PTFE
- C4025 Polyester Composite w/Graphite
- Carboxylated Nitrile 85A
- EPDM 87A FDA (White)
- EPDM 88A W270, KTW (Black)
- FPM 85A
- FPM 85A FDA
- FPM BS3 80A
- FPM DCP 84A (Black)
- FPM ED 85A
- H2140 - Hytrel® 40D
- H2155 - Hytrel® 55D
- HNBR 82A FDA (Green)
- HNBR 95A (Black)
- HNBR ED 85A (Black)
- HPU 58D (Dark Red)
- HPU 58D Lubricated (Black)
- HPU 85A (Light Green)
- HPU 95A KTW (Transparent)
- HPU 95A Low Temp (Blue)
- HPU 95A Lubricated (Black)
- HPU 96A FDA, 3A-sanitary (Opaque)
- M1000 (Polyether Ether Ketone - PEEK™)
- M1001 (Acetal)
- M1002 (Nylon® 6 MOS2)
- M1005 40% Glass Nylon
- M1006 (UHMW-PE)
- M1007 (PEEK™, 30% Carbon Fiber)
- M1008 (PEEK™, 30% Glass Fiber)
- MVQ 79A, 84A FDA
- NBR 82A Low Temp
- NBR 85A, 90A
- NBR 90A FDA (White)
- PU 95A (Dark Green)
- T1000 (PTFE, Virgin)
- T1025 (PTFE, 5% Moly)
- T1050 (PTFE, 15% Glass)
- T1075 (PTFE, 25% Glass)
- T1100 (PTFE, 15% Glass, 5% Moly)
- T1125 (PTFE, 23% Carbon, 2% Graphite)
- T1150 (PTFE, 10% Carbon)
- T1175 (PTFE, 25% Carbon)
- T1200 (PTFE, 15% Graphite)
- T1225 (PTFE, 10% Ekonol)
- T1250 (PTFE, Polyimide)
- T2000 (TFM, Unfilled)
- T2025 (TFM, Carbon)
- T2050 (TFM, Carbon, Carbon Fiber)
- T2075 (TFM, Carbon Fiber)
- T5000 (PTFE 40% Bronze)
- T5025 (PTFE, 55% Bronze, 5% Moly)
- T5050 (PTFE, 60% Bronze)
- T5100 (PTFE, Enhanced Bronze)
- U2145 TPU 95A
- U2146 TPU 90A
- U2151 TPU 95A
- U4145 TPU 95A TODI
- U4150 TPU 90A PPDI

*Other materials available, contact the MFP Seals Engineering Department for more information.*

STANDARD SEAL PROFILES OR CUSTOM SHAPES  
MADE TO ORDER

QUICK TURN-AROUND ON PROTOTYPES OR PRODUCTION

*(see the custom machined seals section of this guide)*



**CNC  
Machining**

**Injection  
Molding**



### PTFE COLOR COATING ►

- PTFE color coatings make identification easy, when used to distinguish sizes or materials.
- The PTFE coating extends wear life, resulting in reduced material decay and less downtime.
- Coated O-Rings are less susceptible to contamination and are easier to handle by not having to deal with messy oil-based lubricants.
- Added lubrication makes installation easier, reduces assembly time, and keeps machinery running smoother, longer. Less down-time equals more profit.

- BLACK
- LIGHT BLUE
- MEDIUM BLUE
- DARK BLUE
- BROWN
- CLEAR
- GRAY
- LIGHT GREEN
- MEDIUM GREEN
- DARK GREEN
- ORANGE
- PINK
- PURPLE
- RED
- YELLOW



## SERVICES & QUALITY

MFP Seals state-of-the-art measuring center allows for precision measuring of product to ensure they meet our quality standards and your specified tolerances. This powerful vision system is accurate up to 0.4 µm, so we know without a doubt that our parts will fit your application.

- |  |  |
|--|--|
| <p>Services:</p> <ul style="list-style-type: none"> <li>• Blanket Orders</li> <li>• JIT Inventory</li> <li>• KanBan</li> </ul> | <p>Quality:</p> <ul style="list-style-type: none"> <li>• ISO 9001-2008 Certified</li> <li>• PPAP Submission</li> <li>• Certification of Materials</li> <li>• Non-contact vision system (0.4 µm)</li> </ul> |
|--|--|



## CUSTOM PACKAGING AND KITTING

At MFP Seals we design, manufacture and package the highest quality seal kits in the industry. Whether you need seal kits for hydraulic or pneumatic cylinders, pumps, valves, or motors, we can meet or exceed your specifications. Our kitting services include custom packaging from shrink wrapping, bagging and labeling, to custom printed boxes, blister packaging and skin board packaging. We now offer skin board packaging, that can be custom printed on demand.

At MFP Seals we have experience designing custom packaging for these Industries and more:

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Automotive</li> <li>• Marine</li> <li>• Chemical Processing</li> <li>• Mining</li> <li>• Construction</li> </ul> | <ul style="list-style-type: none"> <li>• Mobile</li> <li>• Forestry</li> <li>• Oilfield</li> <li>• Industrial</li> <li>• Refuse</li> </ul> |
|---|--|



## O-RINGS

MFP Seals stocks millions of O-Rings in standard AS568A sizes, and both European and Japanese metric sizes. Our O-Rings are available in a wide variety of colors, compounds, and durometers to meet automotive, FDA, industrial, military, oil field, NORSOK, RoHS and UL specifications.

- |  |  |   |   |
|--|--|---|---|
| <ul style="list-style-type: none"> <li>• Aflas®</li> <li>• Buna N</li> <li>• Butyl</li> <li>• Carboxylated Nitrile</li> <li>• Epichlorohydrin</li> </ul> | <ul style="list-style-type: none"> <li>• Ethylene Propylene</li> <li>• Fluorocarbon</li> <li>• Fluorosilicone</li> <li>• Neoprene</li> <li>• Hydrogenated Nitrile</li> </ul> | <ul style="list-style-type: none"> <li>• Metallic O-Rings</li> <li>• Polyurethane</li> <li>• Perfluoroelastomer</li> <li>• Silicone</li> <li>• Teflon®</li> </ul> | <ul style="list-style-type: none"> <li>• Teflon® Encapsulated</li> <li>• Styrene Butadiene</li> <li>• Vamac®</li> </ul> |
|--|--|---|---|

## OIL FIELD PRODUCTS

We offer a wide variety of oil field sealing devices. Our materials and styles are approved and industry tested and we have problem solvers to handle the most severe applications.

- Actuator Seals
- Blow Out Prevention Seals
- Choke Packing
- Dovetail Packing
- Explosive Decompression Resistant O-Rings
- Hammer Union Seals
- P-Seals
- Pump Packing & Seal
- Ring Gaskets
- S-Seals
- Swivel Packing & Seals
- Test Plug O-Ring
- Spring Energized Flange & Face Seals
- Valve Stem Packings
- Slick Line Stuffing Box Packing
- Subsea Equipment / Offshore Drilling Seals

## HYDRAULIC & PNEUMATIC SEALS

Our selection of inch and metric sizes, styles and materials is unsurpassed. What we do not manufacture, we supply from the world's top manufacturers, to offer you the complete selection of hydraulic and pneumatic seals.

- AN Seals
- Anti-Extrusion Rings
- Back-Up Rings
- Buffer Rings
- Cap Seals
- Capped GT Rings
- Crown Seals
- Dust Covers
- Excluders
- Flange Seals
- Guide Rings
- GT Rings
- High Pressure Seals
- High Temperature Seals
- Lip Seals
- Loaded Lip Seals
- Piston Rings
- Piston Cups
- Polyseals
- Rod Seals
- Rotary Seals
- Spring Loaded Seals
- T-Seals
- Teflon Seals
- U-Cups
- Vee Packing Sets
- W Packings
- Wipers / Scrapers

## BUSHINGS, BEARINGS & GUIDE RINGS

Bushings, Bearings and Guide Rings are known by many different names, and are used in many different applications. Whether they are made from Acetal (Delrin®), Brass, Bronze, C4000, M1005, Peek, Phenolic, Polyamides (Nylon®), Polyester, T5100, Teflon®, or UHMW, we can help you in designing, manufacturing and stocking, we have the solution you need.

- Bearing Strip
- DU Bushing
- Flanged Bearings
- Guide Rings
- Journal Bearings
- Machined Plastics
- Rod End Bearings
- Rod Glands
- Self Aligning Bearings
- Self Lubricating Bearings
- Sleeve Bearings
- Spherical Bearings
- Split Tension Bushings
- Thrust Bearings

## DIE CUT GASKETS & SHEET MATERIALS

MFP Seals can die cut or fabricate standard or custom gaskets from our warehouse full of sheet materials.

- Boiler Gaskets
- Compressed Gaskets
- Expanded PTFE
- Cork & Rubber Sheet
- Envelope Gaskets
- Flange Gaskets
- Flexible Graphite
- Gasket Cutting Sets
- Handhole Gaskets
- Lathe Cut Gaskets
- High Temp Textiles
- Manhole Gaskets
- Rubber Sheet
- Sanitary Gaskets
- Teflon Sheet
- Spiral Wound Gaskets
- Vegetable Fibre Sheet
- Washers

These sheet materials compliment our extensive inventory of metallic, molded, or extruded gaskets.

- Cloth Inserted Rubber
- Compressed Non-Asbestos
- EPDM
- Expanded PTFE
- Flexible Graphite
- Natural Rubber
- Neoprene
- Nitrile
- Plant Fibre Sheet
- Red Rubber
- Virgin PTFE
- Viton®

## SPRING ENERGIZED SEALS

Spring Energized Seals, designed for applications that challenge conventional seals, regardless of the media. Made from thermoplastic or PTFE materials and application based spring styles, Spring Energized Seals are used for explosive decompression resistance or AED Seals, vacuum, extreme pressure and temperature, high surface speed, non-lubricated systems, and more.

- Thermoplastic or PTFE Seal
- Helical Spring
- Slanted Coil Spring
- U & V Spring
- 301, 302, 304 & 316 Stainless Steel
- Alloy C-276 Beryllium Copper
- Elgiloy and other Alloys

## OIL SEALS

We stock rotary shaft oil and grease seals in a broad range of sizes, materials, and lip styles, to fit every application. Private labeling is available, with your name and part numbers, if required. We stock a full range of inch, metric and non-standard sizes.

- Nitrile
- Low Pressure
- Polycarbonate
- High Pressure
- Silicone
- PTFE
- Viton®
- Specials

**Cross Section vs. Diameter:**

Care must be taken to properly match a seal's cross-section to its diameter. If the cross-section is too large in relation to the diameter, it will be difficult to snap-in or stretch the seal into the groove. This condition is typically only associated with polyurethane or other high modulus materials. The data shown in the Cross Section vs. Diameter chart may be used as a guide to determine this relationship for ease of installation.

**Installation Guide: Cross Section vs. Diameter**

Cross Section	Minimum Diameter Rod Seal		Minimum Diameter Piston Seal	
	U2145 U2151	H2155	U2145 U2151	H2155
1/8"	.750 I.D.	1.000 I.D.	1.250 I.D.	1.750 I.D.
3/16"	1.000 I.D.	1.750 I.D.	1.750 I.D.	2.750 I.D.
1/4"	1.750 I.D.	2.750 I.D.	3.000 I.D.	4.500 I.D.
5/16"	2.500 I.D.	4.000 I.D.	4.500 I.D.	6.000 I.D.
3/8"	3.000 I.D.	5.000 I.D.	6.000 I.D.	8.000 I.D.
1/2"	6.000 I.D.	8.000 I.D.	10.000 I.D.	12.000 I.D.
3/4"	8.000 I.D.	9.000 I.D.	15.000 I.D.	17.000 I.D.
1"	10.000 I.D.	10.000 I.D.	20.000 I.D.	25.000 I.D.

**Effects of Lip Geometry:**

The geometry of the lip is what determines the function of a seal. Shaft force concentration, ability to break the film of a fluid, tendency to hydroplane, and its ability to keep contaminants out, are all dependent upon the seal's lip shape. The table shows the four most common lip shapes and their characteristics that help determine which lip design to use in a particular seal design.

	ROUNDED	STRAIGHT CUT	BEVELED	SQUARE
SHAFT FORCE CONTACT PROFILE				
FLUID FILM BREAKING CAPABILITY	Low	High	Very High	Medium
CONTAMINANT EXCLUSION	Low	Very High	Low	High
TENDENCY TO HYDROPLANE	High	Very Low	Low	Medium
TYPICAL USES FOR LIP DESIGN	Pneumatic U-Cups	Wipers and Piston Seals	Rod Seals	Piston Seals

**Cutting Instructions for Guide Rings:**

Cut-to-fit guide rings can be a quick and convenient way to repair hydraulic and pneumatic cylinders. By having bulk length rolls on hand you can eliminate the need to stock multiple O.D. sizes of certain guide rings. Use the following formulas to find the correct length to cut-to-fit the perfect size guide ring for your application.

**Formulas to calculate Cut-to-fit Length:**

(use in conjunction with chart below)

**Pistons:**

Cut-to-fit Length =  
 [ ( Bore Diameter – Cross Section ) x ] – Minimum Gap (G)

**Rods:**

Cut-to-fit Length =  
 [ ( Rod Diameter + Cross Section ) x ] – Minimum Gap (G)

**Piston or Rod Seal/Ring Cutting Instructions**

Rod or Bore Diameter	Minimum Gap (G)	Tolerance for Cut Length (CL ±)
0.500" - 1.750"	0.075	± .010
1.751" - 3.125"	0.140	± .016
3.126" - 4.000"	0.175	± .024
4.001" - 5.000"	0.230	± .032
5.001" - 6.000"	0.260	± .040
6.001" - 7.000"	0.320	± .047
7.001" - 8.500"	0.380	± .055
8.501" - 10.500"	0.480	± .063
10.501" - 13.000"	0.620	± .071
13.001" - 16.000"	0.750	± .079

**NOTE:** For sizes not shown, please contact an MFP Seals representative.



**Guidelines for Hardware Design:**

MFP Seals recommends the following dimensions when designing your hardware. These dimensions will assure ease of assembly and prevent damage to the seal while your hardware is being assembled.

**Installation Chamfer, Gland Radius, and Taper**

Seal Cross Section	"A" Dimension	R Max. Dimension
1/16	0.035	0.003
3/32	0.050	0.016
1/8	0.050	0.016
5/32	0.070	0.016
3/16	0.080	0.016
7/32	0.080	0.016
1/4	0.080	0.016
9/32	0.085	0.016
5/16	0.085	0.016
11/32	0.085	0.016
3/8	0.090	0.016
13/32	0.095	0.016
7/16	0.105	0.030
15/32	0.110	0.030
1/2	0.120	0.030
17/32	0.125	0.030
9/16	0.130	0.030
19/32	0.135	0.040
5/8	0.145	0.040
21/32	0.150	0.040
11/16	0.160	0.040
23/32	0.165	0.040
3/4	0.170	0.040
25/32	0.180	0.060
13/16	0.185	0.060
27/32	0.190	0.060
7/8	0.200	0.080
29/32	0.205	0.080
15/16	0.215	0.080
31/32	0.220	0.080
1	0.225	0.080

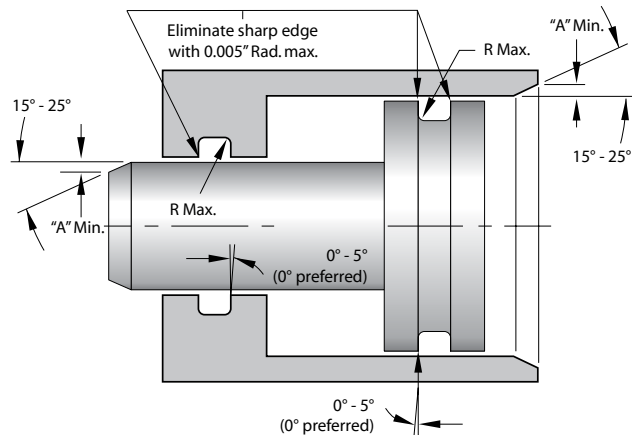
**Surface Finish: ISO 4287**

The most common method for measuring and defining surface finish is Ra in  $\mu\text{m}$  or  $\mu\text{in}$ . Ra can mostly define a surface finish which is suitable for a sealing surface, however, the rough peaks of a surface should be blunted by being polished, honed, or roller burnished. This prevents the sharp peaks from abrading the seal and still allows the valleys to retain lubrication aiding in seal life and function. Special applications like cryogenic, small molecular weight gases, and surface coatings will differ from the general surface finish guidelines in the following table.

**Ra Guidelines**

Compounds	Surface		Media
	Dynamic	Static	
Hytrel®, PTFE	3 to 12	3 to 16	Hydraulic Fluid, Water, Crude Oil
NBR, Urethane, FKM	3 to 12	3 to 32	Hydraulic Fluid, Water, Crude Oil
Hytrel®, PTFE	3 to 8	3 to 16	Gases, Fuel
NBR, Urethane, FKM	3 to 12	3 to 16	Gases, Fuel

Dynamic and Static surface measurement Ra shown in  $\mu\text{in}$ .





**ISO TOLERANCE CHART (INCH)**

Basic Diameter (in.)	f7	F7	f8	F8
above .236 to .394	-.0005"/-.0011"	+.0011"/+.0005"	-.0005"/-.0014"	+.0014"/+.0005"
above .394 to .709	-.0006"/-.0013"	+.0013"/+.0006"	-.0006"/-.0017"	+.0017"/+.0006"
above .709 to 1.181	-.0008"/-.0016"	+.0016"/+.0008"	-.0008"/-.0021"	+.0021"/+.0008"
above 1.181 to 1.969	-.0010"/-.0020"	+.0020"/+.0010"	-.0010"/-.0025"	+.0025"/+.0010"
above 1.969 to 3.150	-.0012"/-.0024"	+.0024"/+.0012"	-.0012"/-.0030"	+.0030"/+.0012"
above 3.150 to 4.724	-.0014"/-.0028"	+.0028"/+.0014"	-.0014"/-.0035"	+.0035"/+.0014"
above 4.724 to 7.087	-.0017"/-.0033"	+.0033"/+.0017"	-.0017"/-.0042"	+.0042"/+.0017"
above 7.087 to 9.843	-.0020"/-.0038"	+.0038"/+.0020"	-.0020"/-.0048"	+.0048"/+.0020"
above 9.843 to 12.402	-.0022"/-.0043"	+.0043"/+.0022"	-.0022"/-.0054"	+.0054"/+.0022"
above 12.402 to 15.748	-.0024"/-.0047"	+.0047"/+.0024"	-.0024"/-.0059"	+.0059"/+.0024"
above 15.748 to 19.685	-.0027"/-.0052"	+.0052"/+.0027"	-.0027"/-.0065"	+.0065"/+.0027"
above 19.685 to 24.803	-.0030"/-.0057"	+.0057"/+.0030"	-.0030"/-.0073"	+.0073"/+.0030"
above 24.803 to 31.496	-.0032"/-.0063"	+.0063"/+.0032"	-.0032"/-.0081"	+.0081"/+.0032"
above 31.496 to 39.370	-.0034"/-.0069"	+.0069"/+.0034"	-.0034"/-.0089"	+.0089"/+.0034"
above 39.370 to 49.213	-.0039"/-.0080"	+.0080"/+.0039"	-.0039"/-.0104"	+.0104"/+.0039"
above 49.213 to 62.992	-.0043"/-.0093"	+.0093"/+.0043"	-.0043"/-.0120"	+.0120"/+.0043"

Basic Diameter (in.)	H8	h9	H9
above .236 to .394	+.0009"/-.000"	+.000"/-.0014"	+.0014"/-.000"
above .394 to .709	+.0011"/-.000"	+.000"/-.0017"	+.0017"/-.000"
above .709 to 1.181	+.0013"/-.000"	+.000"/-.0020"	+.0020"/-.000"
above 1.181 to 1.969	+.0015"/-.000"	+.000"/-.0024"	+.0024"/-.000"
above 1.969 to 3.150	+.0018"/-.000"	+.000"/-.0029"	+.0029"/-.000"
above 3.150 to 4.724	+.0021"/-.000"	+.000"/-.0034"	+.0034"/-.000"
above 4.724 to 7.087	+.0025"/-.000"	+.000"/-.0039"	+.0039"/-.000"
above 7.087 to 9.843	+.0028"/-.000"	+.000"/-.0045"	+.0045"/-.000"
above 9.843 to 12.402	+.0032"/-.000"	+.000"/-.0051"	+.0051"/-.000"
above 12.402 to 15.748	+.0035"/-.000"	+.000"/-.0055"	+.0055"/-.000"
above 15.748 to 19.685	+.0038"/-.000"	+.000"/-.0061"	+.0061"/-.000"
above 19.685 to 24.803	+.0043"/-.000"	+.000"/-.0069"	+.0069"/-.000"
above 24.803 to 31.496	+.0049"/-.000"	+.000"/-.0079"	+.0079"/-.000"
above 31.496 to 39.370	+.0055"/-.000"	+.000"/-.0091"	+.0091"/-.000"
above 39.370 to 49.213	+.0065"/-.000"	+.000"/-.0102"	+.0102"/-.000"
above 49.213 to 62.992	+.0077"/-.000"	+.000"/-.0122"	+.0122"/-.000"

**ISO TOLERANCE CHART (METRIC)**

Basic Diameter (mm)	f7	F7	f8	F8
above 6 to 10	-.013/-.028	+.028/+.013	-.013/-.035	+.035/+.013
above 10 to 18	-.016/-.034	+.034/+.016	-.016/-.043	+.043/+.016
above 18 to 30	-.020/-.041	+.041/+.020	-.020/-.053	+.053/+.020
above 30 to 50	-.025/-.050	+.050/+.025	-.025/-.064	+.064/+.025
above 50 to 80	-.030/-.060	+.060/+.030	-.030/-.076	+.076/+.030
above 80 to 120	-.036/-.071	+.071/+.036	-.036/-.090	+.090/+.036
above 120 to 180	-.043/-.083	+.083/+.043	-.043/-.106	+.106/+.043
above 180 to 250	-.050/-.096	+.096/+.050	-.050/-.122	+.122/+.050
above 250 to 315	-.056/-.108	+.108/+.056	-.056/-.137	+.137/+.056
above 315 to 400	-.062/-.119	+.119/+.062	-.062/-.151	+.151/+.062
above 400 to 500	-.068/-.131	+.131/+.068	-.068/-.165	+.165/+.068
above 500 to 630	-.076/-.146	+.146/+.076	-.076/-.186	+.186/+.076
above 630 to 800	-.080/-.160	+.160/+.080	-.080/-.205	+.205/+.080
above 800 to 1000	-.086/-.176	+.176/+.086	-.086/-.226	+.226/+.086
above 1000 to 1250	-.098/-.203	+.203/+.098	-.098/-.263	+.263/+.098
above 1250 to 1600	-.110/-.235	+.235/+.110	-.110/-.305	+.305/+.110

Basic Diameter (mm)	H8	h9	H9
above 6 to 10	+.022/-.000	+.000/-.036	+.036/-.000
above 10 to 18	+.027/-.000	+.000/-.043	+.043/-.000
above 18 to 30	+.033/-.000	+.000/-.052	+.052/-.000
above 30 to 50	+.039/-.000	+.000/-.062	+.062/-.000
above 50 to 80	+.046/-.000	+.000/-.074	+.074/-.000
above 80 to 120	+.054/-.000	+.000/-.087	+.087/-.000
above 120 to 180	+.063/-.000	+.000/-.100	+.100/-.000
above 180 to 250	+.072/-.000	+.000/-.115	+.115/-.000
above 250 to 315	+.081/-.000	+.000/-.130	+.130/-.000
above 315 to 400	+.089/-.000	+.000/-.140	+.140/-.000
above 400 to 500	+.097/-.000	+.000/-.155	+.155/-.000
above 500 to 630	+.110/-.000	+.000/-.175	+.175/-.000
above 630 to 800	+.125/-.000	+.000/-.200	+.200/-.000
above 800 to 1000	+.140/-.000	+.000/-.230	+.230/-.000
above 1000 to 1250	+.165/-.000	+.000/-.260	+.260/-.000
above 1250 to 1600	+.195/-.000	+.000/-.310	+.310/-.000

## Elastomer Seal Storage - APR5316D

**Temperature** Seals made from polymers should be stored at temperatures below 100°F (38°C). Temporary climate changes resulting in higher temperatures are acceptable. Store polymers away from direct heat sources (i.e., radiators, boilers, direct sunlight).

Be careful when handling stored polymer products at temperatures below 59°F (15°C). The polymers may have become rigid and may be prone to distortion if handled incorrectly. Any polymer products stored below 59°F (15°C) must be raised to a core temperature of 68°F (20°C) before installation.

**Humidity** The relative humidity of the storage area should be at a level that given temperature fluctuations, condensation doesn't occur. If seals are being stored exposed, not in sealed air-tight bags, the storage area should have, for elastomers, less than 75% relative humidity, and for polyurethane seals, less than 65% relative humidity.

**Light** All polymer products should be shielded from light sources, especially direct sunlight and bright artificial light which includes ultraviolet wavelengths. Opaque storage bags are best, for protection from light.

**Ozone** Ozone is particularly harmful to elastomers. Store seals made from elastomers in rooms without sources of ozone production, such as, mercury vapor lamps, and high-voltage electrical equipment with electrical discharge. Combustible gases and organic vapors can also attribute to ozone production through a photochemical process and should not be present in the storage area.

**Deformation** Seals should be stored in a manner that does not put any undue stress or pressure on the seals that could cause distortion immediately or over time. Do not store seals hanging from a hook as gravity will distort the seal over time. Do not place heavy objects on top of any stored seals. Always store seals in our original packaging in a stress-free manner. Larger diameter rings without rigid components can be turned into two or three smaller diameter loose loops (avoid creasing or twisting) to accommodate smaller storage areas.

**Liquid Contact** Seals made from elastomers should not come into contact with any liquid or semi-solids, or vapors, of gasoline, greases, acids, cleaning, or similar fluids unless such fluids are part of the seals' design or manufacturer's packaging. Seals received in manufacturer's packaging, coated in such fluid or grease, should be stored as received by the manufacturer.

**Metal Contact** Seals made from elastomers can be affected by contact with metals and alloys, such as, copper, manganese, and iron. These seals should not be stored where there can be contact with any of these metals (except in cases where the metal is part of the seal or component's design), and in such cases should be individually packaged.

**Elastomer Contact** Seals made from dissimilar compounds should not be stored or packaged together, unless done so by the seal manufacturer. Contact between seals made from dissimilar compounds should be avoided.

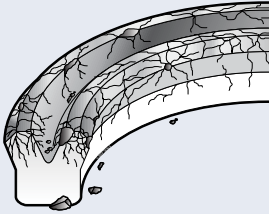
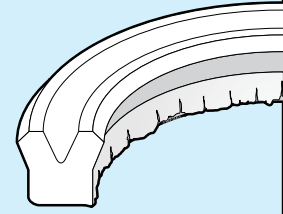
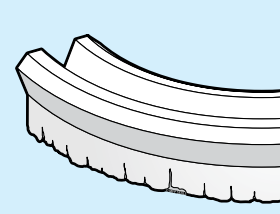
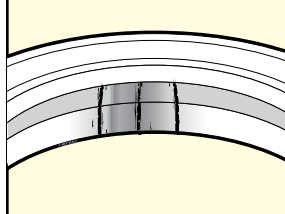
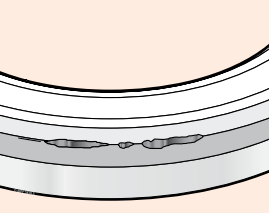
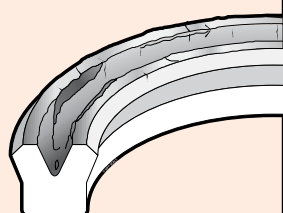
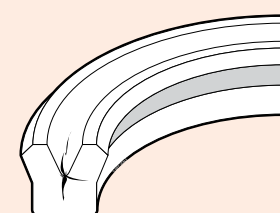
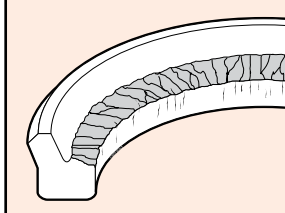
**Stock Rotation** Seal stock should be used in a First-In, First-Out manner (FIFO), older stock before newer. This ensures that the next seal used in the rotation will be well within its intended shelf life.

**Polymer Shelf Life - APR5316D**

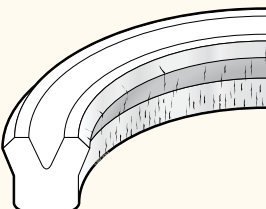
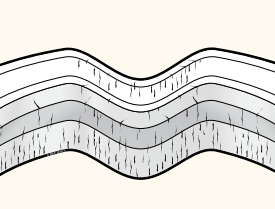
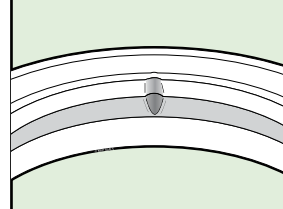
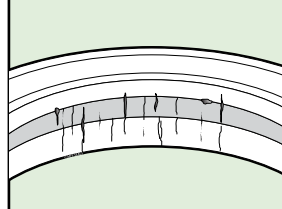
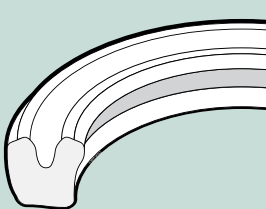
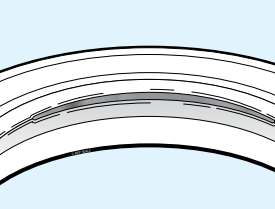
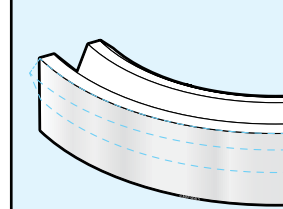
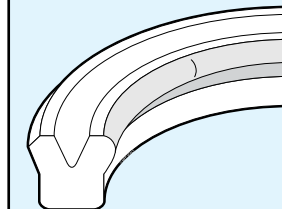
Compound Name	ASTM Polymer	Shelf Life
Aflas®	FEPM	Unlimited
Butyl Rubber, Isobutylene Isoprene	IIR	Unlimited
Chloroprene (Neoprene®)	CR	15 Years
Chlorosulphonated Polyethylene (Hypalon®)	CSM	15 Years
Epichlorohydrin (Hydrin®)	ECO	NA
Ethylene Acrylic (Vamac®)	AEM	15 Years
Ethylene Propylene, EPDM or EP	EP	Unlimited
Fluorocarbon (Viton®)	FKM	Unlimited
Fluorosilicone	FVMQ	Unlimited
Hydrogenated Nitrile, HNBR or HSN	HNBR	15 Years
Nitrile (Buna-N or NBR)	NBR	15 Years
Perfluoroelastomer	FFKM	Unlimited
Polyacrylate	ACM	15 Years
Polyurethane (Polyester or Polyether)	AU / EU	5 Years
Silicone	Q, VMQ, PVMQ	Unlimited
Styrene Butadiene (Buna-S)	SBR	3 Years

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The term "Unlimited" can be equated to 25 years according to some organizations.

<p><b>DETERIORATION</b></p>  <p><b>IDENTIFICATION</b></p> <p>The seal has lost all elasticity, is cracked and easily crumbles.</p> <p><b>CONDITION</b></p> <p>Excessive fluid temperature. Prolonged exposure to sunlight or ozone.</p> <p><b>RESOLUTION</b></p> <p>Reduce oil temperature. Check that seals are stored away from sources of ozone (electrical) and direct sunlight.</p>	<p><b>EXTRUSION</b></p>  <p><b>IDENTIFICATION</b></p> <p>The dynamic side heal shows signs of extrusion.</p> <p><b>CONDITION</b></p> <p>Excessive gaps in mated surfaces (extrusion gaps). Worn bearings/wear rings. Excessive system pressure.</p> <p><b>RESOLUTION</b></p> <p>Use a backup ring. Inspect and replace worn bearings or wear rings. Call MFP Seals to find a seal designed for this application.</p>	<p><b>EXTRUSION</b></p>  <p><b>IDENTIFICATION</b></p> <p>The static side heal shows signs of extrusion.</p> <p><b>CONDITION</b></p> <p>Support surface is uneven. Backup ring used is the wrong size.</p> <p><b>RESOLUTION</b></p> <p>Check surfaces and machine to spec. Use correct size backup ring.</p>	<p><b>GROOVING</b></p>  <p><b>IDENTIFICATION</b></p> <p>The dynamic lip shows signs of axial cuts and grooves.</p> <p><b>CONDITION</b></p> <p>Sharp foreign matter is present in the system fluid. May also be caused by imploding air bubbles.</p> <p><b>RESOLUTION</b></p> <p>Bleed air from system and/or flush system of contaminants.</p>
<p><b>FRACTURING</b></p>  <p><b>IDENTIFICATION</b></p> <p>The dynamic side of the seal has missing material.</p> <p><b>CONDITION</b></p> <p>Excessive back pressure.</p> <p><b>RESOLUTION</b></p> <p>Inspect pressure relief valves.</p>	<p><b>FRACTURING</b></p>  <p><b>IDENTIFICATION</b></p> <p>The pressurized surfaces of the seal are burned or broken.</p> <p><b>CONDITION</b></p> <p>Dieseling, or an explosion of residual air at high pressure, may have occurred.</p> <p><b>RESOLUTION</b></p> <p>Inspect maximum pressure settings. Bleed air from system.</p>	<p><b>FRACTURING</b></p>  <p><b>IDENTIFICATION</b></p> <p>The V portion of the seal shows long cracks or splits.</p> <p><b>CONDITION</b></p> <p>Temperature too low at startup. Frequent shock from excessive pressure spikes.</p> <p><b>RESOLUTION</b></p> <p>Increase startup temp. Call MFP Seals to find a seal designed for this application.</p>	<p><b>FRACTURING</b></p>  <p><b>IDENTIFICATION</b></p> <p>The dynamic side of the seal has broken off.</p> <p><b>CONDITION</b></p> <p>Material and/or fluid break-down.</p> <p><b>RESOLUTION</b></p> <p>Replace fluid. Call MFP Seals to find a seal designed for this application.</p>



<p><b>HARDENING</b></p>  <p><b>IDENTIFICATION</b></p> <p>The dynamic face of the seal is hardened showing cracks and glazing of the seal material.</p> <p><b>CONDITION</b></p> <p>High stroke speed generating excessive heat.</p> <p><b>RESOLUTION</b></p> <p>Reduce stroke speed, or use a material designed for speed and heat requirements.</p> <p>MFP Seals can help!</p>	<p><b>HARDENING</b></p>  <p><b>IDENTIFICATION</b></p> <p>The entire seal is hardened showing cracks and glazing, with loss of material elasticity.</p> <p><b>CONDITION</b></p> <p>Excessive fluid temperature. Fluid break-down. Incompatible fluid for seal material used.</p> <p><b>RESOLUTION</b></p> <p>Reduce Oil Temp. Replace Fluid. Use fluid compatible to seal material.</p>	<p><b>SCARRING</b></p>  <p><b>IDENTIFICATION</b></p> <p>The lip is cut or dented.</p> <p><b>CONDITION</b></p> <p>Damaged from use of improper installation tool or storage of seal on a peg or nail.</p> <p><b>RESOLUTION</b></p> <p>Store seals in plastic bags enclosed in a cardboard box. Inspect installation tools and make sure they have smooth edges.</p>	<p><b>SCARRING</b></p>  <p><b>IDENTIFICATION</b></p> <p>The dynamic side of the seal shows excessive scratches.</p> <p><b>CONDITION</b></p> <p>Damage to the Rod or Cylinder Bore. Foreign material present in the fluid.</p> <p><b>RESOLUTION</b></p> <p>Hone, polish, or deburr rod and cylinder. Flush system of contaminants.</p>
<p><b>SWELLING</b></p>  <p><b>IDENTIFICATION</b></p> <p>Seal material has become softened and misshapen.</p> <p><b>CONDITION</b></p> <p>Fluid has been absorbed by the seal material. Incompatible fluid or water in fluid.</p> <p><b>RESOLUTION</b></p> <p>Use fluid compatible to seal material. Flush system of contaminants.</p> <p>MFP Seals can help!</p>	<p><b>WEAR</b></p>  <p><b>IDENTIFICATION</b></p> <p>Only one side of the dynamic lip is showing excessive wear.</p> <p><b>CONDITION</b></p> <p>Excessive lateral load caused by worn wear ring or bearing.</p> <p><b>RESOLUTION</b></p> <p>Inspect and replace worn bearings or wear rings. Bearing/Wear Ring surface area may need to be increased.</p>	<p><b>WEAR</b></p>  <p><b>IDENTIFICATION</b></p> <p>The dynamic face of the seal is worn to a glossy mirror like shine.</p> <p><b>CONDITION</b></p> <p>Not enough lubrication.</p> <p><b>RESOLUTION</b></p> <p>Check viscosity of oil.</p> <p>Call MFP Seals to find a seal designed for this application.</p>	<p><b>WEAR</b></p>  <p><b>IDENTIFICATION</b></p> <p>The dynamic lip is worn to a rounded, egg-shape.</p> <p><b>CONDITION</b></p> <p>The rod and cylinder bore are off-center, non-concentric.</p> <p><b>RESOLUTION</b></p> <p>Check for, and replace, worn rod or cylinder. Machine to seal specifications.</p>

# Custom Machined Seals



A product of MFP Seals.

If you do not see the seal style that you are looking for please contact your local MFP Seals distributor. Many other seals and products can be produced from your prints or by sending in your samples.

## SEALS up to 4000mm (157-1/2"), 715mm (28-5/32") OD IN HOUSE

All custom profiles are available in the following Stock Materials: Urethane 95A, Hytrel® 40D, Hytrel® 55D, NBR 85A, HNBR 85A, Fluorocarbon 85A (Viton®, Fluorel®), EPDM 85A, Carboxilated NBR 85A, Virgin PTFE, Moly/Glass PTFE, Bronze PTFE, Delrin®, GSM Blue Nylon® and Peek®.

ENGINEERING INFORMATION

### BACK-UP RING

B01 B09 B10  
B11 B12 B13

### GUIDE RING

G01 G03 G04 G05  
G06 G07 G08

↓ ID

### GASKETS

GSK103 GSK104 GSK105  
GSK108 GSK108A GSK109  
GSK109A GSK109B GSK110  
GSK111 GSK112

↓ ID

### WIPER

W01 W02 W03 W04  
W05 W06 W07 W08  
W09 W11 W12 W13 W14 W15  
W16 W17 W18 W19 W20 W21

(Images are cut-away views of cross-sections)

### ROTARY SHAFT SEAL

RS01 RS02 RS03 RS04 RS05 RS06 RS07  
RS08 RS09 RS10 RS11 RS12 RS13 RS14  
RS15 RS16 RS17 RS18 RS19 RS20 RS21  
RS22 RS23 RS24

↓ ID

### PISTON SEAL

(Images are cut-away views of cross-sections)

$(\text{ØD}_1)$  Bore  
 $(\text{ØD}_2)$  Piston Diameter  
 $(\text{ød}_1)$  Groove ID  
 $(L_1)$  Groove Width

P01	P02	P03	P04	P04A	P05	P05A
P06	P07	P08	P09	P10	P11	P12
P16	P17	P18	P19	P20	P21	P23
P24	P25	P26	P27	P28	P29	P30
P31	P32	P34	P35	P36	P39	P40
P41	P44	P45	P54	P81	P82	P83
P94	P1012	ID				

### ROD SEAL

$(\text{ØD}_1)$  Groove Diameter  
 $(\text{ØD}_2)$  Throat  
 $(\text{ød}_1)$  Rod Diameter  
 $(L_1)$  Groove Width

R00	R01	R02	R03	R04	R04A	R05
R05A	R06	R07	R08	R09	R10	R11
R12	R13	R14	R16	R17	R18	R19
R20	R21	R22	R23	R25	R29	R30
R31	R32	R38	R39	R40	R41	R42
R43	R50	R51	R86			
R92	R93	R94	R1012	R2931	ID	

Compound Name	Abbreviation	Hardness	Material Group	Color
C1000	COM	105 HRM	Composite	Tan
C1400	COM	100 HRM	Composite	Turquoise
C2000	COM	115 HRM	Composite	Gray
C2025	COM	100 HRM	Composite	Gray
C4000	COM	98 HRM	Composite	Turquoise
C4001	COM	98 HRM	Composite	White
E7101	EPDM	70 Shore A	Rubber	Black
E7102	EPDM	80 Shore A	Rubber	Black
E7103	EPDM	70 Shore A	Rubber	Black
E7105	EPDM	70 Shore A	Rubber	Black
E7106	EPDM	80 Shore A	Rubber	Black
FC7500 - Fluorochem®	FKME	75 Shore A	Fluoroelastomer	Black
FC7510 - Fluorochem®	FKM	75 Shore A	Fluoroelastomer	Black
FC7525 - Fluorochem®	FFKM	75 Shore A	Perfluoroelastomer	Black
FC7550 - Fluorochem®	FFKM	75 Shore A	Perfluoroelastomer	White
FC7575 - Fluorochem®	FFKM	90 Shore A	Perfluoroelastomer	Black
FC7600 - Fluorochem®	FFKM	90 Shore A	Perfluoroelastomer	Black

General Description	Test Methods	Temperature Range
Fine weave cotton fabric-reinforced phenolic composites.		-40°C to +130°C -40°F to +266°F
Synthetic fabric impregnated composite with thermoset resin.		-60°C to +130°C -76°F to +266°F
Woven aramid fabric reinforced phenolic composite with graphite additions. *Intermittent exposure to +220°C (+428°F)		-40°C to +200°C -40°F to +392°F
Woven aramid fabric reinforced high-temperature resin composite with graphite and another proprietary lubricant added.		-40°C to +204°C -40°F to +400°F
Synthetic fiber-reinforced polyester composites with PTFE micro-powder additions.		-40°C to +120°C -40°F to +248°F
Synthetic fiber-reinforced polyester composites with PTFE micro-powder additions.		-40°C to +120°C -40°F to +248°F
Ethylene Propylene Diene Monomer	ASTM D2000 M4AA710 A13 B13 C12 EA14 F17	-50°C to +100°C -58°F to +212°F
Ethylene Propylene Diene Monomer	ASTM D2000 M4BA810 A14 B13 C12 EA14	-50°C to +100°C -58°F to +212°F
Ethylene Propylene Diene Monomer NSF-61 Certified	ASTM D2000 M4AA710 A13 B13 C12 EA14 F17 Z1:NSF61	-50°C to +100°C -58°F to +212°F
Ethylene Propylene Diene Monomer WRAS / NSF61 Certified	ASTM D2000 M3DA710 A26 B36 C32 EA14 F19	-50°C to +150°C -58°F to +302°F
Ethylene Propylene Diene Monomer NAS1613 Rev. 2 (High density phosphate ester hydraulic systems)		-56°C to +121°C -70°F to +250°F
Extreme chemical resistant fluorocarbon.	ASTM D2000 M3HK814 B38 EF31 Z1=75±5 Shore A Durometer	-22°C to +250°C -7°F to +482°F
High purity, abrasion resistant fluoroelastomer.		-20°C to +200°C -4°F to +392°F
Peroxide-cured FFKM designed for use in AMS 7257C aerospace applications, chemical processing and applications requiring excellent thermal resistance.	AMS 7257 Rev. D	-15°C to +320°C +5°F to +608°F
High purity, low compression set, excellent heat and chemical resistance.	AMS 7257 Rev. D	-15°C to +320°C +5°F to +608°F
Peroxide Cured Perfluoroelastomer	ASTM D2000 M1KK811 Z1 Z2 Z3 Z4 Z5 Z6 Z7 Z8 Z9 Z10	-15°C to +320°C +5°F to +608°F
Meets requirements of NORSOK M710 [Rev. 2, Oct. 2001] in respect of rapid gas decompression resistance in 10 mol% carbon dioxide at 150 bar and 100°C.	ASTM D2000 KK914 NORSOK M710 [Rev. 2, Oct. 2001]	0°C to +260°C +32°F to +500°F

Compound Name	Abbreviation	Hardness	Material Group	Color
FC7625 - Fluorochem®	FFKM	90 Shore A	Perfluoroelastomer	Black
FC7650 - Fluorochem®	FFKM	70 Shore A	Perfluoroelastomer	Black
FC7675 - Fluorochem®	FFKM	75 Shore A	Perfluoroelastomer	Black
FC7700 - Fluorochem®	FFKM	75 Shore A	Perfluoroelastomer	Black
FC7725 - Fluorochem®	FFKM	75 Shore A	Perfluoroelastomer	White
FC7750 - Fluorochem®	FFKM	75 Shore A	Perfluoroelastomer	Black
FC7775 - Fluorochem®	FFKM	75 Shore A	Perfluoroelastomer	Black
FC7800 - Fluorochem®	FFKM	75 Shore A	Perfluoroelastomer	Black
FS7101	FVMQ	70 Shore A	Fluorosilicone	Blue
H2140 - Hytrel®	TPE	40 Shore D	Thermoplastic Polyester Elastomer	Orange
H2155 - Hytrel®	TPE	55 Shore D	Thermoplastic Polyester Elastomer	Orange
M1000	PEEK™	87 Shore D	Engineered Plastic	Tan
M1001	POM	82 Shore D	Engineered Plastic	Black
M1002	Nylon	78 - 86 Shore D	Engineered Plastic	Blue-Gray
M1005	PA	90 HRM	Engineered Plastic	Charcoal Gray



General Description	Test Method	Temperature Range
General purpose, compatible with Aliphatic and aromatic hydrocarbons Ketones and esters, Strong acids & bases. Strong Amines and corrosion inhibitors.	ASTM D1418 NORSOK M710 [Rev. 2, Oct. 2001]	-4°C to +230°C +25°F to +446°F
General purpose Perfluoroelastomer.	ASTM D1418	-20°C to +230°C -4°F to +446°F
Certified to USP Class VI and is FDA compliant for food processing applications. Wide chemical resistance	ASTM D1418	-4°C to +230°C +25°F to +446°F
Broad chemical resistance. Perfluorinated Elastomer.	ASTM D1418	-7°C to +230°C +20°F to +446°F
Semiconductor: General Purpose. Certified to USP Class VI. Compatible with aggressive dry process chemistries including reactive plasmas. Excellent chemical and solvent resistance. Heat resistance up to +220°C	ASTM D1418	-7°C to +230°C +20°F to +446°F
General purpose perfluoroelastomer. High heat resistance.	ASTM D1418	-6°C to +300°C +21°F to +570°F
Outstanding chemical and solvent resistance including compatibility with Nitric Acid and amine chemicals. Excellent heat resistance up to +230°C.	ASTM D1418	-7°C to +230°C +20°F to +446°F
Outstanding chemical and solvent resistance including compatibility with Nitric Acid and amine chemicals. High temperature resistance up to +320°C. Low compression set. AMS 7257.	ASTM D1418	-5°C to +320°C +23°F to +608°F
Automotive and Aerospace applications Outstanding heat resistance, fluid resistance, and flexibility at extreme low temperature with good compression set properties. AMS R 25988 Class 1 Grade 70.	ASTM D2000 M2FK606A A19 EO36 EF31 F19 Z1 Z2	-60°C to +200°C -76°F to +392°F
Thermoplastic Polyester Elastomer.		-54°C to +135°C -65°F to +275°F
Thermoplastic Polyester Elastomer.		-54°C to +135°C -65°F to +275°F
Virgin Polyether Ether Ketone; strong, high ductility, chemically resistant, medical & FDA compliant applications.		-56°C to +250°C -70°F to +482°F
Acetal: Polyoxymethylene (POM) Excellent sliding and wear behavior.		-50°C to +100°C -58°F to +212°F
Nylon 6 MoS <sub>2</sub> Dry lubricant-filled bearing material.	Resin (Typical): ASTM-D-4066 PA0110L01A00000 Shapes (Typical): ASTM-D-5989 S-PA0121	-53°C to +110°C -65°F to +230°F
40% Glass Reinforced Nylon.		-54°C to +135°C -65°F to +275°F



Compound Name	Abbreviation	Hardness	Material Group	Color
M1006	UHMW-PE	61 Shore D	Engineered Plastic	Translucent White
M1007	PEEK™	87 Shore D	Engineered Plastic	Black
M1008	PEEK™	87 Shore D	Engineered Plastic	Natural
M1009	Fabric / NBR	N/A	Fabric & Rubber	Black
M1010	LDPE	40 Shore D	Low Density Polyethylene	Natural
M1011	PA	121 HRR	Lubricated Polyamide 66	Natural
M1012	PA	122 HRR	Polyamide 66 / Glass	Black
N6001	NBR	70 Shore A	Rubber	Black
N6003	NBR	90 Shore A	Rubber	Black
N6007	HNBR	70 Shore A	Rubber	Black
N6008	HNBR	80 Shore A	Rubber	Black
N6009	HNBR	90 Shore A	Rubber	Black
N6010	HNBR	70 Shore A	Rubber	Green
N6011	HNBR	80 Shore A	Rubber	Green
N6012	HNBR	90 Shore A	Rubber	Green
N6013	NBR	70 Shore A	Rubber	Black
N6014	NBR	70 Shore A	Rubber	Black
N6015	NBR	80 Shore A	Rubber	Black
N6017	NBR	70 Shore A	Rubber	Black
N6018	HNBR	80 Shore A	Rubber	Black
N6020	HNBR	75 Shore A	Rubber	Black

General Description	Test Method	Temperature Range
Ultra-High Molecular Weight Polyethylene		-265°C to +80°C -445°F to +176°F
Polyether Ether Ketone 30% Carbon Fiber Filled, FDA compliant.		-56°C to +250°C -70°F to +482°F
Polyether Ether Ketone 30% Glass Fiber Filled, FDA compliant.		-56°C to +250°C -70°F to +482°F
Fabric & Rubber	ASTM D2000 M6BG710 A1-10 B14 EO14 EO34	-30°C to +105°C -22°F to +221°F
US FDA 21CFR 177.1520 Compliant		-60°C to +80°C -76°F to +176°F
Lubricated Nylon 66.		-54°C to +135°C -65°F to +275°F
10% to 15% Glass Reinforced, heat stabilized polyamide 66 resin.		-54°C to +135°C -65°F to +275°F
Butadiene Acrylonitrile Copolymer.	ASTM D2000 M2BG714 A14 B14 EA14 EO14 EO34 EF11 EF21 F17	-40°C to +100°C -40°F to +212°F
Butadiene Acrylonitrile Copolymer.	ASTM D2000 M2BG910 A14 B14 EA14 EF11 EF21 EO14 EO34	-20°C to +100°C -4°F to +212°F
Hydrogenated Nitrile Butadiene Rubber.	ASTM D2000 M3CH714 A25 B34 EO16 EO36 F17	-40°C to +125°C -40°F to +257°F
Butadiene Acrylonitrile Copolymer	ASTM D2000 M3DH810 A26 B16 EO16 EO36	-35°C to +150°C -31°F to +302°F
Butadiene Acrylonitrile Copolymer	ASTM D2000 M3DH920 A26 B16 C12 EO16 EO36	-30°C to +150°C -22°F to +302°F
Hydrogenated Nitrile Butadiene Rubber.	ASTM D2000 M4DH716 A26 B36 EO16 EO36 F17 Z1: GREEN	-40°C to +150°C -40°F to +302°F
Butadiene Acrylonitrile Copolymer	ASTM D2000 M2DH815 A26 B16 B36 EO16 EO36 F17	-25°C to +150°C -13°F to +302°F
Butadiene Acrylonitrile Copolymer	ASTM D2000 M3DH920 A26 B16 C12 EO16 EO36	-20°C to +150°C -4°F to +302°F
Butadiene Acrylonitrile Copolymer; Low Temp.	ASTM D2000 M5BG714 A14 B14 EO14 EO34 F19	-55°C to +100°C -67°F to +212°F
Butadiene Acrylonitrile Copolymer; UL Approved.	ASTM D2000 2BG714 A14 B34 EA14 EO14 EO34	-20°C to +120°C -4°F to +248°F
Butadiene Acrylonitrile Copolymer; Low Temp.	ASTM D2000 M6BG810 A14 B14 EO14 EO34	-40°C to +125°C -40°F to +257°F
Butadiene Acrylonitrile Copolymer.	ASTM D2000 M2BG714 A14 B14 EA14 EO14 EO34	-35°C to +100°C -31°F to +212°F
Butadiene Acrylonitrile Copolymer	ASTM D2000 M4CH814 A25 B14 EF31 EO15 EO35 Z1:-44°C	-44°C to +100°C -47°F to +212°F
Butadiene Acrylonitrile Copolymer.	ASTM D2000 M4DH716 B36 EO16 EO36 F17	-40°C to +150°C -40°F to +302°F

Compound Name	Abbreviation	Hardness	Material Group	Color
N6021	HNBR	80 Shore A	Rubber	Black
N6023	HNBR	88 Shore A	Rubber	Black
N8097	NBR	80 Shore A	Rubber	Black
N8220	HNBR	90 Shore A	Rubber	Black
N9020	HNBR	90 Shore A	Rubber	Black
S7100	SIL	70 Shore A	Silicone	Rust Red
T1000	PTFE	51 - 60 Shore D	PTFE	White
T1015	PTFE	50 Shore D	PTFE	Turquoise
T1025	PTFE	59 - 62 Shore D	Filled PTFE	Gray
T1050	PTFE	60 - 65 Shore D	Filled PTFE	Blue
T1075	PTFE	62 - 67 Shore D	Filled PTFE	Off White
T1100	PTFE	55 - 60 Shore D	Filled PTFE	Blue Gray
T1125	PTFE	66 Shore D	Filled PTFE	Charcoal Gray
T1150	PTFE	55 Shore D	Filled PTFE	Charcoal Gray
T1160	PTFE	59 Shore D	Filled PTFE	Charcoal Gray
T1175	PTFE	65 Shore D	Filled PTFE	Charcoal Gray
T1200	PTFE	55 Shore D	Filled PTFE	Charcoal Gray
T1225	PTFE	55 Shore D	Filled PTFE	Tan
T1250	PTFE	55 Shore D	Filled PTFE	Tan
T2000	TFM	51 Shore D	Modified PTFE	White
T2025	TFM	66 Shore D	Modified PTFE	Black

General Description	Test Method	Temperature Range
Low Temp, API 6a certified, Butadiene Acrylonitrile Copolymer, at DD/EE material class.		-50°F to +300°F -45°C to +148°C
Butadiene Acrylonitrile Copolymer.		-24°C to +150°C -11°F to +302°F
Butadiene Acrylonitrile Copolymer.	ASTM D2000 M4HK710 A1-11 B38 EF31 EF21 EO14 EO34	-20°C to +110°C -22°F to +230°F
Explosive Decompression Resistant Hydrogenated Nitrile Butadiene Rubber.	NORSOK M710 [Rev. 2, Oct. 2001]	-31°C to +148°C -25°F to +300°F
Explosive Decompression Resistant Hydrogenated Nitrile Butadiene Rubber.	NORSOK M710 [Rev. 2, Oct. 2001]	-31°C to +148°C -25°F to +300°F
Silicone Rubber; FDA grade without certification.	ASTM D2000 M7GE 705 A19 B37 EA14 EO16 EO36 F19	-55°C to +240°C -67°F to +464°F
Virgin PTFE		-200°C to +260°C -328°F to +500°F
Turquoise Pigmented PTFE		-200°C to +260°C -328°F to +500°F
PTFE, 5% Moly		-200°C to +260°C -328°F to +500°F
PTFE, 15% Glass		-200°C to +260°C -328°F to +500°F
PTFE, 25% Glass		-200°C to +260°C -328°F to +500°F
PTFE, 15% Glass, 5% Moly		-200°C to +260°C -328°F to +500°F
PTFE, 23% Carbon, 2% Graphite		-200°C to +260°C -328°F to +500°F
PTFE, 10% Carbon		-200°C to +260°C -328°F to +500°F
15% Carbon Filled PTFE		-200°C to +260°C -328°F to +500°F
PTFE, 25% Carbon		-200°C to +260°C -328°F to +500°F
PTFE, 15% Graphite		-200°C to +260°C -328°F to +500°F
PTFE, 10% Ekonol		-200°C to +260°C -328°F to +500°F
PTFE, Polyimide		-200°C to +260°C -328°F to +500°F
TFM, unfilled, modified PTFE		-200°C to +260°C -328°F to +500°F
TFM, Carbon		-200°C to +260°C -328°F to +500°F

Compound Name	Abbreviation	Hardness	Material Group	Color
T2050	TFM	69 Shore D	Modified PTFE	Black
T2075	TFM	67 Shore D	Modified PTFE	Black
T5100	PTFE	58 Shore D	Filled PTFE	Green
U2143 - Ultraflex™	TPU	80 Shore A	Urethane	Natural
U2144 - Ultraflex™	TPU	88 Shore A	Urethane	Natural
U2145 - Ultraflex™	TPU	95 Shore A	Urethane	Yellow
U2146 - Ultraflex™	TPU	90 Shore A	Urethane	Blue
U2148 - Ultraflex™	TPU	90 Shore A	Cast Urethane	Natural
U2150 - Ultraflex™	TPU	91 Shore A	Urethane	Dark Green
U2151 - Ultraflex™	TPU	95 Shore A	Urethane	Red
U2155 - Ultraflex™	TPU	55 Shore D	Urethane	Yellow
U2157 - Ultraflex™	TPU	55 Shore D	Urethane	Black
U2159 - Ultraflex™	TPU	95 Shore A	Urethane	Black
U4145 - Ultraflex™	TPU	95 Shore A	Urethane	Natural
U4150 - Ultraflex™	TPU	92 Shore A	Urethane	Tan
U6865	TPU	70 Shore A	TODI/Polyurethane	Natural
U9251	TPU	90 Shore A	TODI/Polyurethane	Natural

General Description	Test Method	Temperature Range
TFM, Carbon, Carbon Fiber		-200°C to +260°C -328°F to +500°F
TFM, Carbon Fiber		-200°C to +260°C -328°F to +500°F
High grade virgin PTFE compounded with enhanced Bronze fillers and additional additives to improve wear resistance.		-200°C to +260°C -328°F to +500°F
Aromatic polyester-based thermoplastic polyurethane		-53°C to +82°C -65°F to +180°F
Aromatic polyester-based thermoplastic polyurethane		-53°C to +93°C -65°F to +200°F
Aromatic polyester-based thermoplastic polyurethane.		-53°C to +93°C -65°F to +200°F
Aromatic polyester-based thermoplastic polyurethane.	ASTM D2000 M7BG910 EO14 EO34	-40°C to +100°C -40°F to +212°F
Aromatic polyester-based thermoplastic polyurethane.		-40°C to +93°C -40°F to +200°F
Aromatic polyether-based thermoplastic polyurethane		-50°C to +110°C -58°F to +230°F
Aromatic polyester-based thermoplastic polyurethane.		-53°C to +120°C -65°F to +250°F
Aromatic polyester-based thermoplastic polyurethane		-53°C to +107°C -65°F to +225°F
Aromatic polyester-based thermoplastic polyurethane		-34°C to +100°C -30°F to +212°F
Aromatic polyester-based thermoplastic polyurethane *Intermittent exposure to +121°C (+250°F)		-40°C to +90°C -40°F to +195°F
Sour gas resistant urethane.		-53°C to +100°C -65°F to +212°F
PPDI based Thermoplastic Polyurethane *Intermittent exposure to +135°C (+275°F)		-43°C to +121°C -45°F to +250°F
Extremely high mechanical properties outstanding abrasion, tear and extrusion resistance over a large range of temperatures. Suitable for petroleum based, biodegradable (synthetic and natural Ester) based fluids.		-81°C to +100°C -115°F to +212°F  Intermittent Exposure -101°C to +121°C -150°F to +250°F
Extremely high mechanical properties outstanding abrasion, tear and extrusion resistance over a large range of temperatures. Suitable for petroleum based, biodegradable (synthetic and natural Ester) based fluids.		-54°C to +150°C -65°F to +300°F



Compound Name	Abbreviation	Hardness	Material Group	Color
V1125	AFLAS®	83 Shore A	Fluoroelastomer	Black
V7100	FKM	75 Shore A	Fluorocarbon Elastomer	Black
V7125	FKM	75 Shore A	Fluorocarbon Elastomer	Black
V7150	FKM	75 Shore A	DuPont Viton®	Black
V7155	FKM	75 Shore A	Fluorocarbon Elastomer	Brown
V7160	FKM	75 Shore A	Fluorocarbon Elastomer	Brown
V7165	FKM	90 Shore A	Fluorocarbon Elastomer	Black
V7175	FKM	90 Shore A	DuPont Viton®	Black
V7185	FKM	90 Shore A	Fluorocarbon Elastomer	Brown
V7200	FKM	90 Shore A	Fluorocarbon Elastomer	Black
V7250	FKM	75 Shore A	DuPont Viton®	Green
V7300	FKM	80 Shore A	DuPont Viton®	Black
V7325	FKM-GLT	75 Shore A	Fluorocarbon Rubber	Black
V7350	FEPM	90 Shore A	Fluoroelastomer	Black
V7525	FEPM	75 Shore A	AFLAS® Fluoroelastomer	Black
V7550	Viton® A	75 Shore A	Fluoroelastomer	Black
V9080	FKM	90 Shore A	Fluorocarbon Elastomer	Black
V9090	FKM	90 Shore A	Fluorocarbon Elastomer	Black

General Description	Test Method	Temperature Range
Excellent heat and chemical resistance including acids and bases, & excellent oil, ozone and weather resistance.	ASTM D2000 M2HK810 A1-10 B38 EO36 Z1: HD83±5	0°C to +230°C +32°F to +446°F
High resistance to heat, chemicals, weather and compression set.	ASTM D2000 M4HK710 A1-11 B38 EF31 EO78 Z1:75±5	-20°C to +200°C -4°F to +392°F
High resistance to heat, chemicals, weather and compression set.	ASTM D2000 M4HK710 A1-11 B38 EF31 EO78 Z1:75±5	-15°C to +200°C +5°F to +392°F
High resistance to heat, chemicals, weather and compression set.	ASTM D2000 M4HK710 A1-11 B38 EO78 EF31 Z1:75±5	-15°C to +200°C +5°F to +392°F
High resistance to heat, chemicals, weather and compression set.	ASTM D2000 M2HK710 A1-10 B38 EF31 EO78 Z1:Brown Z2:75±5	-15°C to +200°C +5°F to +392°F
High resistance to heat, chemicals, weather and compression set.	ASTM D2000-99 M6HK810 A1-10 B38 C12 C20 EF31 EO88 Z1: Meets FDA 177.2600 Z2: Meets 3A Sanitary Class I requirements	-7°C to +200°C +20°F to +400°F
High resistance to heat, chemicals, weather and compression set.	ASTM D2000 M2HK910 A1-11 B38 EO78 EF31	-20°C to +200°C -4°F to +392°F
High resistance to heat, chemicals, weather and compression set.	ASTM D2000 M2HK910 A1-10 B38 EF31 EO78 Z:DuPont Viton®	-10°C to +200°C +14°F to +392°F
High resistance to heat, chemicals, weather and compression set.	ASTM D2000 M2HK910 A1-10 B38 C12 EF31 EO78 Z1:Brown	-5°C to +200°C +23°F to 392°F
Meets requirements of NORSOK M710 [Rev. 2, Oct. 2001] in respect to rapid gas decompression resistance in 10 mol% carbon dioxide at 150 bar and 100°C.	ASTM D2000 M3HK914 A1-10 B37 B38 EF31 EO78 Z1 Z2 Z2: RGD Approval	-30°C to +250°C -22°F to +482°F
High resistance to heat, chemicals, weather and compression set.	ASTM D2000 M2HK810 A1-10 B37 B38 EO78 EF31 Z1:75±5 Shore A Z3: Dupont	-15°C to +200°C +5°F to +392°F
High resistance to heat, chemicals, weather and compression set.	ASTM D2000 M2HK810 A1-10 B37 B38 EF31 Z1:TEAR (Test Method D624 B/C) Z2: Compression Set: 70h@180°C, 40% max	-10°C to +200°C +14°F to +392°C
AMS-R-83485 (M83485/1) Approved		-40°C to +200°C -40°F to +392°F
High-Temperature, High-Pressure Carbon Dioxide Decompression Resistance per NACE TM0297:2008	ASTM D2000 M2HK910 A1-10 B38 EF31 F15 Z1 Z2 Z3 Z4	-20°C to +220°C -4°F to +482°F
Excellent heat and chemical resistance including acids and bases, & excellent oil, ozone and weather resistance.		-0°C to +204°C +32°F to +400°F
AMS 3216G	ASTM D2000 M6HK810 A1-10 B38 C12 EF31 EO88	-32°C to +204°C -26°F to +400°F
Pressure and Explosive Decompression resistance per NORSOK M-710 (Rev.2).	ASTM D2000 M5HK914 A1-11 B38 EF31 F15 NORSOK M710 [Rev. 2, Oct. 2001]	-26°C to +204°C -15°F to +400°F
RGD Rapid Gas Decompression resistance per NORSOK M-710 (Rev.2).	ASTM D2000 M3HK914 A1-10 B38 Z1 RGD per NORSOK M710 [Rev. 2, Oct. 2001]	-40°C to +204°C -40°F to +400°F

DASH NUMBER	NOMINAL SIZE			ACTUAL SIZE	
	ID	OD	C/S	ID	C/S
<b>1/32 - CROSS SECTION</b>					
-001	1/32	3/32	1/32	.029 ± .004	.040 ± .003
<b>3/64 - CROSS SECTION</b>					
-002	3/64	9/64	3/64	.042 ± .004	.050 ± .003
<b>1/16 - CROSS SECTION</b>					
-003	1/16	3/16	1/16	.056 ± .004	.060 ± .003
-004	5/64	13/64	1/16	.070 ± .005	.070 ± .003
-005	3/32	7/32	1/16	.101 ± .005	.070 ± .003
-006	1/8	1/4	1/16	.114 ± .005	.070 ± .003
-007	5/32	9/32	1/16	.145 ± .005	.070 ± .003
-008	3/16	5/16	1/16	.176 ± .005	.070 ± .003
-009	7/32	11/32	1/16	.208 ± .005	.070 ± .003
-010	1/4	3/8	1/16	.239 ± .005	.070 ± .003
-011	5/16	7/16	1/16	.301 ± .005	.070 ± .003
-012	3/8	1/2	1/16	.364 ± .005	.070 ± .003
-013	7/16	9/16	1/16	.426 ± .005	.070 ± .003
-014	1/2	5/8	1/16	.489 ± .005	.070 ± .003
-015	9/16	11/16	1/16	.551 ± .007	.070 ± .003
-016	5/8	3/4	1/16	.614 ± .009	.070 ± .003
-017	11/16	13/16	1/16	.676 ± .009	.070 ± .003
-018	3/4	7/8	1/16	.739 ± .009	.070 ± .003
-019	13/16	15/16	1/16	.801 ± .009	.070 ± .003
-020	7/8	1	1/16	.864 ± .009	.070 ± .003
-021	15/16	1-1/16	1/16	.926 ± .009	.070 ± .003
-022	1	1-1/8	1/16	.989 ± .010	.070 ± .003
-023	1-1/16	1-3/16	1/16	1.051 ± .010	.070 ± .003
-024	1-1/8	1-1/4	1/16	1.114 ± .010	.070 ± .003
-025	1-3/16	1-5/16	1/16	1.176 ± .011	.070 ± .003
-026	1-1/4	1-3/8	1/16	1.239 ± .011	.070 ± .003
-027	1-5/16	1-7/16	1/16	1.301 ± .011	.070 ± .003
-028	1-3/8	1-1/2	1/16	1.364 ± .013	.070 ± .003
-029	1-1/2	1-5/8	1/16	1.489 ± .013	.070 ± .003
-030	1-5/8	1-3/4	1/16	1.614 ± .013	.070 ± .003
-031	1-3/4	1-7/8	1/16	1.739 ± .015	.070 ± .003
-032	1-7/8	2	1/16	1.864 ± .015	.070 ± .003
-033	2	2-1/8	1/16	1.989 ± .018	.070 ± .003
-034	2-1/8	2-1/4	1/16	2.114 ± .018	.070 ± .003
-035	2-1/4	2-3/8	1/16	2.239 ± .018	.070 ± .003
-036	2-3/8	2-1/2	1/16	2.364 ± .018	.070 ± .003
-037	2-1/2	2-5/8	1/16	2.489 ± .018	.070 ± .003
-038	2-5/8	2-3/4	1/16	2.614 ± .020	.070 ± .003
-039	2-3/4	2-7/8	1/16	2.739 ± .020	.070 ± .003
-040	2-7/8	3	1/16	2.864 ± .020	.070 ± .003
-041	3	3-1/8	1/16	2.989 ± .024	.070 ± .003
-042	3-1/4	3-3/8	1/16	3.239 ± .024	.070 ± .003
-043	3-1/2	3-5/8	1/16	3.489 ± .024	.070 ± .003
-044	3-3/4	3-7/8	1/16	3.739 ± .027	.070 ± .003
-045	4	4-1/8	1/16	3.989 ± .027	.070 ± .003
-046	4-1/4	4-3/8	1/16	4.239 ± .030	.070 ± .003
-047	4-1/2	4-5/8	1/16	4.489 ± .030	.070 ± .003
-048	4-3/4	4-7/8	1/16	4.739 ± .030	.070 ± .003
-049	5	5-1/8	1/16	4.989 ± .037	.070 ± .003
-050	5-1/4	5-3/8	1/16	5.239 ± .037	.070 ± .003

DASH NUMBER	NOMINAL SIZE			ACTUAL SIZE	
	ID	OD	C/S	ID	C/S
<b>3/32 - CROSS SECTION</b>					
-102	1/16	1/4	3/32	.049 ± .005	.103 ± .003
-103	3/32	9/32	3/32	.081 ± .005	.103 ± .003
-104	1/8	5/16	3/32	.112 ± .005	.103 ± .003
-105	5/32	11/32	3/32	.143 ± .005	.103 ± .003
-106	3/16	3/8	3/32	.174 ± .005	.103 ± .003
-107	7/32	13/32	3/32	.206 ± .005	.103 ± .003
-108	1/4	7/16	3/32	.237 ± .005	.103 ± .003
-109	5/16	1/2	3/32	.299 ± .005	.103 ± .003
-110	3/8	9/16	3/32	.362 ± .005	.103 ± .003
-111	7/16	5/8	3/32	.424 ± .005	.103 ± .003
-112	1/2	11/16	3/32	.487 ± .005	.103 ± .003
-113	9/16	3/4	3/32	.549 ± .007	.103 ± .003
-114	5/8	13/16	3/32	.612 ± .009	.103 ± .003
-115	11/16	7/8	3/32	.674 ± .009	.103 ± .003
-116	3/4	15/16	3/32	.737 ± .009	.103 ± .003
-117	13/16	1	3/32	.799 ± .010	.103 ± .003
-118	7/8	1-1/16	3/32	.862 ± .010	.103 ± .003
-119	15/16	1-1/8	3/32	.924 ± .010	.103 ± .003
-120	1	1-3/16	3/32	.987 ± .010	.103 ± .003
-121	1-1/16	1-1/4	3/32	1.049 ± .010	.103 ± .003
-122	1-1/8	1-5/16	3/32	1.112 ± .010	.103 ± .003
-123	1-3/16	1-3/8	3/32	1.174 ± .012	.103 ± .003
-124	1-1/4	1-7/16	3/32	1.237 ± .012	.103 ± .003
-125	1-5/16	1-1/2	3/32	1.299 ± .012	.103 ± .003
-126	1-3/8	1-9/16	3/32	1.362 ± .012	.103 ± .003
-127	1-7/16	1-5/8	3/32	1.424 ± .012	.103 ± .003
-128	1-1/2	1-11/16	3/32	1.487 ± .012	.103 ± .003
-129	1-9/16	1-3/4	3/32	1.549 ± .015	.103 ± .003
-130	1-5/8	1-13/16	3/32	1.612 ± .015	.103 ± .003
-131	1-11/16	1-7/8	3/32	1.674 ± .015	.103 ± .003
-132	1-3/4	1-15/16	3/32	1.737 ± .015	.103 ± .003
-133	1-13/16	2	3/32	1.799 ± .015	.103 ± .003
-134	1-7/8	2-1/16	3/32	1.862 ± .015	.103 ± .003
-135	1-15/16	2-1/8	3/32	1.925 ± .017	.103 ± .003
-136	2	2-3/16	3/32	1.987 ± .017	.103 ± .003
-137	2-1/16	2-1/4	3/32	2.050 ± .017	.103 ± .003
-138	2-1/8	2-5/16	3/32	2.112 ± .017	.103 ± .003
-139	2-3/16	2-3/8	3/32	2.175 ± .017	.103 ± .003
-140	2-1/4	2-7/16	3/32	2.237 ± .017	.103 ± .003
-141	2-5/16	2-1/2	3/32	2.300 ± .020	.103 ± .003
-142	2-3/8	2-9/16	3/32	2.362 ± .020	.103 ± .003
-143	2-7/16	2-5/8	3/32	2.425 ± .020	.103 ± .003
-144	2-1/2	2-11/16	3/32	2.487 ± .020	.103 ± .003
-145	2-9/16	2-3/4	3/32	2.550 ± .020	.103 ± .003
-146	2-5/8	2-13/16	3/32	2.612 ± .020	.103 ± .003
-147	2-11/16	2-7/8	3/32	2.675 ± .022	.103 ± .003
-148	2-3/4	2-15/16	3/32	2.737 ± .022	.103 ± .003
-149	2-13/16	3	3/32	2.800 ± .022	.103 ± .003
-150	2-7/8	3-1/16	3/32	2.862 ± .022	.103 ± .003
-151	3	3-3/16	3/32	2.987 ± .024	.103 ± .003
-152	3-1/4	3-7/16	3/32	3.237 ± .024	.103 ± .003
-153	3-1/2	3-11/16	3/32	3.487 ± .024	.103 ± .003
-154	3-3/4	3-15/16	3/32	3.737 ± .028	.103 ± .003

DASH NUMBER	NOMINAL SIZE			ACTUAL SIZE	
	ID	OD	C/S	ID	C/S
<b>3/32 - CROSS SECTION</b>					
-155	4	4-3/16	3/32	3.987 ± .028	.103 ± .003
-156	4-1/4	4-7/16	3/32	4.237 ± .030	.103 ± .003
-157	4-1/2	4-11/16	3/32	4.487 ± .030	.103 ± .003
-158	4-3/4	4-15/16	3/32	4.737 ± .030	.103 ± .003
-159	5	5-3/16	3/32	4.987 ± .035	.103 ± .003
-160	5-1/4	5-7/16	3/32	5.237 ± .035	.103 ± .003
-161	5-1/2	5-11/16	3/32	5.487 ± .035	.103 ± .003
-162	5-3/4	5-15/16	3/32	5.737 ± .035	.103 ± .003
-163	6	6-3/16	3/32	5.987 ± .035	.103 ± .003
-164	6-1/4	6-7/16	3/32	6.237 ± .040	.103 ± .003
-165	6-1/2	6-11/16	3/32	6.487 ± .040	.103 ± .003
-166	6-3/4	6-15/16	3/32	6.737 ± .040	.103 ± .003
-167	7	7-3/16	3/32	6.987 ± .040	.103 ± .003
-168	7-1/4	7-7/16	3/32	7.237 ± .045	.103 ± .003
-169	7-1/2	7-11/16	3/32	7.487 ± .045	.103 ± .003
-170	7-3/4	7-15/16	3/32	7.737 ± .045	.103 ± .003
-171	8	8-3/16	3/32	7.987 ± .045	.103 ± .003
-172	8-1/4	8-7/16	3/32	8.237 ± .050	.103 ± .003
-173	8-1/2	8-11/16	3/32	8.487 ± .050	.103 ± .003
-174	8-3/4	8-15/16	3/32	8.737 ± .050	.103 ± .003
-175	9	9-3/16	3/32	8.987 ± .050	.103 ± .003
-176	9-1/4	9-7/16	3/32	9.237 ± .055	.103 ± .003
-177	9-1/2	9-11/16	3/32	9.487 ± .055	.103 ± .003
-178	9-3/4	9-15/16	3/32	9.737 ± .055	.103 ± .003

DASH NUMBER	NOMINAL SIZE			ACTUAL SIZE	
	ID	OD	C/S	ID	C/S
<b>1/8 - CROSS SECTION</b>					
-201	3/16	7/16	1/8	.171 ± .005	.139 ± .004
-202	1/4	1/2	1/8	.234 ± .005	.139 ± .004
-203	5/16	9/16	1/8	.296 ± .005	.139 ± .004
-204	3/8	5/8	1/8	.359 ± .005	.139 ± .004
-205	7/16	11/16	1/8	.421 ± .005	.139 ± .004
-206	1/2	3/4	1/8	.484 ± .005	.139 ± .004
-207	9/16	13/16	1/8	.546 ± .007	.139 ± .004
-208	5/8	7/8	1/8	.609 ± .009	.139 ± .004
-209	11/16	15/16	1/8	.671 ± .009	.139 ± .004
-210	3/4	1	1/8	.734 ± .010	.139 ± .004
-211	13/16	1-1/16	1/8	.796 ± .010	.139 ± .004
-212	7/8	1-1/8	1/8	.859 ± .010	.139 ± .004
-213	15/16	1-3/16	1/8	.921 ± .010	.139 ± .004
-214	1	1-1/4	1/8	.984 ± .010	.139 ± .004
-215	1-1/16	1-5/16	1/8	1.046 ± .010	.139 ± .004
-216	1-1/8	1-3/8	1/8	1.109 ± .012	.139 ± .004
-217	1-3/16	1-7/16	1/8	1.171 ± .012	.139 ± .004
-218	1-1/4	1-1/2	1/8	1.234 ± .012	.139 ± .004
-219	1-5/16	1-9/16	1/8	1.296 ± .012	.139 ± .004
-220	1-3/8	1-5/8	1/8	1.359 ± .012	.139 ± .004
-221	1-7/16	1-11/16	1/8	1.421 ± .012	.139 ± .004
-222	1-1/2	1-3/4	1/8	1.484 ± .015	.139 ± .004
-223	1-5/8	1-7/8	1/8	1.609 ± .015	.139 ± .004
-224	1-3/4	2	1/8	1.734 ± .015	.139 ± .004
-225	1-7/8	2-1/8	1/8	1.859 ± .018	.139 ± .004
-226	2	2-1/4	1/8	1.984 ± .018	.139 ± .004
-227	2-1/8	2-3/8	1/8	2.109 ± .018	.139 ± .004

DASH NUMBER	NOMINAL SIZE			ACTUAL SIZE	
	ID	OD	C/S	ID	C/S
<b>1/8 - CROSS SECTION</b>					
-228	2-1/4	2-1/2	1/8	2.234 ± .020	.139 ± .004
-229	2-3/8	2-5/8	1/8	2.359 ± .020	.139 ± .004
-230	2-1/2	2-3/4	1/8	2.484 ± .020	.139 ± .004
-231	2-5/8	2-7/8	1/8	2.609 ± .020	.139 ± .004
-232	2-3/4	3	1/8	2.734 ± .024	.139 ± .004
-233	2-7/8	3-1/8	1/8	2.859 ± .024	.139 ± .004
-234	3	3-1/4	1/8	2.984 ± .024	.139 ± .004
-235	3-1/8	3-3/8	1/8	3.109 ± .024	.139 ± .004
-236	3-1/4	3-1/2	1/8	3.234 ± .024	.139 ± .004
-237	3-3/8	3-5/8	1/8	3.359 ± .024	.139 ± .004
-238	3-1/2	3-3/4	1/8	3.484 ± .024	.139 ± .004
-239	3-5/8	3-7/8	1/8	3.609 ± .028	.139 ± .004
-240	3-3/4	4	1/8	3.734 ± .028	.139 ± .004
-241	3-7/8	4-1/8	1/8	3.859 ± .028	.139 ± .004
-242	4	4-1/4	1/8	3.984 ± .028	.139 ± .004
-243	4-1/8	4-3/8	1/8	4.109 ± .028	.139 ± .004
-244	4-1/4	4-1/2	1/8	4.234 ± .030	.139 ± .004
-245	4-3/8	4-5/8	1/8	4.359 ± .030	.139 ± .004
-246	4-1/2	4-3/4	1/8	4.484 ± .030	.139 ± .004
-247	4-5/8	4-7/8	1/8	4.609 ± .030	.139 ± .004
-248	4-3/4	5	1/8	4.734 ± .030	.139 ± .004
-249	4-7/8	5-1/8	1/8	4.859 ± .035	.139 ± .004
-250	5	5-1/4	1/8	4.984 ± .035	.139 ± .004
-251	5-1/8	5-3/8	1/8	5.109 ± .035	.139 ± .004
-252	5-1/4	5-1/2	1/8	5.234 ± .035	.139 ± .004
-253	5-3/8	5-5/8	1/8	5.359 ± .035	.139 ± .004
-254	5-1/2	5-3/4	1/8	5.484 ± .035	.139 ± .004
-255	5-5/8	5-7/8	1/8	5.609 ± .035	.139 ± .004
-256	5-3/4	6	1/8	5.734 ± .035	.139 ± .004
-257	5-7/8	6-1/8	1/8	5.859 ± .035	.139 ± .004
-258	6	6-1/4	1/8	5.984 ± .035	.139 ± .004
-259	6-1/4	6-1/2	1/8	6.234 ± .040	.139 ± .004
-260	6-1/2	6-3/4	1/8	6.484 ± .040	.139 ± .004
-261	6-3/4	7	1/8	6.734 ± .040	.139 ± .004
-262	7	7-1/4	1/8	6.984 ± .040	.139 ± .004
-263	7-1/4	7-1/2	1/8	7.234 ± .045	.139 ± .004
-264	7-1/2	7-3/4	1/8	7.484 ± .045	.139 ± .004
-265	7-3/4	8	1/8	7.734 ± .045	.139 ± .004
-266	8	8-1/4	1/8	7.984 ± .045	.139 ± .004
-267	8-1/4	8-1/2	1/8	8.234 ± .050	.139 ± .004
-268	8-1/2	8-3/4	1/8	8.484 ± .050	.139 ± .004
-269	8-3/4	9	1/8	8.734 ± .050	.139 ± .004
-270	9	9-1/4	1/8	8.984 ± .050	.139 ± .004
-271	9-1/4	9-1/2	1/8	9.234 ± .055	.139 ± .004
-272	9-1/2	9-3/4	1/8	9.484 ± .055	.139 ± .004
-273	9-3/4	10	1/8	9.734 ± .055	.139 ± .004
-274	10	10-1/4	1/8	9.984 ± .055	.139 ± .004
-275	10-1/2	10-3/4	1/8	10.484 ± .055	.139 ± .004
-276	11	11-1/4	1/8	10.984 ± .065	.139 ± .004
-277	11-1/2	11-3/4	1/8	11.484 ± .065	.139 ± .004
-278	12	12-1/4	1/8	11.984 ± .065	.139 ± .004
-279	13	13-1/4	1/8	12.984 ± .065	.139 ± .004
-280	14	14-1/4	1/8	13.984 ± .065	.139 ± .004

AS 568D

O-RINGS

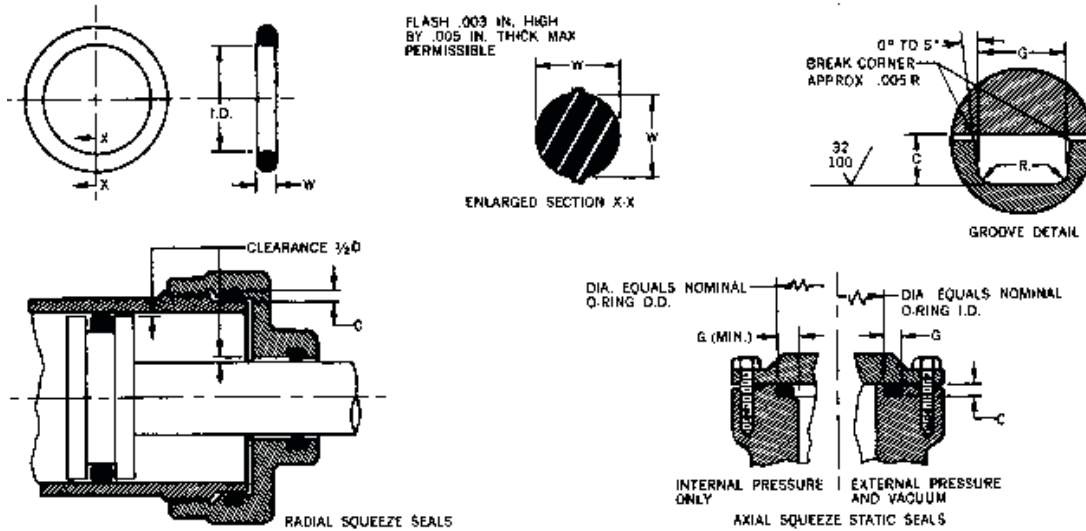
DASH NUMBER	NOMINAL SIZE			ACTUAL SIZE	
	ID	OD	C/S	ID	C/S
<b>1/8 - CROSS SECTION</b>					
-281	15	15-1/4	1/8	14.984 ± .065	.139 ± .004
-282	16	16-1/4	1/8	15.955 ± .075	.139 ± .004
-283	17	17-1/4	1/8	16.955 ± .080	.139 ± .004
-284	18	18-1/4	1/8	17.955 ± .085	.139 ± .004
<b>3/16 - CROSS SECTION</b>					
-309	7/16	13/16	3/16	.412 ± .005	.210 ± .005
-310	1/2	7/8	3/16	.475 ± .005	.210 ± .005
-311	9/16	15/16	3/16	.537 ± .007	.210 ± .005
-312	5/8	1	3/16	.600 ± .009	.210 ± .005
-313	11/16	1-1/16	3/16	.662 ± .009	.210 ± .005
-314	3/4	1-1/8	3/16	.725 ± .010	.210 ± .005
-315	13/16	1-3/16	3/16	.787 ± .010	.210 ± .005
-316	7/8	1-1/4	3/16	.850 ± .010	.210 ± .005
-317	15/16	1-5/16	3/16	.912 ± .010	.210 ± .005
-318	1	1-3/8	3/16	.975 ± .010	.210 ± .005
-319	1-1/16	1-7/16	3/16	1.037 ± .010	.210 ± .005
-320	1-1/8	1-1/2	3/16	1.100 ± .012	.210 ± .005
-321	1-3/16	1-9/16	3/16	1.162 ± .012	.210 ± .005
-322	1-1/4	1-5/8	3/16	1.225 ± .012	.210 ± .005
-323	1-5/16	1-11/16	3/16	1.287 ± .012	.210 ± .005
-324	1-3/8	1-3/4	3/16	1.350 ± .012	.210 ± .005
-325	1-1/2	1-7/8	3/16	1.475 ± .015	.210 ± .005
-326	1-5/8	2	3/16	1.600 ± .015	.210 ± .005
-327	1-3/4	2-1/8	3/16	1.725 ± .015	.210 ± .005
-328	1-7/8	2-1/4	3/16	1.850 ± .015	.210 ± .005
-329	2	2-3/8	3/16	1.975 ± .018	.210 ± .005
-330	2-1/8	2-1/2	3/16	2.100 ± .018	.210 ± .005
-331	2-1/4	2-5/8	3/16	2.225 ± .018	.210 ± .005
-332	2-3/8	2-3/4	3/16	2.350 ± .018	.210 ± .005
-333	2-1/2	2-7/8	3/16	2.475 ± .020	.210 ± .005
-334	2-5/8	3	3/16	2.600 ± .020	.210 ± .005
-335	2-3/4	3-1/8	3/16	2.725 ± .020	.210 ± .005
-336	2-7/8	3-1/4	3/16	2.850 ± .020	.210 ± .005
-337	3	3-3/8	3/16	2.975 ± .024	.210 ± .005
-338	3-1/8	3-1/2	3/16	3.100 ± .024	.210 ± .005
-339	3-1/4	3-5/8	3/16	3.225 ± .024	.210 ± .005
-340	3-3/8	3-3/4	3/16	3.350 ± .024	.210 ± .005
-341	3-1/2	3-7/8	3/16	3.475 ± .024	.210 ± .005
-342	3-5/8	4	3/16	3.600 ± .028	.210 ± .005
-343	3-3/4	4-1/8	3/16	3.725 ± .028	.210 ± .005
-344	3-7/8	4-1/4	3/16	3.850 ± .028	.210 ± .005
-345	4	4-3/8	3/16	3.975 ± .028	.210 ± .005
-346	4-1/8	4-1/2	3/16	4.100 ± .028	.210 ± .005
-347	4-1/4	4-5/8	3/16	4.225 ± .030	.210 ± .005
-348	4-3/8	4-3/4	3/16	4.350 ± .030	.210 ± .005
-349	4-1/2	4-7/8	3/16	4.475 ± .030	.210 ± .005
-350	4-5/8	5	3/16	4.600 ± .030	.210 ± .005
-351	4-3/4	5-1/8	3/16	4.725 ± .030	.210 ± .005
-352	4-7/8	5-1/4	3/16	4.850 ± .030	.210 ± .005
-353	5	5-3/8	3/16	4.975 ± .037	.210 ± .005
-354	5-1/8	5-1/2	3/16	5.100 ± .037	.210 ± .005

DASH NUMBER	NOMINAL SIZE			ACTUAL SIZE	
	ID	OD	C/S	ID	C/S
<b>3/16 - CROSS SECTION</b>					
-355	5-1/4	5-5/8	3/16	5.225 ± .037	.210 ± .005
-356	5-3/8	5-3/4	3/16	5.350 ± .037	.210 ± .005
-357	5-1/2	5-7/8	3/16	5.475 ± .037	.210 ± .005
-358	5-5/8	6	3/16	5.600 ± .037	.210 ± .005
-359	5-3/4	6-1/8	3/16	5.725 ± .037	.210 ± .005
-360	5-7/8	6-1/4	3/16	5.850 ± .037	.210 ± .005
-361	6	6-3/8	3/16	5.975 ± .037	.210 ± .005
-362	6-1/4	6-5/8	3/16	6.225 ± .040	.210 ± .005
-363	6-1/2	6-7/8	3/16	6.475 ± .040	.210 ± .005
-364	6-3/4	7-1/8	3/16	6.725 ± .040	.210 ± .005
-365	7	7-3/8	3/16	6.975 ± .040	.210 ± .005
-366	7-1/4	7-5/8	3/16	7.225 ± .045	.210 ± .005
-367	7-1/2	7-7/8	3/16	7.475 ± .045	.210 ± .005
-368	7-3/4	8-1/8	3/16	7.725 ± .045	.210 ± .005
-369	8	8-3/8	3/16	7.975 ± .045	.210 ± .005
-370	8-1/4	8-5/8	3/16	8.225 ± .050	.210 ± .005
-371	8-1/2	8-7/8	3/16	8.475 ± .050	.210 ± .005
-372	8-3/4	9-1/8	3/16	8.725 ± .050	.210 ± .005
-373	9	9-3/8	3/16	8.975 ± .050	.210 ± .005
-374	9-1/4	9-5/8	3/16	9.225 ± .055	.210 ± .005
-375	9-1/2	9-7/8	3/16	9.475 ± .055	.210 ± .005
-376	9-3/4	10-1/8	3/16	9.725 ± .055	.210 ± .005
-377	10	10-3/8	3/16	9.975 ± .055	.210 ± .005
-378	10-1/2	10-7/8	3/16	10.475 ± .060	.210 ± .005
-379	11	11-3/8	3/16	10.975 ± .060	.210 ± .005
-380	11-1/2	11-7/8	3/16	11.475 ± .065	.210 ± .005
-381	12	12-3/8	3/16	11.975 ± .065	.210 ± .005
-382	13	13-3/8	3/16	12.975 ± .065	.210 ± .005
-383	14	14-3/8	3/16	13.975 ± .070	.210 ± .005
-384	15	15-3/8	3/16	14.975 ± .070	.210 ± .005
-385	16	16-3/8	3/16	15.955 ± .075	.210 ± .005
-386	17	17-3/8	3/16	16.955 ± .080	.210 ± .005
-387	18	18-3/8	3/16	17.955 ± .085	.210 ± .005
-388	19	19-3/8	3/16	18.955 ± .090	.210 ± .005
-389	20	20-3/8	3/16	19.955 ± .095	.210 ± .005
-390	21	21-3/8	3/16	20.955 ± .095	.210 ± .005
-391	22	22-3/8	3/16	21.955 ± .100	.210 ± .005
-392	23	23-3/8	3/16	22.940 ± .105	.210 ± .005
-393	24	24-3/8	3/16	23.940 ± .110	.210 ± .005
-394	25	25-3/8	3/16	24.940 ± .115	.210 ± .005
-395	26	26-3/8	3/16	25.940 ± .120	.210 ± .005
<b>1/4 - CROSS SECTION</b>					
-400	1-3/8	1-7/8	1/4	1.350 ± .014	.275 ± .006
-401	1-1/2	2	1/4	1.475 ± .014	.275 ± .006
-402	1-5/8	2-1/8	1/4	1.600 ± .015	.275 ± .006
-403	1-3/4	2-1/4	1/4	1.725 ± .016	.275 ± .006
-404	1-7/8	2-3/8	1/4	1.850 ± .016	.275 ± .006
-405	2	2-1/2	1/4	1.975 ± .017	.275 ± .006
-406	2-1/8	2-5/8	1/4	2.100 ± .018	.275 ± .006
-407	2-1/4	2-3/4	1/4	2.225 ± .018	.275 ± .006
-408	2-3/8	2-7/8	1/4	2.350 ± .020	.275 ± .006



DASH NUMBER	NOMINAL SIZE			ACTUAL SIZE	
	ID	OD	C/S	ID	C/S
<b>1/4 - CROSS SECTION</b>					
-409	2-1/2	3	1/4	2.475 ± .020	.275 ± .006
-410	2-5/8	3-1/8	1/4	2.600 ± .020	.275 ± .006
-411	2-3/4	3-1/4	1/4	2.725 ± .022	.275 ± .006
-412	2-7/8	3-3/8	1/4	2.850 ± .022	.275 ± .006
-413	3	3-1/2	1/4	2.975 ± .024	.275 ± .006
-414	3-1/8	3-5/8	1/4	3.100 ± .024	.275 ± .006
-415	3-1/4	3-3/4	1/4	3.225 ± .024	.275 ± .006
-416	3-3/8	3-7/8	1/4	3.350 ± .026	.275 ± .006
-417	3-1/2	4	1/4	3.475 ± .026	.275 ± .006
-418	3-5/8	4-1/8	1/4	3.600 ± .026	.275 ± .006
-419	3-3/4	4-1/4	1/4	3.725 ± .028	.275 ± .006
-420	3-7/8	3-3/8	1/4	3.850 ± .028	.275 ± .006
-421	4	4-1/2	1/4	3.975 ± .028	.275 ± .006
-422	4-1/8	4-5/8	1/4	4.100 ± .030	.275 ± .006
-423	4-1/4	4-3/4	1/4	4.225 ± .030	.275 ± .006
-424	4-3/8	4-7/8	1/4	4.350 ± .030	.275 ± .006
-425	4-1/2	5	1/4	4.475 ± .033	.275 ± .006
-426	4-5/8	5-1/8	1/4	4.600 ± .033	.275 ± .006
-427	4-3/4	5-1/4	1/4	4.725 ± .033	.275 ± .006
-428	4-7/8	5-3/8	1/4	4.850 ± .033	.275 ± .006
-429	5	5-1/2	1/4	4.975 ± .037	.275 ± .006
-430	5-1/8	5-5/8	1/4	5.100 ± .037	.275 ± .006
-431	5-1/4	5-3/4	1/4	5.225 ± .037	.275 ± .006
-432	5-3/8	5-7/8	1/4	5.350 ± .037	.275 ± .006
-433	5-1/2	6	1/4	5.475 ± .037	.275 ± .006
-434	5-5/8	6-1/8	1/4	5.600 ± .037	.275 ± .006
-435	5-3/4	6-1/4	1/4	5.725 ± .037	.275 ± .006
-436	5-7/8	6-3/8	1/4	5.850 ± .037	.275 ± .006
-437	6	6-1/2	1/4	5.975 ± .037	.275 ± .006
-438	6-1/4	6-3/4	1/4	6.225 ± .040	.275 ± .006
-439	6-1/2	7	1/4	6.475 ± .040	.275 ± .006
-440	6-3/4	7-1/4	1/4	6.725 ± .040	.275 ± .006
-441	7	7-1/2	1/4	6.975 ± .040	.275 ± .006
-442	7-1/4	7-3/4	1/4	7.225 ± .045	.275 ± .006
-443	7-1/2	8	1/4	7.475 ± .045	.275 ± .006
-444	7-3/4	8-1/4	1/4	7.725 ± .045	.275 ± .006
-445	8	8-1/2	1/4	7.975 ± .045	.275 ± .006
-446	8-1/2	9	1/4	8.475 ± .055	.275 ± .006
-447	9	9-1/2	1/4	8.975 ± .055	.275 ± .006
-448	9-1/2	10	1/4	9.475 ± .055	.275 ± .006
-449	10	10-1/2	1/4	9.975 ± .055	.275 ± .006
-450	10-1/2	11	1/4	10.475 ± .060	.275 ± .006
-451	11	11-1/2	1/4	10.975 ± .060	.275 ± .006
-452	11-1/2	12	1/4	11.475 ± .060	.275 ± .006
-453	12	12-1/2	1/4	11.975 ± .060	.275 ± .006
-454	12-1/2	13	1/4	12.475 ± .060	.275 ± .006
-455	13	13-1/2	1/4	12.975 ± .060	.275 ± .006
-456	13-1/2	14	1/4	13.475 ± .070	.275 ± .006
-457	14	14-1/2	1/4	13.975 ± .070	.275 ± .006
-458	14-1/2	15	1/4	14.475 ± .070	.275 ± .006
-459	15	15-1/2	1/4	14.975 ± .070	.275 ± .006
-460	15-1/2	16	1/4	15.475 ± .070	.275 ± .006

DASH NUMBER	NOMINAL SIZE			ACTUAL SIZE	
	ID	OD	C/S	ID	C/S
<b>1/4 - CROSS SECTION</b>					
-461	16	16-1/2	1/4	15.955 ± .075	.275 ± .006
-462	16-1/2	17	1/4	16.455 ± .075	.275 ± .006
-463	17	17-1/2	1/4	16.955 ± .080	.275 ± .006
-464	17-1/2	18	1/4	17.455 ± .085	.275 ± .006
-465	18	18-1/2	1/4	17.955 ± .085	.275 ± .006
-466	18-1/2	19	1/4	18.455 ± .085	.275 ± .006
-467	19	19-1/2	1/4	18.955 ± .090	.275 ± .006
-468	19-1/2	20	1/4	19.455 ± .090	.275 ± .006
-469	20	20-1/2	1/4	19.955 ± .095	.275 ± .006
-470	21	21-1/2	1/4	20.955 ± .095	.275 ± .006
-471	22	22-1/2	1/4	21.955 ± .100	.275 ± .006
-472	23	23-1/2	1/4	22.940 ± .105	.275 ± .006
-473	24	24-1/2	1/4	23.940 ± .110	.275 ± .006
-474	25	25-1/2	1/4	24.940 ± .115	.275 ± .006
-475	26	26-1/2	1/4	25.940 ± .120	.275 ± .006
<b>BOSS O-RINGS</b>					
-901		3/32		.185 ± .005	0.056 ± .003
-902		1/8		.239 ± .005	0.064 ± .003
-903		3/16		.301 ± .005	0.064 ± .003
-904		1/4		.351 ± .005	0.072 ± .003
-905	<b>TUBE O.D.</b>	5/16		.414 ± .005	0.072 ± .003
-906		3/8		.468 ± .005	0.078 ± .003
-907		7/16		.530 ± .007	0.082 ± .003
-908		1/2		.644 ± .009	0.087 ± .003
-909		9/16		.706 ± .009	0.097 ± .003
-910		5/8		.755 ± .009	0.097 ± .003
-911		11/16		.863 ± .009	0.116 ± .004
-912		3/4		.924 ± .009	0.116 ± .004
-913		13/16		.986 ± .010	0.116 ± .004
-914		7/8		1.047 ± .010	0.116 ± .004
-916	1		1.171 ± .010	0.116 ± .004	
-918	1-1/8		1.355 ± .012	0.116 ± .004	
-920	1-1/4		1.475 ± .014	0.118 ± .004	
-924	1-1/2		1.720 ± .014	0.118 ± .004	
-928	1-3/4		2.090 ± .018	0.118 ± .004	
-932	2		2.337 ± .018	0.118 ± .004	



### Industrial Reciprocating O-Ring Packing Glands

O-Ring Size 568 Series	W O-Ring Cross Section	C Gland Depth	Squeeze		D Diametrical Clearance Max.	G Groove Width +.010 -.000			Groove Radius	Eccen- tricity Max.
			Inches	%		No Backup Rings	One Backup Ring	Two Backup Rings		
006 thru 050	.070 ± .003	.055-.057	.010-.018	15-25	.004	.090	.145	.203	.005-.015	.002
102 thru 178	.103 ± .003	.087-.090	.010-.019	10-18	.005	.140	.182	.244	.005-.020	.003
201 thru 284	.139 ± .004	.119-.123	.012-.024	9-17	.006	.180	.217	.296	.005-.030	.004
309 thru 395	.210 ± .005	.183-.188	.017-.032	8.5-15	.006	.280	.333	.423	.005-.050	.006
425 thru 475	.275 ± .006	.234-.240	.029-.047	10.5-17	.007	.370	.435	.574	.005-.060	.008

### Industrial O-Ring Static Seal Glands

O-Ring Size 568 Series	W O-Ring Cross Section	C Gland Depth		Squeeze				D Diametrical Clearance Max.	G Groove Width +.010 -.000			R Groove Radius	Eccen- tricity Max.
				Radial		Axial			No Backup Rings	One Backup Ring	Two Backup Rings		
		Radial	Axial	Inches	%	Inches	%						
006 thru 050	.070 ± .003	.049-.050	.045-.055	.012-.014	18-19	.017-.028	25.5-38.5	.004	.090	.145	.203	.005-.015	.002
102 thru 178	.103 ± .003	.080-.086	.072-.080	.014-.026	13.5-25	.020-.034	20-32	.005	.140	.182	.244	.005-.020	.003
201 thru 284	.139 ± .004	.112-.118	.100-.110	.017-.031	12.5-29	.025-.043	18.5-30	.006	.180	.217	.296	.005-.030	.004
309 thru 395	.210 ± .006	.176-.184	.165-.175	.021-.039	10-18	.030-.050	14.5-23	.006	.280	.333	.423	.005-.050	.006
425 thru 475	.275 ± .006	.225-.235	.220-.230	.034-.056	12.5-20	.039-.061	14.5-21.5	.007	.370	.435	.574	.005-.060	.008

The information shown on this page is provided as a general guideline for o-ring glands. Before machining your glands, please contact the MFP Seals Engineering Department to determine the correct measurements for your specific application.



**AS 568D - O-RINGS**

MFP Seals produces O-Rings in inch and metric sizes. The inch sizes are produced to the AS 568D (Aerospace Standard) published by the SAE (Society of Automotive Engineers). These inch size O Rings are designated by a dash number referenced on the AS 568D chart. This standard for O-Rings contains 379 sizes and MFP Seals stocks them in a wide range of materials. A list of available materials appears below.

This information is only to be used as a guide to the selection of seal compounds. Application, as well as temperature, pressures, media, and finishes, should all be considered when choosing seal compounds. Other compounds are available.



**MFP PART NUMBERS**

**OR-010N6001**

SEAL TYPE | COMPOUND  
AS568D DASH #

AS 568D

O-RINGS

**COMPOUNDS FORMULATED FOR O-RINGS**

Compound Name	Designation	Hardness	Color	Temperature Range
E7101	EPDM	70 Shore A	Black	-50°C to +100°C (-58°F to +212°F)
E7102	EPDM	80 Shore A	Black	-50°C to +100°C (-58°F to +212°F)
E7103 (NSF61)	EPDM	70 Shore A	Black	-50°C to +100°C (-58°F to +212°F)
E7105 (WRAS/NSF61)	EPDM	70 Shore A	Black	-50°C to +150°C (-58°F to +302°F)
FC7500 - Fluorochem®	FKME	75 Shore A	Black	-22°C to +250°C (-7°F to +482°F)
FC7510 - Fluorochem®	FKM	75 Shore A	Black	-20°C to +200°C (-4°F to +392°F)
FC7525 - Fluorochem®	FFKM	75 Shore A	Black	-15°C to +320°C (+5°F to +608°F)
FC7550 - Fluorochem®	FFKM	75 Shore A	White	-15°C to +320°C (+5°F to +608°F)
FC7575 - Fluorochem®	FFKM	90 Shore A	Black	-15°C to +320°C (+5°F to +608°F)
FC7600 - Fluorochem®	FFKM	90 Shore A	Black	0°C to +260°C (+32°F to +500°F)
FC7625 - Fluorochem®	FFKM	90 Shore A	Black	-4°C to +230°C (+25°F to +446°F)
FC7650 - Fluorochem®	FFKM	70 Shore A	Black	-20°C to +230°C (-4°F to +446°F)
FC7675 - Fluorochem®	FFKM	75 Shore A	Black	-4°C to +230°C (+25°F to +446°F)
FC7700 - Fluorochem®	FFKM	75 Shore A	Black	-7°C to +230°C (+20°F to +446°F)
FC7725 - Fluorochem®	FFKM	75 Shore A	White	-7°C to +230°C (+20°F to +446°F)
FC7750 - Fluorochem®	FFKM	75 Shore A	Black	-6°C to +300°C (+21°F to +570°F)
FC7775 - Fluorochem®	FFKM	75 Shore A	Black	-7°C to +230°C (+20°F to +446°F)
FC7800 - Fluorochem®	FFKM	75 Shore A	Black	-5°C to +320°C (+23°F to +608°F)
FS7101	FVMQ	70 Shore A	Blue	-60°C to +200°C (-76°F to +392°F)
N6001	NBR	70 Shore A	Black	-40°C to +100°C (-40°F to +212°F)
N6003	NBR	90 Shore A	Black	-20°C to +100°C (-4°F to +212°F)
N6007	HNBR	70 Shore A	Black	-40°C to +125°C (-40°F to +257°F)
N6008	HNBR	80 Shore A	Black	-35°C to +150°C (-31°F to +302°F)
N6009	HNBR	90 Shore A	Black	-30°C to +150°C (-22°F to +302°F)
N6010	HNBR	70 Shore A	Green	-40°C to +150°C (-40°F to +302°F)
N6011	HNBR	80 Shore A	Green	-25°C to +150°C (-13°F to +302°F)
N6012	HNBR	90 Shore A	Green	-20°C to +150°C (-4°F to +302°F)
S7100*	SIL	70 Shore A	Rust Red	-55°C to +240°C (-67°F to +464°F)
U6865	TPU	70 Shore A	Natural	-81°C to +100°C (-115°F to +212°F)
U9251	TPU	90 Shore A	Natural	-54°C to +150°C (-65°F to +300°F)

Continued on next page.

For surface finish information please refer to page 17, Surface Finish: ISO 4287. For ISO tolerance, refer to page 18.

For compound descriptions and temperature ranges, please refer to pages 26-37.

# O-Ring - AS 568D

A product of MFP Seals.



## COMPOUNDS FORMULATED FOR O-RINGS

Compound Name	Designation	Hardness	Color	Temperature Range
V1125 - Aflas®	FKM	80 Shore A	Black	-0°C to +230°C (+32°F to +446°F)
V7100	FKM	75 Shore A	Black	-20°C to +200°C (-4°F to +392°F)
V7125	FKM	75 Shore A	Black	-15°C to +200°C (+5°F to +392°F)
V7150	FKM	75 Shore A	Black	-15°C to +200°C (+5°F to +392°F)
V7155	FKM	75 Shore A	Brown	-15°C to +200°C (+5°F to +392°F)
V7165	FKM	90 Shore A	Black	-20°C to +200°C (-4°F to +392°F)
V7175	FKM	90 Shore A	Black	-10°C to +200°C (+14°F to +392°F)
V7200	FKM	90 Shore A	Black	-30°C to +250°C (-22°F to +482°F)
V7250	FKM	75 Shore A	Green	-15°C to +200°C (+5°F to +392°F)
V7325 (AMS-R-83485)	FKM-GLT	75 Shore A	Black	-40°C to +200°C (-40°F to +392°F)
V7350	FEPM	90 Shore A	Black	-20°C to +220°C (-4°F to +428°F)

This information is only to be used as a guide to the selection of seal compounds. Application, as well as temperature, pressures, media, and finishes, should all be considered when choosing seal compounds. Other compounds may be available based on application. This is not a complete list of available compounds. For more information contact MFP Seals at sales@mfpseals.com or (248) 585-8170. Fluorochem® (2012) and Ultralex® (2011) are registered trademarks of Martin Fluid Power Co., Inc. \*FDA Grade w/o Certification. AFLAS® is a registered trademark of the Asahi Glass Co., Ltd.

AS 568D

O-RINGS

# Now that's an O-Ring!



The **SMALLEST** O-Ring that can be produced with this process:

C/S: 0.103 in.  
(2.62 mm)

I.D.: 7.874 in.  
(200 mm)

Minimum Order: One

Physical and Mechanical Material Features are **Not Altered** by this process.

Shown: 15 ft. (4,572 mm) I.D. Green FKM O-Ring.

The **LARGEST** O-Ring that can be produced with this process:

C/S: 1.574 in.  
(40 mm)

I.D.: Unlimited

Maximum Order: Unlimited

No Glues or Hot Vulcanization used in this process.

Available Materials:  
EPDM, EPDM PX,  
FEPM, FKM, FFKM,  
CR, HNBR, NBR, VMQ

**CONTINUOUSLY MOLDED**

**MFPSEALS**  
A DIVISION OF MARTIN FLUID POWER

### INCH CROSS SECTIONS (AS568)

0.103 0.139 0.210 0.250 0.275 0.375 0.500

### METRIC CROSS SECTIONS (ISO3601-1)

2.62	4.5	5.70	7.00	8.50	10.82	13.00	16.00	20.00	26.00
3.00	5.0	6.00	7.50	9.00	11.00	14.00	17.00	22.00	28.00
3.53	5.33	6.35	8.00	9.50	12.00	14.40	18.00	24.00	30.00
4.00	5.50	6.50	8.40	10.00	12.70	15.00	19.00	25.00	40.00

Dimensional Tolerances according to ISO 3601-1 and surface imperfections to ISO 3601-3, with integrations for non-standard dimensions.

**CONTACT YOUR MFP SEALS SALES REPRESENTATIVE FOR MORE INFORMATION**

**PTFE O-RINGS**

Polytetrafluoroethylene (PTFE) O-Rings are chemically inert and used in applications where an elastomeric O-Ring would fail. As a rigid material, PTFE O-Rings can only be used in static applications. Common applications would be chemical, pharmaceutical & medical.

*The standard compound for this seal is T1000.*



**MFP PART NUMBERS**

**OR-210T1000**

SEAL TYPE

COMPOUND

AS568D DASH #

*Virgin PTFE O-Rings are available in standard AS 568D sizes.*

*Please refer to the appropriate dash number from the chart on page 38.*

*For more information on the available compounds or coatings,  
please contact your MFP Seals' Sales Representative.*





# O-Ring - Encapsulated

A product of MFP Seals.

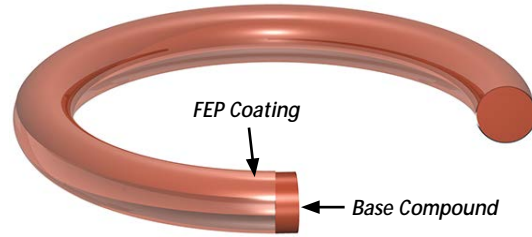


ENCAPSULATED

O-RINGS

### ENCAPSULATED O-RINGS

Encapsulated O-Rings consist of an elastomeric material most often Fluorocarbon rubber (FKM) or Silicone (VMQ) that is encapsulated with FEP. The FEP coating provides increased chemical, temperature and wear resistance that would otherwise not be achievable with the base compound alone.



The available compound and coating combinations are:

O-Ring Compound	Description
TES	FEP / Silicone
TEV	FEP / Viton®

### MFP PART NUMBERS

**OR-210TES**

SEAL TYPE | COMPOUND

AS568D DASH #

*Encapsulated O-Rings are available in standard AS 568D sizes.*

*Please refer to the appropriate dash number from the chart on page 38.*

*For more information on the available compounds or coatings, please contact your MFP Seals' Sales Representative.*



**Square Cut Ring**

Square Cut Rings are used for the same function as O-Rings and are directly interchangeable, using the same groove as the AS 568D O-Ring. Due to their larger sealing surface, Square Cut Rings can normally handle higher pressures than O-Rings. Square Cut Rings are commonly used for static applications.



*The standard compound for this seal is N6001.  
Other compounds are also available.*

**MFP PART NUMBERS**

**SR-006N6001**

SEAL TYPE | COMPOUND  
AS568D DASH #

SR

O-RINGS

DASH NUMBER	NOMINAL SIZE			ACTUAL SIZE	
	ID	OD	C/S	ID	C/S
<b>1/16 - CROSS SECTION</b>					
-006	1/8	1/4	1/16	.114 ± .005	.066 ± .003
-007	5/32	9/32	1/16	.145 ± .005	.066 ± .003
-008	3/16	5/16	1/16	.176 ± .005	.066 ± .003
-009	7/32	11/32	1/16	.208 ± .005	.066 ± .003
-010	1/4	3/8	1/16	.239 ± .005	.066 ± .003
-011	5/16	7/16	1/16	.301 ± .005	.066 ± .003
-012	3/8	1/2	1/16	.364 ± .005	.066 ± .003
-013	7/16	9/16	1/16	.426 ± .005	.066 ± .003
-014	1/2	5/8	1/16	.489 ± .005	.066 ± .003
-015	9/16	11/16	1/16	.551 ± .007	.066 ± .003
-016	5/8	3/4	1/16	.614 ± .009	.066 ± .003
-017	11/16	13/16	1/16	.676 ± .009	.066 ± .003
-018	3/4	7/8	1/16	.739 ± .009	.066 ± .003
-019	13/16	15/16	1/16	.801 ± .009	.066 ± .003
-020	7/8	1	1/16	.864 ± .009	.066 ± .003
-021	15/16	1-1/16	1/16	.926 ± .009	.066 ± .003
-022	1	1-1/8	1/16	.989 ± .010	.066 ± .003
-023	1-1/16	1-3/16	1/16	1.051 ± .010	.066 ± .003
-024	1-1/8	1-1/4	1/16	1.114 ± .010	.066 ± .003
-025	1-3/16	1-5/16	1/16	1.176 ± .011	.066 ± .003
-026	1-1/4	1-3/8	1/16	1.239 ± .011	.066 ± .003
-027	1-5/16	1-7/16	1/16	1.301 ± .011	.066 ± .003
-028	1-3/8	1-1/2	1/16	1.364 ± .013	.066 ± .003
-029	1-1/2	1-5/8	1/16	1.489 ± .013	.066 ± .003
-030	1-5/8	1-3/4	1/16	1.614 ± .013	.066 ± .003
-031	1-3/4	1-7/8	1/16	1.739 ± .015	.066 ± .003
-032	1-7/8	2	1/16	1.864 ± .015	.066 ± .003
-033	2	2-1/8	1/16	1.989 ± .018	.066 ± .003
-034	2-1/8	2-1/4	1/16	2.114 ± .018	.066 ± .003
-035	2-1/4	2-3/8	1/16	2.239 ± .018	.066 ± .003
-036	2-3/8	2-1/2	1/16	2.364 ± .018	.066 ± .003

DASH NUMBER	NOMINAL SIZE			ACTUAL SIZE	
	ID	OD	C/S	ID	C/S
<b>1/16 - CROSS SECTION</b>					
-037	2-1/2	2-5/8	1/16	2.489 ± .018	.066 ± .003
-038	2-5/8	2-3/4	1/16	2.614 ± .020	.066 ± .003
-039	2-3/4	2-7/8	1/16	2.739 ± .020	.066 ± .003
-040	2-7/8	3	1/16	2.864 ± .020	.066 ± .003
-041	3	3-1/8	1/16	2.989 ± .024	.066 ± .003
-042	3-1/4	3-3/8	1/16	3.239 ± .024	.066 ± .003
-043	3-1/2	3-5/8	1/16	3.489 ± .024	.066 ± .003
-044	3-3/4	3-7/8	1/16	3.739 ± .027	.066 ± .003
-045	4	4-1/8	1/16	3.989 ± .027	.066 ± .003
-046	4-1/4	4-3/8	1/16	4.239 ± .030	.066 ± .003
-047	4-1/2	4-5/8	1/16	4.489 ± .030	.066 ± .003
-048	4-3/4	4-7/8	1/16	4.739 ± .030	.066 ± .003
-049	5	5-1/8	1/16	4.989 ± .037	.066 ± .003
-050	5-1/4	5-3/8	1/16	5.239 ± .037	.066 ± .003
<b>1/32 - CROSS SECTION</b>					
-102	1/16	1/4	3/32	.049 ± .005	.099 ± .003
-103	3/32	9/32	3/32	.081 ± .005	.099 ± .003
-104	1/8	5/16	3/32	.112 ± .005	.099 ± .003
-105	5/32	11/32	3/32	.143 ± .005	.099 ± .003
-106	3/16	3/8	3/32	.174 ± .005	.099 ± .003
-107	7/32	13/32	3/32	.206 ± .005	.099 ± .003
-108	1/4	7/16	3/32	.237 ± .005	.099 ± .003
-109	5/16	1/2	3/32	.299 ± .005	.099 ± .003
-110	3/8	9/16	3/32	.362 ± .005	.099 ± .003
-111	7/16	5/8	3/32	.424 ± .005	.099 ± .003
-112	1/2	11/16	3/32	.487 ± .005	.099 ± .003
-113	9/16	3/4	3/32	.549 ± .007	.099 ± .003
-114	5/8	13/16	3/32	.612 ± .009	.099 ± .003
-115	11/16	7/8	3/32	.674 ± .009	.099 ± .003
-116	3/4	15/16	3/32	.737 ± .009	.099 ± .003
-117	13/16	1	3/32	.799 ± .010	.099 ± .003

For surface finish information please refer to page 17, Surface Finish: ISO 4287. For ISO tolerance, refer to page 18.

For compound descriptions and temperature ranges, please refer to pages 26-37.

# Square Cut Ring

A product of MFP Seals.

**MFPSEALS**

SR

O-RINGS

DASH NUMBER	NOMINAL SIZE			ACTUAL SIZE	
	ID	OD	C/S	ID	C/S
<b>1/32 - CROSS SECTION</b>					
-118	7/8	1-1/16	3/32	.862 ± .010	.099 ± .003
-119	15/16	1-1/8	3/32	.924 ± .010	.099 ± .003
-120	1	1-3/16	3/32	.987 ± .010	.099 ± .003
-121	1-1/16	1-1/4	3/32	1.049 ± .010	.099 ± .003
-122	1-1/8	1-5/16	3/32	1.112 ± .010	.099 ± .003
-123	1-3/16	1-3/8	3/32	1.174 ± .012	.099 ± .003
-124	1-1/4	1-7/16	3/32	1.237 ± .012	.099 ± .003
-125	1-5/16	1-1/2	3/32	1.299 ± .012	.099 ± .003
-126	1-3/8	1-9/16	3/32	1.362 ± .012	.099 ± .003
-127	1-7/16	1-5/8	3/32	1.424 ± .012	.099 ± .003
-128	1-1/2	1-11/16	3/32	1.487 ± .012	.099 ± .003
-129	1-9/16	1-3/4	3/32	1.549 ± .015	.099 ± .003
-130	1-5/8	1-13/16	3/32	1.612 ± .015	.099 ± .003
-131	1-11/16	1-7/8	3/32	1.674 ± .015	.099 ± .003
-132	1-3/4	1-15/16	3/32	1.737 ± .015	.099 ± .003
-133	1-13/16	2	3/32	1.799 ± .015	.099 ± .003
-134	1-7/8	2-1/16	3/32	1.862 ± .015	.099 ± .003
-135	1-15/16	2-1/8	3/32	1.925 ± .017	.099 ± .003
-136	2	2-3/16	3/32	1.987 ± .017	.099 ± .003
-137	2-1/16	2-1/4	3/32	2.050 ± .017	.099 ± .003
-138	2-1/8	2-5/16	3/32	2.112 ± .017	.099 ± .003
-139	2-3/16	2-3/8	3/32	2.175 ± .017	.099 ± .003
-140	2-1/4	2-7/16	3/32	2.237 ± .017	.099 ± .003
-141	2-5/16	2-1/2	3/32	2.300 ± .020	.099 ± .003
-142	2-3/8	2-9/16	3/32	2.362 ± .020	.099 ± .003
-143	2-7/16	2-5/8	3/32	2.425 ± .020	.099 ± .003
-144	2-1/2	2-11/16	3/32	2.487 ± .020	.099 ± .003
-145	2-9/16	2-3/4	3/32	2.550 ± .020	.099 ± .003
-146	2-5/8	2-13/16	3/32	2.612 ± .020	.099 ± .003
-147	2-11/16	2-7/8	3/32	2.675 ± .022	.099 ± .003
-148	2-3/4	2-15/16	3/32	2.737 ± .022	.099 ± .003
-149	2-13/16	3	3/32	2.800 ± .022	.099 ± .003
-150	2-7/8	3-1/16	3/32	2.862 ± .022	.099 ± .003
-151	3	3-3/16	3/32	2.987 ± .024	.099 ± .003
-152	3-1/4	3-7/16	3/32	3.237 ± .024	.099 ± .003
-153	3-1/2	3-11/16	3/32	3.487 ± .024	.099 ± .003
-154	3-3/4	3-15/16	3/32	3.737 ± .028	.099 ± .003
-155	4	4-3/16	3/32	3.987 ± .028	.099 ± .003
-156	4-1/4	4-7/16	3/32	4.237 ± .030	.099 ± .003
-157	4-1/2	4-11/16	3/32	4.487 ± .030	.099 ± .003
-158	4-3/4	4-15/16	3/32	4.737 ± .030	.099 ± .003
-159	5	5-3/16	3/32	4.987 ± .035	.099 ± .003
-160	5-1/4	5-7/16	3/32	5.237 ± .035	.099 ± .003
-161	5-1/2	5-11/16	3/32	5.487 ± .035	.099 ± .003
-162	5-3/4	5-15/16	3/32	5.737 ± .035	.099 ± .003
-163	6	6-3/16	3/32	5.987 ± .035	.099 ± .003
-164	6-1/4	6-7/16	3/32	6.237 ± .040	.099 ± .003
-165	6-1/2	6-11/16	3/32	6.487 ± .040	.099 ± .003
-166	6-3/4	6-15/16	3/32	6.737 ± .040	.099 ± .003
-167	7	7-3/16	3/32	6.987 ± .040	.099 ± .003
-168	7-1/4	7-7/16	3/32	7.237 ± .045	.099 ± .003
-169	7-1/2	7-11/16	3/32	7.487 ± .045	.099 ± .003
-170	7-3/4	7-15/16	3/32	7.737 ± .045	.099 ± .003

DASH NUMBER	NOMINAL SIZE			ACTUAL SIZE	
	ID	OD	C/S	ID	C/S
<b>3/32 - CROSS SECTION</b>					
-171	8	8-3/16	3/32	7.987 ± .045	.099 ± .003
-172	8-1/4	8-7/16	3/32	8.237 ± .050	.099 ± .003
-173	8-1/2	8-11/16	3/32	8.487 ± .050	.099 ± .003
-174	8-3/4	8-15/16	3/32	8.737 ± .050	.099 ± .003
-175	9	9-3/16	3/32	8.987 ± .050	.099 ± .003
-176	9-1/4	9-7/16	3/32	9.237 ± .055	.099 ± .003
-177	9-1/2	9-11/16	3/32	9.487 ± .055	.099 ± .003
-178	9-3/4	9-15/16	3/32	9.737 ± .055	.099 ± .003
<b>1/8 - CROSS SECTION</b>					
-201	3/16	7/16	1/8	.171 ± .005	.134 ± .004
-202	1/4	1/2	1/8	.234 ± .005	.134 ± .004
-203	5/16	9/16	1/8	.296 ± .005	.134 ± .004
-204	3/8	5/8	1/8	.359 ± .005	.134 ± .004
-205	7/16	11/16	1/8	.421 ± .005	.134 ± .004
-206	1/2	3/4	1/8	.484 ± .005	.134 ± .004
-207	9/16	13/16	1/8	.546 ± .007	.134 ± .004
-208	5/8	7/8	1/8	.609 ± .009	.134 ± .004
-209	11/16	15/16	1/8	.671 ± .009	.134 ± .004
-210	3/4	1	1/8	.734 ± .010	.134 ± .004
-211	13/16	1-1/16	1/8	.796 ± .010	.134 ± .004
-212	7/8	1-1/8	1/8	.859 ± .010	.134 ± .004
-213	15/16	1-3/16	1/8	.921 ± .010	.134 ± .004
-214	1	1-1/4	1/8	.984 ± .010	.134 ± .004
-215	1-1/16	1-5/16	1/8	1.046 ± .010	.134 ± .004
-216	1-1/8	1-3/8	1/8	1.109 ± .012	.134 ± .004
-217	1-3/16	1-7/16	1/8	1.171 ± .012	.134 ± .004
-218	1-1/4	1-1/2	1/8	1.234 ± .012	.134 ± .004
-219	1-5/16	1-9/16	1/8	1.296 ± .012	.134 ± .004
-220	1-3/8	1-5/8	1/8	1.359 ± .012	.134 ± .004
-221	1-7/16	1-11/16	1/8	1.421 ± .012	.134 ± .004
-222	1-1/2	1-3/4	1/8	1.484 ± .015	.134 ± .004
-223	1-5/8	1-7/8	1/8	1.609 ± .015	.134 ± .004
-224	1-3/4	2	1/8	1.734 ± .015	.134 ± .004
-225	1-7/8	2-1/8	1/8	1.859 ± .018	.134 ± .004
-226	2	2-1/4	1/8	1.984 ± .018	.134 ± .004
-227	2-1/8	2-3/8	1/8	2.109 ± .018	.134 ± .004
-228	2-1/4	2-1/2	1/8	2.234 ± .020	.134 ± .004
-229	2-3/8	2-5/8	1/8	2.359 ± .020	.134 ± .004
-230	2-1/2	2-3/4	1/8	2.484 ± .020	.134 ± .004
-231	2-5/8	2-7/8	1/8	2.609 ± .020	.134 ± .004
-232	2-3/4	3	1/8	2.734 ± .024	.134 ± .004
-233	2-7/8	3-1/8	1/8	2.859 ± .024	.134 ± .004
-234	3	3-1/4	1/8	2.984 ± .024	.134 ± .004
-235	3-1/8	3-3/8	1/8	3.109 ± .024	.134 ± .004
-236	3-1/4	3-1/2	1/8	3.234 ± .024	.134 ± .004
-237	3-3/8	3-5/8	1/8	3.359 ± .024	.134 ± .004
-238	3-1/2	3-3/4	1/8	3.484 ± .024	.134 ± .004
-239	3-5/8	3-7/8	1/8	3.609 ± .028	.134 ± .004
-240	3-3/4	4	1/8	3.734 ± .028	.134 ± .004
-241	3-7/8	4-1/8	1/8	3.859 ± .028	.134 ± .004
-242	4	4-1/4	1/8	3.984 ± .028	.134 ± .004
-243	4-1/8	4-3/8	1/8	4.109 ± .028	.134 ± .004
-244	4-1/4	4-1/2	1/8	4.234 ± .030	.134 ± .004

SR

O-RINGS

DASH NUMBER	NOMINAL SIZE			ACTUAL SIZE	
	ID	OD	C/S	ID	C/S
<b>1/8 - CROSS SECTION</b>					
-245	4-3/8	4-5/8	1/8	4.359 ± .030	.134 ± .004
-246	4-1/2	4-3/4	1/8	4.484 ± .030	.134 ± .004
-247	4-5/8	4-7/8	1/8	4.609 ± .030	.134 ± .004
-248	4-3/4	5	1/8	4.734 ± .030	.134 ± .004
-249	4-7/8	5-1/8	1/8	4.859 ± .035	.134 ± .004
-250	5	5-1/4	1/8	4.984 ± .035	.134 ± .004
-251	5-1/8	5-3/8	1/8	5.109 ± .035	.134 ± .004
-252	5-1/4	5-1/2	1/8	5.234 ± .035	.134 ± .004
-253	5-3/8	5-5/8	1/8	5.359 ± .035	.134 ± .004
-254	5-1/2	5-3/4	1/8	5.484 ± .035	.134 ± .004
-255	5-5/8	5-7/8	1/8	5.609 ± .035	.134 ± .004
-256	5-3/4	6	1/8	5.734 ± .035	.134 ± .004
-257	5-7/8	6-1/8	1/8	5.859 ± .035	.134 ± .004
-258	6	6-1/4	1/8	5.984 ± .035	.134 ± .004
-259	6-1/4	6-1/2	1/8	6.234 ± .040	.134 ± .004
-260	6-1/2	6-3/4	1/8	6.484 ± .040	.134 ± .004
-261	6-3/4	7	1/8	6.734 ± .040	.134 ± .004
-262	7	7-1/4	1/8	6.984 ± .040	.134 ± .004
-263	7-1/4	7-1/2	1/8	7.234 ± .045	.134 ± .004
-264	7-1/2	7-3/4	1/8	7.484 ± .045	.134 ± .004
-265	7-3/4	8	1/8	7.734 ± .045	.134 ± .004
-266	8	8-1/4	1/8	7.984 ± .045	.134 ± .004
-267	8-1/4	8-1/2	1/8	8.234 ± .050	.134 ± .004
-268	8-1/2	8-3/4	1/8	8.484 ± .050	.134 ± .004
-269	8-3/4	9	1/8	8.734 ± .050	.134 ± .004
-270	9	9-1/4	1/8	8.984 ± .050	.134 ± .004
-271	9-1/4	9-1/2	1/8	9.234 ± .055	.134 ± .004
-272	9-1/2	9-3/4	1/8	9.484 ± .055	.134 ± .004
-273	9-3/4	10	1/8	9.734 ± .055	.134 ± .004
-274	10	10-1/4	1/8	9.984 ± .055	.134 ± .004
-275	10-1/2	10-3/4	1/8	10.484 ± .055	.134 ± .004
-276	11	11-1/4	1/8	10.984 ± .065	.134 ± .004
-277	11-1/2	11-3/4	1/8	11.484 ± .065	.134 ± .004
-278	12	12-1/4	1/8	11.984 ± .065	.134 ± .004
-279	13	13-1/4	1/8	12.984 ± .065	.134 ± .004
-280	14	14-1/4	1/8	13.984 ± .065	.134 ± .004
-281	15	15-1/4	1/8	14.984 ± .065	.134 ± .004
-282	16	16-1/4	1/8	15.955 ± .075	.134 ± .004
-283	17	17-1/4	1/8	16.955 ± .080	.134 ± .004
-284	18	18-1/4	1/8	17.955 ± .085	.134 ± .004
<b>3/16 - CROSS SECTION</b>					
-309	7/16	13/16	3/16	.412 ± .005	.203 ± .005
-310	1/2	7/8	3/16	.475 ± .005	.203 ± .005
-311	9/16	15/16	3/16	.537 ± .007	.203 ± .005
-312	5/8	1	3/16	.600 ± .009	.203 ± .005
-313	11/16	1-1/16	3/16	.662 ± .009	.203 ± .005
-314	3/4	1-1/8	3/16	.725 ± .010	.203 ± .005
-315	13/16	1-3/16	3/16	.787 ± .010	.203 ± .005
-316	7/8	1-1/4	3/16	.850 ± .010	.203 ± .005
-317	15/16	1-5/16	3/16	.912 ± .010	.203 ± .005
-318	1	1-3/8	3/16	.975 ± .010	.203 ± .005
-319	1-1/16	1-7/16	3/16	1.037 ± .010	.203 ± .005
-320	1-1/8	1-1/2	3/16	1.100 ± .012	.203 ± .005

DASH NUMBER	NOMINAL SIZE			ACTUAL SIZE	
	ID	OD	C/S	ID	C/S
<b>3/16 - CROSS SECTION</b>					
-321	1-3/16	1-9/16	3/16	1.162 ± .012	.203 ± .005
-322	1-1/4	1-5/8	3/16	1.225 ± .012	.203 ± .005
-323	1-5/16	1-11/16	3/16	1.287 ± .012	.203 ± .005
-324	1-3/8	1-3/4	3/16	1.350 ± .012	.203 ± .005
-325	1-1/2	1-7/8	3/16	1.475 ± .015	.203 ± .005
-326	1-5/8	2	3/16	1.600 ± .015	.203 ± .005
-327	1-3/4	2-1/8	3/16	1.725 ± .015	.203 ± .005
-328	1-7/8	2-1/4	3/16	1.850 ± .015	.203 ± .005
-329	2	2-3/8	3/16	1.975 ± .018	.203 ± .005
-330	2-1/8	2-1/2	3/16	2.100 ± .018	.203 ± .005
-331	2-1/4	2-5/8	3/16	2.225 ± .018	.203 ± .005
-332	2-3/8	2-3/4	3/16	2.350 ± .018	.203 ± .005
-333	2-1/2	2-7/8	3/16	2.475 ± .020	.203 ± .005
-334	2-5/8	3	3/16	2.600 ± .020	.203 ± .005
-335	2-3/4	3-1/8	3/16	2.725 ± .020	.203 ± .005
-336	2-7/8	3-1/4	3/16	2.850 ± .020	.203 ± .005
-337	3	3-3/8	3/16	2.975 ± .024	.203 ± .005
-338	3-1/8	3-1/2	3/16	3.100 ± .024	.203 ± .005
-339	3-1/4	3-5/8	3/16	3.225 ± .024	.203 ± .005
-340	3-3/8	3-3/4	3/16	3.350 ± .024	.203 ± .005
-341	3-1/2	3-7/8	3/16	3.475 ± .024	.203 ± .005
-342	3-5/8	4	3/16	3.600 ± .028	.203 ± .005
-343	3-3/4	4-1/8	3/16	3.725 ± .028	.203 ± .005
-344	3-7/8	4-1/4	3/16	3.850 ± .028	.203 ± .005
-345	4	4-3/8	3/16	3.975 ± .028	.203 ± .005
-346	4-1/8	4-1/2	3/16	4.100 ± .028	.203 ± .005
-347	4-1/4	4-5/8	3/16	4.225 ± .030	.203 ± .005
-348	4-3/8	4-3/4	3/16	4.350 ± .030	.203 ± .005
-349	4-1/2	4-7/8	3/16	4.475 ± .030	.203 ± .005
-350	4-5/8	5	3/16	4.600 ± .030	.203 ± .005
-351	4-3/4	5-1/8	3/16	4.725 ± .030	.203 ± .005
-352	4-7/8	5-1/4	3/16	4.850 ± .030	.203 ± .005
-353	5	5-3/8	3/16	4.975 ± .037	.203 ± .005
-354	5-1/8	5-1/2	3/16	5.100 ± .037	.203 ± .005
-355	5-1/4	5-5/8	3/16	5.225 ± .037	.203 ± .005
-356	5-3/8	5-3/4	3/16	5.350 ± .037	.203 ± .005
-357	5-1/2	5-7/8	3/16	5.475 ± .037	.203 ± .005
-358	5-5/8	6	3/16	5.600 ± .037	.203 ± .005
-359	5-3/4	6-1/8	3/16	5.725 ± .037	.203 ± .005
-360	5-7/8	6-1/4	3/16	5.850 ± .037	.203 ± .005
-361	6	6-3/8	3/16	5.975 ± .037	.203 ± .005
-362	6-1/4	6-5/8	3/16	6.225 ± .040	.203 ± .005
-363	6-1/2	6-7/8	3/16	6.475 ± .040	.203 ± .005
-364	6-3/4	7-1/8	3/16	6.725 ± .040	.203 ± .005
-365	7	7-3/8	3/16	6.975 ± .040	.203 ± .005
-366	7-1/4	7-5/8	3/16	7.225 ± .045	.203 ± .005
-367	7-1/2	7-7/8	3/16	7.475 ± .045	.203 ± .005
-368	7-3/4	8-1/8	3/16	7.725 ± .045	.203 ± .005
-369	8	8-3/8	3/16	7.975 ± .045	.203 ± .005
-370	8-1/4	8-5/8	3/16	8.225 ± .050	.203 ± .005
-371	8-1/2	8-7/8	3/16	8.475 ± .050	.203 ± .005
-372	8-3/4	9-1/8	3/16	8.725 ± .050	.203 ± .005
-373	9	9-3/8	3/16	8.975 ± .050	.203 ± .005

For surface finish information please refer to page 17, Surface Finish: ISO 4287. For ISO tolerance, refer to page 18.

For compound descriptions and temperature ranges, please refer to pages 26-37.

# Square Cut Ring

A product of MFP Seals.

**MFPSEALS**

SR

O-RINGS

DASH NUMBER	NOMINAL SIZE			ACTUAL SIZE	
	ID	OD	C/S	ID	C/S
<b>3/16 - CROSS SECTION</b>					
-374	9-1/4	9-5/8	3/16	9.225 ± .055	.203 ± .005
-375	9-1/2	9-7/8	3/16	9.475 ± .055	.203 ± .005
-376	9-3/4	10-1/8	3/16	9.725 ± .055	.203 ± .005
-377	10	10-3/8	3/16	9.975 ± .055	.203 ± .005
-378	10-1/2	10-7/8	3/16	10.475 ± .060	.203 ± .005
-379	11	11-3/8	3/16	10.975 ± .060	.203 ± .005
-380	11-1/2	11-7/8	3/16	11.475 ± .065	.203 ± .005
-381	12	12-3/8	3/16	11.975 ± .065	.203 ± .005
-382	13	13-3/8	3/16	12.975 ± .065	.203 ± .005
-383	14	14-3/8	3/16	13.975 ± .070	.203 ± .005
-384	15	15-3/8	3/16	14.975 ± .070	.203 ± .005
-385	16	16-3/8	3/16	15.955 ± .075	.203 ± .005
-386	17	17-3/8	3/16	16.955 ± .080	.203 ± .005
-387	18	18-3/8	3/16	17.955 ± .085	.203 ± .005
-388	19	19-3/8	3/16	18.955 ± .090	.203 ± .005
-389	20	20-3/8	3/16	19.955 ± .095	.203 ± .005
-390	21	21-3/8	3/16	20.955 ± .095	.203 ± .005
-391	22	22-3/8	3/16	21.955 ± .100	.203 ± .005
-392	23	23-3/8	3/16	22.940 ± .105	.203 ± .005
-393	24	24-3/8	3/16	23.940 ± .110	.203 ± .005
-394	25	25-3/8	3/16	24.940 ± .115	.203 ± .005
-395	26	26-3/8	3/16	25.940 ± .120	.203 ± .005
<b>1/4 - CROSS SECTION</b>					
-400	1-3/8	1-7/8	1/4	1.350 ± .014	.265 ± .006
-401	1-1/2	2	1/4	1.475 ± .014	.265 ± .006
-402	1-5/8	2-1/8	1/4	1.600 ± .015	.265 ± .006
-403	1-3/4	2-1/4	1/4	1.725 ± .016	.265 ± .006
-404	1-7/8	2-3/8	1/4	1.850 ± .016	.265 ± .006
-405	2	2-1/2	1/4	1.975 ± .017	.265 ± .006
-406	2-1/8	2-5/8	1/4	2.100 ± .018	.265 ± .006
-407	2-1/4	2-3/4	1/4	2.225 ± .018	.265 ± .006
-408	2-3/8	2-7/8	1/4	2.350 ± .020	.265 ± .006
-409	2-1/2	3	1/4	2.475 ± .020	.265 ± .006
-410	2-5/8	3-1/8	1/4	2.600 ± .020	.265 ± .006
-411	2-3/4	3-1/4	1/4	2.725 ± .022	.265 ± .006
-412	2-7/8	3-3/8	1/4	2.850 ± .022	.265 ± .006
-413	3	3-1/2	1/4	2.975 ± .024	.265 ± .006
-414	3-1/8	3-5/8	1/4	3.100 ± .024	.265 ± .006
-415	3-1/4	3-3/4	1/4	3.225 ± .024	.265 ± .006
-416	3-3/8	3-7/8	1/4	3.350 ± .026	.265 ± .006
-417	3-1/2	4	1/4	3.475 ± .026	.265 ± .006
-418	3-5/8	4-1/8	1/4	3.600 ± .026	.265 ± .006
-419	3-3/4	4-1/4	1/4	3.725 ± .028	.265 ± .006
-420	3-7/8	3-3/8	1/4	3.850 ± .028	.265 ± .006
-421	4	4-1/2	1/4	3.975 ± .028	.265 ± .006
-422	4-1/8	4-5/8	1/4	4.100 ± .030	.265 ± .006
-423	4-1/4	4-3/4	1/4	4.225 ± .030	.265 ± .006
-424	4-3/8	4-7/8	1/4	4.350 ± .030	.265 ± .006
-425	4-1/2	5	1/4	4.475 ± .033	.265 ± .006
-426	4-5/8	5-1/8	1/4	4.600 ± .033	.265 ± .006
-427	4-3/4	5-1/4	1/4	4.725 ± .033	.265 ± .006
-428	4-7/8	5-3/8	1/4	4.850 ± .033	.265 ± .006
-429	5	5-1/2	1/4	4.975 ± .037	.265 ± .006

DASH NUMBER	NOMINAL SIZE			ACTUAL SIZE	
	ID	OD	C/S	ID	C/S
<b>1/4 - CROSS SECTION</b>					
-430	5-1/8	5-5/8	1/4	5.100 ± .037	.265 ± .006
-431	5-1/4	5-3/4	1/4	5.225 ± .037	.265 ± .006
-432	5-3/8	5-7/8	1/4	5.350 ± .037	.265 ± .006
-433	5-1/2	6	1/4	5.475 ± .037	.265 ± .006
-434	5-5/8	6-1/8	1/4	5.600 ± .037	.265 ± .006
-435	5-3/4	6-1/4	1/4	5.725 ± .037	.265 ± .006
-436	5-7/8	6-3/8	1/4	5.850 ± .037	.265 ± .006
-437	6	6-1/2	1/4	5.975 ± .037	.265 ± .006
-438	6-1/4	6-3/4	1/4	6.225 ± .040	.265 ± .006
-439	6-1/2	7	1/4	6.475 ± .040	.265 ± .006
-440	6-3/4	7-1/4	1/4	6.725 ± .040	.265 ± .006
-441	7	7-1/2	1/4	6.975 ± .040	.265 ± .006
-442	7-1/4	7-3/4	1/4	7.225 ± .045	.265 ± .006
-443	7-1/2	8	1/4	7.475 ± .045	.265 ± .006
-444	7-3/4	8-1/4	1/4	7.725 ± .045	.265 ± .006
-445	8	8-1/2	1/4	7.975 ± .045	.265 ± .006
-446	8-1/2	9	1/4	8.475 ± .055	.265 ± .006
-447	9	9-1/2	1/4	8.975 ± .055	.265 ± .006
-448	9-1/2	10	1/4	9.475 ± .055	.265 ± .006
-449	10	10-1/2	1/4	9.975 ± .055	.265 ± .006
-450	10-1/2	11	1/4	10.475 ± .060	.265 ± .006
-451	11	11-1/2	1/4	10.975 ± .060	.265 ± .006
-452	11-1/2	12	1/4	11.475 ± .060	.265 ± .006
-453	12	12-1/2	1/4	11.975 ± .060	.265 ± .006
-454	12-1/2	13	1/4	12.475 ± .060	.265 ± .006
-455	13	13-1/2	1/4	12.975 ± .060	.265 ± .006
-456	13-1/2	14	1/4	13.475 ± .070	.265 ± .006
-457	14	14-1/2	1/4	13.975 ± .070	.265 ± .006
-458	14-1/2	15	1/4	14.475 ± .070	.265 ± .006
-459	15	15-1/2	1/4	14.975 ± .070	.265 ± .006
-460	15-1/2	16	1/4	15.475 ± .070	.265 ± .006
-461	16	16-1/2	1/4	15.955 ± .075	.265 ± .006
-462	16-1/2	17	1/4	16.455 ± .075	.265 ± .006
-463	17	17-1/2	1/4	16.955 ± .080	.265 ± .006
-464	17-1/2	18	1/4	17.455 ± .085	.265 ± .006
-465	18	18-1/2	1/4	17.955 ± .085	.265 ± .006
-466	18-1/2	19	1/4	18.455 ± .085	.265 ± .006
-467	19	19-1/2	1/4	18.955 ± .090	.265 ± .006
-468	19-1/2	20	1/4	19.455 ± .090	.265 ± .006
-469	20	20-1/2	1/4	19.955 ± .095	.265 ± .006
-470	21	21-1/2	1/4	20.955 ± .095	.265 ± .006
-471	22	22-1/2	1/4	21.955 ± .100	.265 ± .006
-472	23	23-1/2	1/4	22.940 ± .105	.265 ± .006
-473	24	24-1/2	1/4	23.940 ± .110	.265 ± .006
-474	25	25-1/2	1/4	24.940 ± .115	.265 ± .006
-475	26	26-1/2	1/4	25.940 ± .120	.265 ± .006





**X-RINGS**

X-Rings are designed to retrofit AS568 O-Ring grooves but offer two contact points on the sealing surface vs. one with an O-Ring. This dual sealing lip feature gives positive sealing with reduced radial squeeze, and thus reduced friction. By reducing the friction you find a reduction in wear, giving the seal a longer service life over the standard O-Ring design. X-Rings are excellent for use in rotary applications and for providing seal stability due to a design that resists twisting in the groove.

*The standard compound for this seal is N6014.  
Other compounds available.*



**MFP PART NUMBERS**

**XR-004N6014**

SEAL TYPE | COMPOUND  
AS568D DASH #

**XR**

**O-RINGS**

*X-Rings are available in standard AS568 sizes.*

*Please refer to the appropriate dash number from the chart on page 38.*

*For more information about this product,  
please contact your MFP Seals' Sales Representative.*



# Extruded O-Ring Cord Stock

A product of MFP Seals.

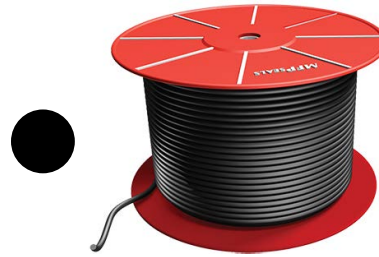


## Extruded O-Ring Cord Stock

Extruded O-Ring cord is used whenever a standard size O-Ring will not fit a particular groove, or where a split O-Ring is required for the application. O-Ring cord can be trimmed to any length, providing a custom fit. Sold by the foot or spool.

Also available in metric sizes (See MORC).

*The standard compound for this seal is N6001.  
It is also available in N6003, V7525 and V7550.*



### MFP PART NUMBERS

**ORC-070N6001**

SEAL TYPE | COMPOUND  
CROSS SECTION

ORC

O-RINGS

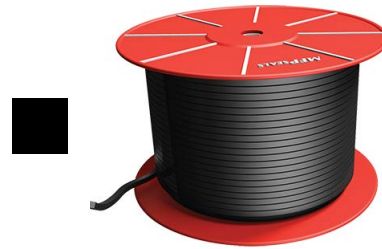
### EXTRUDED O-RING CORD STOCK

MFP PART NUMBER	NOMINAL	ACTUAL	TOL +/-
ORC-070	0.062	0.070	0.005
ORC-093	0.937	0.093	0.005
ORC-103	0.937	0.103	0.005
ORC-125	0.125	0.125	0.005
ORC-139	0.125	0.139	0.005
ORC-156	0.156	0.156	0.007
ORC-187	0.187	0.188	0.007
ORC-210	0.187	0.210	0.007
ORC-250	0.250	0.250	0.007
ORC-275	0.250	0.275	0.007
ORC-313	0.312	0.313	0.010
ORC-375	0.375	0.375	0.010
ORC-437	0.437	0.437	0.010
ORC-500	0.500	0.500	0.010
ORC-625	0.625	0.625	0.015
ORC-750	0.750	0.750	0.015
ORC-1000	1.000	1.000	0.020

**Extruded Square Cut Cord Stock**

Extruded Square Ring cord is used whenever a standard size Square Ring will not fit a particular groove, or where a split Square Ring is required for the application. Square Ring cord can be trimmed to any length, providing a custom fit. Sold by the foot or spool.

*The standard compound for this seal is N6001.  
It is also available in N6003.*



**MFP PART NUMBERS**

**SRC-099N6001**

SEAL TYPE | COMPOUND  
CROSS SECTION

SRC

O-RINGS

EXTRUDED O-RING CORD STOCK			
MFP PART NUMBER	NOMINAL	ACTUAL	TOL +/-
SRC-099	0.093	0.099	0.005
SRC-134	0.125	0.134	0.006
SRC-156	0.156	0.156	0.007
SRC-203	0.187	0.203	0.007
SRC-266	0.250	0.266	0.007
SRC-313	0.312	0.313	0.010
SRC-375	0.375	0.375	0.010
SRC-437	0.437	0.437	0.010
SRC-500	0.500	0.500	0.010
SRC-562	0.562	0.562	0.015
SRC-625	0.625	0.625	0.015
SRC-750	0.750	0.750	0.015
SRC-1000	1.000	1.000	0.025



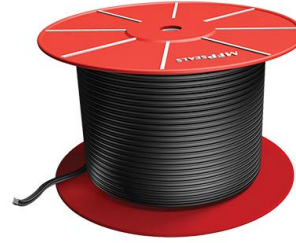
# Extruded X-Ring Cord Stock

A product of MFP Seals.



## Extruded X-Ring Cord Stock

Extruded X-Ring cord is used whenever a standard size X-Ring will not fit a particular groove, or where a split X-Ring is required for the application. X-Ring cord can be trimmed to any length, providing a custom fit. Sold by the foot or spool.



The standard compound for this seal is N6001.  
It is also available in N6003.

### MFP PART NUMBERS

## XRC-210N6001

SEAL TYPE | COMPOUND  
CROSS SECTION

### EXTRUDED O-RING CORD STOCK

MFP PART NUMBER	NOMINAL	ACTUAL	TOL +/-
XRC-103	0.093	0.103	0.008
XRC-139	0.125	0.139	0.008
XRC-210	0.187	0.210	0.011
XRC-275	0.250	0.275	0.011

XRC

O-RINGS



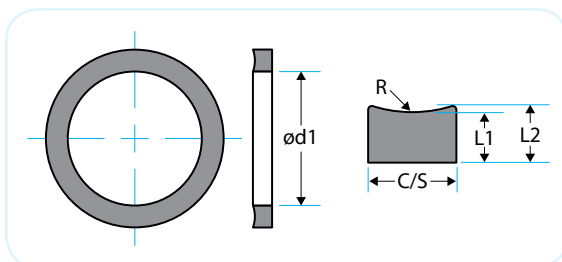
**Contoured Back-Up Ring**

Contoured Back-Up Rings are designed to help prevent extrusion and extend the life of an O-Ring, in either static or dynamic sealing applications.

The Contoured Back-Up Ring has a concave surface providing consistent contact with the O-Ring. The part number corresponds to AS568D Dash # for a proper fit.



The standard compound for this seal is N6003.  
It is also available in V7165.



**MFP PART NUMBERS**

**BU-004N6003**

SEAL TYPE | COMPOUND  
AS568D DASH #

**CONTOURED BACK-UP RING**

MFP PART NUMBER	ød1	+/-	R	L2	L1	C/S
<b>.053" C/S WIDTH</b>			+/- .010	+/- .003	+/- .003	+/- .003
BU-004	0.096	0.005	0.087	0.047	0.045	0.053
BU-005	0.127	0.005	0.087	0.047	0.045	0.053
BU-006	0.140	0.005	0.087	0.047	0.045	0.053
BU-007	0.171	0.005	0.087	0.047	0.045	0.053
BU-008	0.202	0.005	0.087	0.047	0.045	0.053
BU-009	0.234	0.005	0.087	0.047	0.045	0.053
BU-010	0.265	0.005	0.087	0.047	0.045	0.053
BU-011	0.327	0.005	0.087	0.047	0.045	0.053
BU-012	0.390	0.005	0.087	0.047	0.045	0.053
BU-013	0.455	0.005	0.087	0.047	0.045	0.053
BU-014	0.518	0.005	0.087	0.047	0.045	0.053
BU-015	0.580	0.007	0.087	0.047	0.045	0.053
BU-016	0.643	0.009	0.087	0.047	0.045	0.053
BU-017	0.705	0.009	0.087	0.047	0.045	0.053
BU-018	0.768	0.009	0.087	0.047	0.045	0.053
BU-019	0.830	0.009	0.087	0.047	0.045	0.053
BU-020	0.893	0.009	0.087	0.047	0.045	0.053
BU-021	0.955	0.009	0.087	0.047	0.045	0.053
BU-022	1.018	0.010	0.087	0.047	0.045	0.053
BU-023	1.080	0.010	0.087	0.047	0.045	0.053
BU-024	1.143	0.010	0.087	0.047	0.045	0.053
BU-025	1.205	0.011	0.087	0.047	0.045	0.053
BU-026	1.268	0.011	0.087	0.047	0.045	0.053
BU-027	1.330	0.011	0.087	0.047	0.045	0.053
BU-028	1.393	0.013	0.087	0.047	0.045	0.053
BU-029	1.518	0.013	0.087	0.047	0.045	0.053
BU-030	1.643	0.013	0.087	0.047	0.045	0.053

BU



# Contoured Back-Up Ring

A product of MFP Seals.

**MFPSEALS**

BACK-UP RINGS

BU

MFP PART NUMBER	CONTOURED BACK-UP RING					
	ød1	+/-	R	L2	L1	C/S
<b>.053" C/S WIDTH</b>			+/- .010	+/- .003	+/- .003	+/- .003
BU-031	1.768	0.015	0.087	0.047	0.045	0.053
BU-032	1.893	0.015	0.087	0.047	0.045	0.053
BU-033	2.018	0.018	0.087	0.047	0.045	0.053
BU-034	2.143	0.018	0.087	0.047	0.045	0.053
BU-035	2.268	0.018	0.087	0.047	0.045	0.053
BU-036	2.393	0.018	0.087	0.047	0.045	0.053
BU-037	2.518	0.018	0.087	0.047	0.045	0.053
BU-038	2.643	0.020	0.087	0.047	0.045	0.053
BU-039	2.768	0.020	0.087	0.047	0.045	0.053
BU-040	2.893	0.020	0.087	0.047	0.045	0.053
BU-041	3.018	0.024	0.087	0.047	0.045	0.053
BU-042	3.268	0.024	0.087	0.047	0.045	0.053
BU-043	3.518	0.024	0.087	0.047	0.045	0.053
BU-044	3.768	0.027	0.087	0.047	0.045	0.053
BU-045	4.018	0.027	0.087	0.047	0.045	0.053
BU-046	4.268	0.030	0.087	0.047	0.045	0.053
BU-047	4.518	0.030	0.087	0.047	0.045	0.053
BU-048	4.768	0.030	0.087	0.047	0.045	0.053
BU-049	5.018	0.037	0.087	0.047	0.045	0.053
BU-050	5.268	0.037	0.087	0.047	0.045	0.053
<b>.086" C/S WIDTH</b>			+/- .010	+/- .003	+/- .003	+/- .003
BU-102	0.077	0.005	0.129	0.050	0.045	0.086
BU-103	0.109	0.005	0.129	0.050	0.045	0.086
BU-104	0.140	0.005	0.129	0.050	0.045	0.086
BU-105	0.171	0.005	0.129	0.050	0.045	0.086
BU-106	0.202	0.005	0.129	0.050	0.045	0.086
BU-107	0.234	0.005	0.129	0.050	0.045	0.086
BU-108	0.265	0.005	0.129	0.050	0.045	0.086
BU-109	0.327	0.005	0.129	0.050	0.045	0.086
BU-110	0.390	0.005	0.129	0.050	0.045	0.086
BU-111	0.452	0.005	0.129	0.050	0.045	0.086
BU-112	0.515	0.005	0.129	0.050	0.045	0.086
BU-113	0.577	0.007	0.129	0.050	0.045	0.086
BU-114	0.640	0.009	0.129	0.050	0.045	0.086
BU-115	0.702	0.009	0.129	0.050	0.045	0.086
BU-116	0.765	0.009	0.129	0.050	0.045	0.086
BU-117	0.831	0.010	0.129	0.050	0.045	0.086
BU-118	0.893	0.010	0.129	0.050	0.045	0.086
BU-119	0.956	0.010	0.129	0.050	0.045	0.086
BU-120	1.018	0.010	0.129	0.050	0.045	0.086
BU-121	1.081	0.010	0.129	0.050	0.045	0.086
BU-122	1.143	0.010	0.129	0.050	0.045	0.086
BU-123	1.206	0.012	0.129	0.050	0.045	0.086
BU-124	1.268	0.012	0.129	0.050	0.045	0.086
BU-125	1.331	0.012	0.129	0.050	0.045	0.086
BU-126	1.393	0.012	0.129	0.050	0.045	0.086
BU-127	1.456	0.012	0.129	0.050	0.045	0.086



MFP PART NUMBER	CONTOURED BACK-UP RING					
	ød1	+/-	R	L2	L1	C/S
<b>.086" C/S WIDTH</b>			+/- .010	+/- .003	+/- .003	+/- .003
BU-128	1.518	0.012	0.129	0.050	0.045	0.086
BU-129	1.581	0.015	0.129	0.050	0.045	0.086
BU-130	1.643	0.015	0.129	0.050	0.045	0.086
BU-131	1.706	0.015	0.129	0.050	0.045	0.086
BU-132	1.768	0.015	0.129	0.050	0.045	0.086
BU-133	1.831	0.015	0.129	0.050	0.045	0.086
BU-134	1.893	0.015	0.129	0.050	0.045	0.086
BU-135	1.956	0.017	0.129	0.050	0.045	0.086
BU-136	2.018	0.017	0.129	0.050	0.045	0.086
BU-137	2.081	0.017	0.129	0.050	0.045	0.086
BU-138	2.143	0.017	0.129	0.050	0.045	0.086
BU-139	2.206	0.017	0.129	0.050	0.045	0.086
BU-140	2.268	0.017	0.129	0.050	0.045	0.086
BU-141	2.331	0.020	0.129	0.050	0.045	0.086
BU-142	2.393	0.020	0.129	0.050	0.045	0.086
BU-143	2.456	0.020	0.129	0.050	0.045	0.086
BU-144	2.518	0.020	0.129	0.050	0.045	0.086
BU-145	2.581	0.020	0.129	0.050	0.045	0.086
BU-146	2.643	0.020	0.129	0.050	0.045	0.086
BU-147	2.706	0.022	0.129	0.050	0.045	0.086
BU-148	2.768	0.022	0.129	0.050	0.045	0.086
BU-149	2.831	0.022	0.129	0.050	0.045	0.086
BU-150	2.893	0.022	0.129	0.050	0.045	0.086
BU-151	3.018	0.024	0.129	0.050	0.045	0.086
BU-152	3.268	0.024	0.129	0.050	0.045	0.086
BU-153	3.518	0.024	0.129	0.050	0.045	0.086
BU-154	3.768	0.028	0.129	0.050	0.045	0.086
BU-155	4.018	0.028	0.129	0.050	0.045	0.086
BU-156	4.268	0.030	0.129	0.050	0.045	0.086
BU-157	4.518	0.030	0.129	0.050	0.045	0.086
BU-158	4.768	0.030	0.129	0.050	0.045	0.086
BU-159	5.018	0.035	0.129	0.050	0.045	0.086
BU-160	5.268	0.035	0.129	0.050	0.045	0.086
BU-161	5.518	0.035	0.129	0.050	0.045	0.086
BU-162	5.768	0.035	0.129	0.050	0.045	0.086
BU-163	6.018	0.035	0.129	0.050	0.045	0.086
BU-164	6.268	0.040	0.129	0.050	0.045	0.086
BU-165	6.518	0.040	0.129	0.050	0.045	0.086
BU-166	6.768	0.040	0.129	0.050	0.045	0.086
BU-167	7.018	0.040	0.129	0.050	0.045	0.086
BU-168	7.268	0.045	0.129	0.050	0.045	0.086
BU-169	7.518	0.045	0.129	0.050	0.045	0.086
BU-170	7.768	0.045	0.129	0.050	0.045	0.086
BU-171	8.018	0.045	0.129	0.050	0.045	0.086
BU-172	8.268	0.050	0.129	0.050	0.045	0.086
BU-173	8.518	0.050	0.129	0.050	0.045	0.086
BU-174	8.768	0.050	0.129	0.050	0.045	0.086



# Contoured Back-Up Ring

A product of MFP Seals.



BACK-UP RINGS

BU

MFP PART NUMBER	CONTOURED BACK-UP RING					
	ød1	+/-	R	L2	L1	C/S
<b>.086" C/S WIDTH</b>						
BU-175	9.018	0.050	0.129	0.050	0.045	0.086
BU-176	9.268	0.055	0.129	0.050	0.045	0.086
BU-177	9.518	0.055	0.129	0.050	0.045	0.086
BU-178	9.768	0.055	0.129	0.050	0.045	0.086
<b>.118" C/S WIDTH</b>						
BU-201	0.202	0.005	0.174	0.048	0.040	0.118
BU-202	0.265	0.005	0.174	0.048	0.040	0.118
BU-203	0.327	0.005	0.174	0.048	0.040	0.118
BU-204	0.390	0.005	0.174	0.048	0.040	0.118
BU-205	0.455	0.005	0.174	0.048	0.040	0.118
BU-206	0.518	0.005	0.174	0.048	0.040	0.118
BU-207	0.580	0.007	0.174	0.048	0.040	0.118
BU-208	0.643	0.009	0.174	0.048	0.040	0.118
BU-209	0.705	0.009	0.174	0.048	0.040	0.118
BU-210	0.766	0.010	0.174	0.048	0.040	0.118
BU-211	0.828	0.010	0.174	0.048	0.040	0.118
BU-212	0.891	0.010	0.174	0.048	0.040	0.118
BU-213	0.953	0.010	0.174	0.048	0.040	0.118
BU-214	1.016	0.010	0.174	0.048	0.040	0.118
BU-215	1.078	0.010	0.174	0.048	0.040	0.118
BU-216	1.141	0.012	0.174	0.048	0.040	0.118
BU-217	1.203	0.012	0.174	0.048	0.040	0.118
BU-218	1.266	0.012	0.174	0.048	0.040	0.118
BU-219	1.334	0.012	0.174	0.048	0.040	0.118
BU-220	1.397	0.012	0.174	0.048	0.040	0.118
BU-221	1.459	0.012	0.174	0.048	0.040	0.118
BU-222	1.522	0.015	0.174	0.048	0.040	0.118
BU-223	1.647	0.015	0.174	0.048	0.040	0.118
BU-224	1.772	0.015	0.174	0.048	0.040	0.118
BU-225	1.897	0.018	0.174	0.048	0.040	0.118
BU-226	2.022	0.018	0.174	0.048	0.040	0.118
BU-227	2.147	0.018	0.174	0.048	0.040	0.118
BU-228	2.272	0.020	0.174	0.048	0.040	0.118
BU-229	2.397	0.020	0.174	0.048	0.040	0.118
BU-230	2.522	0.020	0.174	0.048	0.040	0.118
BU-231	2.631	0.020	0.174	0.048	0.040	0.118
BU-232	2.756	0.024	0.174	0.048	0.040	0.118
BU-233	2.881	0.024	0.174	0.048	0.040	0.118
BU-234	3.006	0.024	0.174	0.048	0.040	0.118
BU-235	3.131	0.024	0.174	0.048	0.040	0.118
BU-236	3.256	0.024	0.174	0.048	0.040	0.118
BU-237	3.381	0.024	0.174	0.048	0.040	0.118
BU-238	3.506	0.024	0.174	0.048	0.040	0.118
BU-239	3.631	0.028	0.174	0.048	0.040	0.118
BU-240	3.756	0.028	0.174	0.048	0.040	0.118
BU-241	3.881	0.028	0.174	0.048	0.040	0.118
BU-242	4.006	0.028	0.174	0.048	0.040	0.118



BACK-UP RINGS

BU

MFP PART NUMBER	CONTOURED BACK-UP RING					
	ød1	+/-	R	L2	L1	C/S
<b>.118" C/S WIDTH</b>			+/- .010	+/- .003	+/- .003	+/- .004
BU-243	4.131	0.028	0.174	0.048	0.040	0.118
BU-244	4.256	0.030	0.174	0.048	0.040	0.118
BU-245	4.381	0.030	0.174	0.048	0.040	0.118
BU-246	4.506	0.030	0.174	0.048	0.040	0.118
BU-247	4.631	0.030	0.174	0.048	0.040	0.118
BU-248	4.768	0.030	0.174	0.048	0.040	0.118
BU-249	4.893	0.035	0.174	0.048	0.040	0.118
BU-250	5.018	0.035	0.174	0.048	0.040	0.118
BU-251	5.143	0.035	0.174	0.048	0.040	0.118
BU-252	5.268	0.035	0.174	0.048	0.040	0.118
BU-253	5.393	0.035	0.174	0.048	0.040	0.118
BU-254	5.518	0.035	0.174	0.048	0.040	0.118
BU-255	5.643	0.035	0.174	0.048	0.040	0.118
BU-256	5.768	0.035	0.174	0.048	0.040	0.118
BU-257	5.893	0.035	0.174	0.048	0.040	0.118
BU-258	6.018	0.035	0.174	0.048	0.040	0.118
BU-259	6.268	0.040	0.174	0.048	0.040	0.118
BU-260	6.518	0.040	0.174	0.048	0.040	0.118
BU-261	6.768	0.040	0.174	0.048	0.040	0.118
BU-262	7.018	0.040	0.174	0.048	0.040	0.118
BU-263	7.268	0.045	0.174	0.048	0.040	0.118
BU-264	7.518	0.045	0.174	0.048	0.040	0.118
BU-265	7.768	0.045	0.174	0.048	0.040	0.118
BU-266	8.018	0.045	0.174	0.048	0.040	0.118
BU-267	8.268	0.050	0.174	0.048	0.040	0.118
BU-268	8.518	0.050	0.174	0.048	0.040	0.118
BU-269	8.768	0.050	0.174	0.048	0.040	0.118
BU-270	9.018	0.050	0.174	0.048	0.040	0.118
BU-271	9.268	0.055	0.174	0.048	0.040	0.118
BU-272	9.518	0.055	0.174	0.048	0.040	0.118
BU-273	9.768	0.055	0.174	0.048	0.040	0.118
BU-274	10.018	0.055	0.174	0.048	0.040	0.118
BU-275	10.518	0.055	0.174	0.048	0.040	0.118
BU-276	11.018	0.065	0.174	0.048	0.040	0.118
BU-277	11.518	0.065	0.174	0.048	0.040	0.118
BU-278	12.018	0.065	0.174	0.048	0.040	0.118
BU-279	13.018	0.065	0.174	0.048	0.040	0.118
BU-280	14.018	0.065	0.174	0.048	0.040	0.118
BU-281	15.018	0.065	0.174	0.048	0.040	0.118
BU-282	15.989	0.075	0.174	0.048	0.040	0.118
BU-283	16.989	0.080	0.174	0.048	0.040	0.118
BU-284	17.989	0.085	0.174	0.048	0.040	0.118
<b>.183" C/S WIDTH</b>			+/- .010	+/- .004	+/- .004	+/- .005
BU-309	0.450	0.005	0.262	0.074	0.060	0.183
BU-310	0.513	0.005	0.262	0.074	0.060	0.183
BU-311	0.575	0.007	0.262	0.074	0.060	0.183
BU-312	0.638	0.009	0.262	0.074	0.060	0.183

For surface finish information please refer to page 17, Surface Finish: ISO 4287. For ISO tolerance, refer to page 18.

For compound descriptions and temperature ranges, please refer to pages 26-37.



# Contoured Back-Up Ring

A product of MFP Seals.



BACK-UP RINGS

BU

MFP PART NUMBER	CONTOURED BACK-UP RING					
	ød1	+/-	R	L2	L1	C/S
<b>.183" C/S WIDTH</b>			+/- .010	+/- .004	+/- .004	+/- .005
BU-313	0.700	0.009	0.262	0.074	0.060	0.183
BU-314	0.763	0.010	0.262	0.074	0.060	0.183
BU-315	0.825	0.010	0.262	0.074	0.060	0.183
BU-316	0.888	0.010	0.262	0.074	0.060	0.183
BU-317	0.950	0.010	0.262	0.074	0.060	0.183
BU-318	1.013	0.010	0.262	0.074	0.060	0.183
BU-319	1.075	0.010	0.262	0.074	0.060	0.183
BU-320	1.138	0.012	0.262	0.074	0.060	0.183
BU-321	1.200	0.012	0.262	0.074	0.060	0.183
BU-322	1.263	0.012	0.262	0.074	0.060	0.183
BU-323	1.316	0.012	0.262	0.074	0.060	0.183
BU-324	1.388	0.012	0.262	0.074	0.060	0.183
BU-325	1.513	0.015	0.262	0.074	0.060	0.183
BU-326	1.638	0.015	0.262	0.074	0.060	0.183
BU-327	1.763	0.015	0.262	0.074	0.060	0.183
BU-328	1.888	0.015	0.262	0.074	0.060	0.183
BU-329	2.013	0.018	0.262	0.074	0.060	0.183
BU-330	2.138	0.018	0.262	0.074	0.060	0.183
BU-331	2.268	0.018	0.262	0.074	0.060	0.183
BU-332	2.393	0.018	0.262	0.074	0.060	0.183
BU-333	2.518	0.020	0.262	0.074	0.060	0.183
BU-334	2.643	0.020	0.262	0.074	0.060	0.183
BU-335	2.768	0.020	0.262	0.074	0.060	0.183
BU-336	2.893	0.020	0.262	0.074	0.060	0.183
BU-337	3.018	0.024	0.262	0.074	0.060	0.183
BU-338	3.143	0.024	0.262	0.074	0.060	0.183
BU-339	3.273	0.024	0.262	0.074	0.060	0.183
BU-340	3.398	0.024	0.262	0.074	0.060	0.183
BU-341	3.523	0.024	0.262	0.074	0.060	0.183
BU-342	3.648	0.028	0.262	0.074	0.060	0.183
BU-343	3.773	0.028	0.262	0.074	0.060	0.183
BU-344	3.898	0.028	0.262	0.074	0.060	0.183
BU-345	4.028	0.028	0.262	0.074	0.060	0.183
BU-346	4.153	0.028	0.262	0.074	0.060	0.183
BU-347	4.278	0.030	0.262	0.074	0.060	0.183
BU-348	4.403	0.030	0.262	0.074	0.060	0.183
BU-349	4.528	0.030	0.262	0.074	0.060	0.183
BU-350	4.653	0.030	0.262	0.074	0.060	0.183
BU-351	4.778	0.030	0.262	0.074	0.060	0.183
BU-352	4.903	0.030	0.262	0.074	0.060	0.183
BU-353	5.028	0.037	0.262	0.074	0.060	0.183
BU-354	5.153	0.037	0.262	0.074	0.060	0.183
BU-355	5.278	0.037	0.262	0.074	0.060	0.183
BU-356	5.403	0.037	0.262	0.074	0.060	0.183
BU-357	5.528	0.037	0.262	0.074	0.060	0.183
BU-358	5.653	0.037	0.262	0.074	0.060	0.183
BU-359	5.778	0.037	0.262	0.074	0.060	0.183





BACK-UP RINGS

BU

MFP PART NUMBER	CONTOURED BACK-UP RING					
	ød1	+/-	R	L2	L1	C/S
<b>.183" C/S WIDTH</b>			+/- .010	+/- .004	+/- .004	+/- .005
BU-360	5.903	0.037	0.262	0.074	0.060	0.183
BU-361	6.028	0.037	0.262	0.074	0.060	0.183
BU-362	6.278	0.040	0.262	0.074	0.060	0.183
BU-363	6.528	0.040	0.262	0.074	0.060	0.183
BU-364	6.778	0.040	0.262	0.074	0.060	0.183
BU-365	7.028	0.040	0.262	0.074	0.060	0.183
BU-366	7.278	0.045	0.262	0.074	0.060	0.183
BU-367	7.528	0.045	0.262	0.074	0.060	0.183
BU-368	7.778	0.045	0.262	0.074	0.060	0.183
BU-369	8.028	0.045	0.262	0.074	0.060	0.183
BU-370	8.278	0.050	0.262	0.074	0.060	0.183
BU-371	8.528	0.050	0.262	0.074	0.060	0.183
BU-372	8.778	0.050	0.262	0.074	0.060	0.183
BU-373	9.028	0.050	0.262	0.074	0.060	0.183
BU-374	9.278	0.055	0.262	0.074	0.060	0.183
BU-375	9.528	0.055	0.262	0.074	0.060	0.183
BU-376	9.778	0.055	0.262	0.074	0.060	0.183
BU-377	10.028	0.055	0.262	0.074	0.060	0.183
BU-378	10.528	0.060	0.262	0.074	0.060	0.183
BU-379	11.028	0.060	0.262	0.074	0.060	0.183
BU-380	11.528	0.065	0.262	0.074	0.060	0.183
BU-381	12.028	0.065	0.262	0.074	0.060	0.183
BU-382	13.028	0.065	0.262	0.074	0.060	0.183
BU-383	14.028	0.070	0.262	0.074	0.060	0.183
BU-384	15.028	0.070	0.262	0.074	0.060	0.183
BU-385	16.008	0.075	0.262	0.074	0.060	0.183
BU-386	17.008	0.080	0.262	0.074	0.060	0.183
BU-387	18.008	0.085	0.262	0.074	0.060	0.183
BU-388	19.006	0.090	0.262	0.074	0.060	0.183
BU-389	20.006	0.095	0.262	0.074	0.060	0.183
BU-390	21.006	0.095	0.262	0.074	0.060	0.183
BU-391	22.006	0.100	0.262	0.074	0.060	0.183
BU-392	22.993	0.105	0.262	0.074	0.060	0.183
BU-393	23.993	0.110	0.262	0.074	0.060	0.183
BU-394	24.993	0.115	0.262	0.074	0.060	0.183
BU-395	25.993	0.120	0.262	0.074	0.060	0.183
<b>.236" C/S WIDTH</b>			+/- .010	+/- .005	+/- .005	+/- .006
BU-425	4.551	0.033	0.344	0.115	0.096	0.236
BU-426	4.676	0.033	0.344	0.115	0.096	0.236
BU-427	4.801	0.033	0.344	0.115	0.096	0.236
BU-428	4.926	0.033	0.344	0.115	0.096	0.236
BU-429	5.051	0.037	0.344	0.115	0.096	0.236
BU-430	5.176	0.037	0.344	0.115	0.096	0.236
BU-431	5.301	0.037	0.344	0.115	0.096	0.236
BU-432	5.426	0.037	0.344	0.115	0.096	0.236
BU-433	5.551	0.037	0.344	0.115	0.096	0.236
BU-434	5.676	0.037	0.344	0.115	0.096	0.236

For surface finish information please refer to page 17, Surface Finish: ISO 4287. For ISO tolerance, refer to page 18.

For compound descriptions and temperature ranges, please refer to pages 26-37.



# Contoured Back-Up Ring

A product of MFP Seals.



BACK-UP RINGS

BU

MFP PART NUMBER	CONTOURED BACK-UP RING					
	ød1	+/-	R	L2	L1	C/S
<b>.236" C/S WIDTH</b>			+/- .010	+/- .005	+/- .005	+/- .006
BU-435	5.801	0.037	0.344	0.115	0.096	0.236
BU-436	5.926	0.037	0.344	0.115	0.096	0.236
BU-437	6.051	0.037	0.344	0.115	0.096	0.236
BU-438	6.274	0.040	0.344	0.115	0.096	0.236
BU-439	6.524	0.040	0.344	0.115	0.096	0.236
BU-440	6.774	0.040	0.344	0.115	0.096	0.236
BU-441	7.024	0.040	0.344	0.115	0.096	0.236
BU-442	7.274	0.045	0.344	0.115	0.096	0.236
BU-443	7.524	0.045	0.344	0.115	0.096	0.236
BU-444	7.774	0.045	0.344	0.115	0.096	0.236
BU-445	8.024	0.045	0.344	0.115	0.096	0.236
BU-446	8.524	0.055	0.344	0.115	0.096	0.236
BU-447	9.024	0.055	0.344	0.115	0.096	0.236
BU-448	9.524	0.055	0.344	0.115	0.096	0.236
BU-449	10.024	0.055	0.344	0.115	0.096	0.236
BU-450	10.524	0.060	0.344	0.115	0.096	0.236
BU-451	11.024	0.060	0.344	0.115	0.096	0.236
BU-452	11.524	0.060	0.344	0.115	0.096	0.236
BU-453	12.024	0.060	0.344	0.115	0.096	0.236
BU-454	12.524	0.060	0.344	0.115	0.096	0.236
BU-455	13.024	0.060	0.344	0.115	0.096	0.236
BU-456	13.524	0.070	0.344	0.115	0.096	0.236
BU-457	14.024	0.070	0.344	0.115	0.096	0.236
BU-458	14.524	0.070	0.344	0.115	0.096	0.236
BU-459	15.024	0.070	0.344	0.115	0.096	0.236
BU-460	15.524	0.070	0.344	0.115	0.096	0.236
BU-461	16.004	0.075	0.344	0.115	0.096	0.236
BU-462	16.504	0.075	0.344	0.115	0.096	0.236
BU-463	17.004	0.080	0.344	0.115	0.096	0.236
BU-464	17.504	0.085	0.344	0.115	0.096	0.236
BU-465	18.004	0.085	0.344	0.115	0.096	0.236
BU-466	18.504	0.085	0.344	0.115	0.096	0.236
BU-467	19.004	0.090	0.344	0.115	0.096	0.236
BU-468	19.504	0.090	0.344	0.115	0.096	0.236
BU-469	20.004	0.095	0.344	0.115	0.096	0.236
BU-470	21.004	0.095	0.344	0.115	0.096	0.236
BU-471	22.004	0.100	0.344	0.115	0.096	0.236
BU-472	23.004	0.105	0.344	0.115	0.096	0.236
BU-473	24.004	0.110	0.344	0.115	0.096	0.236
BU-474	25.004	0.115	0.344	0.115	0.096	0.236
BU-475	26.004	0.120	0.344	0.115	0.096	0.236



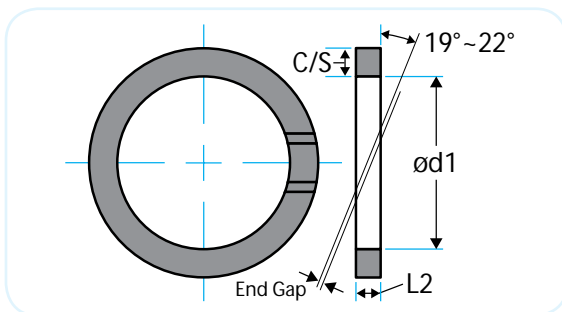
**Split Back-Up Ring**

Split Back-Up Rings are commonly used to prevent extrusion of O-Rings.

For MIL SPEC manufactured split back-up rings, order using MS28774, followed by the AS 568D Dash # and the T1000 compound number.



The standard compound for this seal is T1000.



**MFP PART NUMBERS**

**BU-005T1000**

SEAL TYPE AS568D DASH # COMPOUND

**MFP PART NUMBERS - MIL SPEC**

**MS28774-005T1000**

SEAL TYPE AS568D DASH # COMPOUND

**O-RING BACK-UP**

MFP PART NUMBER	ød1 ±0.001	C/S		L2		End Gap	
		Min.	Max.	Min.	Max.	Min.	Max.
-004	0.109	0.052	0.054	0.045	0.052	0.000	0.005
-005	0.124	0.052	0.054	0.045	0.052	0.000	0.005
-006	0.140	0.052	0.054	0.045	0.052	0.000	0.005
-007	0.171	0.052	0.054	0.045	0.052	0.000	0.005
-008	0.202	0.052	0.054	0.045	0.052	0.000	0.005
-009	0.234	0.052	0.054	0.045	0.052	0.000	0.005
-010	0.265	0.052	0.054	0.045	0.052	0.000	0.005
-011	0.327	0.052	0.054	0.045	0.052	0.000	0.005
-012	0.390	0.052	0.054	0.045	0.052	0.000	0.005
-013	0.455	0.052	0.054	0.045	0.052	0.000	0.005
-014	0.518	0.052	0.054	0.045	0.052	0.000	0.005
-015	0.580	0.052	0.054	0.045	0.052	0.000	0.005
-016	0.643	0.052	0.054	0.045	0.052	0.000	0.005
-017	0.705	0.052	0.054	0.045	0.052	0.000	0.005
-018	0.768	0.052	0.054	0.045	0.052	0.000	0.005
-019	0.830	0.052	0.054	0.045	0.052	0.000	0.005
-020	0.898	0.052	0.054	0.045	0.052	0.000	0.005
-021	0.960	0.052	0.054	0.045	0.052	0.000	0.005
-022	1.023	0.052	0.054	0.045	0.052	0.000	0.005
-023	1.085	0.052	0.054	0.045	0.052	0.000	0.005
-024	1.148	0.052	0.054	0.045	0.052	0.000	0.005
-025	1.210	0.052	0.054	0.045	0.052	0.000	0.005
-026	1.273	0.052	0.054	0.045	0.052	0.000	0.005
-027	1.335	0.052	0.054	0.045	0.052	0.000	0.005
-028	1.398	0.052	0.054	0.045	0.052	0.000	0.005
-110	0.390	0.085	0.087	0.045	0.052	0.000	0.006
-111	0.452	0.085	0.087	0.045	0.052	0.000	0.006
-112	0.515	0.085	0.087	0.045	0.052	0.000	0.006

For surface finish information please refer to page 17, Surface Finish: ISO 4287. For ISO tolerance, refer to page 18.

For compound descriptions and temperature ranges, please refer to pages 26-37.



# Split Back-Up Ring

A product of MFP Seals.



BACK-UP RINGS

TBU

MFP PART NUMBER	O-RING BACK-UP						
	ød1 ±0.001	C/S		L2		End Gap	
		Min.	Max.	Min.	Max.	Min.	Max.
-113	0.577	0.085	0.087	0.045	0.052	0.000	0.006
-114	0.640	0.085	0.087	0.045	0.052	0.000	0.006
-115	0.702	0.085	0.087	0.045	0.052	0.000	0.006
-116	0.765	0.085	0.087	0.045	0.052	0.000	0.006
-117	0.832	0.085	0.087	0.045	0.052	0.000	0.006
-118	0.895	0.085	0.087	0.045	0.052	0.000	0.006
-119	0.957	0.085	0.087	0.045	0.052	0.000	0.006
-120	1.020	0.085	0.087	0.045	0.052	0.000	0.006
-121	1.082	0.085	0.087	0.045	0.052	0.000	0.006
-122	1.145	0.085	0.087	0.045	0.052	0.000	0.006
-123	1.207	0.085	0.087	0.045	0.052	0.000	0.006
-124	1.270	0.085	0.087	0.045	0.052	0.000	0.006
-125	1.332	0.085	0.087	0.045	0.052	0.000	0.006
-126	1.397	0.085	0.087	0.045	0.052	0.000	0.006
-127	1.459	0.085	0.087	0.045	0.052	0.000	0.006
-128	1.522	0.085	0.087	0.045	0.052	0.000	0.006
-129	1.584	0.085	0.087	0.045	0.052	0.000	0.006
-130	1.647	0.085	0.087	0.045	0.052	0.000	0.006
-131	1.709	0.085	0.087	0.045	0.052	0.000	0.006
-132	1.772	0.085	0.087	0.045	0.052	0.000	0.006
-133	1.834	0.085	0.087	0.045	0.052	0.000	0.006
-134	1.897	0.085	0.087	0.045	0.052	0.000	0.006
-135	1.959	0.085	0.087	0.045	0.052	0.000	0.006
-136	2.022	0.085	0.087	0.045	0.052	0.000	0.006
-137	2.084	0.085	0.087	0.045	0.052	0.000	0.006
-138	2.147	0.085	0.087	0.045	0.052	0.000	0.006
-139	2.209	0.085	0.087	0.045	0.052	0.000	0.006
-140	2.258	0.085	0.087	0.045	0.052	0.000	0.006
-141	2.320	0.085	0.087	0.045	0.052	0.000	0.006
-142	2.383	0.085	0.087	0.045	0.052	0.000	0.006
-143	2.445	0.085	0.087	0.045	0.052	0.000	0.006
-144	2.508	0.085	0.087	0.045	0.052	0.000	0.006
-145	2.570	0.085	0.087	0.045	0.052	0.000	0.006
-146	2.633	0.085	0.087	0.045	0.052	0.000	0.006
-147	2.685	0.085	0.087	0.045	0.052	0.000	0.006
-148	2.758	0.085	0.087	0.045	0.052	0.000	0.006
-149	2.820	0.085	0.087	0.045	0.052	0.000	0.006
-210	0.766	0.118	0.120	0.045	0.052	0.000	0.006
-211	0.828	0.118	0.120	0.045	0.052	0.000	0.006
-212	0.891	0.118	0.120	0.045	0.052	0.000	0.006
-213	0.953	0.118	0.120	0.045	0.052	0.000	0.006
-214	1.016	0.118	0.120	0.045	0.052	0.000	0.006
-215	1.078	0.118	0.120	0.045	0.052	0.000	0.006
-216	1.141	0.118	0.120	0.045	0.052	0.000	0.006
-217	1.203	0.118	0.120	0.045	0.052	0.000	0.006
-218	1.266	0.118	0.120	0.045	0.052	0.000	0.006
-219	1.334	0.118	0.120	0.045	0.052	0.000	0.006
-220	1.397	0.118	0.120	0.045	0.052	0.000	0.006



MFP PART NUMBER	O-RING BACK-UP						
	ød1 ±0.001	C/S		L2		End Gap	
		Min.	Max.	Min.	Max.	Min.	Max.
-221	1.459	0.118	0.120	0.045	0.052	0.000	0.006
-222	1.522	0.118	0.120	0.045	0.052	0.000	0.006
-223	1.647	0.118	0.120	0.045	0.052	0.000	0.007
-224	1.772	0.118	0.120	0.045	0.052	0.000	0.007
-225	1.897	0.118	0.120	0.045	0.052	0.000	0.007
-226	2.022	0.118	0.120	0.045	0.052	0.000	0.007
-227	2.147	0.118	0.120	0.045	0.052	0.000	0.007
-228	2.272	0.118	0.120	0.045	0.052	0.000	0.007
-229	2.397	0.118	0.120	0.045	0.052	0.000	0.007
-230	2.522	0.118	0.120	0.045	0.052	0.000	0.007
-231	2.631	0.118	0.120	0.045	0.052	0.000	0.007
-232	2.756	0.118	0.120	0.045	0.052	0.000	0.007
-233	2.881	0.118	0.120	0.045	0.052	0.000	0.007
-234	3.006	0.118	0.120	0.045	0.052	0.000	0.007
-235	3.131	0.118	0.120	0.045	0.052	0.000	0.007
-236	3.256	0.118	0.120	0.045	0.052	0.000	0.007
-237	3.381	0.118	0.120	0.045	0.052	0.000	0.007
-238	3.506	0.118	0.120	0.045	0.052	0.000	0.007
-239	3.631	0.118	0.120	0.045	0.052	0.000	0.007
-240	3.756	0.118	0.120	0.045	0.052	0.000	0.007
-241	3.881	0.118	0.120	0.045	0.052	0.000	0.007
-242	4.006	0.118	0.120	0.045	0.052	0.000	0.007
-243	4.131	0.118	0.120	0.045	0.052	0.000	0.007
-244	4.256	0.118	0.120	0.045	0.052	0.000	0.007
-245	4.381	0.118	0.120	0.045	0.052	0.000	0.007
-246	4.506	0.118	0.120	0.045	0.052	0.000	0.007
-247	4.631	0.118	0.120	0.045	0.052	0.000	0.007
-325	1.513	0.182	0.184	0.065	0.075	0.000	0.007
-326	1.638	0.182	0.184	0.065	0.075	0.000	0.007
-327	1.763	0.182	0.184	0.065	0.075	0.000	0.007
-328	1.888	0.182	0.184	0.065	0.075	0.000	0.007
-329	2.013	0.182	0.184	0.065	0.075	0.000	0.007
-330	2.138	0.182	0.184	0.065	0.075	0.000	0.007
-331	2.268	0.182	0.184	0.065	0.075	0.000	0.007
-332	2.393	0.182	0.184	0.065	0.075	0.000	0.007
-333	2.518	0.182	0.184	0.065	0.075	0.000	0.007
-334	2.643	0.182	0.184	0.065	0.075	0.000	0.007
-335	2.768	0.182	0.184	0.065	0.075	0.000	0.007
-336	2.893	0.182	0.184	0.065	0.075	0.000	0.007
-337	3.018	0.182	0.184	0.065	0.075	0.000	0.007
-338	3.143	0.182	0.184	0.065	0.075	0.000	0.007
-339	3.273	0.182	0.184	0.065	0.075	0.000	0.007
-340	3.398	0.182	0.184	0.065	0.075	0.000	0.007
-341	3.523	0.182	0.184	0.065	0.075	0.000	0.007
-342	3.648	0.182	0.184	0.065	0.075	0.000	0.007
-343	3.773	0.182	0.184	0.065	0.075	0.000	0.007
-344	3.898	0.182	0.184	0.065	0.075	0.000	0.007
-345	4.028	0.182	0.184	0.065	0.075	0.000	0.007

For surface finish information please refer to page 17, Surface Finish: ISO 4287. For ISO tolerance, refer to page 18.

For compound descriptions and temperature ranges, please refer to pages 26-37.





# Split Back-Up Ring

A product of MFP Seals.



BACK-UP RINGS

TBU

MFP PART NUMBER	O-RING BACK-UP						
	ød1 ±0.001	C/S		L2		End Gap	
		Min.	Max.	Min.	Max.	Min.	Max.
-346	4.153	0.182	0.184	0.065	0.075	0.000	0.007
-347	4.278	0.182	0.184	0.065	0.075	0.000	0.007
-348	4.403	0.182	0.184	0.065	0.075	0.000	0.007
-349	4.528	0.182	0.184	0.065	0.075	0.000	0.007
-425	4.551	0.235	0.237	0.100	0.110	0.000	0.008
-426	4.676	0.235	0.237	0.100	0.110	0.000	0.008
-427	4.801	0.235	0.237	0.100	0.110	0.000	0.008
-428	4.926	0.235	0.237	0.100	0.110	0.000	0.008
-429	5.051	0.235	0.237	0.100	0.110	0.000	0.008
-430	5.176	0.235	0.237	0.100	0.110	0.000	0.008
-431	5.301	0.235	0.237	0.100	0.110	0.000	0.008
-432	5.426	0.235	0.237	0.100	0.110	0.000	0.008
-433	5.551	0.235	0.237	0.100	0.110	0.000	0.008
-434	5.676	0.235	0.237	0.100	0.110	0.000	0.008
-435	5.801	0.235	0.237	0.100	0.110	0.000	0.008
-436	5.926	0.235	0.237	0.100	0.110	0.000	0.008
-437	6.051	0.235	0.237	0.100	0.110	0.000	0.008
-438	6.274	0.235	0.237	0.100	0.110	0.000	0.008
-439	6.524	0.235	0.237	0.100	0.110	0.000	0.008
-440	6.774	0.235	0.237	0.100	0.110	0.000	0.008
-441	7.024	0.235	0.237	0.100	0.110	0.000	0.008
-442	7.274	0.235	0.237	0.100	0.110	0.000	0.008
-443	7.524	0.235	0.237	0.100	0.110	0.000	0.008
-444	7.774	0.235	0.237	0.100	0.110	0.000	0.008
-445	8.024	0.235	0.237	0.100	0.110	0.000	0.008
-446	8.524	0.235	0.237	0.100	0.110	0.000	0.008
-447	9.024	0.235	0.237	0.100	0.110	0.000	0.008
-448	9.524	0.235	0.237	0.100	0.110	0.000	0.008
-449	10.024	0.235	0.237	0.100	0.110	0.000	0.008
-450	10.524	0.235	0.237	0.100	0.110	0.000	0.010
-451	11.024	0.235	0.237	0.100	0.110	0.000	0.010
-452	11.524	0.235	0.237	0.100	0.110	0.000	0.010
-453	12.024	0.235	0.237	0.100	0.110	0.000	0.010
-454	12.524	0.235	0.237	0.100	0.110	0.000	0.010
-455	13.024	0.235	0.237	0.100	0.110	0.000	0.010
-456	13.524	0.235	0.237	0.100	0.110	0.000	0.010
-457	14.024	0.235	0.237	0.100	0.110	0.000	0.010
-458	14.524	0.235	0.237	0.100	0.110	0.000	0.010
-459	15.024	0.235	0.237	0.100	0.110	0.000	0.010
-460	15.524	0.235	0.237	0.100	0.110	0.000	0.010



**Solid Back-Up Ring**

Solid Back-Up Rings are commonly used to prevent extrusion of O-Rings.

For MIL SPEC manufactured solid back-up rings order using MS27595, followed by the AS 568D Dash # and the compound number.



The standard compound for this seal is T1000.

**MFP PART NUMBERS**

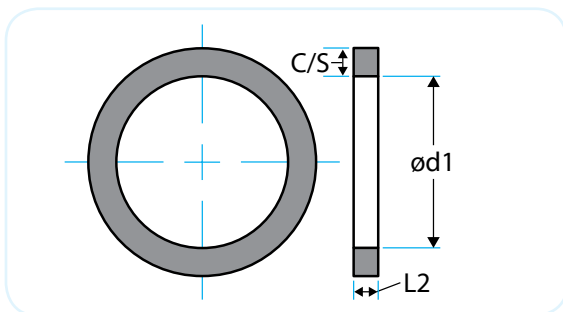
**BU-005T1000**

SEAL TYPE AS568D DASH # COMPOUND

**MFP PART NUMBERS - MIL SPEC**

**MS27595-005T1000**

SEAL TYPE AS568D DASH # COMPOUND



**PISTON APPLICATION**

MFP PART NUMBER	ød1	C/S		L2	
		Min.	Max.	Min.	Max.
<b>TOLERANCE</b>	±0.001				
-004	0.080	0.054	0.056	0.048	0.052
-005	0.111	0.054	0.056	0.048	0.052
-006	0.125	0.054	0.056	0.048	0.052
-007	0.156	0.054	0.056	0.048	0.052
-008	0.187	0.054	0.056	0.048	0.052
-009	0.219	0.054	0.056	0.048	0.052
-010	0.250	0.054	0.056	0.048	0.052
-011	0.312	0.054	0.056	0.048	0.052
-012	0.375	0.054	0.056	0.048	0.052
-013	0.440	0.054	0.056	0.048	0.052
-014	0.503	0.054	0.056	0.048	0.052
-015	0.565	0.054	0.056	0.048	0.052
-016	0.628	0.054	0.056	0.048	0.052
-017	0.690	0.054	0.056	0.048	0.052
-018	0.753	0.054	0.056	0.048	0.052
-019	0.815	0.054	0.056	0.048	0.052
-020	0.881	0.054	0.056	0.048	0.052
<b>TOLERANCE</b>	±0.002				
-021	0.943	0.054	0.056	0.048	0.052
-022	1.006	0.054	0.056	0.048	0.052
-023	1.068	0.054	0.056	0.048	0.052
-024	1.131	0.054	0.056	0.048	0.052
-025	1.193	0.054	0.056	0.048	0.052
-026	1.256	0.054	0.056	0.048	0.052
-027	1.318	0.054	0.056	0.048	0.052
-028	1.381	0.054	0.056	0.048	0.052

For surface finish information please refer to page 17, Surface Finish: ISO 4287. For ISO tolerance, refer to page 18.

For compound descriptions and temperature ranges, please refer to pages 26-37.

# Solid Back-Up Ring

A product of MFP Seals.



BACK-UP RINGS

BU

MFP PART NUMBER	PISTON APPLICATION				
	ød1	C/S		L2	
		Min.	Max.	Min.	Max.
<b>TOLERANCE</b>	±0.001				
-110	0.374	0.087	0.089	0.048	0.052
-111	0.437	0.087	0.089	0.048	0.052
-112	0.499	0.087	0.089	0.048	0.052
-113	0.562	0.087	0.089	0.048	0.052
-114	0.624	0.087	0.089	0.048	0.052
-115	0.687	0.087	0.089	0.048	0.052
-116	0.749	0.087	0.089	0.048	0.052
-117	0.815	0.087	0.089	0.048	0.052
-118	0.877	0.087	0.089	0.048	0.052
-119	0.940	0.087	0.089	0.048	0.052
-120	1.002	0.087	0.089	0.048	0.052
<b>TOLERANCE</b>	±0.002				
-121	1.065	0.087	0.089	0.048	0.052
-122	1.127	0.087	0.089	0.048	0.052
-123	1.190	0.087	0.089	0.048	0.052
-124	1.252	0.087	0.089	0.048	0.052
-125	1.315	0.087	0.089	0.048	0.052
-126	1.377	0.087	0.089	0.048	0.052
-127	1.440	0.087	0.089	0.048	0.052
-128	1.502	0.087	0.089	0.048	0.052
-129	1.565	0.087	0.089	0.048	0.052
-130	1.629	0.087	0.089	0.048	0.052
-131	1.691	0.087	0.089	0.048	0.052
-132	1.754	0.087	0.089	0.048	0.052
-133	1.816	0.087	0.089	0.048	0.052
-134	1.879	0.087	0.089	0.048	0.052
-135	1.942	0.087	0.089	0.048	0.052
-136	2.004	0.087	0.089	0.048	0.052
-137	2.067	0.087	0.089	0.048	0.052
-138	2.129	0.087	0.089	0.048	0.052
-139	2.192	0.087	0.089	0.048	0.052
-140	2.254	0.087	0.089	0.048	0.052
-141	2.317	0.087	0.089	0.048	0.052
-142	2.379	0.087	0.089	0.048	0.052
-143	2.442	0.087	0.089	0.048	0.052
-144	2.504	0.087	0.089	0.048	0.052
-145	2.567	0.087	0.089	0.048	0.052
-146	2.629	0.087	0.089	0.048	0.052
-147	2.692	0.087	0.089	0.048	0.052
-148	2.754	0.087	0.089	0.048	0.052
-149	2.817	0.087	0.089	0.048	0.052
<b>TOLERANCE</b>	±0.001				
-210	0.753	0.118	0.120	0.048	0.052
-211	0.815	0.118	0.120	0.048	0.052
-212	0.878	0.118	0.120	0.048	0.052
-213	0.940	0.118	0.120	0.048	0.052



MFP PART NUMBER	PISTON APPLICATION				
	ød1	C/S		L2	
		Min.	Max.	Min.	Max.
<b>TOLERANCE</b>	<b>±0.002</b>				
-214	1.003	0.118	0.120	0.048	0.052
-215	1.065	0.118	0.120	0.048	0.052
-216	1.128	0.118	0.120	0.048	0.052
-217	1.190	0.118	0.120	0.048	0.052
-218	1.253	0.118	0.120	0.048	0.052
-219	1.315	0.118	0.120	0.048	0.052
-220	1.378	0.118	0.120	0.048	0.052
-221	1.440	0.118	0.120	0.048	0.052
-222	1.503	0.118	0.120	0.048	0.052
-223	1.629	0.118	0.120	0.048	0.052
-224	1.754	0.118	0.120	0.048	0.052
-225	1.880	0.118	0.120	0.048	0.052
-226	2.005	0.118	0.120	0.048	0.052
-227	2.130	0.118	0.120	0.048	0.052
-228	2.255	0.118	0.120	0.048	0.052
-229	2.380	0.118	0.120	0.048	0.052
-230	2.505	0.118	0.120	0.048	0.052
-231	2.630	0.118	0.120	0.048	0.052
-232	2.755	0.118	0.120	0.048	0.052
-233	2.880	0.118	0.120	0.048	0.052
-234	3.005	0.118	0.120	0.048	0.052
-235	3.130	0.118	0.120	0.048	0.052
-236	3.255	0.118	0.120	0.048	0.052
-237	3.380	0.118	0.120	0.048	0.052
-238	3.505	0.118	0.120	0.048	0.052
-239	3.630	0.118	0.120	0.048	0.052
-240	3.755	0.118	0.120	0.048	0.052
-241	3.880	0.118	0.120	0.048	0.052
-242	4.005	0.118	0.120	0.048	0.052
-243	4.130	0.118	0.120	0.048	0.052
-244	4.255	0.118	0.120	0.048	0.052
-245	4.380	0.118	0.120	0.048	0.052
-246	4.505	0.118	0.120	0.048	0.052
-247	4.630	0.118	0.120	0.048	0.052
-325	1.497	0.184	0.186	0.071	0.075
-326	1.622	0.184	0.186	0.071	0.075
-327	1.748	0.184	0.186	0.071	0.075
-328	1.873	0.184	0.186	0.071	0.075
-329	1.998	0.184	0.186	0.071	0.075
-330	2.123	0.184	0.186	0.071	0.075
-331	2.248	0.184	0.186	0.071	0.075
-332	2.373	0.184	0.186	0.071	0.075
-333	2.498	0.184	0.186	0.071	0.075
-334	2.623	0.184	0.186	0.071	0.075
-335	2.748	0.184	0.186	0.071	0.075

For surface finish information please refer to page 17, Surface Finish: ISO 4287. For ISO tolerance, refer to page 18.

For compound descriptions and temperature ranges, please refer to pages 26-37.



# Solid Back-Up Ring

A product of MFP Seals.



BACK-UP RINGS

BU

MFP PART NUMBER	PISTON APPLICATION				
	ød1	C/S		L2	
		Min.	Max.	Min.	Max.
<b>TOLERANCE</b>	±0.001				
-336	2.873	0.184	0.186	0.071	0.075
-337	2.998	0.184	0.186	0.071	0.075
-338	3.230	0.184	0.186	0.071	0.075
-339	3.248	0.184	0.186	0.071	0.075
-340	3.373	0.184	0.186	0.071	0.075
-341	3.498	0.184	0.186	0.071	0.075
-342	3.623	0.184	0.186	0.071	0.075
-343	3.748	0.184	0.186	0.071	0.075
-344	3.873	0.184	0.186	0.071	0.075
-345	3.998	0.184	0.186	0.071	0.075
-346	4.123	0.184	0.186	0.071	0.075
-347	4.248	0.184	0.186	0.071	0.075
-348	4.373	0.184	0.186	0.071	0.075
-349	4.498	0.184	0.186	0.071	0.075
-425	4.502	0.235	0.237	0.106	0.110
-426	4.627	0.235	0.237	0.106	0.110
-427	4.752	0.235	0.237	0.106	0.110
-428	4.877	0.235	0.237	0.106	0.110
-429	5.002	0.235	0.237	0.106	0.110
-430	5.127	0.235	0.237	0.106	0.110
-431	5.252	0.235	0.237	0.106	0.110
-432	5.377	0.235	0.237	0.106	0.110
-433	5.502	0.235	0.237	0.106	0.110
-434	5.627	0.235	0.237	0.106	0.110
-435	5.752	0.235	0.237	0.106	0.110
-436	5.877	0.235	0.237	0.106	0.110
-437	6.002	0.235	0.237	0.106	0.110
-438	6.252	0.235	0.237	0.106	0.110
-439	6.502	0.235	0.237	0.106	0.110
-440	6.752	0.235	0.237	0.106	0.110
-441	7.002	0.235	0.237	0.106	0.110
-442	7.252	0.235	0.237	0.106	0.110
-443	7.502	0.235	0.237	0.106	0.110
-444	7.752	0.235	0.237	0.106	0.110
-445	8.002	0.235	0.237	0.106	0.110
<b>TOLERANCE</b>	±0.003				
-446	8.502	0.235	0.237	0.106	0.110
-447	9.002	0.235	0.237	0.106	0.110
-448	9.502	0.235	0.237	0.106	0.110
-449	10.002	0.235	0.237	0.106	0.110
-450	10.502	0.235	0.237	0.106	0.110
<b>TOLERANCE</b>	±0.004				
-451	11.002	0.235	0.237	0.106	0.110
-452	11.502	0.235	0.237	0.106	0.110
-453	12.002	0.235	0.237	0.106	0.110



MFP PART NUMBER	ød1	PISTON APPLICATION			
		C/S		L2	
		Min.	Max.	Min.	Max.
<b>TOLERANCE</b>	±0.004				
-454	12.502	0.235	0.237	0.106	0.110
-455	13.002	0.235	0.237	0.106	0.110
<b>TOLERANCE</b>	±0.005				
-456	13.502	0.235	0.237	0.106	0.110
-457	14.002	0.235	0.237	0.106	0.110
-458	14.502	0.235	0.237	0.106	0.110
-459	15.002	0.235	0.237	0.106	0.110
-460	15.502	0.235	0.237	0.106	0.110

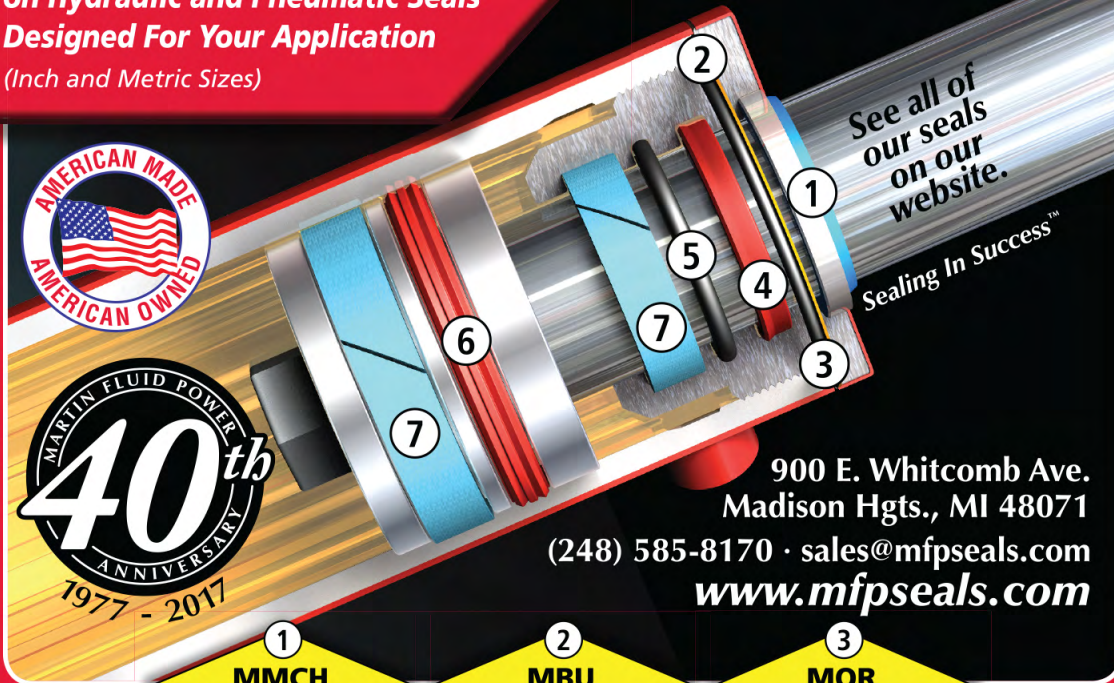
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<p>1 <b>MMCH</b> METRIC METAL CLAD H-STYLE ROD WIPER</p> <p>I.D.</p>	<p>2 <b>MBU</b> METRIC BACK-UP RING</p> <p>I.D.</p>	<p>3 <b>MOR</b> METRIC O-RING</p> <p>I.D.</p>
<p>4 <b>MXPRA</b> METRIC LOADED ROD SEAL U-CUP W/TWIN-LIP &amp; ANTI-EXTRUSION RING</p> <p>I.D.</p>	<p>5 <b>MBRS</b> METRIC ROD BUFFER SEAL</p> <p>I.D.</p>	<p>6 <b>MPSP</b> METRIC PISTON SEAL</p> <p>I.D.</p>
<p>7 <b>MWR</b> C4000 GUIDE RINGS</p> <p>I.D.</p>		



# 576 Back-Up Ring

A product of MFP Seals.

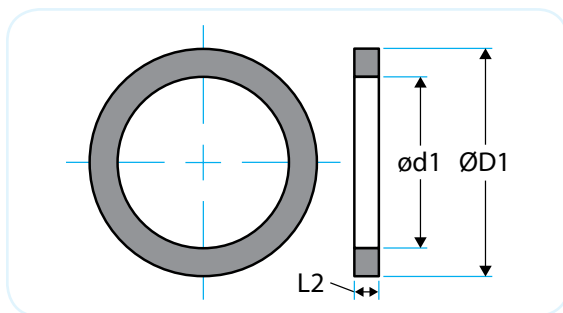


## 576 Back-Up Ring

Our 576 Back-Up Ring, made from M1001 or M1002 compounds, can be used to prevent the extrusion of O-Rings and U-Cups, in both rod and piston applications.



The standard compound for this seal is M1001.  
It is also available in M1002.



**MFP PART NUMBERS**

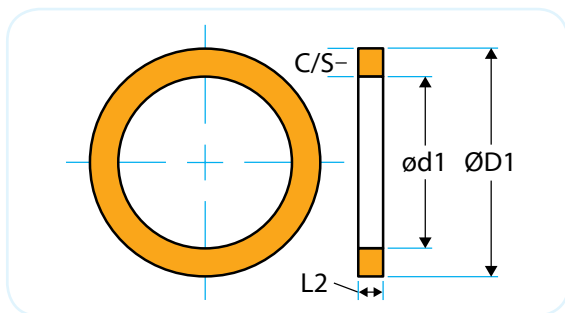
**576-314M1001**

SEAL TYPE | COMPOUND  
AS568D DASH #

MFP PART NUMBER	576 BACK-UP RING		
	ød1	ØD1	L2
576-314	0.750	1.125	.070
576-216	1.125	1.375	.060
576-320	1.125	1.500	.070
576-324	1.375	1.750	.070
576-325	1.500	1.875	.070
576-326	1.625	2.000	.070
576-327	1.750	2.125	.070
576-328	1.875	2.250	.070
576-329	2.000	2.375	.070
576-330	2.125	2.500	.070
576-331	2.250	2.625	.070
576-407	2.250	2.750	.070
576-332	2.375	2.750	.060
576-408	2.375	2.875	.070
576-333	2.500	2.875	.070
576-409	2.500	3.000	.070
576-334	2.625	3.000	.070
576-411	2.750	3.250	.070
576-412	2.875	3.375	.070
576-413	3.000	3.500	.070
576-338	3.125	3.500	.070
576-415	3.250	3.750	.070
576-417	3.500	4.000	.070
576-419	3.750	4.250	.070
576-421	4.000	4.500	.070
576-425	4.500	5.000	.070
576-427	4.750	5.250	.070
576-429	5.000	5.500	.075
576-433	5.500	6.000	.120

**Back-Up Rings - H2155**

MFP Seals produces Backup rings that are designed to keep O-Rings from extruding as well as Backup rings for U-Cup applications. These Back-Up Rings are produced in either a contoured design, Split (MS28774) or Solid (MS27595) configuration and a wide range of materials are used to fit your application.



**MFP PART NUMBERS**

**BU-004H2155**

SEAL TYPE      AS568D      COMPOUND  
DASH #

MFP PART NUMBER	NOMINAL DIMENSIONS			ACTUAL SIZE		
	ID	OD	C/S	ød1	ØD1	L2
<b>.062" - CROSS SECTION WIDTH</b>						
BU-004H2155	5/64	13/64	1/16	0.078	0.203	0.050
BU-005H2155	3/32	7/32	1/16	0.094	0.219	0.050
BU-006H2155	1/8	1/4	1/16	0.125	0.250	0.050
BU-007H2155	5/32	9/32	1/16	0.156	0.281	0.050
BU-008H2155	3/16	5/16	1/16	0.188	0.313	0.050
BU-009H2155	7/32	11/32	1/16	0.219	0.344	0.050
BU-010H2155	1/4	3/8	1/16	0.250	0.375	0.050
BU-011H2155	5/16	7/16	1/16	0.313	0.438	0.050
BU-012H2155	3/8	1/2	1/16	0.375	0.500	0.050
BU-013H2155	7/16	9/16	1/16	0.438	0.563	0.050
BU-014H2155	1/2	5/8	1/16	0.500	0.625	0.050
BU-015H2155	9/16	11/16	1/16	0.562	0.687	0.050
BU-016H2155	5/8	3/4	1/16	0.625	0.750	0.050
BU-017H2155	11/16	13/16	1/16	0.687	0.812	0.050
BU-018H2155	3/4	7/8	1/16	0.750	0.875	0.050
BU-019H2155	13/16	15/16	1/16	0.812	0.937	0.050
BU-020H2155	7/8	1	1/16	0.875	1.000	0.050
BU-022H2155	1	1-1/8	1/16	1.000	1.125	0.050
BU-023H2155	1-1/16	1-3/16	1/16	1.063	1.188	0.050
BU-024H2155	1-1/8	1-1/4	1/16	1.125	1.250	0.050
BU-025H2155	1-3/16	1-5/16	1/16	1.188	1.313	0.050
BU-026H2155	1-1/4	1-3/8	1/16	1.250	1.375	0.050
BU-027H2155	1-5/16	1-7/16	1/16	1.312	1.437	0.050
BU-028H2155	1-3/8	1-1/2	1/16	1.375	1.500	0.050
BU-029H2155	1-1/2	1-5/8	1/16	1.500	1.625	0.050
BU-030H2155	1-5/8	1-3/4	1/16	1.625	1.750	0.050
BU-031H2155	1-3/4	1-7/8	1/16	1.750	1.875	0.050
BU-032H2155	1-7/8	2	1/16	1.875	2.000	0.050

BACK-UP RINGS

BU

MFP PART NUMBER	NOMINAL DIMENSIONS			ACTUAL SIZE		
	ID	OD	C/S	ød1	ØD1	L2
<b>.062" - CROSS SECTION WIDTH</b>						
BU-033H2155	2	2-1/8	1/16	2.000	2.125	0.050
BU-034H2155	2-1/8	2-1/4	1/16	2.125	2.250	0.050
BU-035H2155	2-1/4	2-3/8	1/16	2.250	2.375	0.050
BU-036H2155	2-3/8	2-1/2	1/16	2.375	2.500	0.050
BU-037H2155	2-1/2	2-5/8	1/16	2.500	2.625	0.050
BU-038H2155	2-5/8	2-3/4	1/16	2.625	2.750	0.050
BU-039H2155	2-3/4	2-7/8	1/16	2.750	2.875	0.050
BU-040H2155	2-7/8	3	1/16	2.875	3.000	0.050
BU-041H2155	3	3-1/8	1/16	3.000	3.125	0.050
BU-042H2155	3-1/4	3-3/8	1/16	3.250	3.375	0.050
BU-044H2155	3-3/4	3-7/8	1/16	3.750	3.875	0.050
BU-045H2155	4	4-1/8	1/16	4.000	4.125	0.050
BU-046H2155	4-1/4	4-3/8	1/16	4.250	4.375	0.050
BU-047H2155	4-1/2	4-5/8	1/16	4.500	4.625	0.050
BU-048H2155	4-3/4	4-7/8	1/16	4.750	4.875	0.050
BU-049H2155	5	5-1/8	1/16	5.000	5.125	0.050
BU-050H2155	5-1/4	5-3/8	1/16	5.250	5.375	0.050
<b>.093" - CROSS SECTION WIDTH</b>						
BU-102H2155	1/16	1/4	3/32	0.063	0.250	0.050
BU-103H2155	3/32	9/32	3/32	0.094	0.281	0.050
BU-104H2155	1/8	5/16	3/32	0.125	0.313	0.050
BU-105H2155	5/32	11/32	3/32	0.156	0.344	0.050
BU-106H2155	3/16	3/8	3/32	0.188	0.375	0.050
BU-107H2155	7/32	13/32	3/32	0.219	0.406	0.050
BU-108H2155	1/4	7/16	3/32	0.250	0.438	0.050
BU-109H2155	5/16	1/2	3/32	0.313	0.500	0.050
BU-110H2155	3/8	9/16	3/32	0.375	0.563	0.050
BU-111H2155	7/16	5/8	3/32	0.438	0.625	0.050
BU-112H2155	1/2	11/16	3/32	0.500	0.688	0.050
BU-113H2155	9/16	3/4	3/32	0.563	0.750	0.050
BU-114H2155	5/8	13/16	3/32	0.625	0.813	0.050
BU-115H2155	11/16	7/8	3/32	0.688	0.875	0.050
BU-116H2155	3/4	15/16	3/32	0.750	1.313	0.050
BU-117H2155	13/16	1	3/32	0.813	1.000	0.050
BU-118H2155	7/8	1-1/16	3/32	0.875	1.063	0.050
BU-119H2155	15/16	1-1/8	3/32	0.938	1.125	0.050
BU-120H2155	1	1-3/16	3/32	1.000	1.188	0.050
BU-121H2155	1-1/16	1-1/4	3/32	1.063	1.250	0.050
BU-122H2155	1-1/8	1-5/16	3/32	1.125	1.313	0.050
BU-123H2155	1-3/16	1-3/8	3/32	1.187	1.312	0.050
BU-124H2155	1-1/4	1-7/16	3/32	1.250	1.438	0.050
BU-125H2155	1-5/16	1-1/2	3/32	1.312	1.437	0.050
BU-126H2155	1-3/8	1-9/16	3/32	1.375	1.500	0.050
BU-127H2155	1-7/16	1-5/8	3/32	1.438	1.625	0.050
BU-128H2155	1-1/2	1-11/16	3/32	1.500	1.688	0.050
BU-129H2155	1-9/16	1-3/4	3/32	1.562	1.687	0.050

MFP PART NUMBER	NOMINAL DIMENSIONS			ACTUAL SIZE		
	ID	OD	C/S	ød1	ØD1	L2
<b>.093" - CROSS SECTION WIDTH</b>						
BU-130H2155	1-5/8	1-13/16	3/32	1.625	1.813	0.050
BU-131H2155	1-11/16	1-7/8	3/32	1.688	1.875	0.050
BU-132H2155	1-3/4	1-15/16	3/32	1.750	1.938	0.050
BU-133H2155	1-13/16	2	3/32	1.813	2.000	0.050
BU-134H2155	1-7/8	2-1/16	3/32	1.875	2.000	0.050
BU-135H2155	1-15/16	2-1/8	3/32	1.938	2.125	0.050
BU-136H2155	2	2-3/16	3/32	2.000	2.188	0.050
BU-137H2155	2-1/16	2-1/4	3/32	2.063	2.250	0.050
BU-138H2155	2-1/8	2-5/16	3/32	2.125	2.313	0.050
BU-139H2155	2-3/16	2-3/8	3/32	2.188	2.375	0.050
BU-140H2155	2-1/4	2-7/16	3/32	2.250	2.438	0.050
BU-141H2155	2-5/16	2-1/2	3/32	2.313	2.500	0.050
BU-142H2155	2-3/8	2-9/16	3/32	2.375	2.563	0.050
BU-143H2155	2-7/16	2-5/8	3/32	2.438	2.625	0.050
BU-144H2155	2-1/2	2-11/16	3/32	2.500	2.688	0.050
BU-145H2155	2-9/16	2-3/4	3/32	2.563	2.750	0.050
BU-146H2155	2-5/8	2-13/16	3/32	2.625	2.813	0.050
BU-147H2155	2-11/16	2-7/8	3/32	2.688	2.875	0.050
BU-148H2155	2-3/4	2-15/16	3/32	2.750	2.938	0.050
BU-149H2155	2-13/16	3	3/32	2.813	3.000	0.050
BU-150H2155	2-7/8	3-1/16	3/32	2.875	3.063	0.050
BU-151H2155	3	3-3/16	3/32	3.000	3.188	0.050
BU-152H2155	3-1/4	3-7/16	3/32	3.250	3.438	0.050
BU-153H2155	3-1/2	3-11/16	3/32	3.500	3.688	0.050
BU-154H2155	3-3/4	3-15/16	3/32	3.750	3.938	0.050
BU-155H2155	4	4-3/16	3/32	4.000	4.188	0.050
BU-156H2155	4-1/4	4-7/16	3/32	4.250	4.438	0.050
BU-157H2155	4-1/2	4-11/16	3/32	4.500	4.688	0.050
BU-158H2155	4-3/4	4-15/16	3/32	4.750	4.938	0.050
BU-159H2155	5	5-3/16	3/32	5.000	5.188	0.050
BU-160H2155	5-1/4	5-7/16	3/32	5.250	5.438	0.050
BU-161H2155	5-1/2	5-11/16	3/32	5.500	5.688	0.050
BU-162H2155	5-3/4	5-15/16	3/32	5.750	5.938	0.050
BU-163H2155	6	6-3/16	3/32	6.000	6.188	0.050
BU-164H2155	6-1/4	6-7/16	3/32	6.250	6.438	0.050
BU-166H2155	6-3/4	6-15/16	3/32	6.750	6.938	0.050
BU-167H2155	7	7-3/16	3/32	7.000	7.188	0.050
BU-168H2155	7-1/4	7-7/16	3/32	7.250	7.438	0.050
BU-169H2155	7-1/2	7-11/16	3/32	7.500	7.688	0.050
BU-170H2155	7-3/4	7-15/16	3/32	7.750	7.938	0.050
BU-171H2155	8	8-3/16	3/32	8.000	8.188	0.050
BU-172H2155	8-1/4	8-7/16	3/32	8.250	8.438	0.050
BU-173H2155	8-1/2	8-11/16	3/32	8.500	8.688	0.050
BU-174H2155	8-3/4	8-15/16	3/32	8.750	8.938	0.050
BU-175H2155	9	9-3/16	3/32	9.000	9.188	0.050

# H2155 Back-Up Ring

A product of MFP Seals.

**MFPSEALS**

BACK-UP RINGS

BU

MFP PART NUMBER	NOMINAL DIMENSIONS			ACTUAL SIZE		
	ID	OD	C/S	ød1	ØD1	L2
<b>.125" - CROSS SECTION WIDTH</b>						
BU-201H2155	3/16	7/16	1/8	0.188	0.438	0.050
BU-204H2155	3/8	5/8	1/8	0.375	0.625	0.050
BU-205H2155	7/16	11/16	1/8	0.438	0.688	0.050
BU-206H2155	1/2	3/4	1/8	0.500	0.750	0.050
BU-207H2155	9/16	13/16	1/8	0.563	0.813	0.050
BU-208H2155	5/8	7/8	1/8	0.625	0.875	0.050
BU-209H2155	11/16	15/16	1/8	0.688	0.938	0.050
BU-210H2155	3/4	1	1/8	0.750	1.000	0.050
BU-211H2155	13/16	1-1/16	1/8	0.813	1.063	0.050
BU-212H2155	7/8	1-1/8	1/8	0.875	1.125	0.050
BU-213H2155	15/16	1-3/16	1/8	0.938	1.188	0.050
BU-214H2155	1	1-1/4	1/8	1.000	1.250	0.050
BU-215H2155	1-1/16	1-5/16	1/8	1.063	1.313	0.050
BU-216H2155	1-1/8	1-3/8	1/8	1.125	1.375	0.050
BU-217H2155	1-3/16	1-7/16	1/8	1.188	1.438	0.050
BU-218H2155	1-1/4	1-1/2	1/8	1.250	1.500	0.050
BU-219H2155	1-5/16	1-9/16	1/8	1.313	1.563	0.050
BU-220H2155	1-3/8	1-5/8	1/8	1.375	1.625	0.050
BU-221H2155	1-7/16	1-11/16	1/8	1.438	1.688	0.050
BU-222H2155	1-1/2	1-3/4	1/8	1.500	1.750	0.050
BU-223H2155	1-5/8	1-7/8	1/8	1.625	1.875	0.050
BU-224H2155	1-3/4	2	1/8	1.750	2.000	0.050
BU-225H2155	1-7/8	2-1/8	1/8	1.875	2.125	0.050
BU-226H2155	2	2-1/4	1/8	2.000	2.250	0.050
BU-227H2155	2-1/8	2-3/8	1/8	2.125	2.375	0.050
BU-228H2155	2-1/4	2-1/2	1/8	2.250	2.500	0.050
BU-229H2155	2-3/8	2-5/8	1/8	2.375	2.625	0.050
BU-230H2155	2-1/2	2-3/4	1/8	2.500	2.750	0.050
BU-231H2155	2-5/8	2-7/8	1/8	2.625	2.875	0.050
BU-232H2155	2-3/4	3	1/8	2.750	3.000	0.050
BU-233H2155	2-7/8	3-1/8	1/8	2.875	3.125	0.050
BU-234H2155	3	3-1/4	1/8	3.000	3.250	0.050
BU-235H2155	3-1/8	3-3/8	1/8	3.125	3.375	0.050
BU-236H2155	3-1/4	3-1/2	1/8	3.250	3.500	0.050
BU-237H2155	3-3/8	3-5/8	1/8	3.375	3.625	0.050
BU-238H2155	3-1/2	3-3/4	1/8	3.500	3.750	0.050
BU-239H2155	3-5/8	3-7/8	1/8	3.625	3.875	0.050
BU-240H2155	3-3/4	4	1/8	3.750	4.000	0.050
BU-241H2155	3-7/8	4-1/8	1/8	3.875	4.125	0.050
BU-242H2155	4	4-1/4	1/8	4.000	4.250	0.050
BU-243H2155	4-1/8	4-3/8	1/8	4.125	4.375	0.050
BU-244H2155	4-1/4	4-1/2	1/8	4.250	4.500	0.050
BU-245H2155	4-3/8	4-5/8	1/8	4.375	4.625	0.050
BU-246H2155	4-1/2	4-3/4	1/8	4.500	4.750	0.050
BU-247H2155	4-5/8	4-7/8	1/8	4.625	4.875	0.050
BU-248H2155	4-3/4	5	1/8	4.750	5.000	0.050

MFP PART NUMBER	NOMINAL DIMENSIONS			ACTUAL SIZE		
	ID	OD	C/S	ød1	ØD1	L2
<b>.125" - CROSS SECTION WIDTH</b>						
BU-249H2155	4-7/8	5-1/8	1/8	4.875	5.125	0.050
BU-250H2155	5	5-1/4	1/8	5.000	5.250	0.050
BU-251H2155	5-1/8	5-3/8	1/8	5.125	5.375	0.050
BU-252H2155	5-1/4	5-1/2	1/8	5.250	5.500	0.050
BU-253H2155	5-3/8	5-5/8	1/8	5.375	5.625	0.050
BU-254H2155	5-1/2	5-3/4	1/8	5.500	5.750	0.050
BU-255H2155	5-5/8	5-7/8	1/8	5.625	5.875	0.050
BU-256H2155	5-3/4	6	1/8	5.750	6.000	0.050
BU-257H2155	5-7/8	6-1/8	1/8	5.875	6.125	0.050
BU-258H2155	6	6-1/4	1/8	6.000	6.250	0.050
BU-259H2155	6-1/4	6-1/2	1/8	6.250	6.500	0.050
BU-260H2155	6-1/2	6-3/4	1/8	6.500	6.750	0.050
BU-261H2155	6-3/4	7	1/8	6.750	7.000	0.050
BU-262H2155	7	7-1/4	1/8	7.000	7.250	0.050
BU-263H2155	7-1/4	7-1/2	1/8	7.250	7.500	0.050
BU-264H2155	7-1/2	7-3/4	1/8	7.500	7.750	0.050
BU-265H2155	7-3/4	8	1/8	7.750	8.000	0.050
BU-266H2155	8	8-1/4	1/8	8.000	8.250	0.050
BU-267H2155	8-1/4	8-1/2	1/8	8.250	8.500	0.050
BU-268H2155	8-1/2	8-3/4	1/8	8.500	8.750	0.050
BU-269H2155	8-3/4	9	1/8	8.750	9.000	0.050
BU-270H2155	9	9-1/4	1/8	9.000	9.250	0.050
BU-271H2155	9-1/4	9-1/2	1/8	9.250	9.500	0.050
BU-272H2155	9-1/2	9-3/4	1/8	9.500	9.750	0.050
BU-273H2155	9-3/4	10	1/8	9.750	10.000	0.050
BU-274H2155	10	10-1/4	1/8	10.000	10.250	0.050
BU-275H2155	10-1/2	10-3/4	1/8	10.500	10.750	0.050
BU-276H2155	11	11-1/4	1/8	11.000	11.250	0.050
BU-277H2155	11-1/2	11-3/4	1/8	11.500	11.750	0.050
<b>.187" - CROSS SECTION WIDTH</b>						
BU-309H2155	7/16	13/16	3/16	0.438	0.813	0.070
BU-311H2155	9/16	15/16	3/16	0.563	0.937	0.070
BU-312H2155	5/8	1	3/16	0.625	1.000	0.070
BU-313H2155	11/16	1-1/16	3/16	0.688	1.063	0.070
BU-314H2155	3/4	1-1/8	3/16	0.750	1.125	0.070
BU-315H2155	13/16	1-3/16	3/16	0.813	1.188	0.070
BU-316H2155	7/8	1-1/4	3/16	0.875	1.250	0.070
BU-317H2155	15/16	1-5/16	3/16	0.938	1.313	0.070
BU-318H2155	1	1-3/8	3/16	1.000	1.375	0.070
BU-319H2155	1-1/16	1-7/16	3/16	1.063	1.438	0.070
BU-320H2155	1-1/8	1-1/2	3/16	1.125	1.500	0.070
BU-321H2155	1-3/16	1-9/16	3/16	1.188	1.563	0.070
BU-322H2155	1-1/4	1-5/8	3/16	1.250	1.625	0.070
BU-323H2155	1-5/16	1-11/16	3/16	1.313	1.688	0.070
BU-324H2155	1-3/8	1-3/4	3/16	1.375	1.750	0.070
BU-325H2155	1-1/2	1-7/8	3/16	1.500	1.875	0.070



# H2155 Back-Up Ring

A product of MFP Seals.

**MFPSEALS**

BACK-UP RINGS

BU

MFP PART NUMBER	NOMINAL DIMENSIONS			ACTUAL SIZE		
	ID	OD	C/S	ød1	ØD1	L2
<b>.187" - CROSS SECTION WIDTH</b>						
BU-326H2155	1-5/8	2	3/16	1.625	2.000	0.070
BU-327H2155	1-3/4	2-1/8	3/16	1.750	2.125	0.070
BU-328H2155	1-7/8	2-1/4	3/16	1.875	2.250	0.070
BU-329H2155	2	2-3/8	3/16	2.000	2.375	0.070
BU-330H2155	2-1/8	2-1/2	3/16	2.125	2.500	0.070
BU-331H2155	2-1/4	2-5/8	3/16	2.250	2.625	0.070
BU-332H2155	2-3/8	2-3/4	3/16	2.375	2.750	0.070
BU-333H2155	2-1/2	2-7/8	3/16	2.500	2.875	0.070
BU-334H2155	2-5/8	3	3/16	2.625	3.000	0.070
BU-335H2155	2-3/4	3-1/8	3/16	2.750	3.125	0.070
BU-336H2155	2-7/8	3-1/4	3/16	2.875	3.250	0.070
BU-337H2155	3	3-3/8	3/16	3.000	3.375	0.070
BU-338H2155	3-1/8	3-1/2	3/16	3.125	3.500	0.070
BU-339H2155	3-1/4	3-5/8	3/16	3.250	3.625	0.070
BU-340H2155	3-3/8	3-3/4	3/16	3.375	3.750	0.070
BU-341H2155	3-1/2	3-7/8	3/16	3.500	3.875	0.070
BU-342H2155	3-5/8	4	3/16	3.625	4.000	0.070
BU-343H2155	3-3/4	4-1/8	3/16	3.750	4.125	0.070
BU-344H2155	3-7/8	4-1/4	3/16	3.875	4.250	0.070
BU-345H2155	4	4-3/8	3/16	4.000	4.375	0.070
BU-346H2155	4-1/8	4-1/2	3/16	4.125	4.500	0.070
BU-347H2155	4-1/4	4-5/8	3/16	4.250	4.625	0.070
BU-348H2155	4-3/8	4-3/4	3/16	4.375	4.750	0.070
BU-349H2155	4-1/2	4-7/8	3/16	4.500	4.875	0.070
BU-350H2155	4-5/8	5	3/16	4.625	5.000	0.070
BU-351H2155	4-3/4	5-1/8	3/16	4.750	5.125	0.070
BU-352H2155	4-7/8	5-1/4	3/16	4.875	5.250	0.070
BU-353H2155	5	5-3/8	3/16	5.000	5.375	0.070
BU-354H2155	5-1/8	5-1/2	3/16	5.125	5.500	0.070
BU-355H2155	5-1/4	5-5/8	3/16	5.250	5.625	0.070
BU-356H2155	5-3/8	5-3/4	3/16	5.375	5.750	0.070
BU-357H2155	5-1/2	5-7/8	3/16	5.500	5.875	0.070
BU-358H2155	5-5/8	6	3/16	5.625	6.000	0.070
BU-359H2155	5-3/4	6-1/8	3/16	5.750	6.125	0.070
BU-360H2155	5-7/8	6-1/4	3/16	5.875	6.250	0.070
BU-361H2155	6	6-3/8	3/16	6.000	6.375	0.070
BU-362H2155	6-1/4	6-5/8	3/16	6.250	6.625	0.070
BU-363H2155	6-1/2	6-7/8	3/16	6.500	6.875	0.070
BU-364H2155	6-3/4	7-1/8	3/16	6.750	7.125	0.070
BU-365H2155	7	7-3/8	3/16	7.000	7.375	0.070
BU-366H2155	7-1/4	7-5/8	3/16	7.250	7.625	0.070
BU-367H2155	7-1/2	7-7/8	3/16	7.500	7.875	0.070
BU-368H2155	7-3/4	8-1/8	3/16	7.750	8.125	0.070
BU-369H2155	8	8-3/8	3/16	8.000	8.375	0.070
BU-370H2155	8-1/4	8-5/8	3/16	8.250	8.625	0.070
BU-371H2155	8-1/2	8-7/8	3/16	8.500	8.875	0.070

MFP PART NUMBER	NOMINAL DIMENSIONS			ACTUAL SIZE		
	ID	OD	C/S	ød1	ØD1	L2
<b>.187" - CROSS SECTION WIDTH</b>						
BU-372H2155	8-3/4	9-1/8	3/16	8.750	9.125	0.070
BU-373H2155	9	9-3/8	3/16	9.000	9.375	0.070
BU-374H2155	9-1/4	9-5/8	3/16	9.250	9.625	0.070
BU-375H2155	9-1/2	9-7/8	3/16	9.500	9.875	0.070
BU-376H2155	9-3/4	10-1/8	3/16	9.750	10.125	0.070
BU-377H2155	10	10-3/8	3/16	10.000	10.375	0.070
BU-379H2155	11	11-3/8	3/16	11.000	11.375	0.070
<b>.250" - CROSS SECTION WIDTH</b>						
BU-425H2155	4-1/2	5	1/4	4.500	5.000	0.105
BU-426H2155	4-5/8	5-1/8	1/4	4.625	5.125	0.105
BU-427H2155	4-3/4	5-1/4	1/4	4.750	5.250	0.105
BU-428H2155	4-7/8	5-3/8	1/4	4.875	5.375	0.105
BU-429H2155	5	5-1/2	1/4	5.000	5.500	0.105
BU-430H2155	5-1/8	5-5/8	1/4	5.125	5.625	0.105
BU-431H2155	5-1/4	5-3/4	1/4	5.250	5.750	0.105
BU-432H2155	5-3/8	5-7/8	1/4	5.375	5.875	0.105
BU-433H2155	5-1/2	6	1/4	5.500	6.000	0.105
BU-434H2155	5-5/8	6-1/8	1/4	5.625	6.125	0.105
BU-435H2155	5-3/4	6-1/4	1/4	5.750	6.250	0.105
BU-436H2155	5-7/8	6-3/8	1/4	5.875	6.375	0.105
BU-437H2155	6	6-1/2	1/4	6.000	6.500	0.105
BU-438H2155	6-1/4	6-3/4	1/4	6.250	6.750	0.105
BU-439H2155	6-1/2	7	1/4	6.500	7.000	0.105
BU-440H2155	6-3/4	7-1/4	1/4	6.750	7.250	0.105
BU-441H2155	7	7-1/2	1/4	7.000	7.500	0.105
BU-442H2155	7-1/4	7-3/4	1/4	7.250	7.750	0.105
BU-443H2155	7-1/2	8	1/4	7.500	8.000	0.105
BU-444H2155	7-3/4	8-1/4	1/4	7.750	8.250	0.105
BU-445H2155	8	8-1/2	1/4	8.000	8.500	0.105
BU-446H2155	8-1/2	9	1/4	8.500	9.000	0.105
BU-447H2155	9	9-1/2	1/4	9.000	9.500	0.105
BU-448H2155	9-1/2	10	1/4	9.500	10.000	0.105
BU-449H2155	10	10-1/2	1/4	10.000	10.500	0.105
BU-450H2155	10-1/2	11	1/4	10.500	11.000	0.105
BU-452H2155	11	11-1/2	1/4	11.500	12.000	0.105



# AN6226 - Symmetrical U-Cup

A product of MFP Seals.



## AN6226 - Symmetrical U-Cup

Homogeneous Rubber U-Cups require back-up rings if system pressures exceed 500 PSI. Square section seal, height and C/S are the same.



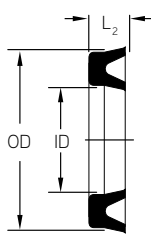
### MFP PART NUMBERS

**6226-01V7100**

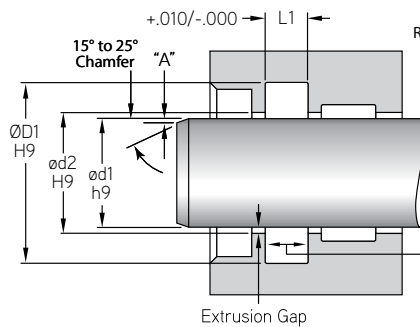
SEAL TYPE      COMPOUND  
AS568D DASH #

This seal is available in N6001 and V7100.

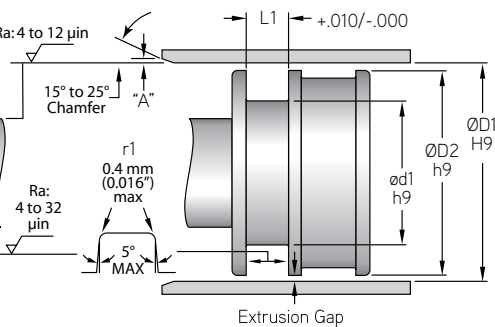
### PROFILE



### ROD APPLICATION



### PISTON APPLICATION



### Pressure:

Pneumatic: 17 bar (250 psi) - Hydraulic: 55 bar (800 psi)

### Max. Velocity:

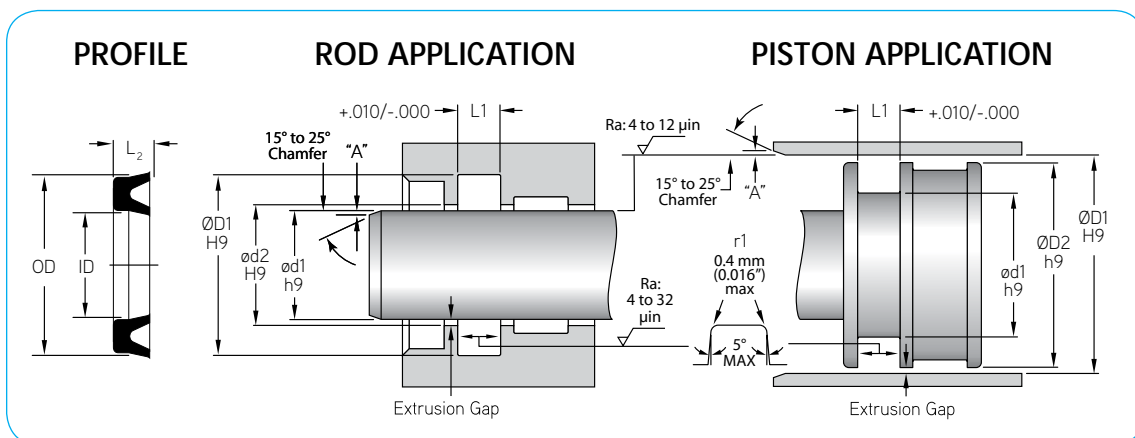
Pneumatic: 1.0 m/s (3 ft/s) - Hydraulic: 0.5 m/s (1.5 ft/s)

### ROD OR PISTON APPLICATION

MFP PART NUMBER	ROD OR PISTON APPLICATION					
	ød1	ød2	ØD1	ØD2	L2	L1
TOLERANCE	h9	H9	H9	h9		+.010/-0.000
6226-01	0.125	0.126	0.500	0.498	0.187	0.218
6226-02	0.187	0.188	0.562	0.560	0.187	0.218
6226-03	0.250	0.251	0.625	0.623	0.187	0.218
6226-04	0.312	0.313	0.687	0.685	0.187	0.218
6226-05	0.375	0.376	0.750	0.748	0.187	0.218
6226-06	0.437	0.438	0.812	0.810	0.187	0.218
6226-07	0.500	0.501	0.875	0.873	0.187	0.218
6226-08	0.250	0.251	0.750	0.748	0.250	0.281
6226-09	0.312	0.313	0.812	0.810	0.250	0.281
6226-10	0.375	0.376	0.875	0.873	0.250	0.281
6226-11	0.437	0.438	0.937	0.935	0.250	0.281
6226-12	0.500	0.501	1.000	0.998	0.250	0.281
6226-13	0.562	0.563	1.063	1.061	0.250	0.281
6226-14	0.625	0.626	1.125	1.123	0.250	0.281
6226-15	0.687	0.688	1.188	1.186	0.250	0.281
6226-16	0.750	0.751	1.250	1.248	0.250	0.281

SYMMETRICAL U-CUPS

AN6226



MFP PART NUMBER	ROD OR PISTON APPLICATION					
	ød1	ød2	ØD1	ØD2	L2	L1
TOLERANCE	h9	H9	H9	h9		+0.010/-0.000
6226-17	0.812	0.813	1.313	1.311	0.250	0.281
6226-18	0.875	0.876	1.375	1.373	0.250	0.281
6226-19	0.937	0.938	1.438	1.436	0.250	0.281
6226-20	1.000	1.001	1.500	1.498	0.250	0.281
6226-21	1.167	1.168	1.562	1.560	0.250	0.281
6226-22	1.125	1.126	1.625	1.623	0.250	0.281
6226-23	1.188	1.189	1.687	1.685	0.250	0.281
6226-24	1.250	1.251	1.750	1.748	0.250	0.281
6226-25	1.250	1.251	1.875	1.873	0.312	0.344
6226-26	1.375	1.376	2.000	1.998	0.312	0.344
6226-27	1.500	1.501	2.125	2.123	0.312	0.344
6226-28	1.625	1.626	2.250	2.248	0.312	0.344
6226-29	1.750	1.751	2.375	2.373	0.312	0.344
6226-30	1.875	1.876	2.500	2.498	0.312	0.344
6226-31	2.000	2.001	2.625	2.623	0.312	0.344
6226-32	2.125	2.126	2.750	2.748	0.312	0.344
6226-33	2.250	2.251	2.875	2.873	0.312	0.344
6226-34	2.375	2.376	3.000	2.998	0.312	0.344
6226-35	2.500	2.501	3.125	3.123	0.312	0.344
6226-36	2.500	2.501	3.250	3.248	0.375	0.406
6226-37	2.625	2.626	3.375	3.373	0.375	0.406
6226-38	2.750	2.751	3.500	3.498	0.375	0.406
6226-39	2.875	2.876	3.625	3.623	0.375	0.406
6226-40	3.000	3.001	3.750	3.748	0.375	0.406
6226-41	0.125	0.126	0.375	0.373	0.125	0.156
6226-42	0.187	0.188	0.437	0.435	0.125	0.156
6226-43	0.250	0.251	0.500	0.498	0.125	0.156
6226-44	0.312	0.313	0.562	0.560	0.125	0.156
6226-45	0.375	0.376	0.625	0.623	0.125	0.156
6226-46	0.437	0.438	0.687	0.685	0.125	0.156
6226-47	0.500	0.501	0.750	0.748	0.125	0.156
6226-48	0.625	0.626	1.000	0.998	0.187	0.218

SYMMETRICAL U-CUPS

AN6226

For surface finish information please refer to page 17, Surface Finish: ISO 4287. For ISO tolerance, refer to page 18.

For compound descriptions and temperature ranges, please refer to pages 26-37.



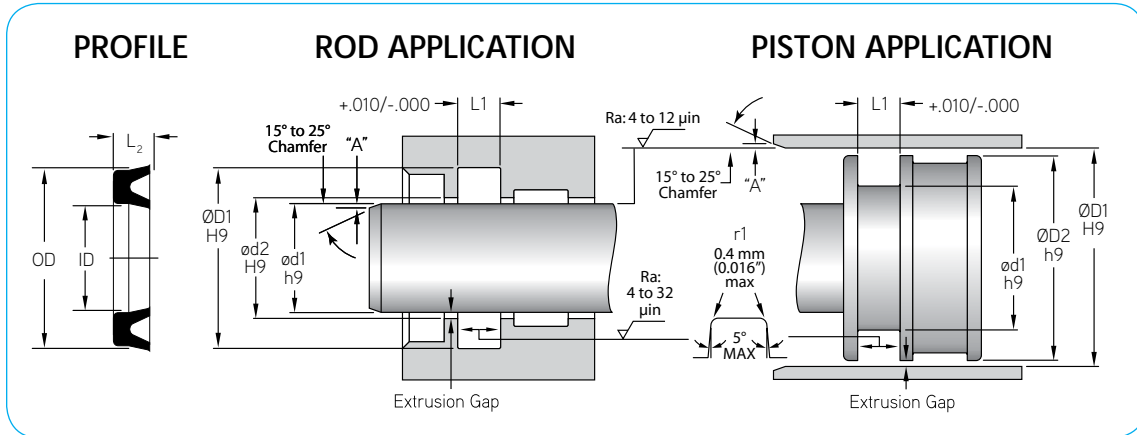
# AN6226 - Symmetrical U-Cup

A product of MFP Seals.

**MFPSEALS**

SYMMETRICAL U-CUPS

AN6226



MFP PART NUMBER	ROD OR PISTON APPLICATION					
	ød1	ød2	ØD1	ØD2	L2	L1
TOLERANCE	h9	H9	H9	h9		+0.010/-0.000
6226-49	0.750	0.751	1.125	1.123	0.187	0.218
6226-50	0.875	0.876	1.250	1.248	0.187	0.218
6226-51	1.000	1.001	1.375	1.373	0.187	0.218
6226-52	1.125	1.126	1.500	1.498	0.187	0.218
6226-53	1.250	1.251	1.625	1.623	0.187	0.218
6226-60	3.250	3.251	4.000	3.998	0.375	0.406
6226-63	3.750	3.751	4.500	4.498	0.375	0.406
6226-65	4.250	4.251	5.000	4.998	0.375	0.406
6226-70	5.125	5.126	6.000	5.998	0.437	0.481
6226-75	6.125	6.126	7.000	6.998	0.437	0.481
6226-80	7.000	7.001	8.000	7.998	0.500	0.550
6226-81	7.500	7.501	8.250	8.248	0.375	0.406
6226-82	8.000	8.001	9.000	8.998	0.500	0.550
6226-85	9.000	9.001	10.000	9.998	0.500	0.550
6226-90	11.000	11.001	12.000	11.998	0.500	0.550
6226-95	13.000	13.001	14.000	13.998	0.500	0.550



**Block Vee - Symmetrical U-Cup**

Block Vee Style U-Cups are very popular in industrial cylinders and can be used as piston or rod seals. Back-up rings are available and required for use above 500 PSI. When used with back-up rings, system pressure should not exceed 2,500 PSI. Style 74 or H rod wipers are required when used as a rod seal. Simple design, used when long service life is required.



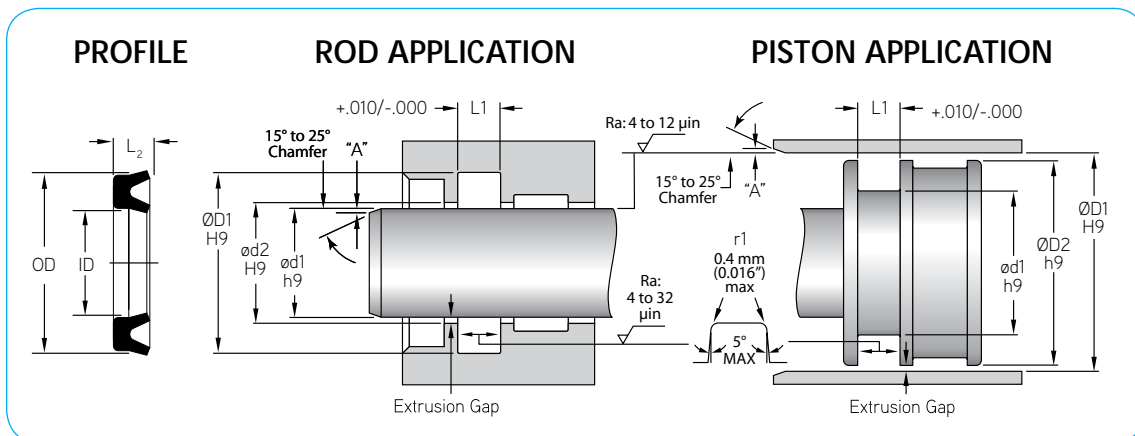
**MFP PART NUMBERS**

**BV-0012-3N6015**

SEAL TYPE | COMPOUND  
INSIDE DIAMETER | C/S OR HT IN 32<sup>ND</sup>S

*This seal is available in compounds N6015 and N6023.*

*For increased chemical and temperature resistance, other compounds are available (See pages 26-37).*



**Pressure:** Pneumatic: 17 bar (250 psi) - Hydraulic: 172 bar (2,500 psi)      **Max. Velocity:** Pneumatic: 1.0 m/s (3 ft/s) - Hydraulic: 0.5 m/s (1.5 ft/s)

MFP PART NUMBER	PISTON APPLICATION						
	ød1	ød2	ØD1	ØD2	L2	L1	C/S
<b>TOLERANCE</b>	h9	H9	H9	h9		+0.010/-0.000	
BV-0012-3	0.125	0.126	0.312	0.311	0.093	0.125	0.093
BV-0018-3	0.187	0.188	0.375	0.374	0.093	0.125	0.093
BV-0018-4	0.187	0.188	0.437	0.436	0.125	0.156	0.125
BV-0025-4	0.250	0.251	0.500	0.499	0.125	0.156	0.125
BV-0031-4	0.312	0.313	0.562	0.561	0.125	0.156	0.125
BV-0037-4	0.375	0.376	0.625	0.624	0.125	0.156	0.125
BV-0043-4	0.437	0.438	0.687	0.686	0.125	0.156	0.125
BV-0050-4	0.500	0.501	0.750	0.749	0.125	0.156	0.125
BV-0056-4	0.562	0.563	0.812	0.811	0.125	0.156	0.125
BV-0062-4	0.625	0.626	0.875	0.874	0.125	0.156	0.125
BV-0068-4	0.687	0.688	0.937	0.936	0.125	0.156	0.125
BV-0075-4	0.750	0.751	1.000	0.999	0.125	0.156	0.125

SYMMETRICAL U-CUPS

BV





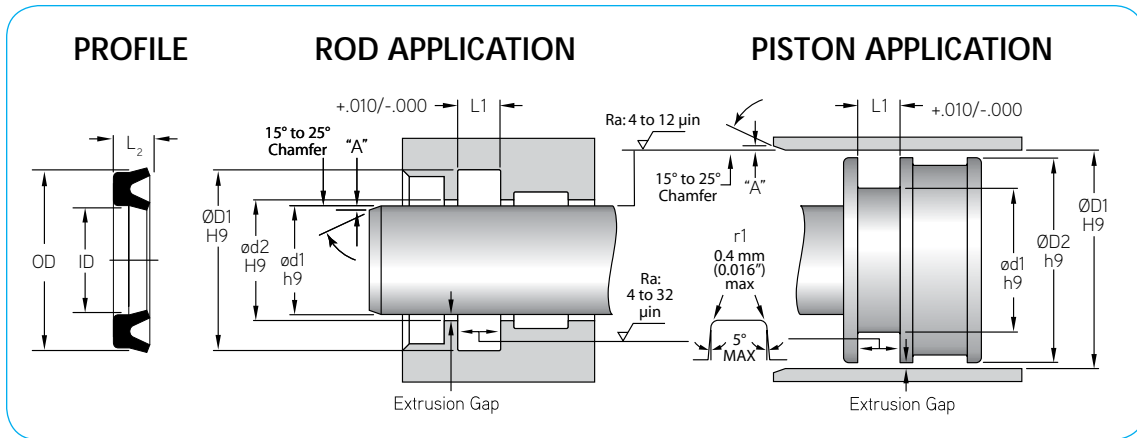
# Block Vee - Symmetrical U-Cup

A product of MFP Seals.

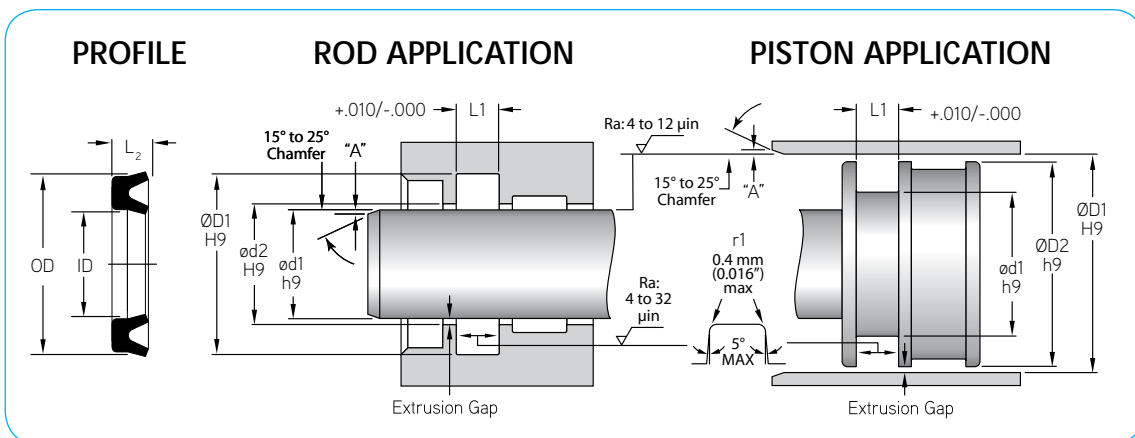
**MFPSEALS**

SYMMETRICAL U-CUPS

BV



MFP PART NUMBER	PISTON APPLICATION						
	ød1	ød2	ØD1	ØD2	L2	L1	C/S
TOLERANCE	h9	H9	H9	h9		+0.010/-0.000	
BV-0081-4	0.812	0.813	1.062	1.061	0.125	0.156	0.125
BV-0087-4	0.875	0.876	1.125	1.124	0.125	0.156	0.125
BV-0093-4	0.937	0.938	1.187	1.186	0.125	0.156	0.125
BV-0093-5	0.937	0.938	1.250	1.249	0.156	0.187	0.156
BV-0100-4	1.000	1.001	1.250	1.249	0.125	0.156	0.125
BV-0100-5	1.000	1.001	1.312	1.311	0.156	0.187	0.156
BV-0106-5	1.062	1.063	1.375	1.374	0.156	0.187	0.156
BV-0112-5	1.125	1.126	1.437	1.436	0.156	0.187	0.156
BV-0118-5	1.187	1.188	1.500	1.499	0.156	0.187	0.156
BV-0125-5	1.250	1.251	1.562	1.561	0.156	0.187	0.156
BV-0131-5	1.312	1.313	1.625	1.624	0.156	0.187	0.156
BV-0137-5	1.375	1.376	1.687	1.686	0.156	0.187	0.156
BV-0143-5	1.437	1.438	1.750	1.749	0.156	0.187	0.156
BV-0150-6	1.500	1.501	1.875	1.874	0.187	0.218	0.187
BV-0162-6	1.625	1.626	2.000	1.999	0.187	0.218	0.187
BV-0175-6	1.750	1.751	2.125	2.124	0.187	0.218	0.187
BV-0187-6	1.875	1.876	2.250	2.249	0.187	0.218	0.187
BV-0200-6	2.000	2.001	2.375	2.374	0.187	0.218	0.187
BV-0212-6	2.125	2.126	2.500	2.499	0.187	0.218	0.187
BV-0225-6	2.250	2.251	2.625	2.624	0.187	0.218	0.187
BV-0237-6	2.375	2.376	2.750	2.749	0.187	0.218	0.187
BV-0250-6	2.500	2.501	2.875	2.874	0.187	0.218	0.187
BV-0256-7	2.562	2.563	3.000	2.999	0.218	0.250	0.218
BV-0275-7	2.750	2.751	3.187	3.186	0.218	0.250	0.218
BV-0281-7	2.812	2.813	3.250	3.249	0.218	0.250	0.218
BV-0300-7	3.000	3.001	3.437	3.436	0.218	0.250	0.218
BV-0306-7	3.062	3.063	3.500	3.499	0.218	0.250	0.218
BV-0331-7	3.312	3.313	3.750	3.749	0.218	0.250	0.218
BV-0350-8	3.500	3.501	4.000	3.999	0.250	0.281	0.250
BV-0375-8	3.750	3.751	4.250	4.249	0.250	0.281	0.250
BV-0400-8	4.000	4.001	4.500	4.499	0.250	0.281	0.250



MFP PART NUMBER	PISTON APPLICATION						
	ød1	ød2	ØD1	ØD2	L2	L1	C/S
TOLERANCE	h9	H9	H9	h9		+0.010/-0.000	
BV-0425-8	4.250	4.251	4.750	4.749	0.250	0.281	0.250
BV-0443-9	4.437	4.438	5.000	4.999	0.281	0.312	0.281
BV-0450-8	4.500	4.501	5.000	4.999	0.250	0.281	0.250
BV-0500-9	5.000	5.001	5.562	5.561	0.281	0.312	0.281
BV-0537-10	5.375	5.376	6.000	5.999	0.312	0.344	0.312
BV-0543-9	5.437	5.438	6.000	5.999	0.281	0.312	0.281
BV-0550-10	5.500	5.501	6.125	6.124	0.312	0.344	0.312
BV-0637-10	6.375	6.376	7.000	6.999	0.312	0.344	0.312
BV-0737-10	7.375	7.376	8.000	7.999	0.312	0.344	0.312
BV-0931-11	9.312	9.313	10.000	9.999	0.343	0.375	0.343
BV-1100-16	11.000	11.001	12.000	11.999	0.500	0.550	0.500
BV-1125-12	11.250	11.251	12.000	11.999	0.375	0.406	0.375
BV-1300-16	13.000	13.001	14.000	13.999	0.500	0.550	0.500

SYMMETRICAL U-CUPS

BV



# HU Series - Symmetrical U-Cup

A product of MFP Seals.



SYMMETRICAL U-CUPS

## HU Series - Symmetrical U-Cup

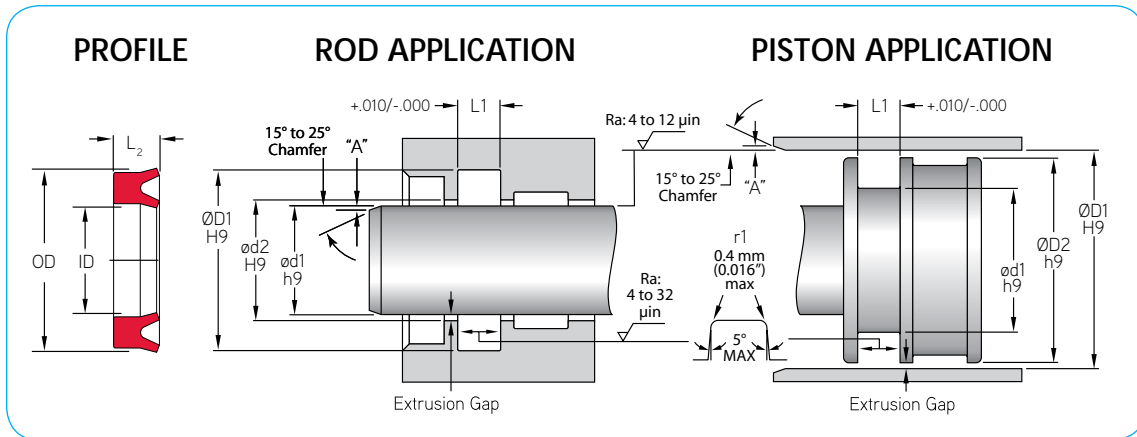
HU Series Symmetrical U-Cups can be used in piston or rod applications. Made from urethane, these seals are the standard in mobile hydraulic cylinders.



This seal is available in  
U2145, U2150, U2151, U4150, and H2155.

### MFP PART NUMBERS

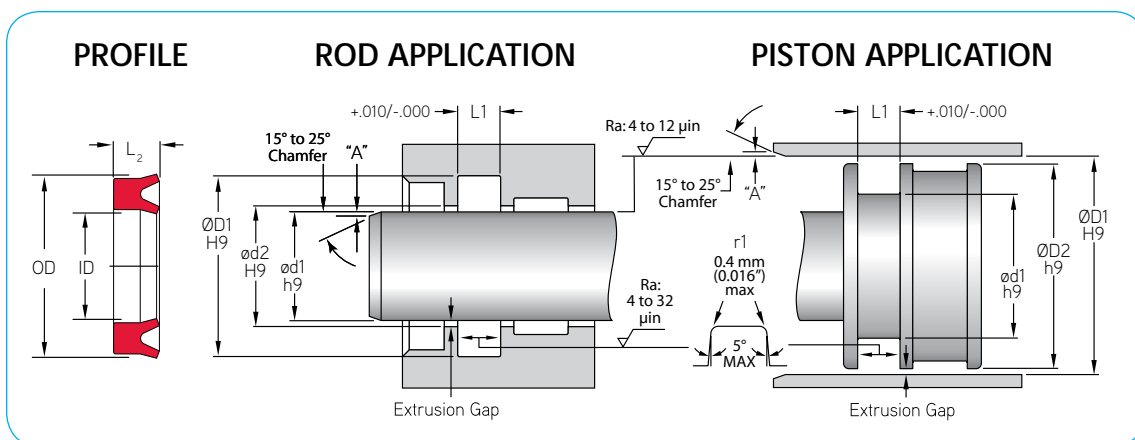
**HU125-00.500-250U2151**  
 SEAL TYPE C/S INSIDE DIAMETER L2 COMPOUND



Pressure: 350 Bar (5,000 psi) Max. Velocity: 0.5 m/s (1.5 ft./s)

### ROD OR PISTON APPLICATION

MFP PART NUMBER	ød1	ød2	ØD1	ØD2	L2	L1
<b>.125" - C/S</b>	h9	H9	H9	h9		+0.010/-0.000
HU125-00.187-187	0.187	0.188	0.437	0.436	0.187	0.206
HU125-00.250-250	0.250	0.251	0.500	0.499	0.250	0.275
HU125-00.312-125	0.312	0.313	0.562	0.561	0.125	0.138
HU125-00.375-125	0.375	0.376	0.625	0.624	0.125	0.138
HU125-00.375-250	0.375	0.376	0.625	0.624	0.250	0.275
HU125-00.437-187	0.437	0.438	0.687	0.686	0.187	0.206
HU-125-00500-125	0.500	0.501	0.750	0.749	0.125	0.138
HU125-00.500-250	0.500	0.501	0.750	0.749	0.250	0.275
HU125-00.625-125	0.625	0.626	0.875	0.874	0.125	0.138
HU125-00.625-187	0.625	0.626	0.875	0.874	0.187	0.206
HU125-00.625-250	0.625	0.626	0.875	0.874	0.250	0.275
HU125-00.750-125	0.750	0.751	1.000	0.999	0.125	0.138
HU125-00.750-187	0.750	0.751	1.000	0.999	0.187	0.206
HU125-00.750-250	0.750	0.751	1.000	0.999	0.250	0.275



SYMMETRICAL U-CUPS

HU

MFP PART NUMBER	ROD OR PISTON APPLICATION					
	ød1	ød2	ØD1	ØD2	L2	L1
<b>.125" - C/S</b>	h9	H9	H9	h9		+0.010/-0.000
HU125-00.875-250	0.875	0.876	1.125	1.124	0.250	0.275
HU125-00.937-250	0.937	0.938	1.188	1.187	0.250	0.275
HU125-01.000-125	1.000	1.001	1.250	1.249	0.125	0.138
HU125-01.000-187	1.000	1.001	1.250	1.249	0.187	0.206
HU125-01.000-250	1.000	1.001	1.250	1.249	0.250	0.275
HU125-01.250-250	1.250	1.251	1.500	1.499	0.250	0.275
HU125-01.375-187	1.375	1.376	1.625	1.624	0.187	0.206
HU125-01.375-250	1.375	1.376	1.625	1.624	0.250	0.275
HU125-01.500-250	1.500	1.501	1.750	1.749	0.250	0.275
HU125-01.625-250	1.625	1.626	1.875	1.874	0.250	0.275
<b>.156" - C/S</b>	h9	H9	H9	h9		+0.010/-0.000
HU156-00.187-250	0.187	0.188	0.500	0.499	0.250	0.275
HU156-00.312-250	0.312	0.313	0.625	0.624	0.250	0.275
HU156-01.000-218	1.000	1.001	1.313	1.312	0.218	0.240
HU156-01.375-218	1.375	1.376	1.688	1.687	0.218	0.240
HU156-01.375-250	1.375	1.376	1.688	1.687	0.250	0.275
<b>.187" - C/S</b>	h9	H9	H9	h9		+0.010/-0.000
HU187-00.500-312	0.500	0.501	0.875	0.874	0.312	0.343
HU187-00.750-312	0.750	0.751	1.125	1.124	0.312	0.343
HU187-00.812-250	0.812	0.813	1.187	1.186	0.250	0.275
HU187-00.937-312	0.937	0.938	1.312	1.311	0.312	0.343
HU187-01.000-187	1.000	1.001	1.375	1.374	0.187	0.206
HU187-01.000-250	1.000	1.001	1.375	1.374	0.250	0.275
HU187-01.000-312	1.000	1.001	1.375	1.374	0.312	0.343
HU187-01.125-187	1.125	1.126	1.500	1.499	0.187	0.206
HU187-01.125-250	1.125	1.126	1.500	1.499	0.250	0.275
HU187-01.125-312	1.125	1.126	1.500	1.499	0.312	0.343
HU187-01.187-312	1.188	1.189	1.562	1.561	0.312	0.343
HU187-01.250-250	1.250	1.251	1.625	1.624	0.250	0.275
HU187-01.250-312	1.250	1.251	1.625	1.624	0.312	0.343
HU187-01.250-375	1.250	1.251	1.625	1.624	0.375	0.413

For surface finish information please refer to page 17, Surface Finish: ISO 4287. For ISO tolerance, refer to page 18.

For compound descriptions and temperature ranges, please refer to pages 26-37.



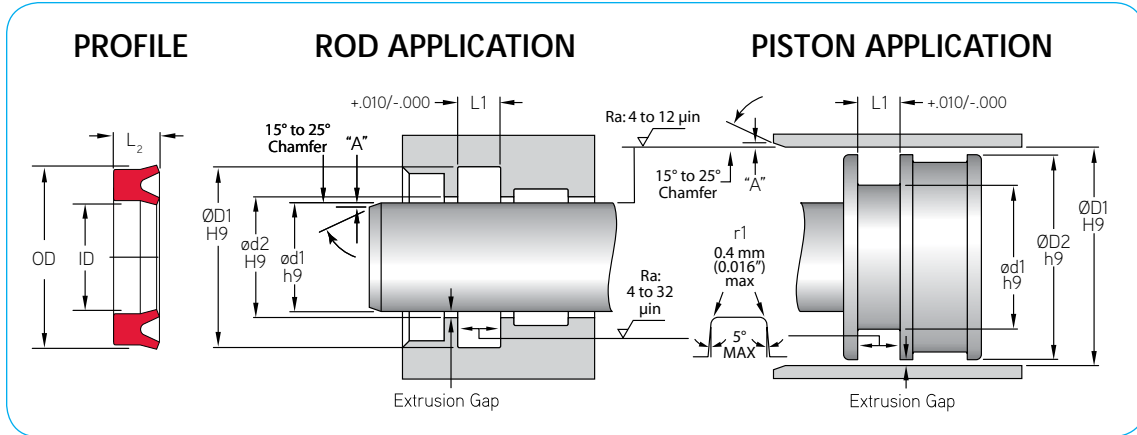
# HU Series - Symmetrical U-Cup

A product of MFP Seals.

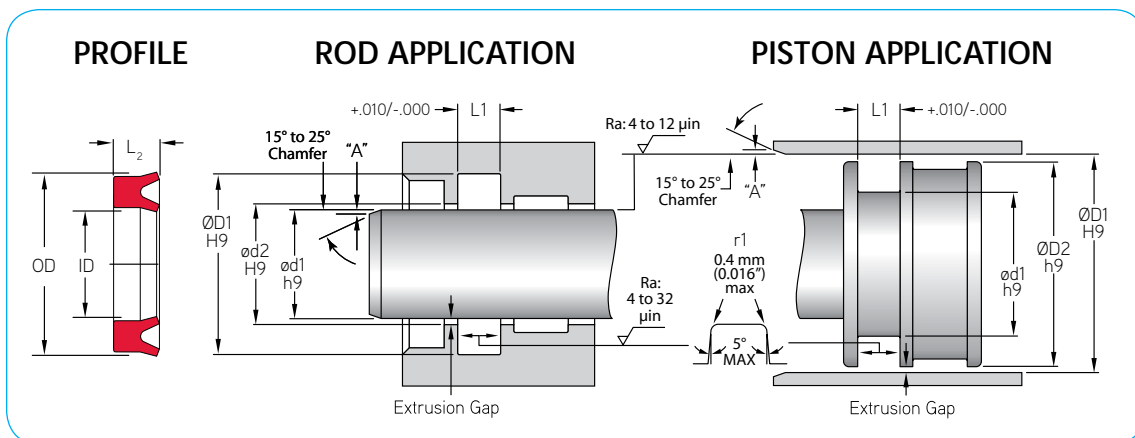
**MFPSEALS**

SYMMETRICAL U-CUPS

HU



MFP PART NUMBER	ROD OR PISTON APPLICATION					
	ød1	ød2	ØD1	ØD2	L2	L1
<b>.187" - C/S</b>	h9	H9	H9	h9		+010/-000
HU187-01.312-312	1.312	1.313	1.687	1.686	0.312	0.343
HU187-01.375-187	1.375	1.376	1.750	1.749	0.187	0.206
HU187-01.375-312	1.375	1.376	1.750	1.749	0.312	0.343
HU187-01.500-187	1.500	1.501	1.875	1.874	0.187	0.206
HU187-01.500-250	1.500	1.501	1.875	1.874	0.250	0.275
HU187-01.500-312	1.500	1.501	1.875	1.874	0.312	0.343
HU187-01.500-375	1.500	1.501	1.875	1.874	0.375	0.413
HU187-01.625-187	1.625	1.626	2.000	1.999	0.187	0.206
HU187-01.625-312	1.625	1.626	2.000	1.999	0.312	0.343
HU187-01.625-375	1.625	1.626	2.000	1.999	0.375	0.413
HU187-01.750-250	1.750	1.751	2.125	2.124	0.250	0.275
HU187-01.750-312	1.750	1.751	2.125	2.124	0.312	0.343
HU187-01.750-375	1.750	1.751	2.125	2.124	0.375	0.413
HU187-01.875-187	1.875	1.876	2.250	2.249	0.187	0.206
HU187-02.000-250	2.000	2.001	2.375	2.374	0.250	0.275
HU187-02.000-312	2.000	2.001	2.375	2.374	0.312	0.343
HU187-02.000-375	2.000	2.001	2.375	2.374	0.375	0.413
HU187-02.125-250	2.125	2.126	2.500	2.499	0.250	0.275
HU187-02.125-312	2.125	2.126	2.500	2.499	0.312	0.343
HU187-02.125-375	2.125	2.126	2.500	2.499	0.375	0.413
HU187-02.250-312	2.250	2.251	2.625	2.624	0.312	0.343
HU187-02.250-375	2.250	2.251	2.625	2.624	0.375	0.413
HU187-02.500-187	2.500	2.501	2.875	2.874	0.187	0.206
HU187-02.500-312	2.500	2.501	2.875	2.874	0.312	0.343
HU187-02.500-375	2.500	2.501	2.875	2.874	0.375	0.413
HU187-02.625-375	2.625	2.626	3.000	2.999	0.375	0.413
HU187-2.875-375	2.875	2.876	3.250	3.249	0.375	0.413
HU187-03.125-375	3.125	3.126	3.500	3.499	0.375	0.413
HU187-03.625-375	3.625	3.626	4.000	3.999	0.375	0.413
HU187-03.750-375	3.750	3.751	4.125	4.124	0.375	0.413



MFP PART NUMBER	ROD OR PISTON APPLICATION					
	Ød1	Ød2	ØD1	ØD2	L2	L1
<b>.218" - C/S</b>	h9	H9	H9	h9		+0.010/-0.000
HU218-00.500-250	0.500	0.501	0.937	0.936	0.250	0.275
HU218-02.500-281	2.500	2.501	2.937	2.936	0.281	0.309
HU218-03.000-312	3.000	3.001	3.437	3.436	0.312	0.343
<b>.250" - C/S</b>	h9	H9	H9	h9		+0.010/-0.000
HU250-00.500-250	0.500	0.501	1.000	0.999	0.250	0.275
HU250-00.625-375	0.625	0.626	1.125	1.124	0.375	0.413
HU250-00.750-250	0.750	0.751	1.250	1.249	0.250	0.275
HU250-00.937-250	0.937	0.938	1.437	1.436	0.250	0.275
HU250-01.000-250	1.000	1.001	1.500	1.499	0.250	0.275
HU250-01.000-375	1.000	1.001	1.500	1.499	0.375	0.413
HU250-01.125-375	1.125	1.126	1.625	1.624	0.375	0.413
HU250-01.187-250	1.187	1.188	1.687	1.686	0.250	0.275
HU250-01.250-250	1.250	1.251	1.750	1.749	0.250	0.275
HU250-01.250-375	1.250	1.251	1.750	1.749	0.375	0.413
HU250-01.375-375	1.375	1.376	1.875	1.874	0.375	0.413
HU250-01.500-250	1.500	1.501	2.000	1.999	0.250	0.275
HU250-01.500-375	1.500	1.501	2.000	1.999	0.375	0.413
HU250-01.625-312	1.625	1.626	2.125	2.124	0.312	0.343
HU250-01.750-375	1.750	1.751	2.250	2.249	0.375	0.413
HU250-02.000-250	2.000	2.001	2.500	2.499	0.250	0.275
HU250-02.000-375	2.000	2.001	2.500	2.499	0.375	0.413
HU250-02.125-375	2.125	2.126	2.625	2.624	0.375	0.413
HU250-02.250-375	2.250	2.251	2.750	2.749	0.375	0.413
HU250-02.500-375	2.500	2.501	3.000	2.999	0.375	0.413
HU250-02.500-500	2.500	2.501	3.000	2.999	0.500	0.550
HU250-02.750-250	2.750	2.751	3.250	3.249	0.250	0.275
HU250-02.750-375	2.750	2.751	3.250	3.249	0.375	0.413
HU250-03.000-375	3.000	3.001	3.500	3.499	0.375	0.413
HU250-03.125-375	3.125	3.126	3.625	3.624	0.375	0.413
HU250-03.250-375	3.250	3.251	3.750	3.749	0.375	0.413
HU250-03.500-250	3.500	3.501	4.000	3.999	0.250	0.275

SYMMETRICAL U-CUPS

HU





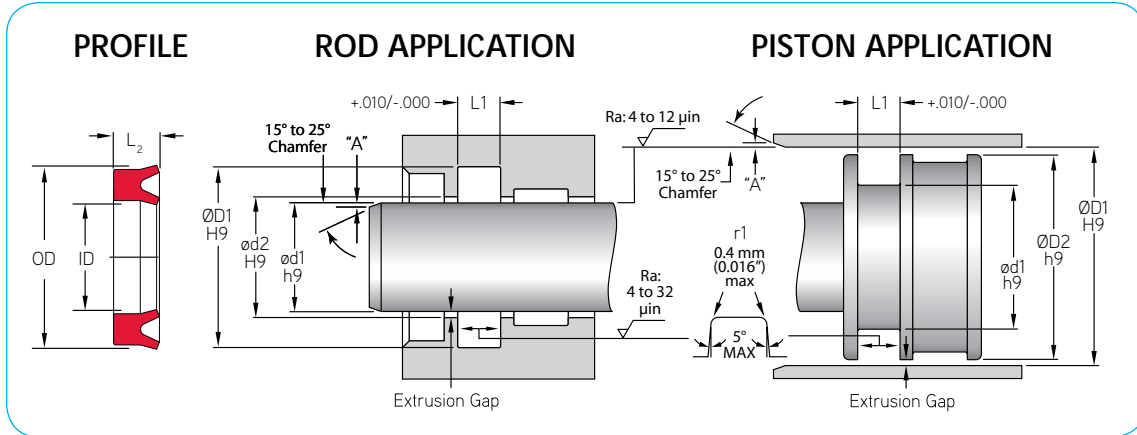
# HU Series - Symmetrical U-Cup

A product of MFP Seals.

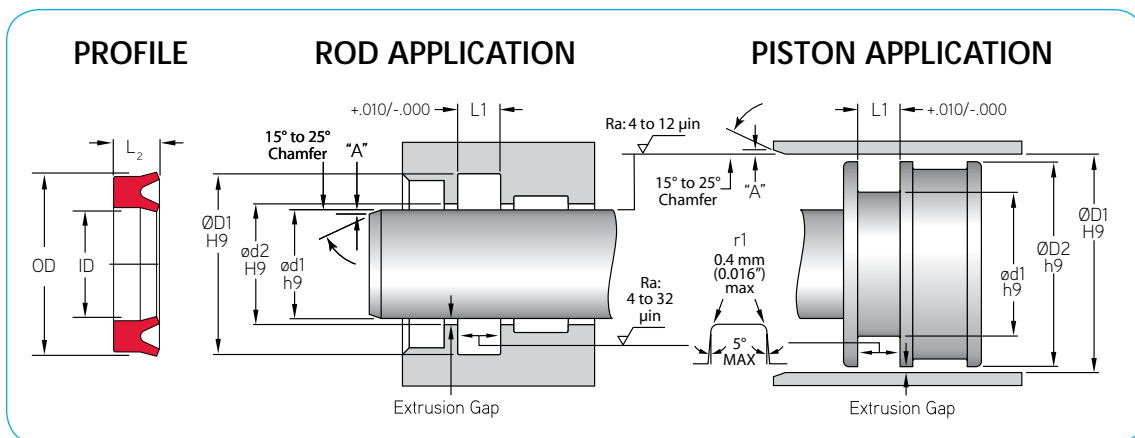
**MFPSEALS**

SYMMETRICAL U-CUPS

HU



MFP PART NUMBER	ROD OR PISTON APPLICATION					
	ød1	ød2	ØD1	ØD2	L2	L1
<b>.250" - C/S</b>	h9	H9	H9	h9		+0.010/-0.000
HU250-03.500-312	3.500	3.501	4.000	3.999	0.312	0.343
HU250-03.500-375	3.500	3.501	4.000	3.999	0.375	0.413
HU250-04.000-375	4.000	4.001	4.500	4.499	0.375	0.413
HU250-04.000-500	4.000	4.001	4.500	4.499	0.500	0.550
HU250-04.000-562	4.000	4.001	4.500	4.499	0.562	0.618
HU250-04.250-562	4.250	4.251	4.750	4.749	0.562	0.618
HU250-04.500-312	4.500	4.501	5.000	4.999	0.312	0.343
HU250-04.500-375	4.500	4.501	5.000	4.999	0.375	0.413
HU250-04.500-500	4.500	4.501	5.000	4.999	0.500	0.550
HU250-04.500-562	4.500	4.501	5.000	4.999	0.562	0.618
HU250-04.625-500	4.625	4.626	5.125	5.124	0.500	0.550
HU250-05.000-562	5.000	5.001	5.500	5.499	0.562	0.618
HU250-05.250-562	5.250	5.251	5.750	5.749	0.562	0.618
HU250-05.500-250	5.500	5.501	6.000	5.999	0.250	0.275
HU250-05.500-375	5.500	5.501	6.000	5.999	0.375	0.413
HU250-05.500-562	5.500	5.501	6.000	5.999	0.562	0.618
HU250-05.750-375	5.750	5.751	6.250	6.249	0.375	0.413
HU250-06.250-562	6.250	6.251	6.750	6.749	0.562	0.618
<b>.312" - C/S</b>	h9	H9	H9	h9		+0.010/-0.000
HU312-01.250-500	1.250	1.251	1.875	1.874	0.500	0.550
HU312-01.375-312	1.375	1.376	2.000	1.999	0.312	0.343
HU312-01.375-375	1.375	1.376	2.000	1.999	0.375	0.413
HU312-01.375-500	1.375	1.376	2.000	1.999	0.500	0.550
HU312-01.500-312	1.500	1.501	2.125	2.124	0.312	0.343
HU312-01.500-437	1.500	1.501	2.125	2.124	0.437	0.481
HU312-01.750-312	1.750	1.751	2.375	2.374	0.312	0.343
HU312-01.750-375	1.750	1.751	2.375	2.374	0.375	0.413
HU312-01.750-500	1.750	1.751	2.375	2.374	0.500	0.550
HU312-02.000-312	2.000	2.001	2.625	2.624	0.312	0.343
HU312-02.000-500	2.000	2.001	2.625	2.624	0.500	0.550
HU312-02.250-375	2.250	2.251	2.875	2.874	0.375	0.413



MFP PART NUMBER	ROD OR PISTON APPLICATION					
	Ød1	Ød2	ØD1	ØD2	L2	L1
<b>.312" - C/S</b>	h9	H9	H9	h9		+0.010/-0.000
HU312-02.250-500	2.250	2.251	2.875	2.874	0.500	0.550
HU312-02.500-500	2.500	2.501	3.125	3.124	0.500	0.550
HU312-02.875-375	2.875	2.876	3.500	3.499	0.375	0.413
HU312-02.875-500	2.875	2.876	3.500	3.499	0.500	0.550
HU312-03.000-500	3.000	3.001	3.625	3.624	0.500	0.550
HU312-03.375-500	3.375	3.376	4.000	3.999	0.500	0.550
HU312-03.750-875	3.750	3.751	4.375	4.374	0.875	0.963
HU312-04.000-375	4.000	4.001	4.625	4.624	0.375	0.413
HU312-04.000-562	4.000	4.001	4.625	4.624	0.562	0.618
HU312-04.375-312	4.375	4.376	5.000	4.999	0.312	0.343
HU312-04.375-375	4.375	4.376	5.000	4.999	0.375	0.413
HU312-04.750-500	4.750	4.751	5.375	5.374	0.500	0.550
HU312-04.750-625	4.750	4.751	5.375	5.374	0.625	0.688
HU312-05.000-375	5.000	5.001	5.625	5.624	0.375	0.413
HU312-05.250-625	5.250	5.251	5.875	5.874	0.625	0.688
HU312-05.375-375	5.375	5.376	6.000	5.999	0.375	0.413
HU312-05.500-375	5.500	5.501	6.125	6.124	0.375	0.413
HU312-05.500-500	5.500	5.501	6.125	6.124	0.500	0.550
HU312-05.500-625	5.500	5.501	6.125	6.124	0.625	0.688
<b>.375" - C/S</b>	h9	H9	H9	h9		+0.010/-0.000
HU375-01.250-375	1.250	1.251	2.000	1.999	0.375	0.413
HU375-01.750-375	1.750	1.751	2.500	2.499	0.375	0.413
HU375-02.000-375	2.000	2.001	2.750	2.749	0.375	0.413
HU375-02.250-500	2.250	2.251	3.000	2.999	0.500	0.550
HU375-02.375-375	2.375	2.376	3.125	3.124	0.375	0.413
HU375-02.500-375	2.500	2.501	3.250	3.249	0.375	0.413
HU375-02.500-500	2.500	2.501	3.250	3.249	0.500	0.550
HU375-02.750-375	2.750	2.751	3.500	3.499	0.375	0.413
HU375-02.750-500	2.750	2.751	3.500	3.499	0.500	0.550
HU375-03.000-375	3.000	3.001	3.750	3.749	0.375	0.413
HU375-03.000-500	3.000	3.001	3.750	3.749	0.500	0.550

SYMMETRICAL U-CUPS

HU



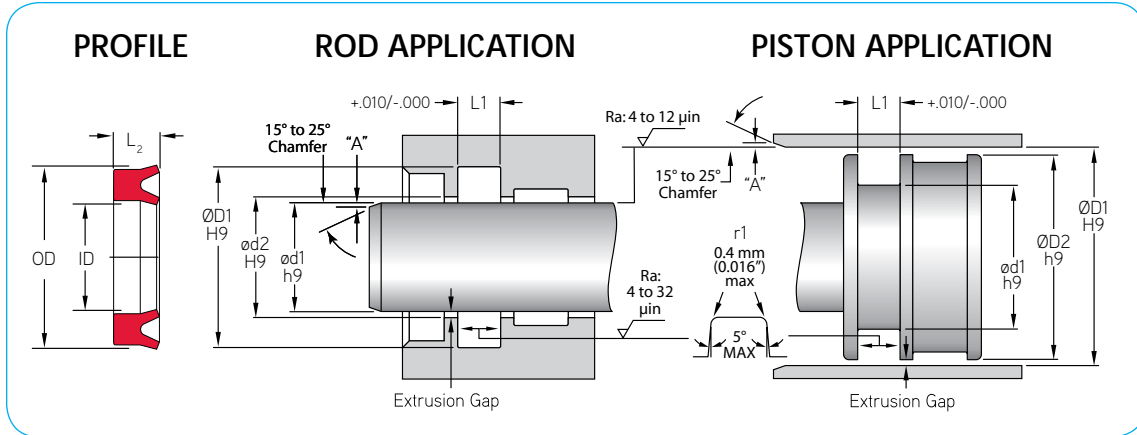
# HU Series - Symmetrical U-Cup

A product of MFP Seals.

**MFPSEALS**

SYMMETRICAL U-CUPS

HU

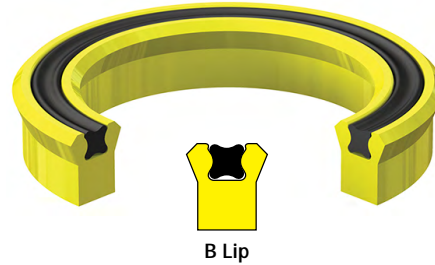


MFP PART NUMBER	ROD OR PISTON APPLICATION					
	ød1	ød2	ØD1	ØD2	L2	L1
<b>.375" - C/S</b>	h9	H9	H9	h9		+0.010/-0.000
HU375-03.000-625	3.000	3.001	3.750	3.749	0.625	0.688
HU375-03.250-500	3.250	3.251	4.000	3.999	0.500	0.550
HU375-03.250-625	3.250	3.251	4.000	3.999	0.625	0.688
HU375-03.500-500	3.500	3.501	4.250	4.249	0.500	0.550
HU375-03.750-375	3.750	3.751	4.500	4.499	0.375	0.413
HU375-03.750-500	3.750	3.751	4.500	4.499	0.500	0.550
HU375-04.000-500	4.000	4.001	4.750	4.749	0.500	0.550
HU375-04.000-625	4.000	4.001	4.750	4.749	0.625	0.688
HU375-04.250-375	4.250	4.251	5.000	4.999	0.375	0.413
HU375-04.250-500	4.250	4.251	5.000	4.999	0.500	0.550
HU375-04.250-625	4.250	4.251	5.000	4.999	0.625	0.688
HU375-04.500-500	4.500	4.501	5.250	5.249	0.500	0.550
HU375-04.500-625	4.500	4.501	5.250	5.249	0.625	0.688
HU375-05.250-375	5.250	5.251	6.000	5.999	0.375	0.413
HU375-05.250-500	5.250	5.251	6.000	5.999	0.500	0.550
HU375-05.250-625	5.250	5.251	6.000	5.999	0.625	0.688
HU375-05.500-625	5.500	5.501	6.250	6.249	0.625	0.688
HU375-06.250-375	6.250	6.251	7.000	6.999	0.375	0.413
HU375-06.250-500	6.250	6.251	7.000	6.999	0.500	0.550
HU375-06.250-625	6.250	6.251	7.000	6.999	0.625	0.688
HU375-07.000-500	7.000	7.001	7.750	7.749	0.500	0.550
HU375-07.250-500	7.250	7.251	8.000	7.999	0.500	0.550
HU375-07.250-625	7.250	7.251	8.000	7.999	0.625	0.688
<b>.500" - C/S</b>	h9	H9	H9	h9		+0.010/-0.000
HU500-04.750-500	4.750	4.751	5.750	5.749	0.500	0.550
HU500-05.000-500	5.000	5.001	6.000	5.999	0.500	0.550
HU500-05.000-750	5.000	5.001	6.000	5.999	0.750	0.825
HU500-07.000-750	7.000	7.001	8.000	7.999	0.750	0.825
HU500-07.500-750	7.500	7.501	8.500	8.499	0.750	0.825



**XP - X-PAC® Loaded B-Lip Symmetrical U-Cup**

X-PAC® U-Cups are a very versatile reciprocating seal design, for use up to 350 bar (5,000 psi). The rubber expander creates a compression style seal while still operating as a pressure actuated U-Cup design. The result is better low-pressure sealing and less startup leakage. The primary function of a B-Lip X-PAC® is for linear rod applications. However, they can also be used for piston applications when straight lip tooling is not available. MFP Seals' X-PAC® U-Cups feature a knife trimmed sealing lip for increased sealability.



B Lip

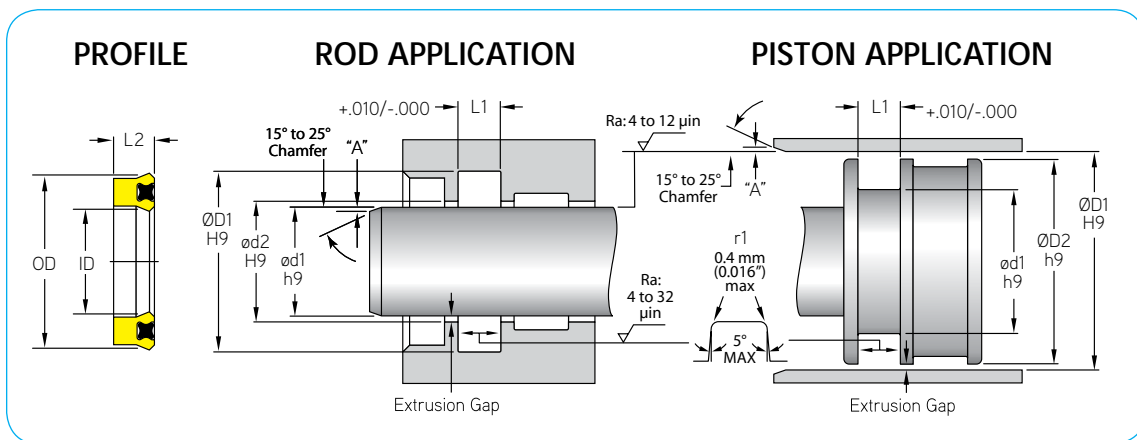
The standard compound for this seal is U2145, with an N6014 Expander. It is also available in compounds U2150, U2151, U4150 and H2155.

**MFP PART NUMBERS**

**XP-125-00.375-125BU2145**

SEAL TYPE	ød1	L2	COMPOUND
CROSS SECTION		PROFILE STYLE	

PROFILE STYLE CODES: B = B Lip, No Code for Straight Lip (Standard)



Pressure: 350 bar (5,000 psi)

Max. Velocity: 0.5 m/s (1.5 ft./s)

SYMMETRICAL U-CUPS

XP - X-PAC®



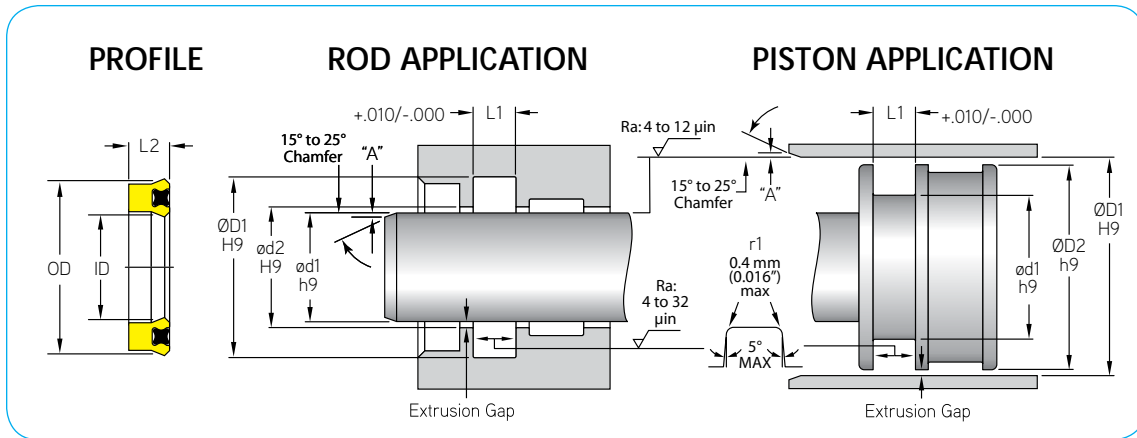
# X-PAC® Loaded B-Lip - Symmetrical U-Cup

A product of MFP Seals.

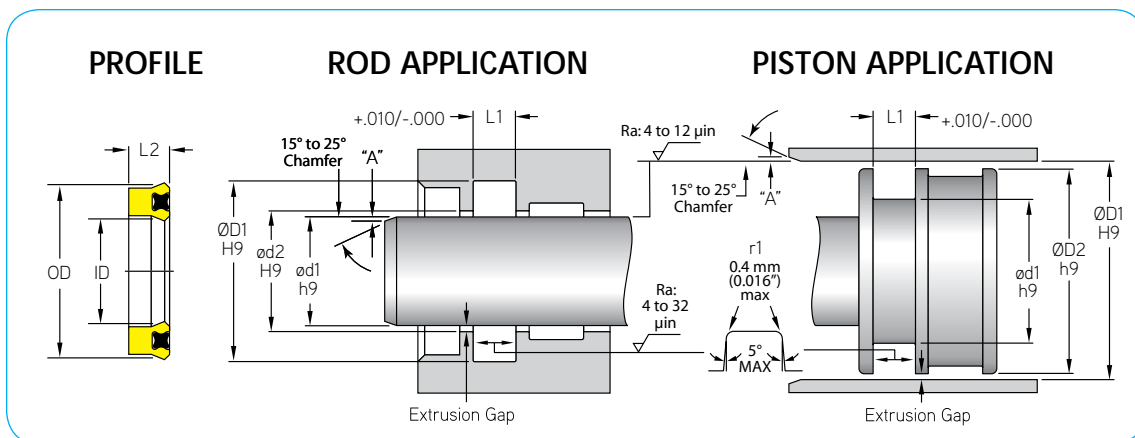


SYMMETRICAL U-CUPS

XP - X-PAC®



MFP PART NUMBER	PROFILE STYLE	ROD OR PISTON APPLICATION					
		ød1	ød2	ØD1	ØD2	L2	L1
<b>.125" - C/S</b>		h9	H9	H9	h9		+0.010/-0.000
XP-125-00.750-125B	B Lip	0.750	0.751	1.000	0.999	0.125	0.138
XP-125-00.750-250B	B Lip	0.750	0.751	1.000	0.999	0.250	0.275
XP-125-00.875-250B	B Lip	0.875	0.876	1.125	1.124	0.250	0.275
XP-125-01.000-250B	B Lip	1.000	1.001	1.250	1.249	0.250	0.275
XP-125-01.125-125B	B Lip	1.125	1.126	1.375	1.374	0.125	0.138
XP-125-01.250-125B	B Lip	1.250	1.251	1.500	1.499	0.125	0.138
XP-125-01.250-187B	B Lip	1.250	1.251	1.500	1.499	0.187	0.207
XP-125-01.250-250B	B Lip	1.250	1.251	1.500	1.499	0.250	0.275
XP-125-01.500-187B	B Lip	1.500	1.501	1.750	1.749	0.187	0.207
XP-125-01.375-250B	B Lip	1.375	1.376	1.625	1.624	0.250	0.275
XP-125-01.750-250B	B Lip	1.750	1.751	2.000	1.999	0.250	0.275
XP-125-02.000-250B	B Lip	2.000	2.001	2.250	2.249	0.250	0.275
XP-125-02.750-375B	B Lip	2.750	2.751	3.000	2.999	0.375	0.413
<b>.187" - C/S</b>		h9	H9	H9	h9		+0.010/-0.000
XP-187-00.625-250B	B Lip	0.625	0.626	1.000	0.999	0.250	0.275
XP-187-00.875-312B	B Lip	0.875	0.876	1.250	1.249	0.312	0.344
XP-187-01.000-312B	B Lip	1.000	1.001	1.375	1.374	0.312	0.344
XP-187-01.000-375B	B Lip	1.000	1.001	1.375	1.374	0.375	0.413
XP-187-01.125-250B	B Lip	1.125	1.126	1.500	1.499	0.250	0.275
XP-187-01.125-312B	B Lip	1.125	1.126	1.500	1.499	0.312	0.344
XP-187-01.125-375B	B Lip	1.125	1.126	1.500	1.499	0.375	0.413
XP-187-01.187-312B	B Lip	1.187	1.188	1.562	1.561	0.312	0.344
XP-187-01.250-250B	B Lip	1.250	1.251	1.625	1.624	0.250	0.275
XP-187-01.250-312B	B Lip	1.250	1.251	1.625	1.624	0.312	0.344
XP-187-01.250-375B	B Lip	1.250	1.251	1.625	1.624	0.375	0.413
XP-187-01.375-250B	B Lip	1.375	1.376	1.750	1.749	0.250	0.275
XP-187-01.375-312B	B Lip	1.375	1.376	1.750	1.749	0.312	0.344
XP-187-01.375-375B	B Lip	1.375	1.376	1.750	1.749	0.375	0.413
XP-187-01.500-250B	B Lip	1.500	1.501	1.875	1.874	0.250	0.275
XP-187-01.500-312B	B Lip	1.500	1.501	1.875	1.874	0.312	0.344
XP-187-01.500-375B	B Lip	1.500	1.501	1.875	1.874	0.375	0.413



MFP PART NUMBER	PROFILE STYLE	ROD OR PISTON APPLICATION					
		ød1	ød2	ØD1	ØD2	L2	L1
<b>.187" - C/S</b>		h9	H9	H9	h9		+0.010/-0.000
XP-187-01.625-312B	B Lip	1.625	1.626	2.000	1.999	0.312	0.344
XP-187-01.625-375B	B Lip	1.625	1.626	2.000	1.999	0.375	0.413
XP-187-01.750-375B	B Lip	1.750	1.751	2.125	2.124	0.375	0.413
XP-187-01.875-375B	B Lip	1.875	1.876	2.250	2.249	0.375	0.413
XP-187-02.000-375B	B Lip	2.000	2.001	2.375	2.374	0.375	0.413
XP-187-02.125-187B	B Lip	2.125	2.126	2.500	2.499	0.187	0.207
XP-187-02.125-250B	B Lip	2.125	2.126	2.500	2.499	0.250	0.275
XP-187-02.125-375B	B Lip	2.125	2.126	2.500	2.499	0.375	0.413
XP-187-02.250-375B	B Lip	2.250	2.251	2.625	2.624	0.375	0.413
XP-187-02.375-375B	B Lip	2.375	2.376	2.750	2.749	0.375	0.413
XP-187-02.500-375B	B Lip	2.500	2.501	2.875	2.874	0.375	0.413
XP-187-02.625-375B	B Lip	2.625	2.626	3.000	2.999	0.375	0.413
XP-187-02.750-375B	B Lip	2.750	2.751	3.125	3.124	0.375	0.413
XP-187-02.875-375B	B Lip	2.875	2.876	3.250	3.249	0.375	0.413
XP-187-03.000-375B	B Lip	3.000	3.001	3.375	3.374	0.375	0.413
XP-187-03.125-375B	B Lip	3.125	3.126	3.500	3.499	0.375	0.413
XP-187-03.500-375B	B Lip	3.500	3.501	3.875	3.874	0.375	0.413
XP-187-03.625-375B	B Lip	3.625	3.626	4.000	3.999	0.375	0.413
XP-187-03.750-375B	B Lip	3.750	3.751	4.125	4.124	0.375	0.413
<b>.250" - C/S</b>		h9	H9	H9	h9		+0.010/-0.000
XP-250-00.500-375B	B Lip	0.500	0.501	1.000	0.999	0.375	0.413
XP-250-00.625-375B	B Lip	0.625	0.626	1.125	1.124	0.375	0.413
XP-250-01.000-250B	B Lip	1.000	1.001	1.500	1.499	0.250	0.275
XP-250-01.000-375B	B Lip	1.000	1.001	1.500	1.499	0.375	0.413
XP-250-01.125-375B	B Lip	1.125	1.126	1.625	1.624	0.375	0.413
XP-250-01.250-375B	B Lip	1.250	1.251	1.750	1.749	0.375	0.413
XP-250-01.375-375B	B Lip	1.375	1.376	1.875	1.874	0.375	0.413
XP-250-01.500-375B	B Lip	1.500	1.501	2.000	1.999	0.375	0.413
XP-250-01.750-375B	B Lip	1.750	1.751	2.250	2.249	0.375	0.413
XP-250-02.000-375B	B Lip	2.000	2.001	2.500	2.499	0.375	0.413
XP-250-02.125-375B	B Lip	2.125	2.126	2.625	2.624	0.375	0.413

SYMMETRICAL U-CUPS

XP - X-PAC®





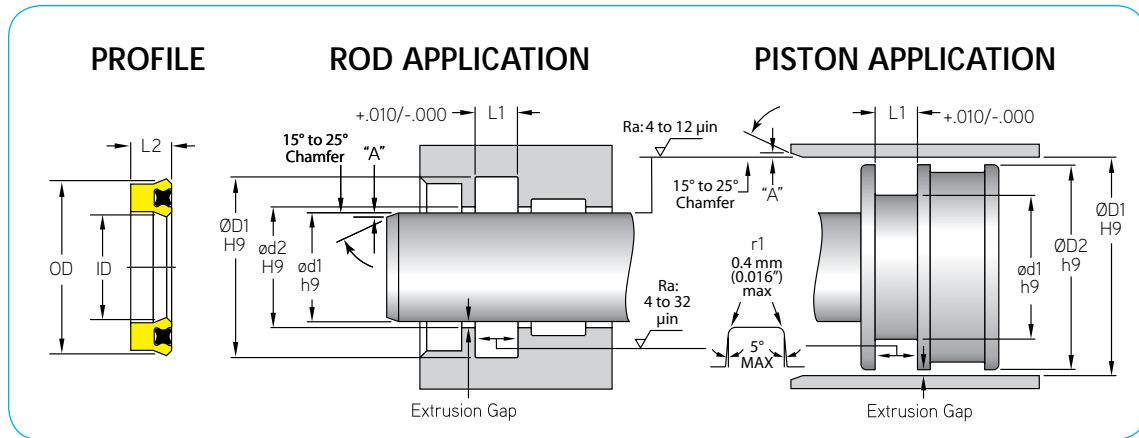
# X-PAC® Loaded B-Lip - Symmetrical U-Cup

A product of MFP Seals.

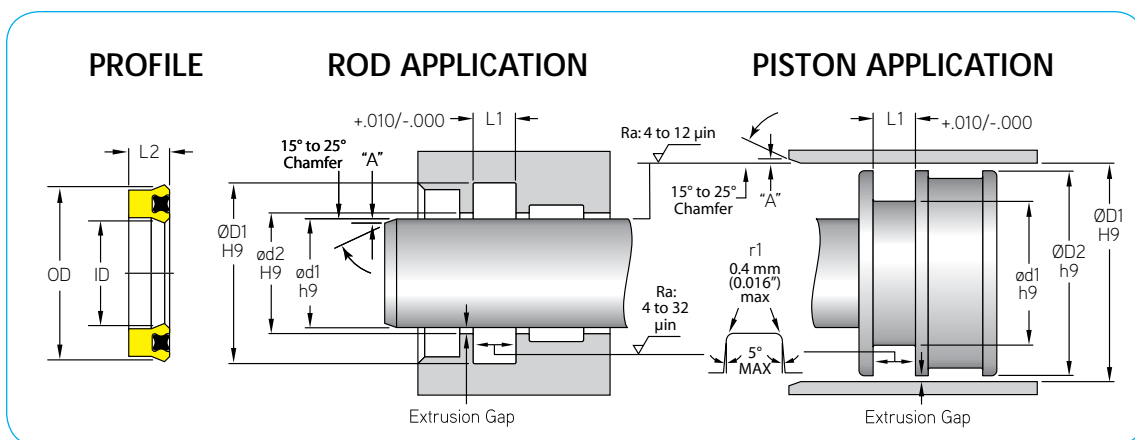
**MFPSEALS®**

SYMMETRICAL U-CUPS

XP - X-PAC®



MFP PART NUMBER	PROFILE STYLE	ROD OR PISTON APPLICATION					
		ød1	ød2	ØD1	ØD2	L2	L1
<b>.250" - C/S</b>		h9	H9	H9	h9		+010/-000
XP-250-02.250-375B	B Lip	2.250	2.251	2.750	2.749	0.375	0.413
XP-250-02.500-312B	B Lip	2.500	2.501	3.000	2.999	0.312	0.344
XP-250-02.500-375B	B Lip	2.500	2.501	3.000	2.999	0.375	0.413
XP-250-02.500-500B	B Lip	2.500	2.501	3.000	2.999	0.500	0.550
XP-250-02.750-375B	B Lip	2.750	2.751	3.250	3.249	0.375	0.413
XP-250-03.000-375B	B Lip	3.000	3.001	3.500	3.499	0.375	0.413
XP-250-03.125-375B	B Lip	3.125	3.126	3.625	3.624	0.375	0.413
XP-250-03.250-375B	B Lip	3.250	3.251	3.750	3.749	0.375	0.413
XP-250-03.500-250B	B Lip	3.500	3.501	4.000	3.999	0.250	0.275
XP-250-03.500-375B	B Lip	3.500	3.501	4.000	3.999	0.375	0.413
XP-250-03.750-375B	B Lip	3.750	3.751	4.250	4.249	0.375	0.413
XP-250-04.000-250B	B Lip	4.000	4.001	4.500	4.499	0.250	0.275
XP-250-04.000-375B	B Lip	4.000	4.001	4.500	4.499	0.375	0.413
XP-250-04.000-500B	B Lip	4.000	4.001	4.500	4.499	0.500	0.550
XP-250-04.000-562B	B Lip	4.000	4.001	4.500	4.499	0.562	0.619
XP-250-04.250-562B	B Lip	4.250	4.251	4.750	4.749	0.562	0.619
XP-250-04.500-250B	B Lip	4.500	4.501	5.000	4.999	0.250	0.275
XP-250-04.500-375B	B Lip	4.500	4.501	5.000	4.999	0.375	0.413
XP-250-04.500-500B	B Lip	4.500	4.501	5.000	4.999	0.500	0.550
XP-250-04.500-562B	B Lip	4.500	4.501	5.000	4.999	0.562	0.619
XP-250-04.625-500B	B Lip	4.625	4.626	5.125	5.124	0.500	0.550
XP-250-04.750-562B	B Lip	4.750	4.751	5.250	5.249	0.562	0.619
XP-250-05.000-375B	B Lip	5.000	5.001	5.500	5.499	0.375	0.413
XP-250-05.000-562B	B Lip	5.000	5.001	5.500	5.499	0.562	0.619
XP-250-05.250-562B	B Lip	5.250	5.251	5.750	5.749	0.562	0.619
XP-250-05.250-750B	B Lip	5.250	5.251	5.750	5.749	0.750	0.825
XP-250-05.500-375B	B Lip	5.500	5.001	6.000	5.999	0.375	0.413
XP-250-05.500-562B	B Lip	5.500	5.001	6.000	5.999	0.562	0.619
XP-250-05.750-375B	B Lip	5.750	5.751	6.250	6.249	0.375	0.413
XP-250-06.250-562B	B Lip	6.250	6.251	6.750	6.749	0.562	0.619
XP-250-06.500-375B	B Lip	6.500	6.501	7.000	6.999	0.375	0.413



MFP PART NUMBER	PROFILE STYLE	ROD OR PISTON APPLICATION					
		ød1	ød2	ØD1	ØD2	L2	L1
<b>.312" - C/S</b>		h9	H9	H9	h9		+0.010/-0.000
XP-312-00.875-562B	B Lip	0.875	0.877	1.500	1.498	0.562	0.619
XP-312-01.000-375B	B Lip	1.000	1.002	1.625	1.623	0.375	0.413
XP-312-01.000-500B	B Lip	1.000	1.002	1.625	1.623	0.500	0.550
XP-312-01.250-500B	B Lip	1.250	1.252	1.875	1.873	0.500	0.550
XP-312-01.375-312B	B Lip	1.375	1.377	2.000	1.998	0.312	0.344
XP-312-01.375-375B	B Lip	1.375	1.377	2.000	1.998	0.375	0.413
XP-312-01.375-500B	B Lip	1.375	1.377	2.000	1.998	0.500	0.550
XP-312-01.500-437B	B Lip	1.500	1.502	2.125	2.123	0.437	0.483
XP-312-01.750-375B	B Lip	1.750	1.752	2.375	2.373	0.375	0.413
XP-312-01.750-500B	B Lip	1.750	1.752	2.375	2.373	0.500	0.550
XP-312-02.000-500B	B Lip	2.000	2.002	2.625	2.623	0.500	0.550
XP-312-02.250-375B	B Lip	2.250	2.252	2.875	2.873	0.375	0.413
XP-312-02.250-500B	B Lip	2.250	2.252	2.875	2.873	0.500	0.550
XP-312-02.375-500B	B Lip	2.375	2.377	3.000	2.998	0.500	0.550
XP-312-02.500-500B	B Lip	2.500	2.502	3.125	3.123	0.500	0.550
XP-312-02.625-500B	B Lip	3.625	3.627	3.250	3.248	0.500	0.550
XP-312-02.750-500B	B Lip	2.750	2.752	3.375	3.373	0.500	0.550
XP-312-02.875-375B	B Lip	2.875	2.877	3.500	3.498	0.375	0.413
XP-312-02.875-500B	B Lip	2.875	2.877	3.500	3.498	0.500	0.550
XP-312-03.000-500B	B Lip	3.000	3.002	3.625	3.623	0.500	0.550
XP-312-03.250-500B	B Lip	3.250	3.252	3.875	3.873	0.500	0.550
XP-312-03.375-500B	B Lip	3.375	3.377	4.000	3.998	0.500	0.550
XP-312-03.625-375B	B Lip	3.625	3.627	4.250	4.248	0.375	0.413
XP-312-03.750-500B	B Lip	3.750	3.752	4.375	4.373	0.500	0.550
XP-312-03.750-875B	B Lip	3.750	3.752	4.375	4.373	0.875	0.963
XP-312-04.000-375B	B Lip	4.000	4.002	4.625	4.623	0.375	0.413
XP-312-04.000-562B	B Lip	4.000	4.002	4.625	4.623	0.562	0.619
XP-312-04.375-375B	B Lip	4.375	4.377	5.000	4.998	0.375	0.413
XP-312-04.500-625B	B Lip	4.500	4.502	5.125	5.123	0.625	0.688
XP-312-04.750-500B	B Lip	4.750	4.752	5.375	5.373	0.500	0.550
XP-312-04.750-625B	B Lip	4.750	4.752	5.375	5.373	0.625	0.688
XP-312-05.000-375B	B Lip	5.000	5.002	5.625	5.623	0.375	0.413

SYMMETRICAL U-CUPS

XP - X-PAC®

For surface finish information please refer to page 17, Surface Finish: ISO 4287. For ISO tolerance, refer to page 18.

For compound descriptions and temperature ranges, please refer to pages 26-37.



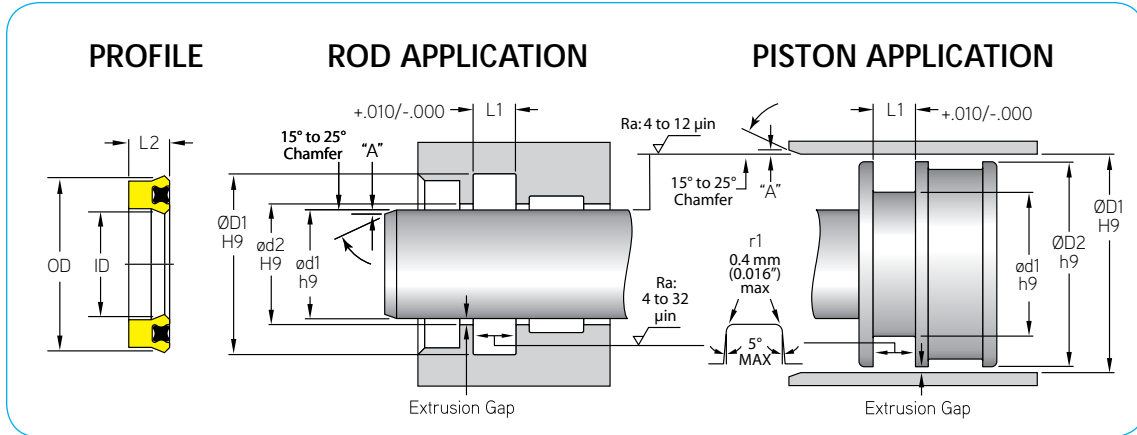
# X-PAC® Loaded U-Cup - Symmetrical B-Lip

A product of MFP Seals.

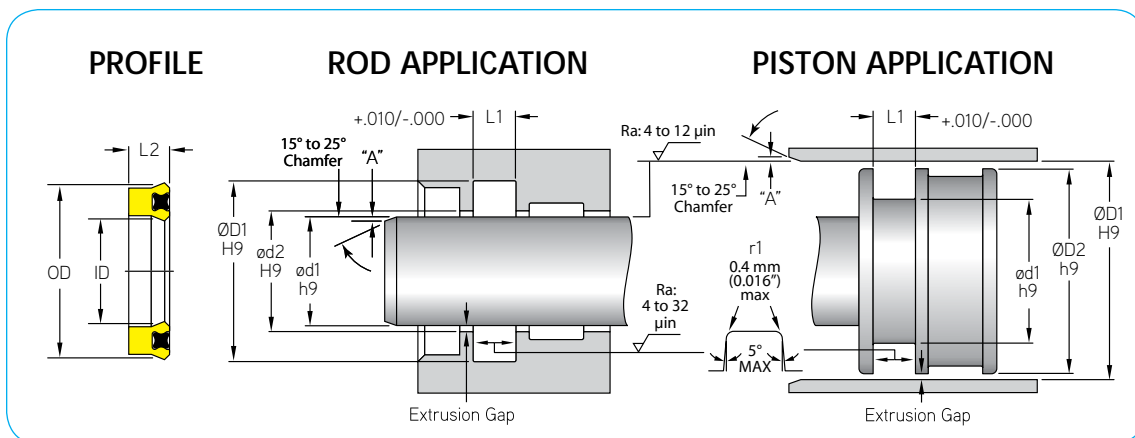


SYMMETRICAL U-CUPS

XP - X-PAC®



MFP PART NUMBER	PROFILE STYLE	ROD OR PISTON APPLICATION					
		ød1	ød2	ØD1	ØD2	L2	L1
<b>.312" - C/S</b>		h9	H9	H9	h9		+0.010/-0.000
XP-312-05.000-625B	B Lip	5.000	5.002	5.625	5.623	0.625	0.688
XP-312-05.250-625B	B Lip	5.250	5.252	5.875	5.873	0.625	0.688
XP-312-05.375-375B	B Lip	5.375	5.377	6.000	5.998	0.375	0.413
XP-312-05.500-375B	B Lip	5.500	5.502	6.125	6.123	0.375	0.413
XP-312-05.500-500B	B Lip	5.500	5.502	6.125	6.123	0.500	0.550
XP-312-05.500-625B	B Lip	5.500	5.502	6.125	6.123	0.625	0.688
<b>.375" - C/S</b>		h9	H9	H9	h9		+0.010/-0.000
XP-375-01.250-375B	B Lip	1.250	1.252	2.000	1.998	0.375	0.413
XP-375-01.750-375B	B Lip	1.750	1.752	2.500	2.498	0.375	0.413
XP-375-01.750-625B	B Lip	1.750	1.752	2.500	2.498	0.625	0.688
XP-375-02.000-375B	B Lip	2.000	2.002	2.750	2.748	0.375	0.413
XP-375-02.000-625B	B Lip	2.000	2.002	2.750	2.748	0.625	0.688
XP-375-02.250-500B	B Lip	2.250	2.252	3.000	2.998	0.500	0.550
XP-375-02.375-375B	B Lip	2.375	2.377	3.125	3.123	0.375	0.413
XP-375-02.500-375B	B Lip	2.500	2.502	3.250	3.248	0.375	0.413
XP-375-02.500-500B	B Lip	2.500	2.502	3.250	3.248	0.500	0.550
XP-375-02.750-375B	B Lip	2.750	2.752	3.500	3.498	0.375	0.413
XP-375-02.750-500B	B Lip	2.750	2.752	3.500	3.498	0.500	0.550
XP-375-03.000-375B	B Lip	3.000	3.002	3.750	3.748	0.375	0.413
XP-375-03.000-500B	B Lip	3.000	3.002	3.750	3.748	0.500	0.550
XP-375-03.000-625B	B Lip	3.000	3.002	3.750	3.748	0.625	0.688
XP-375-03.250-500B	B Lip	3.250	3.252	4.000	3.998	0.500	0.550
XP-375-03.250-625B	B Lip	3.250	3.252	4.000	3.998	0.625	0.688
XP-375-03.500-500B	B Lip	3.500	3.502	4.250	4.248	0.500	0.550
XP-375-03.750-375B	B Lip	3.750	3.752	4.500	4.498	0.375	0.413
XP-375-03.750-500B	B Lip	3.750	3.752	4.500	4.498	0.500	0.550
XP-375-04.000-500B	B Lip	4.000	4.002	4.750	4.748	0.500	0.550
XP-375-04.000-625B	B Lip	4.000	4.002	4.750	4.748	0.625	0.688
XP-375-04.250-375B	B Lip	4.250	4.252	5.000	4.998	0.375	0.413
XP-375-04.250-500B	B Lip	4.250	4.252	5.000	4.998	0.500	0.550
XP-375-04.250-625B	B Lip	4.250	4.252	5.000	4.998	0.625	0.688
XP-375-04.500-500B	B Lip	4.500	4.502	5.250	5.248	0.500	0.550



MFP PART NUMBER	PROFILE STYLE	ROD OR PISTON APPLICATION					
		ød1	ød2	ØD1	ØD2	L2	L1
<b>.375" - C/S</b>		h9	H9	H9	h9		+0.010/-0.000
XP-375-04.500-625B	B Lip	4.500	4.502	5.250	5.248	0.625	0.688
XP-375-04.750-500B	B Lip	4.750	4.752	5.500	5.498	0.500	0.550
XP-375-05.250-375B	B Lip	5.250	5.252	6.000	5.998	0.375	0.413
XP-375-05.250-500B	B Lip	5.250	5.252	6.000	5.998	0.500	0.550
XP-375-05.250-562B	B Lip	5.250	5.252	6.000	5.998	0.562	0.619
XP-375-05.250-625B	B Lip	5.250	5.252	6.000	5.998	0.625	0.688
XP-375-05.500-625B	B Lip	5.500	5.502	6.250	6.248	0.625	0.688
XP-375-06.250-375B	B Lip	6.250	6.252	7.000	6.998	0.375	0.413
XP-375-06.250-500B	B Lip	6.250	6.252	7.000	6.998	0.500	0.550
XP-375-06.250-625B	B Lip	6.250	6.252	7.000	6.998	0.625	0.688
XP-375-07.000-500B	B Lip	7.000	7.002	7.750	7.748	0.500	0.550
XP-375-07.250-500B	B Lip	7.250	7.252	8.000	7.998	0.500	0.550
XP-375-07.250-625B	B Lip	7.250	7.252	8.000	7.998	0.625	0.688
XP-375-08.750-500B	B Lip	8.750	8.752	9.500	9.498	0.500	0.550
<b>.500" - C/S</b>		h9	H9	H9	h9		+0.010/-0.000
XP-500-02.750-750B	B Lip	2.750	2.752	3.750	3.748	0.750	0.825
XP-500-03.000-750B	B Lip	3.000	3.002	4.000	3.998	0.750	0.825

SYMMETRICAL U-CUPS

XP - X-PAC®



# RTL - Asymmetrical Rod Seal U-Cup

A product of MFP Seals.

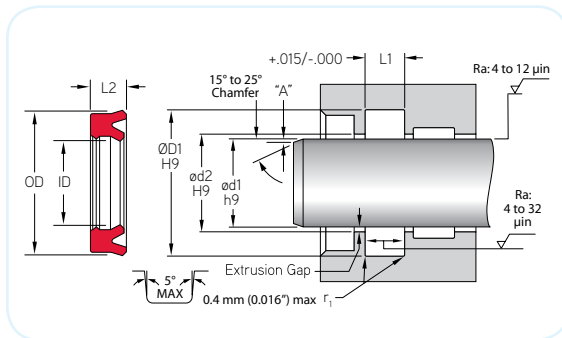


## RTL Asymmetrical Rod Seal U-Cup

MFP Seals' RTL Rod Seal U-Cup is an asymmetrical design cup seal for use in hydraulic applications. The twin lip design offers increased seal stability while the knife-trimmed primary lip provides superior sealing ability. The design was enhanced using finite element analysis giving you the best product on the market. Produced from our U2151 compound, the seal offers extremely low compression set and excellent extrusion resistance.



The standard compound for this seal is U2151. It is also available in compounds U2150, U4150, and H2155.



### MFP PART NUMBERS

RTL-125-00.625-187U2151

SEAL TYPE C/S ød1 L2 COMPOUND

Pressure: 400 bar (5,800 psi)

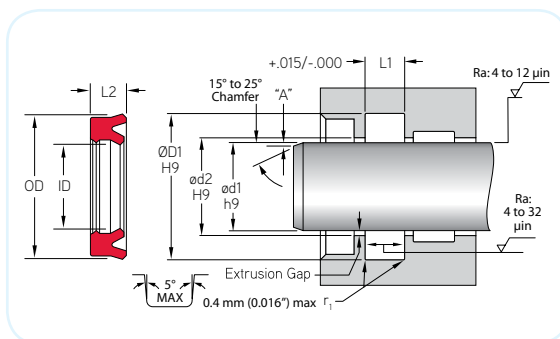
Max. Velocity: 0.5 m/s (1.5 ft./s)

U-CUPS ROD

RTL

### ROD APPLICATION

MFP PART NUMBER	ød1	ød2	ØD1	L2	L1
<b>.125" CROSS SECTION</b>	h9	H9	H9		+.015/-0.000
RTL-125-00.625-187	0.062	0.063	0.875	0.187	0.206
RTL-125-00.625-250	0.062	0.063	0.875	0.250	0.275
RTL-125-00.750-250	0.750	0.751	1.000	0.250	0.275
RTL-125-00.875-250	0.875	0.876	1.125	0.250	0.275
RTL-125-01.000-250	1.000	1.001	1.250	0.250	0.275
RTL-125-01.125-250	1.125	1.126	1.375	0.250	0.275
RTL-125-01.250-250	1.250	1.251	1.500	0.250	0.275
RTL-125-01.375-250	1.375	1.376	1.625	0.250	0.275
RTL-125-01.500-250	1.500	1.501	1.750	0.250	0.275
<b>.156" CROSS SECTION</b>	h9	H9	H9		+.015/-0.000
RTL-156.01.000-219	1.000	1.001	1.312	0.218	0.240
RTL-156.01.375-219	1.375	1.376	1.687	0.218	0.240
<b>.187" CROSS SECTION</b>	h9	H9	H9		+.015/-0.000
RTL-187-01.000-187	1.000	1.001	1.375	0.187	0.206
RTL-187-01.000-312	1.000	1.001	1.375	0.312	0.343
RTL-187-01.125-312	1.125	1.126	1.500	0.312	0.343
RTL-187-01.250-187	1.250	1.251	1.625	0.187	0.206
RTL-187-01.250-250	1.250	1.251	1.625	0.250	0.275
RTL-187-01.250-312	1.250	1.251	1.625	0.312	0.343
RTL-187-01.312-312	1.312	1.313	1.687	0.312	0.343



MFP PART NUMBER	ROD APPLICATION				
	ød1	ød2	ØD1	L2	L1
<b>.187" CROSS SECTION</b>	h9	H9	H9		+0.015/-0.000
RTL-187-01.375-187	1.375	1.376	1.750	0.187	0.206
RTL-187-01.375-312	1.375	1.376	1.750	0.312	0.343
RTL-187-01.500-250	1.500	1.501	1.875	0.250	0.275
RTL-187-01.500-312	1.500	1.501	1.875	0.312	0.343
RTL-187-01.500-375	1.500	1.501	1.875	0.375	0.413
RTL-187-01.750-250	1.750	1.751	2.125	0.250	0.275
RTL-187-01.750-312	1.750	1.751	2.125	0.312	0.343
RTL-187-01.750-375	1.750	1.751	2.125	0.375	0.413
RTL-187-02.000-250	2.000	2.001	2.375	0.250	0.275
RTL-187-02.000-312	2.000	2.001	2.375	0.312	0.343
RTL-187-02.000-375	2.000	2.001	2.375	0.375	0.413
RTL-187-02.125-312	2.125	2.126	2.500	0.312	0.343
RTL-187-02.250-335	2.250	2.251	2.625	0.250	0.275
RTL-187-02.500-375	2.500	2.501	2.875	0.375	0.413
RTL-187-02.625-312	2.625	2.626	3.000	0.312	0.343
RTL-187-02.625-375	2.625	2.626	3.000	0.375	0.413
RTL-187-02.750-312	2.750	2.751	3.125	0.312	0.343
RTL-187-02.750-375	2.750	2.751	3.125	0.375	0.413
RTL-187-03.000-375	3.000	3.001	3.375	0.375	0.413
RTL-187-03.375-312	3.375	3.376	3.750	0.312	0.343
RTL-187-04.000-375	4.000	4.001	4.375	0.375	0.413
<b>.218" CROSS SECTION</b>	h9	H9	H9		+0.015/-0.000
RTL-218-02.500-281	2.500	2.501	2.937	0.281	0.312
RTL-218-03.000-281	3.000	3.001	3.437	0.281	0.312
<b>.250" CROSS SECTION</b>	h9	H9	H9		+0.015/-0.000
RTL-250-01.250-375	1.250	1.251	1.750	0.375	0.413
RTL-250-01.500-250	1.500	1.501	2.000	0.250	0.275
RTL-250-01.500-375	1.500	1.501	2.000	0.375	0.413
RTL-250-01.750-250	1.750	1.751	2.250	0.250	0.275
RTL-250-01.750-375	1.750	1.751	2.250	0.375	0.413
RTL-250-01.875-375	1.875	1.876	2.375	0.375	0.413
RTL-250-02.000-250	2.000	2.001	2.500	0.250	0.275
RTL-250-02.000-375	2.000	2.001	2.500	0.375	0.413
RTL-250-02.250-375	2.250	2.251	2.750	0.375	0.413
RTL-250-02.500-375	2.500	2.501	3.000	0.375	0.413

U-CUPS ROD

RTL

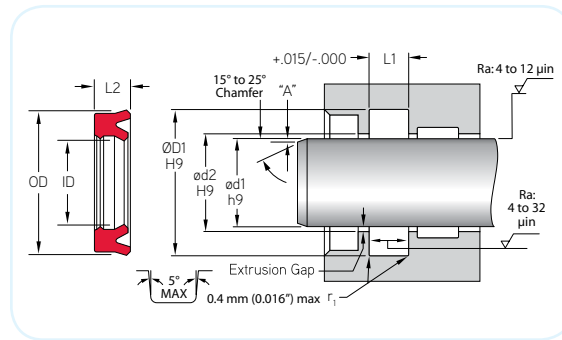




# RTL - Asymmetrical Rod Seal U-Cup

A product of MFP Seals.

**MFPSEALS**



U-CUPS ROD

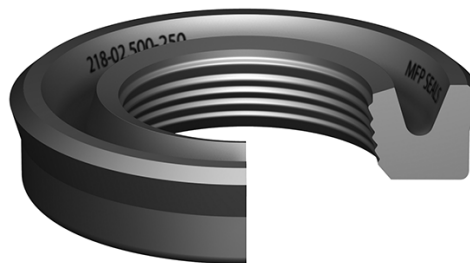
RTL

MFP PART NUMBER	ROD APPLICATION				
	ød1	ød2	ØD1	L2	L1
<b>.250" CROSS SECTION</b>	h9	H9	H9		+.015/-0.000
RTL-250-03.000-375	3.000	3.001	3.500	0.375	0.413
RTL-250-03.375-375	3.375	3.376	3.875	0.375	0.413
RTL-250-03.500-312	3.500	3.501	4.000	0.312	0.343
RTL-250-03.500-375	3.500	3.501	4.000	0.375	0.413
RTL-250-04.000-375	4.000	4.001	4.500	0.375	0.413
RTL-250-04.500-375	4.500	4.501	5.000	0.375	0.413
RTL-250-04.500-562	4.500	4.501	5.000	0.562	0.618
RTL-250-05.000-375	5.000	5.001	5.500	0.375	0.413
RTL-250-05.000-562	5.000	5.001	5.500	0.562	0.618
RTL-250-05.500-562	5.500	5.501	6.000	0.375	0.413
RTL-250-05.500-562	5.500	5.501	6.000	0.562	0.618
<b>.312" CROSS SECTION</b>	h9	H9	H9		+.015/-0.000
RTL-312-03.000-500	3.000	3.001	3.625	0.500	0.550
RTL-312-03.500-500	3.500	3.501	4.125	0.500	0.550
RTL-312-04.000-500	4.000	4.001	4.625	0.500	0.550
RTL-312-04.500-625	4.500	4.501	5.125	0.625	0.688
RTL-312-05.250-625	5.250	5.251	5.875	0.625	0.688
RTL-312-05.500-312	5.500	5.501	6.125	0.312	0.343
<b>.375" CROSS SECTION</b>	h9	H9	H9		+.015/-0.000
RTL-375-04.000-625	4.000	4.001	4.750	0.625	0.688
RTL-375-04.500-625	4.500	4.501	5.250	0.625	0.688
RTL-375-05.000-500	5.000	5.001	5.750	0.500	0.550
RTL-375-05.500-625	5.500	5.501	6.250	0.625	0.688
RTL-375-06.000-625	6.000	6.001	6.750	0.625	0.688
RTL-375-07.000-625	7.000	7.001	7.750	0.625	0.688

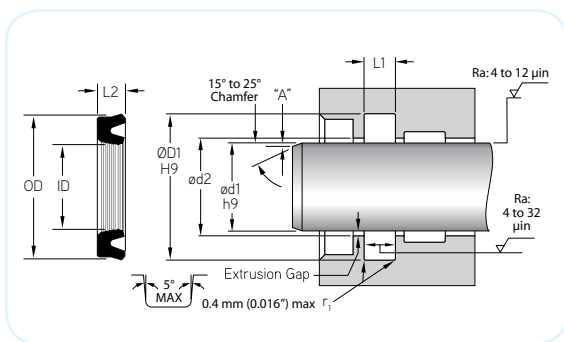


**SRS Serrated Rod Seal U-Cup**

MFP Seals' SRS Rod Seal U-Cup is an asymmetrical design cup seal for use in hydraulic applications. The SRS features a serrated rod wiping surface for maximum surface contact with minimal resistance. The design was enhanced using finite element analysis giving you the best product on the market.



The standard compound for this seal is N6015 and N6023.



**MFP PART NUMBERS**

**SRS-187-01.750-218N6015**

SEAL TYPE C/S ød1 L1 COMPOUND

Pressure: 69 bar (1,000 psi)

Max. Velocity: 0.5 m/s (1.5 ft./s)

MFP PART NUMBER	ROD APPLICATION			
	ød1	ØD1	L2	L1
<b>TOLERANCE</b>	h9	H9		+.010/--.000
SRS-125-00.625-156	0.625	0.875	0.152	0.156
SRS-156-01.000-187	1.000	1.312	0.183	0.187
SRS-156-01.375-187	1.375	1.687	0.183	0.187
SRS-187-01.750-218	1.750	2.215	0.208	0.218
SRS-187-02.000-218	2.000	2.375	0.208	0.218
SRS-218-02.500-250	2.500	2.937	0.246	0.250

U-CUPS ROD

SRS



# XPAR - X-PAC® Loaded Rod Seal U-Cup with Anti-Extrusion Ring

A product of MFP Seals.

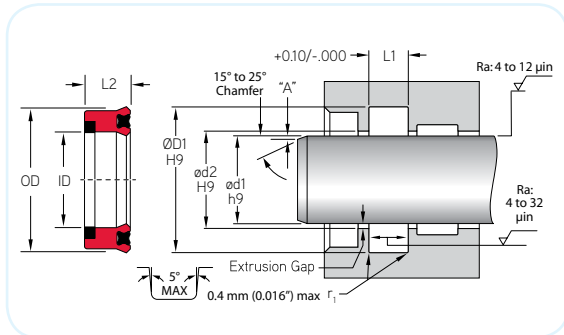


## XPAR - X-PAC® Loaded U-Cup with Anti-Extrusion Ring

XPAR B-Lip X-PAC® U-Cup is a versatile reciprocating seal for linear rod applications, up to 400 bar (5,800 psi). The rubber expander creates a compression style seal while still operating as a pressure actuated U-Cup design. The result is better low-pressure sealing and less startup leakage. The XPAR X-PAC® has an Anti-Extrusion Ring to prevent seal extrusion. MFP Seals' X-PAC® U-Cups feature a knife trimmed sealing lip for increased sealability.



The standard compound for this seal is U2151, with an N6014 Expander and M1001 Anti-Extrusion Ring.



### MFP PART NUMBERS

**XPAR-187-01.000-375BU2151**

SEAL TYPE | ød1 | L2 | COMPOUND  
CROSS SECTION | PROFILE STYLE

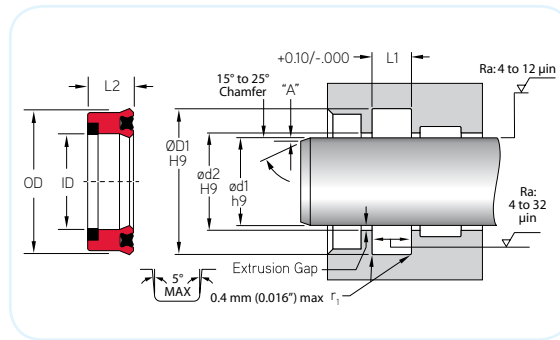
Pressure: 400 bar (5,800 psi)

Max. Velocity: 0.5 m/s (1.5 ft./s)

U-CUPS ROD

XPAR - X-PAC®

MFP BASE PART NUMBER	PROFILE STYLE	ROD APPLICATION				
		ød1	ød2	ØD1	L1	L2
<b>.187" - CROSS SECTION WIDTH</b>		h9	H9	H9	+0.010/-0.000	
XPAR-187-01.000-375B	B Lip	1.000	1.001	1.375	0.413	0.375
XPAR-187-01.250-375B	B Lip	1.250	1.251	1.625	0.413	0.375
XPAR-187-01.375-375B	B Lip	1.375	1.376	1.750	0.413	0.375
XPAR-187-01.500-375B	B Lip	1.500	1.501	1.875	0.413	0.375
XPAR-187-01.750-375B	B Lip	1.750	1.751	2.125	0.413	0.375
XPAR-187-02.000-375B	B Lip	2.000	2.001	2.375	0.413	0.375
XPAR-187-02.250-375B	B Lip	2.250	2.251	2.625	0.413	0.375
XPAR-187-02.375-375B	B Lip	2.375	2.376	2.750	0.413	0.375
XPAR-187-02.500-375B	B Lip	2.500	2.501	2.875	0.413	0.375



MFP BASE PART NUMBER	PROFILE STYLE	ROD APPLICATION				
		ød1	ød2	ØD1	L1	L2
<b>.250" - CROSS SECTION WIDTH</b>		h9	H9	H9	+0.010/-0.000	
XPAR-250-01.500-375B	B Lip	1.500	1.501	2.000	0.413	0.375
XPAR-250-01.750-375B	B Lip	1.750	1.751	2.250	0.413	0.375
XPAR-250-02.000-375B	B Lip	2.000	2.001	2.500	0.413	0.375
XPAR-250-02.250-375B	B Lip	2.250	2.251	2.750	0.413	0.375
XPAR-250-02.500-375B	B Lip	2.500	2.501	3.000	0.413	0.375
XPAR-250-02.750-375B	B Lip	2.750	2.751	3.250	0.413	0.375
XPAR-250-03.000-375B	B Lip	3.000	3.001	3.500	0.413	0.375
XPAR-250-03.250-375B	B Lip	3.250	3.251	3.750	0.413	0.375
XPAR-250-03.500-375B	B Lip	3.500	3.501	4.000	0.413	0.375
XPAR-250-03.750-375B	B Lip	3.750	3.751	4.250	0.413	0.375
XPAR-250-04.000-375B	B Lip	4.000	4.001	4.500	0.413	0.375

U-CUPS ROD

XPAR - X-PAC®



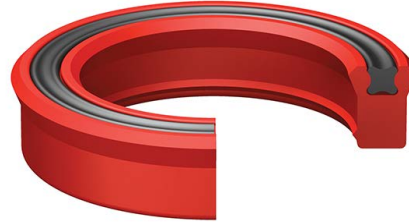
# XPR - X-PAC® Loaded Rod Seal U-Cup, Twin-Lip

A product of MFP Seals.

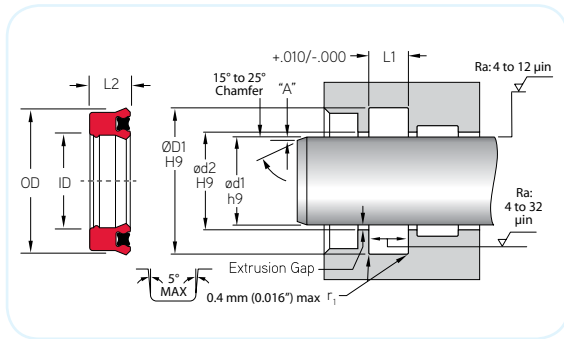


## XPR - X-PAC® Loaded B-Lip, Twin-Lip, Symmetrical U-Cup

XPR B-Lip X-PAC® U-Cup is a versatile reciprocating seal for linear rod applications, up to 400 bar (5,800 psi). The rubber expander creates a compression style seal while still operating as a pressure actuated U-Cup design. The result is better low-pressure sealing and less startup leakage. The XPR X-PAC® features a Twin-Lip design which offers increased seal stability and superior sealing ability. MFP Seals' X-PAC® U-Cups feature a knife trimmed sealing lip for increased sealing ability.



The standard compound for this seal is U2151, with an N6014 X-Ring Expander. It is also available in compounds U2150, U4150, and H2155.



### MFP PART NUMBERS

**XPR-125-00.750-187BU2151**

SEAL TYPE | CROSS SECTION |  $\phi d1$  | PROFILE STYLE | L2 | COMPOUND

Pressure: 400 bar (5,800 psi)

Max. Velocity: 0.5 m/s (1.5 ft./s)

U-CUPS ROD

XPR - X-PAC®

MFP BASE PART NUMBER	PROFILE STYLE	ROD APPLICATION				
		$\phi d1$	$\phi d2$	$\phi D1$	L1	L2
<b>.125" - CROSS SECTION WIDTH</b>		h9	H9	H9	+0.010/-0.000	
XPR-125-00.750-187B	B Lip	0.750	0.751	1.000	0.207	0.187
XPR-125-00.750-250B	B Lip	0.750	0.751	1.000	0.275	0.250
XPR-125-00.875-250B	B Lip	0.875	0.876	1.125	0.275	0.250
XPR-125-01.000-250B	B Lip	1.000	1.001	1.250	0.275	0.250
XPR-125-01.250-250B	B Lip	1.250	1.251	1.500	0.275	0.250
XPR-125-01.500-250B	B Lip	1.500	1.501	1.750	0.275	0.250
<b>.187" - CROSS SECTION WIDTH</b>		h9	H9	H9	+0.010/-0.000	
XPR-187-01.500-375B	B Lip	1.500	1.501	1.875	0.413	0.375
<b>.250" - CROSS SECTION WIDTH</b>		h9	H9	H9	+0.010/-0.000	
XPR-250-02.000-375B	B Lip	2.000	2.001	2.500	0.413	0.375
XPR-250-02.500-375B	B Lip	2.500	2.501	3.000	0.413	0.375
XPR-250-02.750-375B	B Lip	2.750	2.751	3.250	0.413	0.375

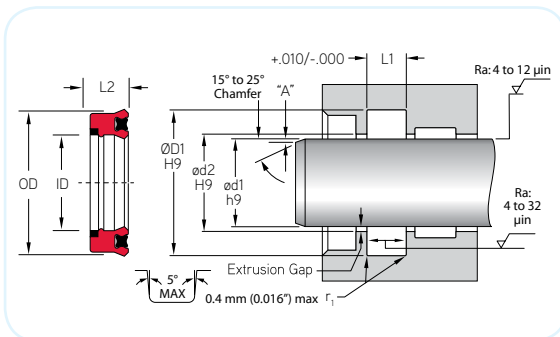


**XPRA - X-PAC® Loaded U-Cup with Anti-Extrusion Ring**

XPRA B-Lip X-PAC® U-Cup is a versatile reciprocating seal for linear rod applications, up to 690 bar (10,000 psi). The rubber expander creates a compression style seal while still operating as a pressure actuated U-Cup design. The result is better low-pressure sealing and less startup leakage. The XPRA X-PAC® offers Twin-Lip design for seal stability as well as an Anti-Extrusion Ring to prevent seal extrusion. MFP Seals' X-PAC® U-Cups feature a knife trimmed sealing lip for increased sealability.



The standard compound for this seal is U2151, with an N6014 X-Ring Expander, and M1000 Anti-Extrusion Ring. It is also available in compounds U2150, U4150, and H2155. An M1001 Anti-Extrusion Ring is also available.



**MFP PART NUMBERS**

**XPRA-187-01.500-312BU2151**

SEAL TYPE | CROSS SECTION | ød1 | L2 | COMPOUND | PROFILE STYLE

Pressure: 690 bar (10,000 psi)

Max. Velocity: 0.5 m/s (1.5 ft./s)

MFP BASE PART NUMBER	PROFILE STYLE	ROD APPLICATION				
		ød1	ød2	ØD1	L1	L2
<b>.187" - CROSS SECTION WIDTH</b>		h9	H9	H9	+.010/-0.000	
XPRA-187-01.500-312B	B Lip	1.500	1.501	1.875	0.344	0.312
XPRA-187-01.750-375B	B Lip	1.750	1.751	2.125	0.413	0.375
XPRA-187-02.000-375B	B Lip	2.000	2.001	2.375	0.413	0.375
<b>.250" - CROSS SECTION WIDTH</b>		h9	H9	H9	+.010/-0.000	
XPRA-250-01.750-375B	B Lip	1.750	1.751	2.250	0.413	0.375
XPRA-250-02.000-375B	B Lip	2.000	2.001	2.500	0.413	0.375
XPRA-250-02.250-375B	B Lip	2.250	2.251	2.750	0.413	0.375
XPRA-250-02.500-375B	B Lip	2.500	2.501	3.000	0.413	0.375
XPRA-250-03.000-375B	B Lip	3.000	3.001	3.500	0.413	0.375
XPRA-250-03.500-375B	B Lip	3.500	3.501	4.000	0.413	0.375
<b>.312" - CROSS SECTION WIDTH</b>		h9	H9	H9	+.010/-0.000	
XPRA-312-03.000-500B	B Lip	3.000	3.001	3.625	0.550	0.500
XPRA-312-03.500-500B	B Lip	3.500	3.501	4.125	0.550	0.500
<b>.375" - CROSS SECTION WIDTH</b>		h9	H9	H9	+.010/-0.000	
XPRA-375-03.000-625B	B Lip	3.000	3.001	3.750	0.688	0.625

U-CUPS ROD

XPRA - X-PAC®





# PUC - Asymmetrical Piston U-Cup

A product of MFP Seals.



## PUC - Asymmetrical Piston U-Cup

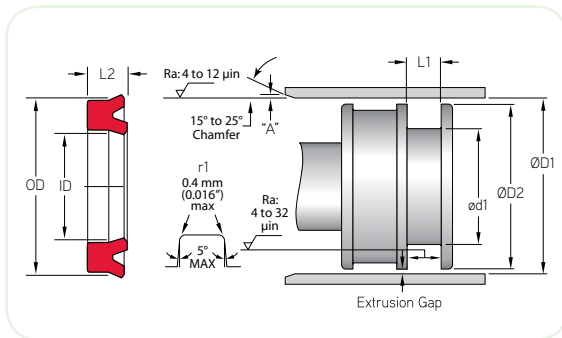
MFP Seals' PUC Asymmetrical Piston U-Cup is designed for linear piston applications. The PUC features a knife trimmed sealing lip for increased sealing ability. The design was enhanced using finite element analysis giving you the best product on the market. Produced from our U2151 compound the seal offers extremely low compression set and excellent extrusion resistance.



The standard compound for this seal is U2151. It is also available in compounds U2145, U2150, U4150 and H2155.

PUC

U-CUPS PISTON



### MFP PART NUMBERS

**PUC-2000x1500-375U2151**

SEAL TYPE      øD1      L2      COMPOUND

Pressure: 400 bar (5,800 psi)

Max. Velocity: 0.5 m/s (1.5 ft./s)

MFP PART NUMBER	PISTON APPLICATION			
	ØD1	ød1	L2	L1
<b>TOLERANCE</b>	h9	H9		+0.010/-0.000
PUC-2000X1500X375	2.000	1.500	0.375	0.413
PUC-2500X2000X375	2.500	2.000	0.375	0.413
PUC-2500X2125X312	2.500	2.125	0.312	0.343
PUC-3000X2500X375	3.000	2.500	0.375	0.413
PUC-3500X3000X375	3.500	3.000	0.375	0.413
PUC-4500X4000X375	4.500	4.000	0.375	0.413

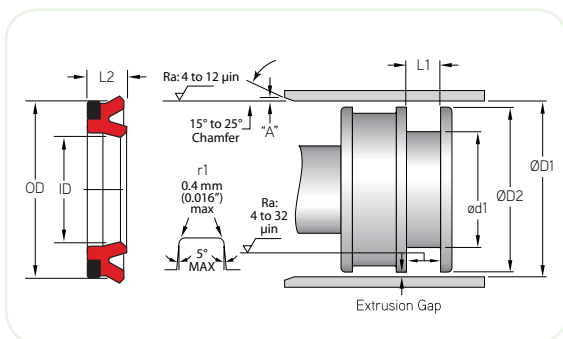


**PUE - Asymmetrical Piston U-Cup  
with Anti-Extrusion Ring**

MFP Seals' PUE Asymmetrical Piston U-Cup with Anti-Extrusion Ring is designed for linear piston applications. The PUE features a knife trimmed sealing lip for increased sealing ability. The design was enhanced using finite element analysis giving you the best product on the market. Produced from our U2151 compound the seal offers extremely low compression set and excellent extrusion resistance.



*The standard compound for this seal is U2151  
with an M1001 Anti-Extrusion Ring.  
It is also available in compounds U2145,  
U2150, U4150 and H2155.*



**MFP PART NUMBERS**

**PUE-3000X2500X375U2151**

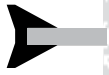
SEAL TYPE	ØD1	ød1	L2	COMPOUND
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**Pressure: 400 bar (5,800 psi)      Max. Velocity: 0.5 m/s (1.5 ft./s)**

MFP PART NUMBER	PISTON APPLICATION			
	ØD1	ød1	L2	L1
TOLERANCE	h9	H9		+0.010/-0.000
PUE-3000X2500X375	3.000	2.500	0.375	0.413
PUE-3500X3000X375	3.500	3.000	0.375	0.413
PUE-4000X3500X375	4.000	3.500	0.375	0.413

PUE

U-CUPS PISTON



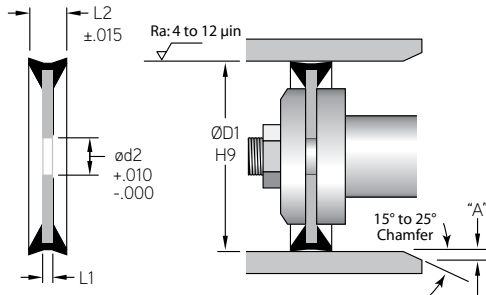
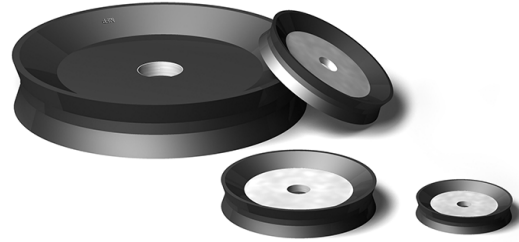
# PCD - Double Acting Piston Cup

A product of MFP Seals.

**MFPSEALS**

## PCD - Double Acting Piston Cup

Single unit, double cup. Piston type packing replaces multi-part assemblies. Homogeneous rubber is bonded to a metal disc, only one part required - the most practical piston cup available for pneumatic or low pressure hydraulics.



### MFP PART NUMBERS

**PCD-150N8097**

SEAL TYPE    ØD1    COMPOUND

*N8097 / Carbon Steel*

PCD

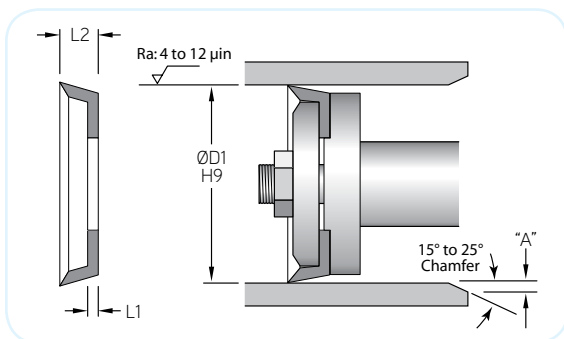
PISTON CUPS

MFP PART NUMBER	PISTON APPLICATION			
	ØD1	ød2	L1	L2
<b>TOLERANCE</b>	H9	+0.010/-0.000		+0.015/-0.015
PCD-100	1.000	0.250	0.093	0.375
PCD-112	1.125	0.250	0.093	0.500
PCD-118	1.250	0.250	0.093	0.500
PCD-125	1.250	0.250	0.093	0.500
PCD-137	1.375	0.250	0.093	0.500
PCD-150	1.500	0.250	0.093	0.500
PCD-175	1.750	0.250	0.093	0.500
PCD-200	2.000	0.375	0.125	0.563
PCD-225	2.250	0.375	0.125	0.563
PCD-250	2.500	0.375	0.125	0.563
PCD-300	3.000	0.500	0.125	0.563
PCD-325	3.250	0.500	0.125	0.625
PCD-350	3.500	0.500	0.188	0.750
PCD-400	4.000	0.500	0.188	0.750
PCD-425	4.250	0.500	0.188	0.750
PCD-450	4.500	0.750	0.188	0.750
PCD-500	5.000	0.750	0.250	0.937
PCD-550	5.500	0.750	0.250	0.937
PCD-600	6.000	0.750	0.250	0.937
PCD-650	6.500	0.750	0.250	0.937
PCD-700	7.000	1.250	0.250	1.000
PCD-800	8.000	0.750	0.250	1.031



**PCF - Fabric & Rubber Piston Cup**

Fabric & Rubber Piston Cups prevent extrusion in medium pressure installations under 1,000 PSI. There is less chance of overtightening the inside follower plate, which can be a problem with rubber cups. All Fabric & Rubber Cups are supplied solid, with no precut hole.



**MFP PART NUMBERS**

**PCF-175M1009**  
SEAL TYPE    ØD1    COMPOUND

*M1009 - FABRIC & RUBBER*

PCF

PISTON CUPS

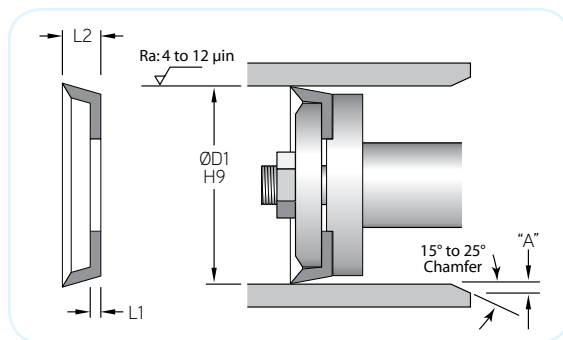
MFP PART NUMBER	PISTON APPLICATION		
	ØD1	L1	L2
<b>TOLERANCE</b>	H9		
PCF-050	0.500	0.125	0.500
PCF-075	0.750	0.125	0.500
PCF-087	0.875	0.094	0.375
PCF-093	0.938	0.125	0.500
PCF-100	1.000	0.125	0.500
PCF-112	1.125	0.125	0.500
PCF-125	1.250	0.125	0.500
PCF-137	1.375	0.125	0.500
PCF-150	1.500	0.125	0.500
PCF-162	1.625	0.125	0.500
PCF-175	1.750	0.125	0.500
PCF-187	1.875	0.125	0.500
PCF-200	2.000	0.125	0.500
PCF-212	2.125	0.125	0.500
PCF-225	2.250	0.125	0.500
PCF-237	2.375	0.125	0.500
PCF-250	2.500	0.125	0.500
PCF-262	2.625	0.125	0.500
PCF-275	2.750	0.125	0.500
PCF-287	2.875	0.125	0.500
PCF-300	3.000	0.156	0.625
PCF-312	3.125	0.156	0.625
PCF-325	3.250	0.156	0.625
PCF-337	3.375	0.156	0.625



# PCF - Fabric & Rubber Piston Cup

A product of MFP Seals.

**MFPSEALS**



PCF

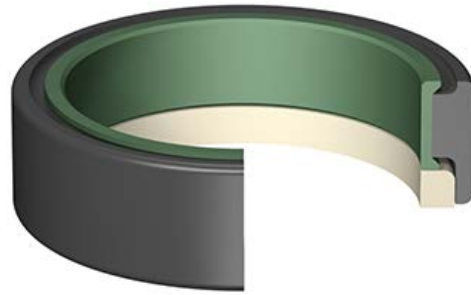
PISTON CUPS

MFP PART NUMBER	PISTON APPLICATION		
	ØD1	L1	L2
<b>TOLERANCE</b>	H9		
PCF-350	3.500	0.156	0.625
PCF-362	3.625	0.156	0.625
PCF-375	3.750	0.156	0.750
PCF-387	3.875	0.156	0.625
PCF-400	4.000	0.156	0.625
PCF-425	4.250	0.156	0.625
PCF-450	4.500	0.156	0.625
PCF-462	4.625	0.156	0.625
PCF-475	4.750	0.156	0.625
PCF-487	4.875	0.156	0.625
PCF-500	5.000	0.188	0.750
PCF-525	5.250	0.188	0.750
PCF-550	5.500	0.188	0.750
PCF-575	5.750	0.188	0.750
PCF-587	5.875	0.188	0.750
PCF-600	6.000	0.188	0.750
PCF-625	6.250	0.188	0.750
PCF-637	6.375	0.188	0.750
PCF-650	6.500	0.188	0.750
PCF-675	6.750	0.188	0.750
PCF-700	7.000	0.188	0.750
PCF-725	7.250	0.188	1.000
PCF-750	7.500	0.188	1.000
PCF-800	8.000	0.188	1.000
PCF-850	8.500	0.188	1.000
PCF-900	9.000	0.188	0.750
PCF-950	9.500	0.188	1.000
PCF-975	9.750	0.188	1.000
PCF-1000	10.000	0.188	1.000
PCF-1025	10.250	0.188	1.000
PCF-1100	11.000	0.188	1.000
PCF-1200	12.000	0.188	1.000
PCF-1225	12.250	0.188	1.000
PCF-1400	14.000	0.250	1.250
PCF-1600	16.000	0.250	1.500

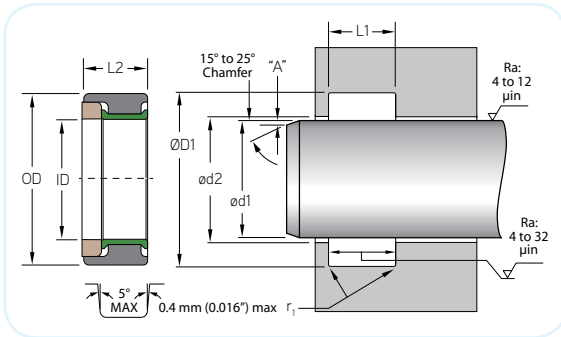


**CGLR - (3 P.C.)  
Capped Asymmetrical Rod Seal**

CGLR Rod Seals are designed for effective sealing in both high and low pressure environments. They are designed to handle temperature extremes, a variety of fluids and larger than normal extrusion gaps. The CGLR's design separates the sealing function from anti-extrusion creating a single-acting, unidirectional seal that has long life under high pressure. The CGLR is designed to retrofit MIL-G-5514/AS4716 and AS4832 glands.



*The standard compounds for this seal are: N6020 Energizer, T5100 Cap, and an M1000 Backup.*



**MFP PART NUMBERS**

**CGLR-216-2N6020/T5100P**

SEAL TYPE	O-RING DASH#	ENERGIZER COMPOUND	CAP COMPOUND
1 - SINGLE BACK-UP RING GROOVE 2 - TWO BACK-UP RING GROOVE			BACK-UP RING COMPOUND P = M1000

**Pressure: 550 bar (8,000 psi)**

**Max. Velocity: < 1.5 m/s (< 5 ft./s)**

*Contact your MFP Seals Sales Representative for available sizes.*

**CGLR**

**ROD ASSEMBLIES**





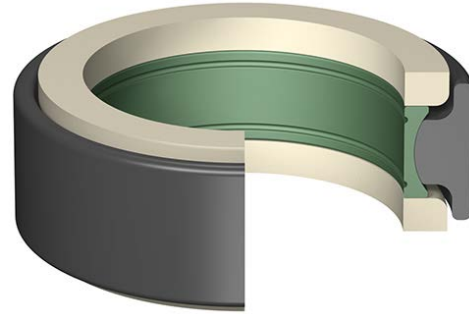
# CGTR - (4 PC.) Capped GT Rod Seal

A product of MFP Seals.

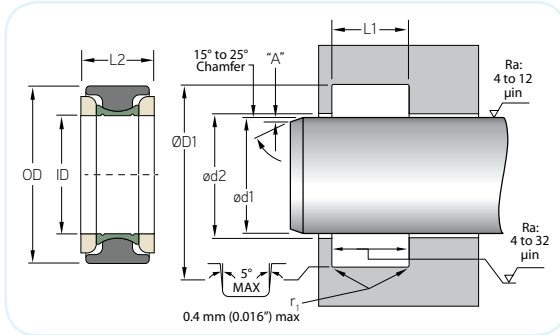


## Capped GT - (4 PC.) Rod Seal

The CGTR Capped GT Rod Seal is a heavy duty double-acting assembly. Each CGTR consists of an elastomeric expander, filled PTFE cap seal, and two anti-extrusion rings. Capped GT Rod Seals have excellent sealability; extrusion and wear resistance.



The standard compounds for this seal are:  
N6023 Energizer, T5100 Cap, and M1001 Backup Rings.



### MFP PART NUMBERS

**CGTR-300N6023/T5100P**

SEAL TYPE	O-RING DASH#	ENERGIZER COMPOUND	CAP COMPOUND	BACK-UP RING COMPOUND
				P = M1000

Pressure: 500 bar (7,500 psi)

Max. Velocity: 1.5 m/s (5 ft./s)

Contact your MFP Seals Sales Representative for available sizes.

CGTR

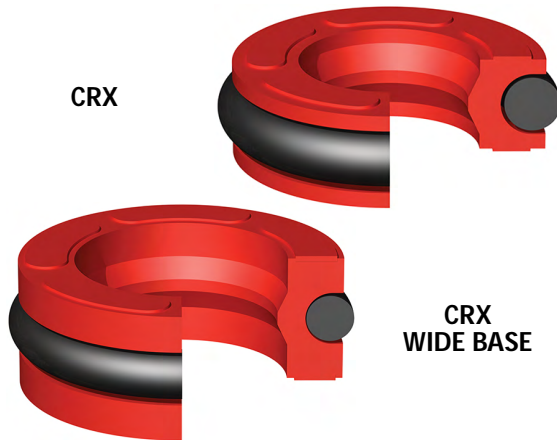
ROD ASSEMBLIES



**CRX Rod Seal - (2 P.C.)**

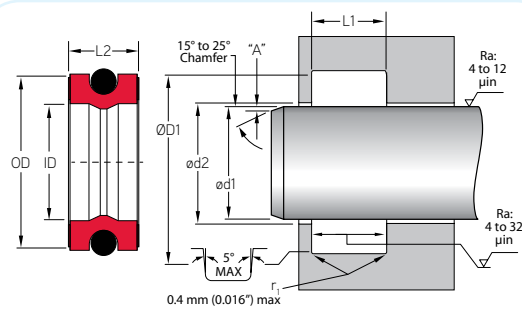
MFP Seals' CRX double-acting rod seals are designed to directly interchange with T-Seals, O-Rings and X-Rings, in AS568 O-Ring grooves without Back-Up. The urethane sealing surface produces a positive seal from vacuum to high pressure, due to a narrow single line seal contact area.

CRX



**CRX  
WIDE BASE**

The standard compound for this seal is U2151, with an N6001 O-Ring Expander. It is also available in compounds U2145, U2150 and U4150.



**MFP PART NUMBERS**

**CRX-218U2151**

SEAL TYPE      SIZE PER O-RING DASH      COMPOUND

Pressure: 400 bar (5,800 psi)

Max. Velocity: 0.5 m/s (1.5 ft./s)

Contact your MFP Seals Sales Representative for available sizes.

CRX

ROD ASSEMBLIES



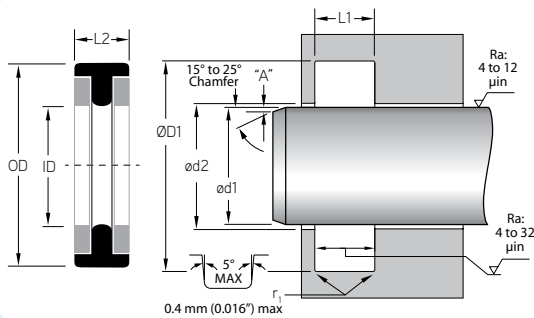
# GT Ring - (3 PC.) Rod Seal

A product of MFP Seals.



## GT Ring - (3 PC.) Rod Seal

GT Rings are an excellent direct replacement for O-Rings and X-Rings. GT Rings help eliminate rolling or spiraling in long stroke or dry rod conditions. Designed for installation in standard commercial O-Ring grooves, GT-Rings are also available for grooves cut for one or two backup rings. Each GT-Ring consists of the T-shaped rubber sealing ring and the two anti-extrusion rings.



## MFP PART NUMBERS

**GTR-037N6001**

SEAL TYPE      SIZE      COMPOUND

Seal - N6001  
Back-Up Rings - M1001

Pressure: 700 bar (10,000 psi)

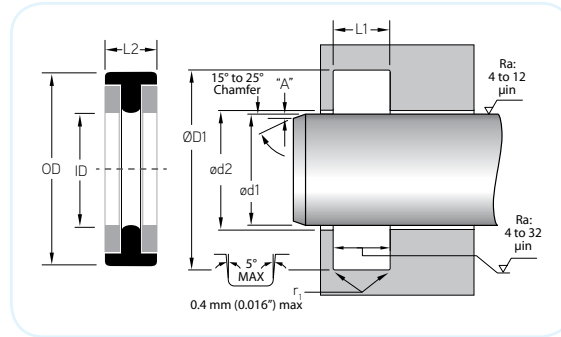
Max. Velocity: 0.5 m/s (1.5 ft/s)

## ROD APPLICATION

MFP PART NUMBER	ød1	ØD1	ød2	GROOVE WIDTH			OR SIZE
				NO BACKUP	1 BACKUP	2 BACKUP	
TOLERANCE	h9	H9	H9		+0.005/-0.000		
GTR-037	0.375	0.617	0.378	0.188	0.235	0.304	204
GTR-050	0.500	0.742	0.503	0.188	0.235	0.304	206
GTR-056	0.562	0.804	0.565	0.188	0.235	0.304	207
GTR-062	0.625	0.867	0.628	0.188	0.235	0.304	208
GTR-068	0.687	0.929	0.690	0.188	0.235	0.304	209
GTR-075	0.750	0.992	0.753	0.188	0.235	0.304	210
GTR-087	0.875	1.117	0.878	0.188	0.235	0.304	212
GTR-100	1.000	1.242	1.003	0.188	0.235	0.304	214
GTR-106	1.062	1.304	1.065	0.188	0.235	0.304	215
GTR-112	1.125	1.367	1.128	0.188	0.235	0.304	216
GTR-118	1.187	1.429	1.190	0.188	0.235	0.304	217
GTR-125	1.250	1.492	1.253	0.188	0.235	0.304	218
GTR-137	1.375	1.617	1.378	0.188	0.235	0.304	220
GTR-143	1.437	1.679	1.440	0.188	0.235	0.304	221
GTR-150	1.500	1.742	1.503	0.188	0.235	0.304	222
GTR-151	1.500	1.870	1.503	0.281	0.344	0.424	325
GTR-162	1.625	1.995	1.628	0.281	0.344	0.424	326
GTR-175	1.750	2.120	1.753	0.281	0.344	0.424	327
GTR-187	1.875	2.245	1.878	0.281	0.344	0.424	328

GTR

ROD ASSEMBLIES



MFP PART NUMBER	ROD APPLICATION						
	ød1	ØD1	ød2	GROOVE WIDTH			OR SIZE
				NO BACKUP	1 BACKUP	2 BACKUP	
TOLERANCE	h9	H9	H9		+0.005/-0.000		
GTR-200	2.000	2.370	2.003	0.281	0.344	0.424	329
GTR-212	2.125	2.495	2.128	0.281	0.344	0.424	330
GTR-225	2.250	2.620	2.253	0.281	0.344	0.424	331
GTR-237	2.375	2.745	2.378	0.281	0.344	0.424	332
GTR-250	2.500	2.870	2.503	0.281	0.344	0.424	333
GTR-262	2.625	2.995	2.628	0.281	0.344	0.424	334
GTR-275	2.750	3.120	2.753	0.281	0.344	0.424	335
GTR-287	2.875	3.245	2.878	0.281	0.344	0.424	336
GTR-300	3.000	3.370	3.003	0.281	0.344	0.424	337
GTR-312	3.125	3.495	3.128	0.281	0.344	0.424	338
GTR-325	3.250	3.620	3.253	0.281	0.344	0.424	339
GTR-337	3.375	3.745	3.378	0.281	0.344	0.424	340
GTR-350	3.500	3.870	3.503	0.281	0.344	0.424	341
GTR-362	3.625	3.995	3.628	0.281	0.344	0.424	342
GTR-375	3.750	4.120	3.753	0.281	0.344	0.424	343
GTR-387	3.875	4.245	3.878	0.281	0.344	0.424	344
GTR-400	4.000	4.370	4.003	0.281	0.344	0.424	345
GTR-425	4.250	4.620	4.253	0.281	0.344	0.424	347
GTR-437	4.375	4.745	4.378	0.281	0.344	0.424	348
GTR-450	4.500	4.870	4.503	0.281	0.344	0.424	349
GTR-500	5.000	5.474	5.004	0.375	0.475	0.579	429
GTR-525	5.250	5.724	5.254	0.375	0.475	0.579	431
GTR-550	5.500	5.974	5.504	0.375	0.475	0.579	433
GTR-600	6.000	6.474	6.004	0.375	0.475	0.579	437
GTR-750	7.500	7.974	7.504	0.375	0.475	0.579	443
GTR-800	8.000	8.474	8.004	0.375	0.475	0.579	445
GTR-900	9.000	9.474	9.004	0.375	0.475	0.579	447

GTR

ROD ASSEMBLIES



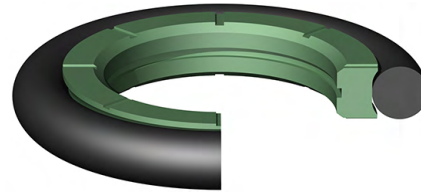
# RS10 - (2 PC.) Rotary Rod Seal

A product of MFP Seals.

**MFPSEALS**

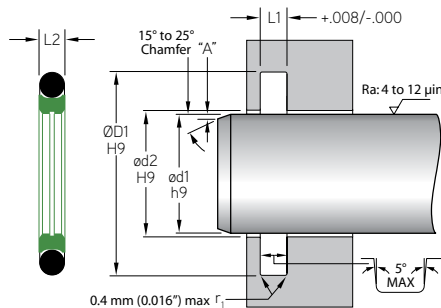
## RS10 - (2 P.C.) Rotary Rod Seal

MFP Seals' RS10 rotary shaft seal is used in light to medium duty oscillating applications. The RS10 design is ideal because of its low friction and long wear capabilities. Commonly used in swivel joints & machine tool applications.



The standard compounds for this seal is T5100, with an N6001 expander.

For increased chemical and temperature resistance, other compounds are available (See pages 26-37).



### MFP PART NUMBERS

**RS10-0312x0T5100N**

SEAL TYPE      ød1      EXPANDER SERIES      COMPOUND      EXPANDER COMPOUND

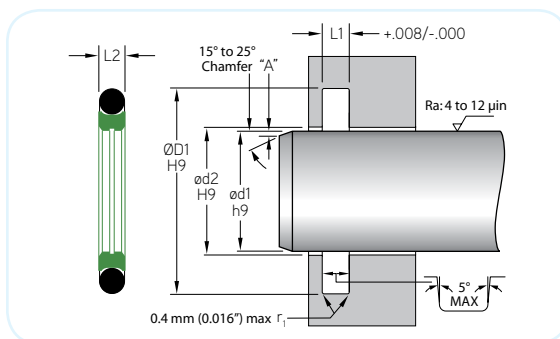
Pressure: 200 bar (3,000 psi)

Max. Velocity: 0.5 m/s (1.5 ft./s)

RS10

ROD ASSEMBLIES

MFP PART NUMBER	ROD APPLICATION				O-RING DASH NO.
	ød1	ØD1	L1	ød2	
TOLERANCE	h9	H9	+0.008/-0.000	H9	
RS10-0500X0	0.500	0.693	0.087	0.501	-015
RS10-0562X0	0.562	0.756	0.087	0.564	-016
RS10-0625X0	0.625	0.818	0.087	0.626	-017
RS10-0687X0	0.687	0.881	0.087	0.689	-018
RS10-0750X0	0.750	0.943	0.087	0.751	-019
RS10-0812X0	0.812	1.006	0.087	0.814	-020
RS10-0875X0	0.875	1.068	0.087	0.876	-021
RS10-0937X0	0.937	1.131	0.087	0.939	-022
RS10-1000X0	1.000	1.193	0.087	1.001	-023
RS10-1125X0	1.125	1.318	0.087	1.126	-025
RS10-1250X0	1.250	1.443	0.087	1.251	-027
RS10-1375X0	1.375	1.568	0.087	1.376	-028
RS10-1500X1	1.500	1.795	0.126	1.501	-130
RS10-1625X1	1.625	1.920	0.126	1.626	-132
RS10-1750X1	1.750	2.045	0.126	1.751	-134
RS10-1875X1	1.875	2.170	0.126	1.876	-135
RS10-2000X1	2.000	2.295	0.126	2.001	-137
RS10-2125X1	2.125	2.420	0.126	2.126	-139
RS10-2250X1	2.250	2.545	0.126	2.251	-141
RS10-2375X1	2.375	2.670	0.126	2.376	-143
RS10-2500X1	2.500	2.795	0.126	2.501	-145
RS10-2625X1	2.625	2.920	0.126	2.626	-147
RS10-2750X1	2.750	3.045	0.126	2.751	-149
RS10-2875X1	2.875	3.170	0.126	2.876	-150



MFP PART NUMBER	ROD APPLICATION				O-RING DASH NO.
	ød1	ØD1	L1	ød2	
TOLERANCE	h9	H9	+0.008/-0.000	H9	
RS10-3000X2	3.000	3.433	0.165	3.001	-235
RS10-3125X2	3.125	3.558	0.165	3.126	-236
RS10-3250X2	3.250	3.683	0.165	3.251	-237
RS10-3375X2	3.375	3.808	0.165	3.376	-238
RS10-3500X2	3.500	3.933	0.165	3.501	-239
RS10-3625X2	3.625	4.058	0.165	3.626	-240
RS10-3750X2	3.750	4.183	0.165	3.751	-241
RS10-3875X2	3.875	4.308	0.165	3.876	-242
RS10-4000X2	4.000	4.433	0.165	4.001	-243
RS10-4125X2	4.125	4.558	0.165	4.126	-244
RS10-4250X2	4.250	4.683	0.165	4.251	-245
RS10-4375X2	4.375	4.808	0.165	4.376	-246
RS10-4500X2	4.500	4.933	0.165	4.501	-247
RS10-4625X2	4.625	5.058	0.165	4.626	-248
RS10-4750X2	4.750	5.183	0.165	4.751	-249
RS10-4875X2	4.875	5.308	0.165	4.876	-250
RS10-5000X2	5.000	5.433	0.165	5.001	-251
RS10-5125X2	5.125	5.558	0.165	5.126	-252
RS10-5250X2	5.250	5.683	0.165	5.251	-253
RS10-5375X2	5.375	5.808	0.165	5.376	-254
RS10-5500X2	5.500	5.933	0.165	5.501	-255
RS10-5625X2	5.625	6.058	0.165	5.626	-256
RS10-5750X2	5.750	6.183	0.165	5.751	-257
RS10-5875X2	5.875	6.308	0.165	5.876	-258
RS10-6000X3	6.000	6.610	0.248	6.002	-362
RS10-6250X3	6.250	6.860	0.248	6.252	-363
RS10-6500X3	6.500	7.110	0.248	6.502	-364
RS10-6750X3	6.750	7.360	0.248	6.752	-365
RS10-7000X3	7.000	7.610	0.248	7.002	-365
RS10-7250X3	7.250	7.860	0.248	7.252	-366
RS10-7500X3	7.500	8.110	0.248	7.502	-367
RS10-7750X3	7.750	8.360	0.248	7.752	-368
RS10-8000X3	8.000	8.610	0.248	8.002	-369
RS10-8250X3	8.250	8.860	0.248	8.252	-370
RS10-8500X3	8.500	9.110	0.248	8.502	-371

RS10

ROD ASSEMBLIES

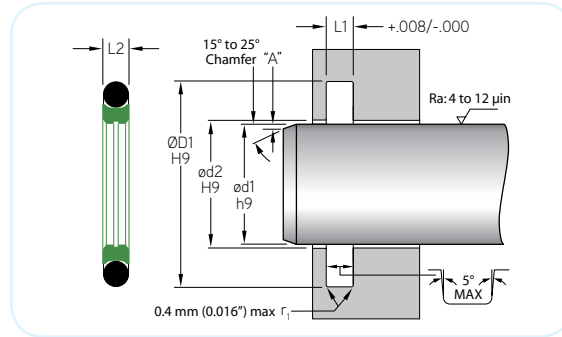




# RS10 - (2 PC.) Rotary Rod Seal

A product of MFP Seals.

**MFPSEALS**



MFP PART NUMBER	ROD APPLICATION				O-RING DASH NO.
	ød1	ØD1	L1	ød2	
TOLERANCE	h9	H9	+0.008/-0.000	H9	
RS10-8750X3	8.750	9.360	0.248	8.752	-372
RS10-9000X3	9.000	9.610	0.248	9.002	-373
RS10-9250X3	9.250	9.860	0.248	9.252	-374
RS10-9500X3	9.500	10.110	0.248	9.502	-375
RS10-9750X3	9.750	10.360	0.248	9.752	-376
RS10-10000X3	10.000	10.610	0.248	10.002	-377
RS10-10500X3	10.500	11.110	0.248	10.502	-378
RS10-11000X3	11.000	11.610	0.248	11.002	-379
RS10-11500X3	11.500	12.110	0.248	11.502	-380
RS10-12000X4	12.000	12.827	0.319	12.002	-453
RS10-12500X4	12.500	13.327	0.319	12.502	-454
RS10-13000X4	13.000	13.827	0.319	13.002	-455
RS10-13500X4	13.500	14.327	0.319	13.502	-456
RS10-14000X4	14.000	14.827	0.319	14.002	-457
RS10-14500X4	14.500	15.327	0.319	14.502	-458
RS10-15000X4	15.000	15.827	0.319	15.002	-459
RS10-15500X4	15.500	16.327	0.319	15.502	-460
RS10-16000X4	16.000	16.827	0.319	16.002	-461
RS10-16500X4	16.500	17.327	0.319	16.502	-462
RS10-17000X4	17.000	17.827	0.319	17.002	-463
RS10-17500X4	17.500	18.327	0.319	17.502	-464
RS10-18000X4	18.000	18.827	0.319	18.002	-465
RS10-18500X4	18.500	19.327	0.319	18.502	-466
RS10-19000X4	19.000	19.827	0.319	19.002	-467
RS10-19500X4	19.500	20.327	0.319	19.502	-468
RS10-20000X4	20.000	20.827	0.319	20.002	-469

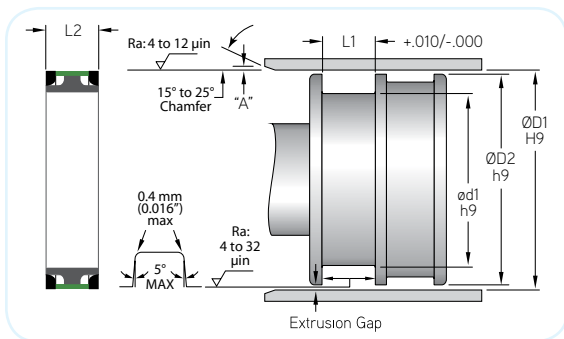
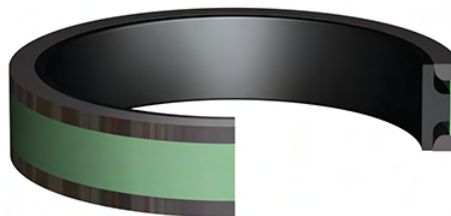
RS10

ROD ASSEMBLIES



**Capped GT - (4 PC.) Piston Seal**

Capped GT Rings are a heavy duty double-acting assembly. Each piston set consists of a rubber expander, filled Teflon® Seal, and two Nylon® anti-extrusion rings. Capped GT Rings have excellent sealability; extrusion and wear resistance.



**MFP PART NUMBERS**

**CGT-300N6023/T5100A**

SEAL TYPE	SIZE	EXPANDER COMPOUND	CAP COMPOUND	BACK-UP RING COMPOUND
<i>Energizer - N6023</i>				A = M1001
<i>Cap - T5100</i>				
<i>Back-Up Rings - M1001</i>				

Pressure: 500 bar (7,500 psi)

Max. Velocity: 1.5 m/s (5 ft./s)

**PISTON APPLICATION**

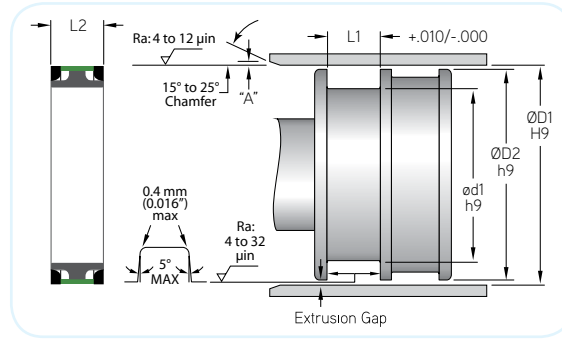
MFP PART NUMBER	ØD1	ØD2	ød1	L1
TOLERANCE	H9	h9	h9	+0.010/-0.000
CGT-100	1.000	0.999	0.628	0.424
CGT-150	1.500	1.499	1.128	0.424
CGT-175	1.750	1.749	1.378	0.424
CGT-200	2.000	1.999	1.628	0.424
CGT-225	2.250	2.249	1.878	0.424
CGT-250	2.500	2.499	2.128	0.424
CGT-275	2.750	2.749	2.378	0.424
CGT-300	3.000	2.998	2.522	0.579
CGT-325	3.250	3.248	2.772	0.579
CGT-350	3.500	3.498	3.022	0.579
CGT-375	3.750	3.748	3.272	0.579
CGT-400	4.000	3.998	3.522	0.579
CGT-425	4.250	4.248	3.772	0.579
CGT-450	4.500	4.498	4.022	0.579
CGT-475	4.750	4.748	4.272	0.579
CGT-500	5.000	4.998	4.272	0.750
CGT-525	5.250	5.248	4.522	0.750
CGT-537	5.375	5.373	4.647	0.750
CGT-550	5.500	5.497	4.772	0.750
CGT-555	5.500	5.497	5.020	0.579
CGT-575	5.750	5.747	5.022	0.750
CGT-600	6.000	5.997	5.272	0.750



# Capped GT - (4 PC.) Piston Seal

A product of MFP Seals.

# MFPSEALS®



MFP PART NUMBER	PISTON APPLICATION			
	ØD1	ØD2	ød1	L1
TOLERANCE	H9	h9	h9	+0.010/-0.000
CGT-625	6.250	6.247	5.522	0.750
CGT-650	6.500	6.497	5.772	0.750
CGT-655	6.500	6.497	6.020	0.579
CGT-675	6.750	6.747	6.022	0.750
CGT-700	7.000	6.997	6.272	0.750
CGT-725	7.250	7.247	6.522	0.750
CGT-750	7.500	7.497	6.772	0.750
CGT-775	7.750	7.747	7.022	0.750
CGT-800	8.000	7.996	7.272	0.750
CGT-825	8.250	8.246	7.522	0.750
CGT-850	8.500	8.496	7.772	0.750
CGT-875	8.750	8.746	8.022	0.750
CGT-900	9.000	8.996	8.272	0.750
CGT-950	9.500	9.496	8.772	0.750
CGT-1000	10.000	9.996	9.272	0.750
CGT-1050	10.500	10.496	9.772	0.750
CGT-1100	11.000	10.996	10.272	0.750
CGT-1150	11.500	11.496	10.772	0.750
CGT-1200	12.000	11.996	11.272	0.750
CGT-1250	12.500	12.496	11.772	0.750
CGT-1300	13.000	12.996	12.272	0.750
CGT-1350	13.500	13.495	12.772	0.750
CGT-1400	14.000	13.995	13.272	0.750
CGT-1500	15.000	14.995	14.272	0.750
CGT-1600	16.000	15.995	15.272	0.750

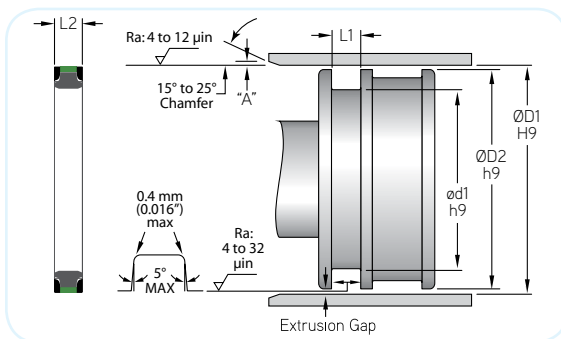
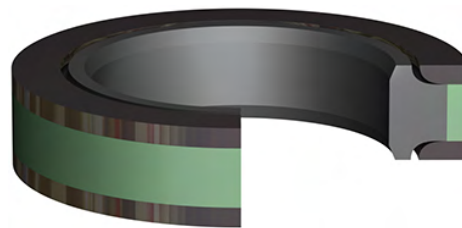
PISTON ASSEMBLIES

CGT



**Narrow Capped GT - (4 PC.) Piston Seal**

Narrow Capped GT Rings are a heavy duty double-acting assembly. They are designed the same as Capped GT Rings, but are made to special sizes found in OEM cylinders, including Caterpillar®. Each piston set consists of a rubber expander, filled Teflon® seal, and two Nylon® anti-extrusion rings. Narrow Capped GT Rings have excellent sealability; extrusion and wear resistance.



**MFP PART NUMBERS**

**NCGT-450N6023/T5100A**

SEAL TYPE	SIZE	EXPANDER COMPOUND	CAP COMPOUND	BACK-UP RING COMPOUND
<i>Energizer - N6023</i>				A = M1001
<i>Cap - T5100</i>				
<i>Back-Up Rings - M1001</i>				

**Pressure: 500 bar (7,500 psi)**

**Max. Velocity: 1.5 m/s (5 ft./s)**

**PISTON APPLICATION**

MFP PART NUMBER	ØD1	ØD2	ød1	L1
TOLERANCE	H9	h9	h9	
NCGT-450	4.500	4.497	3.909	0.492
NCGT-500	5.000	4.996	4.094	0.630
NCGT-550	5.500	5.496	4.594	0.630
NCGT-600	6.000	5.996	5.094	0.630
NCGT-625	6.250	6.246	5.344	0.630
NCGT-650	6.500	6.496	5.594	0.630
NCGT-700	7.000	6.996	6.094	0.630
NCGT-725	7.250	7.246	6.344	0.630
NCGT-750	7.500	7.496	6.594	0.630
NCGT-775	7.750	7.746	6.844	0.630
NCGT-825	8.250	8.246	7.344	0.630
NCGT-850	8.500	8.496	7.594	0.630
NCGT-1000	10.000	9.996	8.898	0.689
NCGT-1050	10.500	10.496	9.398	0.689
NCGT-1150	11.500	11.496	10.398	0.689



# HPX Piston Seal™ - (2 P.C.)

A product of MFP Seals.

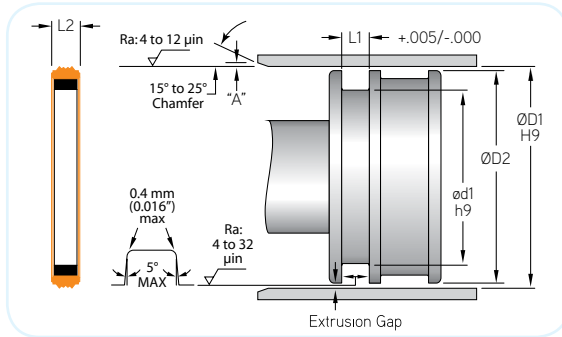


## HPX Piston Seal™ - (2 P.C.)

MFP Seals' compact HPX Piston Seal™ is designed to fit AS568 standard o-ring grooves. The HPX seal is composed of a Hytrel® seal with an NBR elastomeric energizer, design for light to medium duty hydraulic applications.



The standard compound for this seal is H2155, with an NBR expander. It is also available in U2150 / NBR expander.



### MFP PART NUMBERS

**HPX-218H2155**  
 SEAL TYPE    SIZE PER O-RING DASH    COMPOUND

Pressure: 350 bar (5,000 psi)

Max. Velocity: 1.0 m/s (3 ft./s)

#### FITS STANDARD AS568 O-RING GROOVE

MFP PART NUMBER	ØD1	ØD2	ød1	L1
<b>TOLERANCE</b>	H9		h9	+0.005/-0.000
HPX-218	1.500	1.498	1.258	0.187
HPX-222	1.750	1.748	1.508	0.187
HPX-326	2.000	1.998	1.630	0.281
HPX-330	2.500	2.498	2.130	0.281
HPX-334	3.000	2.998	2.630	0.281
HPX-338	3.500	3.498	3.130	0.281
HPX-342	4.000	3.998	3.630	0.281
HPX-350	5.000	4.998	4.630	0.281

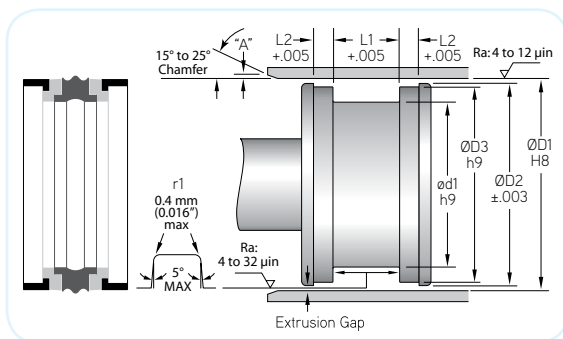
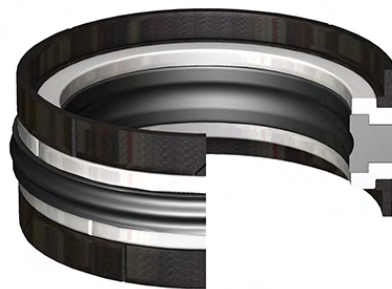
#### FITS O-RING GROOVE DESIGNED FOR TWO BACK-UP RINGS

MFP PART NUMBER	ØD1	ØD2	ød1	L1
<b>TOLERANCE</b>	H9		h9	+0.005/-0.000
HPX-218-2	1.500	1.498	1.258	0.275
HPX-326-2	2.000	1.998	1.630	0.410
HPX-330-2	2.500	2.498	2.130	0.410
HPX-334-2	3.000	2.998	2.630	0.410
HPX-338-2	3.500	3.498	3.130	0.410
HPX-342-2	4.000	3.998	3.630	0.410
HPX-425-2	5.000	4.998	4.528	0.538
HPX-433-2	6.000	5.998	5.528	0.538



**PSA - (5 P.C.) Piston Seal**

MFP Seals' PSA (5 P.C.) piston seal is used for bi-directional sealing. Composed of an elastomeric seal profile with back-up rings and guide rings. This compact seal design can be used on a closed or split piston.



**MFP PART NUMBERS**

**PSA-1500X1000X0625X150**

SEAL TYPE    ØD1    ØD3    ød1    L2

*Piston Seal - NBR80  
Back-Up Rings - Polyester Elastomer  
Guide Rings - POM*

Pressure: 400 bar (5,800 psi)

Max. Velocity: 0.5 m/s (1.5 ft./s)

MFP PART NUMBER	PISTON APPLICATION					
	ØD1	ød1	ØD2	ØD3	L1	L2
<b>TOLERANCE</b>	H8	h9	+0.003/-0.003	h9	+0.005/-0.000	+0.005/-0.000
PSA-2000X1375X0750X250	2.000	1.375	1.948	1.820	0.750	0.250
PSA-2500X1875X0750X250	2.500	1.875	2.446	2.319	0.750	0.250
PSA-2500X2125X0437X150	2.500	2.125	2.446	2.327	0.437	0.150
PSA-3000X2250X0937X250	3.000	2.250	2.933	2.770	0.937	0.250
PSA-3250X2500X0937X250	3.250	2.500	3.185	3.021	0.937	0.250
PSA-3500X2750X0937X250	3.500	2.750	3.434	3.271	0.937	0.250
PSA-4000X3250X0937X250	4.000	3.250	3.940	3.770	0.937	0.250
PSA-5000X4000X1250X375	5.000	4.000	4.920	4.728	1.250	0.375
PSA-5500X4500X1250X250	5.500	4.500	5.402	5.213	1.250	0.250
PSA-6000X5000X1250X375	6.000	5.000	5.902	5.709	1.250	0.375
PSA-7000X6000X1250X375	7.000	6.000	6.910	6.713	1.250	0.375
PSA-8000X7000X1250X375	8.000	7.000	7.920	7.723	1.250	0.375





# PSQ - (3 PC.) Piston Seal

A product of MFP Seals.

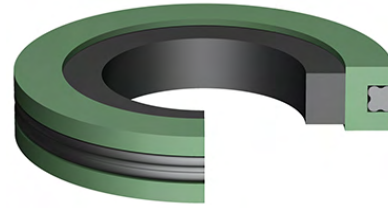


PISTON ASSEMBLIES

PSQ

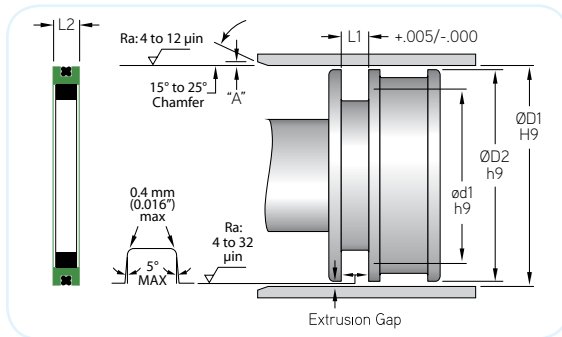
## PSQ - (3 P.C.) Piston Seal

The PSQ is a double acting piston seal that combines low friction sealing with increased stability and superior leak control. This three piece seal assembly is ideal for accumulators and stabilizers.

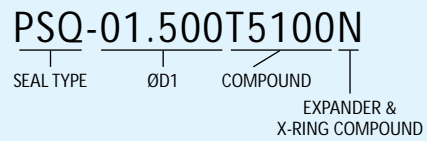


The standard compounds for this seal are T5100 Piston Seal, N6001 Square Ring and an N6014 X-Ring Expander.

For increased chemical and temperature resistance, other compounds are available (See pages 26-37).



## MFP PART NUMBERS



Pressure: 400 bar (5,800 psi)

Max. Velocity: 3.0 m/s (9 ft./s)

MFP PART NUMBER	PISTON APPLICATION				X-RING DASH NO.	SQUARE RING DASH NO.
	ØD1	ød1	L1	ØD2		
TOLERANCE	H9	h9	+0.005/-0.000	h9		
PSQ-01.500	1.500	0.884	0.288	1.499	-125	-316
PSQ-02.000	2.000	1.384	0.288	1.999	-133	-324
PSQ-02.250	2.250	1.634	0.288	2.249	-136	-326
PSQ-02.500	2.500	1.884	0.288	2.499	-140	-328
PSQ-02.750	2.750	2.134	0.288	2.749	-145	-330
PSQ-03.000	3.000	2.384	0.288	2.999	-148	-332
PSQ-03.250	3.250	2.634	0.288	3.249	-151	-334
PSQ-03.500	3.500	2.884	0.288	3.499	-152	-336
PSQ-03.750	3.750	3.134	0.288	3.749	-153	-338
PSQ-04.000	4.000	3.384	0.288	3.999	-154	-340
PSQ-04.250	4.250	3.634	0.288	4.249	-155	-342
PSQ-04.500	4.500	3.884	0.288	4.499	-156	-344
PSQ-04.750	4.750	4.134	0.288	4.749	-157	-346
PSQ-05.000	5.000	4.384	0.288	4.998	-158	-348
PSQ-05.250	5.250	4.634	0.288	5.248	-159	-350
PSQ-05.500	5.500	4.660	0.375	5.498	-252	-426
PSQ-05.750	5.750	4.910	0.375	5.748	-254	-428
PSQ-06.000	6.000	5.160	0.375	5.998	-256	-430
PSQ-06.500	6.500	5.660	0.375	6.498	-259	-434
PSQ-07.000	7.000	6.160	0.375	6.998	-261	-437
PSQ-07.500	7.500	6.660	0.375	7.498	-263	-439
PSQ-08.000	8.000	7.160	0.375	7.998	-265	-441
PSQ-09.000	9.000	8.160	0.375	8.998	-269	-445
PSQ-10.000	10.000	9.160	0.375	9.998	-273	-447



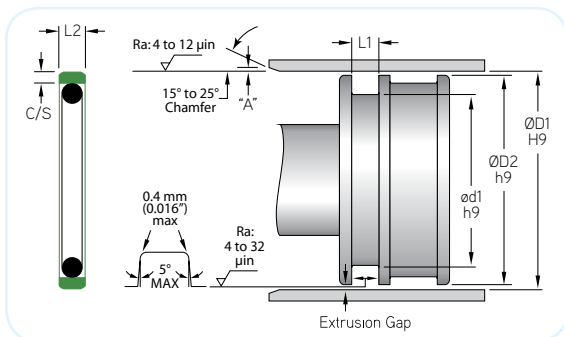
**PT - (2 PC.) Piston Seal**

PT - (2 PC.) Piston Seal rings are made with reinforced Teflon® and are supplied with an O-ring expander. A heavier version of the square or midsize style, the rectangular ring is more stable, and able to seal at elevated pressures. MFP Seals' proprietary T5100 filled Teflon® rings add additional strength and life compared to other filled Teflon® seals.



The standard compound for this seal is T5100, with an N6001 O-Ring Expander.

For increased chemical and temperature resistance, other compounds are available (See pages 26-37).



**MFP PART NUMBERS**

**PT12-02000-T5100N**

SEAL TYPE                      ØD1                      COMPOUND

Pressure: 250 bar (3,625 psi)

Max. Velocity: 4.0 m/s (13 ft./s)

MFP PART NUMBER	PISTON APPLICATION						
	ØD1	ØD2	ød1	L1	L2	SEAL C/S	EXPANDER
TOLERANCE	H9	h9	h9	+0.008/-0.000			
PT12-02000	2.000	1.999	1.567	.165	.156	.104	OR-222
PT12-02500	2.500	2.499	2.067	.165	.156	.104	OR-226
PT12-02750	2.750	2.749	2.317	.165	.156	.104	OR-228
PT12-03000	3.000	2.999	2.567	.165	.156	.138	OR-230
PT13-03250	3.250	3.249	2.640	.248	.238	.138	OR-334
PT13-03500	3.500	3.499	2.890	.248	.238	.138	OR-336
PT13-04000	4.000	3.999	3.390	.248	.238	.138	OR-340
PT13-04250	4.250	4.249	3.640	.248	.238	.138	OR-342
PT13-04500	4.500	4.499	3.890	.248	.238	.138	OR-344
PT13-05000	5.000	4.999	4.390	.248	.238	.138	OR-348
PT14-05500	5.500	5.499	4.673	.319	.305	.193	OR-426
PT14-06000	6.000	5.999	5.173	.319	.305	.193	OR-430
PT14-06500	6.500	6.499	5.673	.319	.305	.193	OR-434
PT14-07000	7.000	6.999	6.173	.319	.305	.193	OR-437
PT14-07500	7.500	7.499	6.673	.319	.305	.193	OR-439
PT14-08000	8.000	7.999	7.173	.319	.305	.193	OR-441
PT14-09500	9.500	9.499	8.673	.319	.305	.193	OR-446
PT14-10000	10.000	9.999	9.173	.319	.305	.193	OR-447



# RS11 - (2 PC.) Rotary Piston Seal

A product of MFP Seals.

**MFPSEALS**

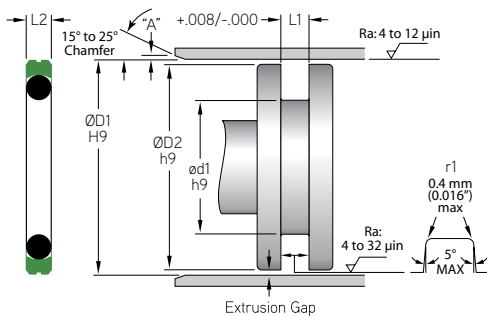
## RS11 - (2 P.C.) Rotary Piston Seal

MFP Seals' RS11 rotary piston seal is used in light to medium duty oscillating applications. The RS11 design is ideal because of its low friction and long wear capabilities.



The standard compound for this seal is T5100 Piston Seal, and an N6001 O-ring expander.

For increased chemical and temperature resistance, other compounds are available (See pages 26-37).



### MFP PART NUMBERS

**RS11-0375x0T5100N**

SEAL TYPE      ØD1      EXPANDER SERIES      COMPOUND      EXPANDER COMPOUND

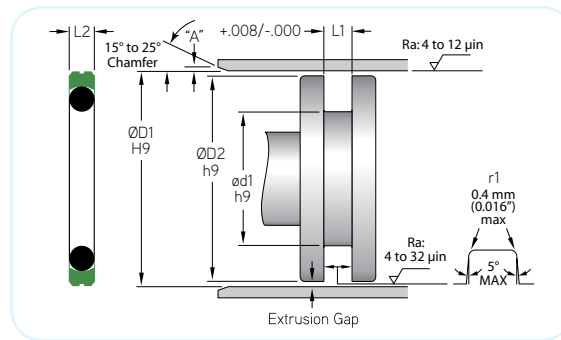
Pressure: 200 bar (3,000 psi)

Max. Velocity: 1.0 m/s (3 ft./s)

PISTON ASSEMBLIES

RS11

MFP PART NUMBER	PISTON APPLICATION				O-RING DASH NO.
	ØD1	ød1	L1	ØD2	
TOLERANCE	H9	h9	+0.008/-0.000	h9	
RS11-0500X0	0.500	0.307	0.087	0.499	-011
RS11-0563X0	0.563	0.370	0.087	0.562	-012
RS11-0625X0	0.625	0.432	0.087	0.624	-013
RS11-0688X0	0.688	0.495	0.087	0.687	-014
RS11-0750X0	0.750	0.557	0.087	0.749	-015
RS11-0813X0	0.813	0.620	0.087	0.812	-016
RS11-0875X0	0.875	0.682	0.087	0.874	-017
RS11-0937X0	0.938	0.745	0.087	0.937	-018
RS11-1000X0	1.000	0.807	0.087	0.999	-019
RS11-1125X0	1.125	0.932	0.087	1.124	-021
RS11-1250X0	1.250	1.057	0.087	1.249	-023
RS11-1375X0	1.375	1.182	0.087	1.374	-025
RS11-1500X1	1.500	1.205	0.126	1.499	-123
RS11-1625X1	1.625	1.330	0.126	1.624	-125
RS11-1750X1	1.750	1.455	0.126	1.749	-127
RS11-1875X1	1.875	1.580	0.126	1.874	-129
RS11-2000X1	2.000	1.705	0.126	1.999	-131
RS11-2125X1	2.125	1.830	0.126	2.124	-133
RS11-2250X1	2.250	1.955	0.126	2.249	-135
RS11-2375X1	2.375	2.080	0.126	2.374	-137
RS11-2500X1	2.500	2.205	0.126	2.499	-139
RS11-2625X1	2.625	2.330	0.126	2.624	-141
RS11-2750X1	2.750	2.455	0.126	2.749	-143
RS11-2875X1	2.875	2.580	0.126	2.874	-145



MFP PART NUMBER	PISTON APPLICATION				O-RING DASH NO.
	ØD1	ød1	L1	ØD2	
TOLERANCE	H9	h9	+0.008/-0.000	h9	
RS11-3000X2	3.000	2.567	0.165	2.999	-230
RS11-3125X2	3.125	2.692	0.165	3.124	-231
RS11-3250X2	3.250	2.817	0.165	3.249	-232
RS11-3375X2	3.375	2.942	0.165	3.374	-233
RS11-3500X2	3.500	3.067	0.165	3.499	-234
RS11-3625X2	3.625	3.192	0.165	3.624	-235
RS11-3750X2	3.750	3.317	0.165	3.749	-236
RS11-3875X2	3.875	3.442	0.165	3.874	-237
RS11-4000X2	4.000	3.567	0.165	3.999	-238
RS11-4125X2	4.125	3.692	0.165	4.124	-239
RS11-4250X2	4.250	3.817	0.165	4.249	-240
RS11-4375X2	4.375	3.942	0.165	4.374	-241
RS11-4500X2	4.500	4.067	0.165	4.499	-242
RS11-4625X2	4.625	4.192	0.165	4.624	-243
RS11-4750X2	4.750	4.317	0.165	4.749	-244
RS11-4875X2	4.875	4.442	0.165	4.874	-245
RS11-5000X2	5.000	4.567	0.165	4.999	-246
RS11-5125X2	5.125	4.692	0.165	5.124	-247
RS11-5250X2	5.250	4.817	0.165	5.249	-248
RS11-5375X2	5.375	4.942	0.165	5.374	-249
RS11-5500X2	5.500	5.067	0.165	5.499	-250
RS11-5625X2	5.625	5.192	0.165	5.624	-251
RS11-5750X2	5.750	5.317	0.165	5.749	-252
RS11-5875X2	5.875	5.442	0.165	5.874	-253
RS11-6000X3	6.000	5.390	0.248	5.999	-355
RS11-6250X3	6.250	5.640	0.248	6.249	-357
RS11-6500X3	6.500	5.890	0.248	6.499	-359
RS11-6750X3	6.750	6.140	0.248	6.749	-361
RS11-7000X3	7.000	6.390	0.248	6.999	-362
RS11-7250X3	7.250	6.640	0.248	7.248	-363
RS11-7500X3	7.500	6.890	0.248	7.498	-364
RS11-7750X3	7.750	7.140	0.248	7.748	-365
RS11-8000X3	8.000	7.390	0.248	7.998	-366
RS11-8250X3	8.250	7.640	0.248	8.248	-367
RS11-8500X3	8.500	7.890	0.248	8.498	-368

PISTON ASSEMBLIES

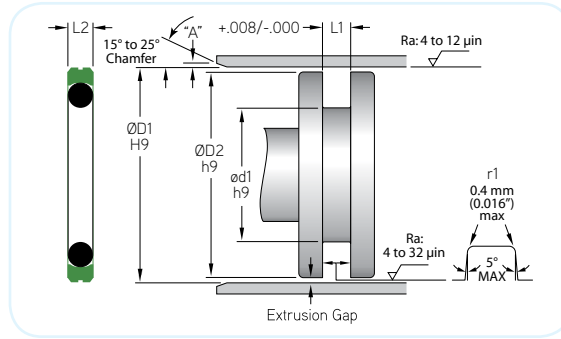
RS11



# RS11 - (2 PC.) Rotary Piston Seal

A product of MFP Seals.

**MFPSEALS**



PISTON ASSEMBLIES

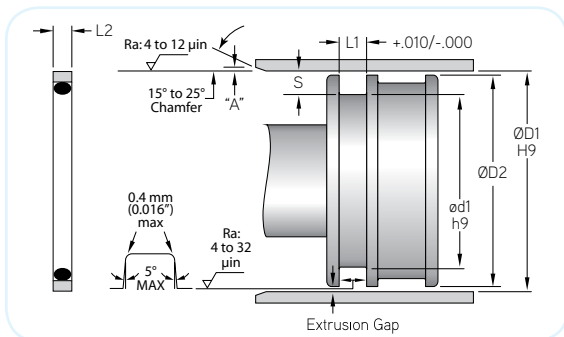
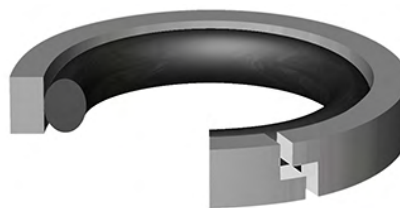
RS11

MFP PART NUMBER	PISTON APPLICATION				O-RING DASH NO.
	ØD1	ød1	L1	ØD2	
TOLERANCE	H9	h9	+0.008/-0.000	h9	
RS11-8750X3	8.750	8.140	0.248	8.748	-369
RS11-9000X3	9.000	8.390	0.248	8.998	-370
RS11-9250X3	9.250	8.640	0.248	9.248	-371
RS11-9500X3	9.500	8.890	0.248	9.498	-372
RS11-9750X3	9.750	9.140	0.248	9.748	-373
RS11-10000X3	10.000	9.390	0.248	9.998	-374
RS11-10500X3	10.500	9.890	0.248	10.498	-376
RS11-11000X3	11.000	10.390	0.248	10.998	-377
RS11-11500X3	11.500	10.890	0.248	11.498	-378
RS11-12000X4	12.000	11.173	0.319	11.998	-451
RS11-12500X4	12.500	11.673	0.319	12.498	-452
RS11-13000X4	13.000	12.173	0.319	12.998	-453
RS11-13500X4	13.500	12.673	0.319	13.498	-454
RS11-14000X4	14.000	13.173	0.319	13.998	-455
RS11-14500X4	14.500	13.673	0.319	14.498	-456
RS11-15000X4	15.000	14.173	0.319	14.998	-457
RS11-15500X4	15.500	14.673	0.319	15.498	-458
RS11-16000X4	16.000	15.173	0.319	15.998	-459
RS11-16500X4	16.500	15.673	0.319	16.498	-460
RS11-17000X4	17.000	16.173	0.319	16.998	-461
RS11-17500X4	17.500	16.673	0.319	17.498	-462
RS11-18000X4	18.000	17.173	0.319	17.998	-463
RS11-18500X4	18.500	17.673	0.319	18.498	-464
RS11-19000X4	19.000	18.173	0.319	18.998	-465
RS11-19500X4	19.500	18.673	0.319	19.498	-466
RS11-20000X4	20.000	19.173	0.319	19.998	-467



**Step Cut - (2 PC.) Piston Seal**

Nylon® Step Cut Piston Rings are double acting seals which are easy to install and work well when travelling over ports. Oval expander included.



**MFP PART NUMBERS**

**SCP-2000-282**

SEAL TYPE      ØD1      GLAND HEIGHT

Pressure: 690 bar (10,000 psi)      Max. Velocity: 1.0 m/s (3 ft./s)

MFP PART NUMBER	PISTON APPLICATION				
	ØD1	ød1	S	L2	L1
TOLERANCE	H9	h9			+0.010/-0.000
SCP-2000-282	2.000	1.462	.269	.274	.282
SCP-2250-282	2.250	1.712	.269	.274	.282
SCP-2500-282	2.500	1.962	.269	.274	.282
SCP-2500-312	2.500	1.908	.296	.306	.312
SCP-2750-282	2.750	2.212	.269	.274	.282
SCP-3000-282	3.000	2.442	.279	.274	.282
SCP-3000-312	3.000	2.408	.296	.306	.312
SCP-3250-282	3.250	2.692	.279	.274	.282
SCP-3500-282	3.500	2.942	.279	.274	.282
SCP-3500-312	3.500	2.908	.296	.306	.312
SCP-3750-282	3.750	3.192	.279	.274	.282
SCP-4000-282	4.000	3.442	.279	.274	.282
SCP-4000-312	4.000	3.408	.296	.306	.312
SCP-4250-282	4.250	3.692	.279	.274	.282
SCP-4500-282	4.500	3.942	.279	.274	.282
SCP-4500-312	4.500	3.908	.296	.306	.312
SCP-4500-377	4.500	3.740	.380	.370	.377
SCP-4750-282	4.750	4.192	.279	.274	.282
SCP-5000-282	5.000	4.442	.279	.274	.282
SCP-5000-377	5.000	4.240	.380	.370	.377
SCP-5250-377	5.250	4.490	.380	.370	.377
SCP-5500-377	5.500	4.740	.380	.370	.377
SCP-6000-377	6.000	5.240	.380	.370	.377
SCP-6500-377	6.500	5.740	.380	.370	.377
SCP-7000-377	7.000	6.240	.380	.370	.377
SCP-7500-377	7.500	6.740	.380	.370	.377
SCP-8000-377	8.000	7.240	.380	.370	.377
SCP-8500-377	8.500	7.740	.380	.370	.377
SCP-9000-377	9.000	8.124	.438	.370	.377
SCP-9500-377	9.500	8.624	.438	.370	.377
SCP-10000-377	10.000	9.124	.438	.370	.377
SCP-12000-377	12.000	11.124	.438	.370	.377

PISTON ASSEMBLIES

SCP

For surface finish information please refer to page 17, Surface Finish: ISO 4287. For ISO tolerance, refer to page 18.

For compound descriptions and temperature ranges, please refer to pages 26-37.





# CPX Piston Seal® - (2 P.C.)

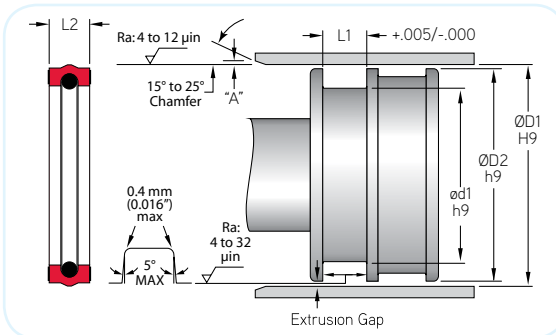
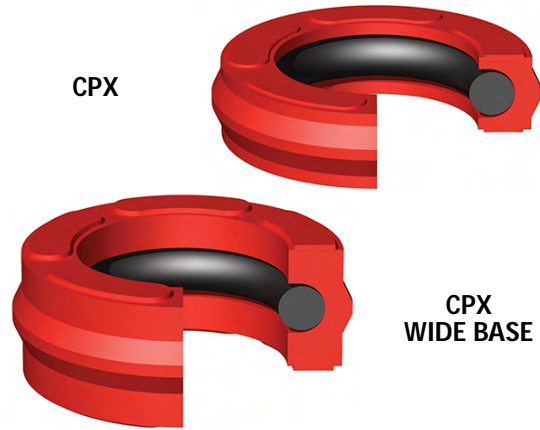
A product of MFP Seals.

**MFPSEALS®**

PISTON ASSEMBLIES

## CPX Piston Seal® - (2 P.C.)

MFP Seals' CPX Piston Seal® is a double-acting piston seal designed to directly interchange with T-Seals, O-Rings and X-Rings, in non-backup ring grooves. The urethane sealing surface produces a positive seal from vacuum to high pressure, due to a narrow single line seal contact area.



The standard compound for this seal is U2151, with an N6001 O-Ring Expander. It is also available in compounds U2145, U2150, and U4150.

### MFP PART NUMBERS

**CPX-218U2151**

SEAL TYPE      SIZE PER O-RING DASH      COMPOUND

Pressure: 400 bar (5,800 psi)

Max. Velocity: 0.5 m/s (1.5 ft./s)

#### FITS STANDARD AS568 O-RING GROOVE

MFP PART NUMBER	ØD1	ØD2	ød1	L1
<b>TOLERANCE</b>	H9	h9	h9	+.005/-0.000
CPX-218	1.500	1.498	1.250	0.187
CPX-222	1.750	1.748	1.500	0.187
CPX-232	3.000	2.998	2.750	0.187
CPX-240	4.000	3.998	3.750	0.187
CPX-326	2.000	1.998	1.625	0.281
CPX-330	2.500	2.498	2.125	0.281
CPX-332	2.750	2.748	2.375	0.281
CPX-334	3.000	2.998	2.625	0.281
CPX-338	3.500	3.498	3.125	0.281
CPX-342	4.000	3.998	3.625	0.281
CPX-350	5.000	4.998	4.625	0.281

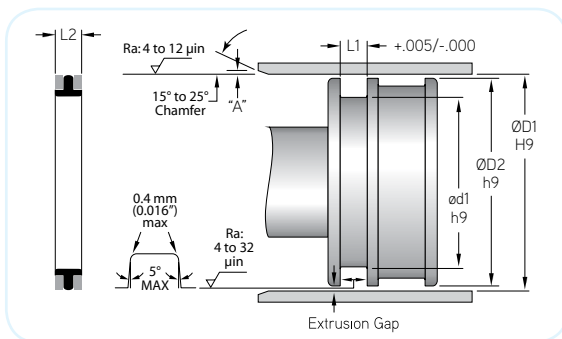
#### FITS O-RING GROOVE DESIGNED FOR TWO BACK-UP RINGS

MFP PART NUMBER	ØD1	ØD2	ød1	L1
<b>TOLERANCE</b>	H9	h9	h9	+.005/-0.000
CPX-326-2	2.000	1.998	1.625	0.370
CPX-330-2	2.500	2.498	2.125	0.370
CPX-332-2	2.750	2.748	2.375	0.370
CPX-334-2	3.000	2.998	2.625	0.370
CPX-342-2	4.000	3.998	3.625	0.370



**GT Ring - (3 PC.) Piston Seal**

GT Rings are an excellent direct replacement for O-Rings or X-Rings, and help eliminate rolling or spiraling in long stroke or dry rod conditions. Designed for installation in standard commercial O-Ring grooves, GT-Rings are also available for grooves cut for one or two backup rings. Each GT-Ring consists of the T-shaped rubber sealing ring and the two anti-extrusion rings.



**MFP PART NUMBERS**

**GTP-125N6001**

SEAL TYPE      SIZE      COMPOUND

Seal - N6001  
Back-Up Rings - M1001

Pressure: 700 bar (10,000 psi)

Max. Velocity: 0.5 m/s (1.5 ft./s)

MFP PART NUMBER	PISTON APPLICATION						
	ØD1	ød1	ØD2	L1 - GROOVE WIDTH			OR SIZE
				NO BACKUP	1 BACKUP	2 BACKUP	
TOLERANCE	H9	h9	h9	+0.005/-0.000	+0.005/-0.000	+0.005/-0.000	
GTP-037BN70	0.375	0.199	0.373	0.141	0.183	0.245	106
GTP-043BN70	0.437	0.261	0.435	0.141	0.183	0.245	108
GTP-050BN70	0.500	0.324	0.498	0.141	0.183	0.245	109
GTP-056BN70	0.562	0.320	0.559	0.188	0.235	0.304	203
GTP-062BN70	0.625	0.383	0.622	0.188	0.235	0.304	204
GTP-068BN70	0.687	0.445	0.684	0.188	0.235	0.304	205
GTP-075BN70	0.750	0.508	0.747	0.188	0.235	0.304	206
GTP-081BN70	0.812	0.570	0.809	0.188	0.235	0.304	207
GTP-087BN70	0.875	0.633	0.872	0.188	0.235	0.304	208
GTP-093BN70	0.937	0.695	0.934	0.188	0.235	0.304	209
GTP-100BN70	1.000	0.758	0.997	0.188	0.235	0.304	210
GTP-106BN70	1.062	0.820	1.059	0.188	0.235	0.304	211
GTP-112BN70	1.125	0.883	1.122	0.188	0.235	0.304	212
GTP-118BN70	1.187	0.945	1.184	0.188	0.235	0.304	213
GTP-125BN70	1.250	1.008	1.247	0.188	0.235	0.304	214
GTP-131BN70	1.312	1.070	1.309	0.188	0.235	0.304	215
GTP-137BN70	1.375	1.133	1.372	0.188	0.235	0.304	216
GTP-143BN70	1.437	1.195	1.434	0.188	0.235	0.304	217
GTP-150BN70	1.500	1.258	1.497	0.188	0.235	0.304	218
GTP-156BN70	1.562	1.320	1.559	0.188	0.235	0.304	219

PISTON ASSEMBLIES

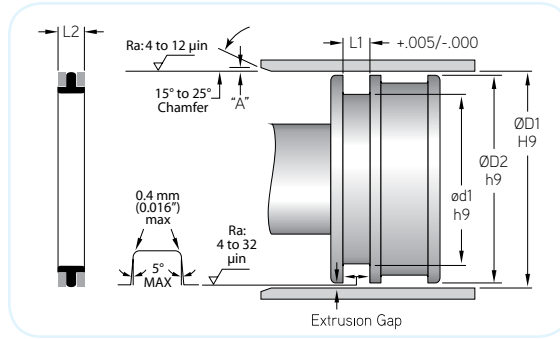
GTP



# GT Ring - (3 PC.) Piston Seal

A product of MFP Seals.

**MFPSEALS**

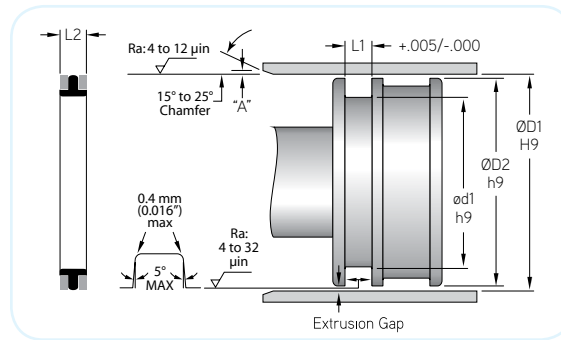


PISTON ASSEMBLIES

GTP

### PISTON APPLICATION

MFP PART NUMBER	ØD1	ød1	ØD2	L1 - GROOVE WIDTH			OR SIZE
				NO BACKUP	1 BACKUP	2 BACKUP	
TOLERANCE	H9	h9	h9	+0.005/-0.000	+0.005/-0.000	+0.005/-0.000	
GTP-162BN70	1.625	1.383	1.622	0.188	0.235	0.304	220
GTP-168BN70	1.687	1.445	1.684	0.188	0.235	0.304	221
GTP-175BN70	1.750	1.508	1.747	0.188	0.235	0.304	222
GTP-187BN70	1.875	1.505	1.872	0.281	0.344	0.424	325
GTP-200BN70	2.000	1.630	1.997	0.281	0.344	0.424	326
GTP-212BN70	2.125	1.755	2.122	0.281	0.344	0.424	327
GTP-225BN70	2.250	1.880	2.247	0.281	0.344	0.424	328
GTP-237BN70	2.375	2.005	2.372	0.281	0.344	0.424	329
GTP-250BN70	2.500	2.130	2.497	0.281	0.344	0.424	330
GTP-262BN70	2.625	2.255	2.622	0.281	0.344	0.424	331
GTP-275BN70	2.750	2.380	2.747	0.281	0.344	0.424	332
GTP-287BN70	2.875	2.505	2.872	0.281	0.344	0.424	333
GTP-300BN70	3.000	2.630	2.997	0.281	0.344	0.424	334
GTP-312BN70	3.125	2.755	3.122	0.281	0.344	0.424	335
GTP-325BN70	3.250	2.880	3.247	0.281	0.344	0.424	336
GTP-337BN70	3.375	3.005	3.372	0.281	0.344	0.424	337
GTP-350BN70	3.500	3.130	3.497	0.281	0.344	0.424	338
GTP-362BN70	3.625	3.255	3.622	0.281	0.344	0.424	339
GTP-375BN70	3.750	3.380	3.747	0.281	0.344	0.424	340
GTP-387BN70	3.875	3.505	3.872	0.281	0.344	0.424	341
GTP-400BN70	4.000	3.630	3.997	0.281	0.344	0.424	342
GTP-412BN70	4.125	3.755	4.122	0.281	0.344	0.424	343
GTP-425BN70	4.250	3.880	4.247	0.281	0.344	0.424	344
GTP-437BN70	4.375	4.005	4.372	0.281	0.344	0.424	345
GTP-450BN70	4.500	4.130	4.497	0.281	0.344	0.424	346
GTP-462BN70	4.625	4.255	4.622	0.281	0.344	0.424	347
GTP-475BN70	4.750	4.380	4.747	0.281	0.344	0.424	348
GTP-487BN70	4.875	4.505	4.872	0.281	0.344	0.424	349
GTP-500BN70	5.000	4.630	4.997	0.281	0.344	0.424	350
GTP-512BN70	5.125	4.651	5.121	0.375	0.475	0.579	426
GTP-525BN70	5.250	4.776	5.246	0.375	0.475	0.579	427
GTP-537BN70	5.375	4.901	5.371	0.375	0.475	0.579	428
GTP-550BN70	5.500	5.026	5.496	0.375	0.475	0.579	429
GTP-562BN70	5.625	5.151	5.621	0.375	0.475	0.579	430



**PISTON APPLICATION**

MFP PART NUMBER	L1 - GROOVE WIDTH						OR SIZE
	ØD1	ød1	ØD2	NO BACKUP	1 BACKUP	2 BACKUP	
	H9	h9	h9	+0.005/-0.000	+0.005/-0.000	+0.005/-0.000	
<b>TOLERANCE</b>	H9	h9	h9	+0.005/-0.000	+0.005/-0.000	+0.005/-0.000	
GTP-575BN70	5.750	5.276	5.746	0.375	0.475	0.579	431
GTP-587BN70	5.875	5.401	5.871	0.375	0.475	0.579	432
GTP-600BN70	6.000	5.526	5.996	0.375	0.475	0.579	433
GTP-612BN70	6.125	5.651	6.121	0.375	0.475	0.579	434
GTP-625BN70	6.250	5.776	6.246	0.375	0.475	0.579	435
GTP-650BN70	6.500	6.026	6.496	0.375	0.475	0.579	437
GTP-675BN70	6.750	6.276	6.746	0.375	0.475	0.579	438
GTP-700BN70	7.000	6.526	6.996	0.375	0.475	0.579	439
GTP-725BN70	7.250	6.776	7.246	0.375	0.475	0.579	440
GTP-750BN70	7.500	7.026	7.496	0.375	0.475	0.579	441
GTP-775BN70	7.750	7.276	7.746	0.375	0.475	0.579	442
GTP-800BN70	8.000	7.526	7.996	0.375	0.475	0.579	443
GTP-825BN70	8.250	7.776	8.246	0.375	0.475	0.579	444
GTP-850BN70	8.500	8.026	8.496	0.375	0.475	0.579	445
GTP-900BN70	9.000	8.526	8.996	0.375	0.475	0.579	446
GTP-950BN70	9.500	9.026	9.496	0.375	0.475	0.579	447
GTP-1000BN70	10.000	9.526	9.996	0.375	0.475	0.579	448
GTP-1050BN70	10.500	10.026	10.496	0.375	0.475	0.579	449
GTP-1100BN70	11.000	10.526	10.996	0.375	0.475	0.579	450
GTP-1150BN70	11.500	11.026	11.496	0.375	0.475	0.579	451
GTP-1200BN70	12.000	11.526	11.996	0.375	0.475	0.579	452

PISTON ASSEMBLIES

GTP



# TPR - Rectangular (2 PC.) Piston Seal

A product of MFP Seals.



PISTON ASSEMBLIES

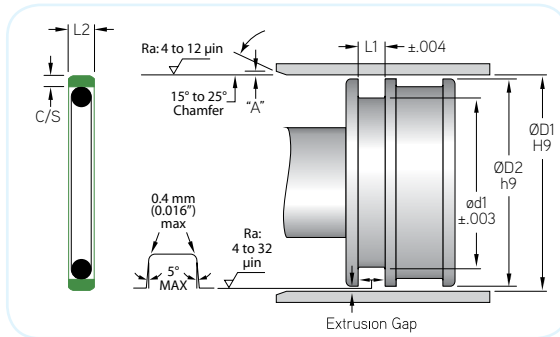
## TPR - Rectangular (2 PC.) Piston Seal

TPR Rectangular Teflon® rings are made with reinforced Teflon® and are supplied with an O-ring expander. A heavier version of the square or midsize style, the rectangular ring is more stable, and able to seal at elevated pressures. MFP Seals' proprietary T5100 filled Teflon® rings add additional strength and life compared to other filled Teflon® seals.



The standard compound for this seal is T5100, with an N6001 O-Ring Expander.

For increased chemical and temperature resistance, other compounds are available (See pages 26-37).



## MFP PART NUMBERS

MFP-TPR-100T5100N

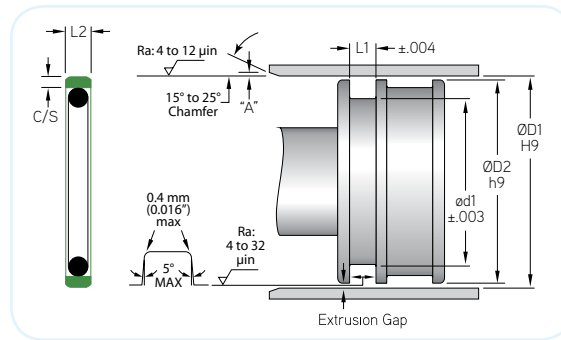
SEAL TYPE: T5100, COMPOUND: ØD1, EXPANDER COMPOUND: N6001

Pressure: 250 bar (3,625 psi)

Max. Velocity: 4.0 m/s (13 ft./s)

TPR

MFP PART NUMBER	PISTON APPLICATION						O-RING DASH NO.
	ØD1	ød1	L1	ØD2	L2	C/S	
<b>TOLERANCE</b>	H9	+0.03/-0.03	+0.04/-0.04	h9	+0.02/-0.02	+0.03/-0.03	
MFP-TPR-100	1.000	0.692	0.129	0.999	0.119	0.070	-115
MFP-TPR-125	1.250	0.942	0.129	1.249	0.119	0.070	-119
MFP-TPR-150	1.500	1.192	0.129	1.499	0.119	0.070	-123
MFP-TPR-175	1.750	1.442	0.129	1.749	0.119	0.070	-127
MFP-TPR-200	2.000	1.692	0.129	1.999	0.119	0.070	-131
MFP-TPR-225	2.250	1.942	0.129	2.249	0.119	0.070	-135
MFP-TPR-250	2.500	2.192	0.129	2.499	0.119	0.070	-139
MFP-TPR-275	2.750	2.442	0.129	2.749	0.119	0.070	-143
MFP-TPR-300	3.000	2.444	0.284	2.998	0.272	0.090	-333
MFP-TPR-325	3.250	2.694	0.284	3.248	0.272	0.090	-335
MFP-TPR-350	3.500	2.944	0.284	3.498	0.272	0.090	-337
MFP-TPR-375	3.750	3.194	0.284	3.748	0.272	0.090	-339
MFP-TPR-400	4.000	3.444	0.284	3.998	0.272	0.090	-341
MFP-TPR-412	4.125	3.569	0.284	4.123	0.272	0.090	-342
MFP-TPR-425	4.250	3.694	0.284	4.248	0.272	0.090	-343
MFP-TPR-450	4.500	3.944	0.284	4.498	0.272	0.090	-345
MFP-TPR-475	4.750	4.194	0.284	4.748	0.272	0.090	-347
MFP-TPR-500	5.000	4.444	0.284	4.998	0.272	0.090	-349



MFP PART NUMBER	PISTON APPLICATION						O-RING DASH NO.
	ØD1	ød1	L1	ØD2	L2	C/S	
TOLERANCE	H9	+0.003/-0.003	+0.004/-0.004	h9	+0.002/-0.002	+0.005/-0.005	
MFP-TPR-525	5.250	4.488	0.379	5.247	0.365	0.142	-425
MFP-TPR-550	5.500	4.738	0.379	5.497	0.365	0.142	-427
MFP-TPR-562	5.625	4.863	0.379	5.622	0.365	0.142	-428
MFP-TPR-575	5.750	4.988	0.379	5.747	0.365	0.142	-429
MFP-TPR-600	6.000	5.238	0.379	5.997	0.365	0.142	-431
MFP-TPR-625	6.250	5.488	0.379	6.247	0.365	0.142	-433
MFP-TPR-650	6.500	5.738	0.379	6.497	0.365	0.142	-435
MFP-TPR-675	6.750	5.988	0.379	6.747	0.365	0.142	-437
MFP-TPR-700	7.000	6.238	0.379	6.997	0.365	0.142	-438
MFP-TPR-725	7.250	6.488	0.379	7.247	0.365	0.142	-439
MFP-TPR-750	7.500	6.738	0.379	7.497	0.365	0.142	-440
MFP-TPR-775	7.750	6.988	0.379	7.747	0.365	0.142	-441
MFP-TPR-800	8.000	7.238	0.379	7.997	0.365	0.142	-442
MFP-TPR-825	8.250	7.488	0.379	8.247	0.365	0.142	-443
MFP-TPR-850	8.500	7.738	0.379	8.497	0.365	0.142	-444
MFP-TPR-900	9.000	8.122	0.379	8.996	0.365	0.202	-445
MFP-TPR-950	9.500	8.622	0.379	9.496	0.365	0.202	-446
MFP-TPR-1000	10.000	9.122	0.379	9.996	0.365	0.202	-447
MFP-TPR-1100	11.000	10.122	0.379	10.996	0.365	0.202	-449
MFP-TPR-1200	12.000	11.122	0.379	11.996	0.365	0.202	-451
MFP-TPR-1300	13.000	12.122	0.379	12.996	0.365	0.202	-453
MFP-TPR-1400	14.000	13.122	0.379	13.996	0.365	0.202	-455

PISTON ASSEMBLIES

TPR





# TPM - Midsize Ring (2 PC.) Piston Seal

A product of MFP Seals.



PISTON ASSEMBLIES

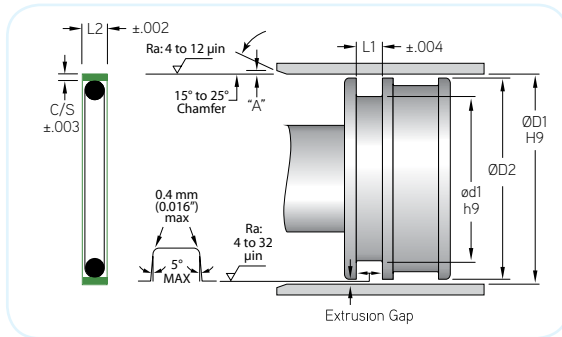
## TPM - Midsize Ring (2 PC.) Piston Seal

TPM Teflon® rings are a rectangular series of piston rings which fill the gap between our square and rectangular series. Teflon® with its low coefficient of friction will reduce frictional heat while the O-Ring expander creates an effective compression seal. The urethane rings are interchangeable and provide a seal that can be more readily installed on the piston and still provide long field service life. These rings are manufactured from shaved 60 durometer polyurethane with an outer layer containing a concentration of MOS<sub>2</sub> for break-in. O-Rings expanders are provided with each ring.



The standard compound for this seal is T5100, with an N6001 O-Ring Expander.

For increased chemical and temperature resistance, other compounds are available (See pages 26-37).



## MFP PART NUMBERS

MFP-TPM-100T5100N

SEAL TYPE: TPM, COMPOUND: T5100, EXPANDER COMPOUND: N6001

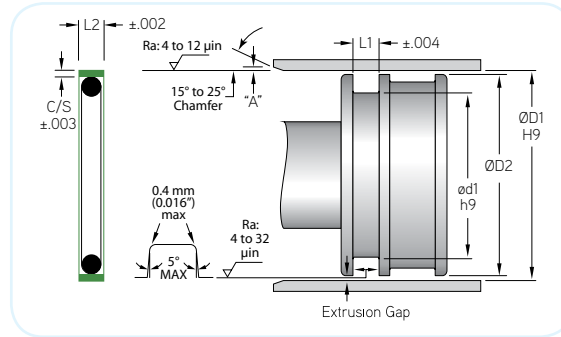
Pressure: 250 bar (3,625 psi)

Max. Velocity: 4.0 m/s (13 ft./s)

## PISTON APPLICATION

MFP PART NUMBER	ØD1	ød1	L1	L2	C/S	EXPANDER
TOLERANCE	H9	h9	+0.004/-0.004	+0.002/-0.002	+0.003/-0.003	
MFP-TPM-100	1.000	.787	.094	.090	.058	OR-018
MFP-TPM-112	1.125	.912	.094	.090	.058	OR-020
MFP-TPM-125	1.250	1.037	.094	.090	.058	OR-022
MFP-TPM-137	1.375	1.162	.094	.090	.058	OR-024
MFP-TPM-150	1.500	1.287	.094	.090	.058	OR-026
MFP-TPM-162	1.625	1.412	.094	.090	.058	OR-028
MFP-TPM-175	1.750	1.473	.094	.090	.058	OR-127
MFP-TPM-187	1.875	1.598	.126	.122	.062	OR-129
MFP-TPM-200	2.000	1.723	.126	.122	.062	OR-131
MFP-TPM-225	2.250	1.937	.126	.122	.062	OR-135
MFP-TPM-237	2.375	2.098	.126	.122	.062	OR-137
MFP-TPM-250	2.500	2.223	.126	.122	.062	OR-139
MFP-TPM-275	2.750	2.348	.157	.152	.092	OR-229
MFP-TPM-300	3.000	2.603	.157	.152	.092	OR-231
MFP-TPM-325	3.250	2.853	.157	.152	.092	OR-233
MFP-TPM-350	3.500	3.103	.157	.152	.092	OR-235
MFP-TPM-375	3.750	3.353	.157	.152	.092	OR-237
MFP-TPM-400	4.000	3.603	.157	.152	.092	OR-239
MFP-TPM-425	4.250	3.853	.157	.152	.092	OR-241

TPM



MFP PART NUMBER	PISTON APPLICATION					
	ØD1	ød1	L1	L2	C/S	EXPANDER
<b>TOLERANCE</b>	H9	h9	+.004/-.004	+.002/-.002	+.003/-.003	
MFP-TPM-450	4.500	4.103	.157	.152	.092	OR-243
MFP-TPM-475	4.750	4.353	.157	.152	.092	OR-245
MFP-TPM-500	5.000	4.603	.157	.152	.092	OR-247
MFP-TPM-525	5.250	4.853	.157	.152	.092	OR-249
MFP-TPM-550	5.500	5.103	.157	.152	.092	OR-251
MFP-TPM-575	5.750	5.353	.157	.152	.092	OR-253
MFP-TPM-600	6.000	5.350	.293	.272	.122	OR-355
MFP-TPM-700	7.000	6.350	.293	.272	.122	OR-362



# TPS - Square (2 PC.) Piston Seal

A product of MFP Seals.

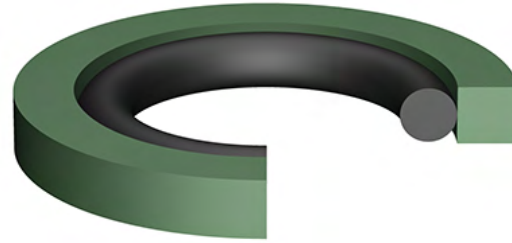


PISTON ASSEMBLIES

TPS

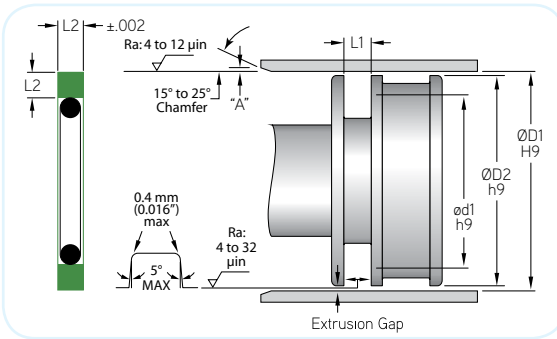
## TPS - Square (2 PC.) Piston Seal

MFP Seals' TPS Piston seal utilize a square profile to minimize gland space requirements on the piston. For use in bidirectional sealing the proprietary T5100 PTFE sealing element offers a low coefficient of friction while the O-Ring expander creates an effective compression seal. Typical applications are light to medium duty hydraulic cylinders & actuators.



The standard compound for this seal is T5100, with an N6001 O-Ring Expander.

For increased chemical and temperature resistance, other compounds are available (See pages 26-37).



## MFP PART NUMBERS

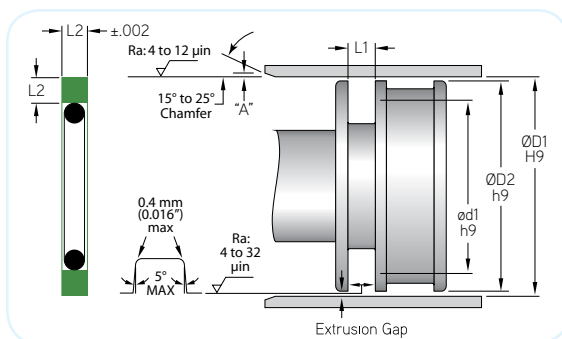
MFP-TPS-050T5100N

SEAL TYPE: TPS  
 COMPOUND: T5100  
 ØD1: 050  
 EXPANDER COMPOUND: N6001

Pressure: 250 bar (3625 psi)

Max. Velocity: 4.0 m/s (13 ft./s)

MFP PART NUMBER	PISTON APPLICATION					O-RING DASH NO.
	ØD1	ød1	L1	ØD2	L2	
<b>TOLERANCE</b>	H9	h9	+0.005/-0.005	h9	+0.002/-0.002	
MFP-TPS-050	0.500	0.240	0.083	0.499	.070	-009
MFP-TPS-062	0.625	0.365	0.083	0.624	.070	-011
MFP-TPS-075	0.750	0.490	0.083	0.749	.070	-013
MFP-TPS-087	0.875	0.615	0.083	0.087	.070	-016
MFP-TPS-100	1.000	0.740	0.083	0.999	.070	-017
MFP-TPS-112	1.125	0.865	0.083	1.124	.070	-019
MFP-TPS-125	1.250	0.990	0.083	1.249	.070	-022
MFP-TPS-137	1.375	1.115	0.083	1.374	.070	-022
MFP-TPS-150	1.500	1.240	0.083	1.499	.070	-025
MFP-TPS-156	1.562	1.170	0.122	1.561	.109	-123
MFP-TPS-162	1.625	1.233	0.122	1.624	.109	-123
MFP-TPS-168	1.687	1.295	0.122	1.686	.109	-124
MFP-TPS-175	1.750	1.358	0.122	1.749	.109	-125
MFP-TPS-187	1.875	1.483	0.122	1.874	.109	-127
<b>TOLERANCE</b>	H9	h9	+0.010/-0.010	h9	+0.002/-0.002	
MFP-TPS-200	2.000	1.608	0.130	1.999	.115	-129
MFP-TPS-212	2.125	1.733	0.130	2.124	.115	-131
MFP-TPS-225	2.250	1.858	0.130	2.249	.115	-133
MFP-TPS-237	2.375	1.983	0.130	2.374	.115	-135



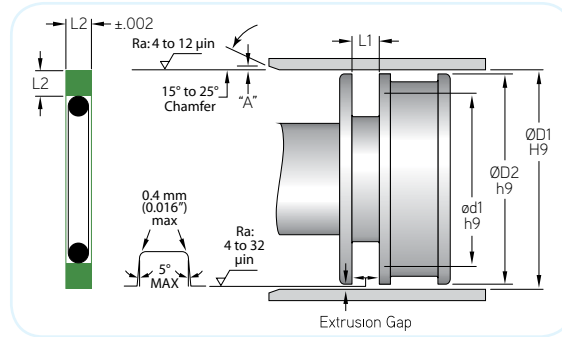
MFP PART NUMBER	PISTON APPLICATION					O-RING DASH NO.
	ØD1	ød1	L1	ØD2	L2	
TOLERANCE	H9	h9	+0.010/-0.010	h9	+0.002/-0.002	
MFP-TPS-250	2.500	2.108	0.130	2.499	.115	-137
MFP-TPS-262	2.625	2.233	0.130	2.624	.115	-139
MFP-TPS-275	2.750	2.358	0.130	2.749	.115	-141
MFP-TPS-287	2.875	2.483	0.130	2.874	.115	-143
MFP-TPS-300	3.000	2.608	0.130	2.999	.115	-145
MFP-TPS-325	3.250	2.858	0.130	3.249	.115	-149
MFP-TPS-337	3.375	2.983	0.130	3.374	.115	-150
MFP-TPS-350	3.500	3.108	0.130	3.499	.115	-151
MFP-TPS-362	3.625	3.233	0.130	3.624	.115	-152
MFP-TPS-375	3.750	3.358	0.130	3.749	.115	-152
MFP-TPS-400	4.000	3.608	0.130	3.999	.115	-153
MFP-TPS-425	4.250	3.858	0.130	4.249	.115	-154
MFP-TPS-450	4.500	4.108	0.130	4.499	.115	-155
MFP-TPS-475	4.750	4.358	0.130	4.749	.115	-156
MFP-TPS-487	4.875	4.483	0.130	4.874	.115	-156
MFP-TPS-500	5.000	4.608	0.130	4.999	.115	-157
MFP-TPS-525	5.250	4.858	0.130	5.249	.115	-158
MFP-TPS-550	5.500	5.108	0.130	5.499	.115	-159
MFP-TPS-575	5.750	5.232	0.160	5.748	.143	-251
MFP-TPS-587	5.875	5.357	0.160	5.873	.143	-252
MFP-TPS-600	6.000	5.482	0.160	5.998	.143	-253
MFP-TPS-612	6.125	5.607	0.160	6.123	.143	-254
MFP-TPS-625	6.250	5.732	0.160	6.248	.143	-255
MFP-TPS-650	6.500	5.982	0.160	6.498	.143	-257
MFP-TPS-675	6.750	6.232	0.160	6.748	.143	-258
MFP-TPS-700	7.000	6.482	0.160	6.998	.143	-259
MFP-TPS-712	7.125	6.607	0.160	7.123	.143	-260
MFP-TPS-725	7.250	6.732	0.160	7.248	.143	-260
MFP-TPS-750	7.500	6.982	0.160	7.498	.143	-261
MFP-TPS-775	7.750	7.232	0.160	7.748	.143	-262
MFP-TPS-800	8.000	7.482	0.160	7.998	.143	-263
MFP-TPS-812	8.125	7.607	0.160	8.123	.143	-264
MFP-TPS-825	8.250	7.732	0.160	8.248	.143	-264
MFP-TPS-850	8.500	7.982	0.160	8.498	.143	-265
MFP-TPS-875	8.750	8.232	0.160	8.748	.143	-266



# TPS - Square (2 PC.) Piston Seal

A product of MFP Seals.

**MFPSEALS**



MFP PART NUMBER	PISTON APPLICATION					O-RING DASH NO.
	ØD1	ød1	L1	ØD2	L2	
TOLERANCE	H9	h9	+0.010/-0.010	h9	+0.002/-0.002	
MFP-TPS-900	9.000	8.482	0.160	8.998	.143	-267
MFP-TPS-925	9.250	8.732	0.160	9.248	.143	-268
MFP-TPS-950	9.500	8.982	0.160	9.498	.143	-269
MFP-TPS-975	9.750	9.232	0.160	9.748	.143	-270
MFP-TPS-1000	10.000	9.482	0.160	9.998	.143	-271
MFP-TPS-1025	10.250	9.732	0.160	10.248	.143	-272
MFP-TPS-1050	10.500	9.982	0.160	10.498	.143	-273
MFP-TPS-1075	10.750	10.232	0.160	10.748	.143	-274
MFP-TPS-1100	11.000	10.482	0.160	10.998	.143	-275
MFP-TPS-1150	11.500	10.982	0.160	11.498	.143	-276
MFP-TPS-1200	12.000	11.482	0.160	11.998	.143	-277
MFP-TPS-1250	12.500	11.982	0.160	12.498	.143	-278
MFP-TPS-1300	13.000	12.482	0.160	12.998	.143	-278
MFP-TPS-1400	14.000	13.482	0.160	13.998	.143	-279
MFP-TPS-1500	15.000	14.482	0.160	14.998	.143	-280
MFP-TPS-1600	16.000	15.482	0.160	15.998	.143	-281

PISTON ASSEMBLIES

TPS



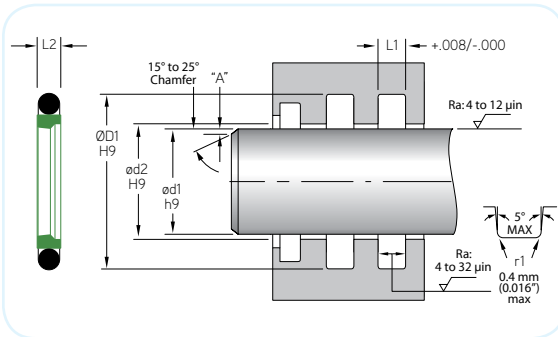
**BRS - Rod Buffer Seal**

MFP Seals' BRS is designed for use as a buffer seal or as the primary sealing element. When used as a buffer seal a primary rod seal would be designed into the groove downstream of the pressure. The BRS seal is composed of a two piece design consisting of a filled PTFE ring along with a rubber energizer. The BRS offers low friction and long life due to its material composition.



*The standard compound for this seal is T5100, with an N6001 O-Ring Expander.*

*For increased chemical and temperature resistance, other compounds are available (See pages 26-37).*



**MFP PART NUMBERS**

**BRS1375x2T5100N**

SEAL TYPE    ød1    EXPANDER SERIES    COMPOUND    EXPANDER COMPOUND

Pressure: 350 bar (5,000 psi)

Max. Velocity: 4.0 m/s (13 ft./s)

MFP PART NUMBER	ROD APPLICATION				O-RING DASH NO.
	ød1	ØD1	L1	ød2	
TOLERANCE	h9	H9	+0.008/-0.000	H9	
BRS0437X1	0.438	0.724	0.126	0.439	-113
BRS0500X1	0.500	0.786	0.126	0.501	-114
BRS0562X1	0.563	0.849	0.126	0.564	-115
BRS0625X1	0.625	0.911	0.126	0.626	-116
BRS0687X1	0.687	0.974	0.126	0.689	-117
BRS0750X1	0.750	1.036	0.126	0.751	-118
BRS0875X1	0.875	1.161	0.126	0.876	-120
BRS1000X1	1.000	1.286	0.126	1.001	-122
BRS1125X1	1.125	1.411	0.126	1.126	-124
BRS1250X1	1.250	1.536	0.126	1.251	-126
BRS1375X1	1.375	1.661	0.126	1.376	-128
BRS1500X1	1.500	1.786	0.126	1.501	-130
BRS1750X1	1.750	2.036	0.126	1.751	-134
BRS0750X2	0.750	1.170	0.165	0.751	-213
BRS0812X2	0.813	1.233	0.165	0.814	-214
BRS0875X2	0.875	1.295	0.165	0.876	-215
BRS0937X2	0.938	1.358	0.165	0.939	-216
BRS1000X2	1.000	1.420	0.165	1.001	-217
BRS1062X2	1.063	1.483	0.165	1.064	-218
BRS1125X2	1.125	1.545	0.165	1.126	-219
BRS1187X2	1.188	1.608	0.165	1.189	-220
BRS1250X2	1.250	1.670	0.165	1.251	-221
BRS1312X2	1.313	1.733	0.165	1.314	-222
BRS1375X2	1.375	1.795	0.165	1.376	-222

BUFFER RINGS

BRS

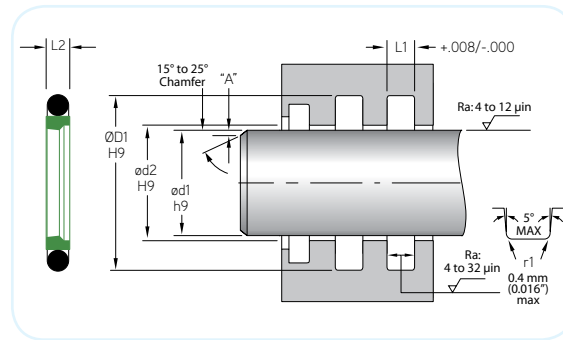




# BRS - Rod Buffer Seal

A product of MFP Seals.

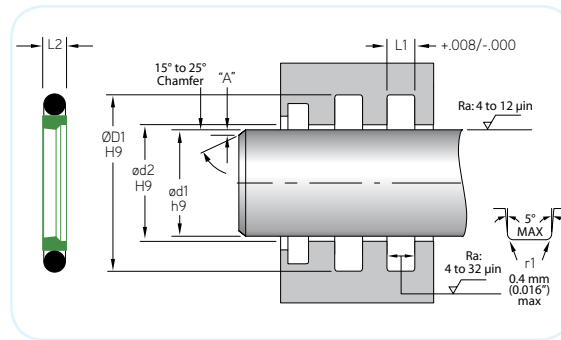
**MFPSEALS**



BUFFER RINGS

BRS

MFP PART NUMBER	ROD APPLICATION				O-RING DASH NO.
	ød1	ØD1	L1	ød2	
TOLERANCE	h9	H9	+0.008/-0.000	H9	
BRS1437X2	1.438	1.859	0.165	1.439	-223
BRS1500X2	1.500	1.921	0.165	1.501	-223
BRS1750X2	1.750	2.171	0.165	1.751	-225
BRS1875X2	1.875	2.296	0.165	1.871	-226
BRS2000X2	2.000	2.421	0.165	2.001	-227
BRS2250X2	2.250	2.671	0.165	2.251	-229
BRS2500X2	2.500	2.921	0.165	2.501	-231
BRS2750X2	2.750	3.171	0.165	2.751	-233
BRS3000X2	3.000	3.421	0.165	3.001	-235
BRS3500X2	3.500	3.921	0.165	3.501	-239
BRS4000X2	4.000	4.421	0.165	4.001	-243
BRS4500X2	4.500	4.921	0.165	4.501	-247
BRS1500X3	1.500	2.094	0.248	1.501	-327
BRS1562X3	1.563	2.157	0.248	1.564	-327
BRS1625X3	1.625	2.219	0.248	1.626	-328
BRS1687X3	1.688	2.282	0.248	1.689	-328
BRS1750X3	1.750	2.344	0.248	1.751	-329
BRS1812X3	1.813	2.407	0.248	1.814	-329
BRS1875X3	1.875	2.469	0.248	1.876	-330
BRS1937X3	1.938	2.532	0.248	1.939	-330
BRS2000X3	2.000	2.594	0.248	2.001	-331
BRS2125X3	2.125	2.719	0.248	2.126	-332
BRS2250X3	2.250	2.844	0.248	2.251	-333
BRS2375X3	2.375	2.969	0.248	2.376	-334
BRS2500X3	2.500	3.094	0.248	2.501	-335
BRS2625X3	2.625	3.219	0.248	2.626	-336
BRS2750X3	2.750	3.344	0.248	2.751	-337
BRS2875X3	2.875	3.469	0.248	2.876	-338
BRS3000X3	3.000	3.594	0.248	3.001	-339
BRS3125X3	3.125	3.719	0.248	3.126	-340
BRS3250X3	3.250	3.844	0.248	3.251	-341
BRS3375X3	3.375	3.969	0.248	3.376	-342
BRS3500X3	3.500	4.094	0.248	3.501	-343
BRS3625X3	3.625	4.219	0.248	3.626	-344
BRS3750X3	3.750	4.344	0.248	3.751	-345
BRS3875X3	3.875	4.469	0.248	3.876	-346



MFP PART NUMBER	ROD APPLICATION				O-RING DASH NO.
	ød1	ØD1	L1	ød2	
TOLERANCE	h9	H9	+0.008/-0.000	H9	
BRS4000X3	4.000	4.594	0.248	4.001	-347
BRS4125X3	4.125	4.719	0.248	4.126	-348
BRS4250X3	4.250	4.844	0.248	4.251	-349
BRS4375X3	4.375	4.969	0.248	4.376	-350
BRS4500X3	4.500	5.094	0.248	4.501	-351
BRS4625X3	4.625	5.219	0.248	4.626	-352
BRS4750X3	4.750	5.344	0.248	4.752	-353
BRS4875X3	4.875	5.469	0.248	4.877	-354
BRS5000X3	5.000	5.594	0.248	5.002	-355
BRS5125X3	5.125	5.719	0.248	5.127	-356
BRS5250X3	5.250	5.844	0.248	5.252	-357
BRS5375X3	5.375	5.969	0.248	5.377	-358
BRS5500X3	5.500	6.094	0.248	5.502	-359
BRS5625X3	5.625	6.219	0.248	5.627	-360
BRS5750X3	5.750	6.344	0.248	5.752	-361
BRS6000X3	6.000	6.594	0.248	6.002	-362
BRS6250X3	6.250	6.844	0.248	6.252	-363
BRS6500X3	6.500	7.094	0.248	6.502	-364
BRS6750X3	6.750	7.344	0.248	6.752	-365
BRS7000X3	7.000	7.594	0.248	7.002	-366
BRS7250X3	7.250	7.844	0.248	7.252	-367
BRS7500X3	7.500	8.094	0.248	7.502	-368
BRS7750X3	7.750	8.344	0.248	7.752	-369
BRS8000X3	8.000	8.594	0.248	8.002	-370
BRS4000X4	4.000	4.807	0.319	4.001	-424
BRS4250X4	4.250	5.057	0.319	4.251	-426
BRS4500X4	4.500	5.307	0.319	4.501	-428
BRS4750X4	4.750	5.557	0.319	4.752	-430
BRS5000X4	5.000	5.807	0.319	5.002	-432
BRS5250X4	5.250	6.057	0.319	5.252	434
BRS5500X4	5.500	6.307	0.319	5.502	-436
BRS5750X4	5.750	6.557	0.319	5.752	-437
BRS6000X4	6.000	6.807	0.319	6.002	-438
BRS6250X4	6.250	7.057	0.319	6.252	-439
BRS6500X4	6.500	7.307	0.319	6.502	-440
BRS6750X4	6.750	7.557	0.319	6.752	-441

BUFFER RINGS

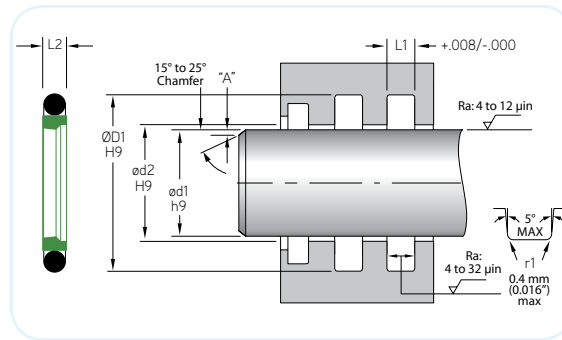
BRS



# BRS - Rod Buffer Seal

A product of MFP Seals.

**MFPSEALS**



MFP PART NUMBER	ROD APPLICATION				O-RING DASH NO.
	ød1	ØD1	L1	ød2	
TOLERANCE	h9	H9	+0.008/-0.000	H9	
BRS7000X4	7.000	7.806	0.319	7.002	-442
BRS7250X4	7.250	8.056	0.319	7.252	-443
BRS7500X4	7.500	8.306	0.319	7.502	-444
BRS7750X4	7.750	8.556	0.319	7.752	-445
BRS8000X4	8.000	8.806	0.319	8.003	-445
BRS8250X4	8.250	9.056	0.319	8.253	-446
BRS8500X4	8.500	9.306	0.319	8.503	-446
BRS8750X4	8.750	9.556	0.319	8.753	-447
BRS9000X4	9.000	9.806	0.319	9.003	-447
BRS9250X4	9.250	10.056	0.319	9.253	-448
BRS9500X4	9.500	10.306	0.319	9.503	-448
BRS9750X4	9.750	10.556	0.319	9.753	-449
BRS10000X4	10.000	10.944	0.319	10.003	-450
BRS10500X4	10.500	11.444	0.319	10.503	-451
BRS11000X4	11.000	11.944	0.319	11.003	-452
BRS11500X4	11.500	12.444	0.319	11.503	-453
BRS12000X4	12.000	12.944	0.319	12.003	-454
BRS12500X4	12.500	13.444	0.319	12.503	-454
BRS13000X4	13.000	13.944	0.319	13.003	-455
BRS13500X4	13.500	14.444	0.319	13.503	-456
BRS14000X4	14.000	14.944	0.319	14.003	-457
BRS14500X4	14.500	15.444	0.319	14.503	-458
BRS15000X4	15.000	15.944	0.319	15.003	-459
BRS15500X4	15.500	16.444	0.319	15.503	-460
BRS16000X4	16.000	16.944	0.319	16.003	-461
BRS16500X4	16.500	17.444	0.319	16.503	-462
BRS17000X4	17.000	17.944	0.319	17.003	-463
BRS17500X4	17.500	18.444	0.319	17.503	-464
BRS18000X4	18.000	18.944	0.319	18.003	-465
BRS18500X4	18.500	19.444	0.319	18.503	-466
BRS19000X4	19.000	19.944	0.319	19.003	-467
BRS19500X4	19.500	20.444	0.319	19.503	-468
BRS20000X4	20.000	20.944	0.319	20.003	-469

BUFFER RINGS

BRS

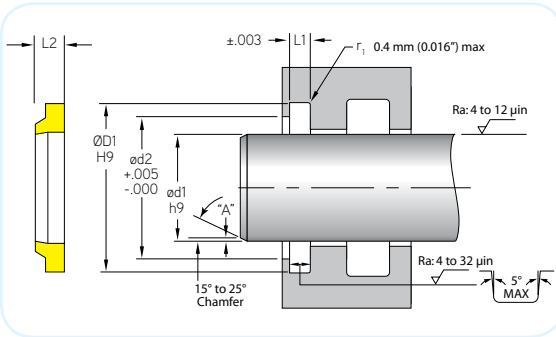


**AN Rod Wiper**

MFP Seals' AN series wipers are light duty snap in wipers that will retrofit into glands prescribed in MS-33675 for corresponding dash numbers of MS-28776. MFPs AN wipers offer a slotted heel to eliminate the possibility of pressure traps between the rod seal and wiper.



The standard compound for this seal is U2145.  
It is also available in U2150, U2151, U4150 and H2155.



**MFP PART NUMBERS**

**AN-01U2145**  
SEAL TYPE    DASH #    COMPOUND

**Max. Velocity: 0.5 m/s (1.5 ft./s)**

MFP PART NUMBER	ROD APPLICATION				
	ød1	ØD1	L1	ød2	L2
TOLERANCE	h9	H9	+0.003/-0.003	+0.005/-0.000	
AN-01	0.500	0.760	0.107	0.647	0.187
AN-02	0.562	0.823	0.107	0.710	0.187
AN-03	0.625	0.885	0.107	0.772	0.187
AN-04	0.687	0.948	0.107	0.834	0.187
AN-05	0.750	1.010	0.107	0.897	0.187
AN-06	0.812	1.084	0.107	0.960	0.187
AN-07	0.875	1.147	0.107	1.023	0.187
AN-08	0.937	1.211	0.107	1.087	0.187
AN-09	1.000	1.272	0.107	1.148	0.187
AN-10	1.062	1.334	0.107	1.210	0.187
AN-11	1.125	1.397	0.107	1.273	0.187
AN-12	1.187	1.459	0.107	1.335	0.187
AN-13	1.250	1.522	0.107	1.398	0.187
AN-14	1.312	1.614	0.107	1.480	0.187
AN-15	1.375	1.677	0.107	1.542	0.187
AN-16	1.437	1.739	0.107	1.605	0.187
AN-17	1.500	1.802	0.107	1.668	0.187
AN-18	1.625	1.927	0.107	1.793	0.187
AN-19	1.750	2.052	0.107	1.918	0.187
AN-20	1.875	2.177	0.107	2.043	0.187
AN-21	2.000	2.302	0.107	2.178	0.187
AN-22	2.125	2.427	0.107	2.303	0.187
AN-23	2.250	2.552	0.107	2.428	0.187
AN-24	2.375	2.677	0.107	2.553	0.187
AN-25	2.500	2.802	0.107	2.678	0.187

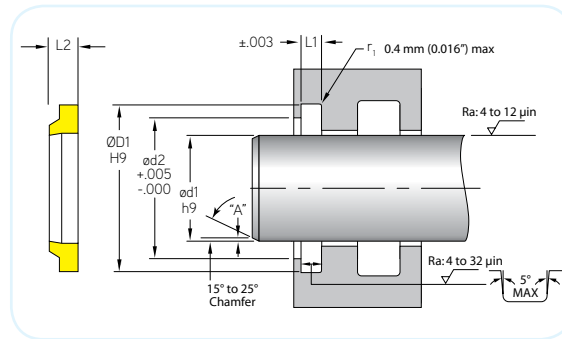
AN STYLE

ROD WIPERS



# AN Style Rod Wiper

A product of MFP Seals.



AN STYLE

ROD WIPERS

### ROD APPLICATION

MFP PART NUMBER	ød1	ØD1	L1	ød2	L2
TOLERANCE	h9	H9	+0.003/-0.003	+0.005/-0.000	
AN-26	2.625	2.989	0.122	2.834	0.211
AN-27	2.750	3.114	0.122	2.959	0.211
AN-28	2.875	3.239	0.122	3.084	0.211
AN-29	3.000	3.364	0.122	3.209	0.211
AN-30	3.125	3.489	0.122	3.334	0.211
AN-31	3.250	3.614	0.122	3.459	0.211
AN-32	3.375	3.739	0.122	3.584	0.211
AN-33	3.500	3.864	0.122	3.709	0.211
AN-34	3.625	3.989	0.122	3.834	0.211
AN-35	3.750	4.114	0.122	3.959	0.211
AN-36	3.875	4.239	0.122	4.084	0.211
AN-37	4.000	4.427	0.138	4.240	0.238
AN-38	4.125	4.552	0.138	4.365	0.238
AN-39	4.250	4.677	0.138	4.490	0.238
AN-40	4.375	4.804	0.138	4.617	0.238
AN-41	4.500	4.927	0.138	4.740	0.238
AN-42	4.625	5.052	0.138	4.865	0.238
AN-43	4.750	5.177	0.138	4.990	0.238
AN-44	4.875	5.304	0.138	5.117	0.238
AN-45	5.000	5.427	0.138	5.240	0.238
AN-46	5.125	5.554	0.138	5.367	0.238
AN-47	5.250	5.677	0.138	5.490	0.238
AN-48	5.375	5.804	0.138	5.617	0.238
AN-49	5.500	5.927	0.138	5.740	0.238
AN-50	5.625	6.116	0.154	5.898	0.264
AN-51	5.750	6.239	0.154	6.022	0.264
AN-52	5.875	6.366	0.154	6.148	0.264
AN-53	6.000	6.489	0.154	6.272	0.264
AN-54	6.250	6.741	0.154	6.524	0.264
AN-55	6.500	6.989	0.154	6.677	0.264
AN-56	6.750	7.239	0.154	7.022	0.264
AN-57	7.000	7.489	0.154	7.272	0.264
AN-58	7.250	7.741	0.154	7.524	0.264
AN-59	7.500	7.989	0.154	7.772	0.264
AN-60	7.750	8.241	0.154	8.024	0.264
AN-61	8.000	8.491	0.154	8.274	0.264
AN-62	8.500	8.989	0.154	8.772	0.264
AN-63	9.000	9.489	0.154	9.272	0.264



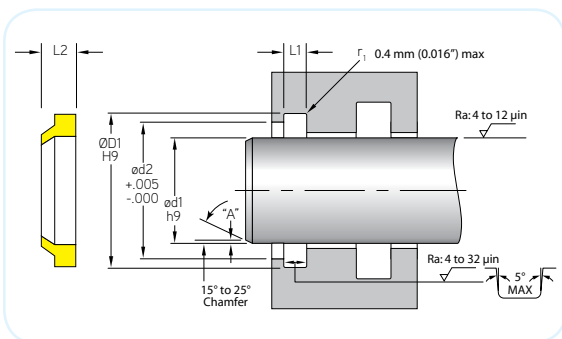
**D Rod Wiper**

MFP Seals' D wipers are designed for use in light to medium duty hydraulic & pneumatic applications. MFP's D wiper offers a slotted heel to eliminate the possibility of pressure traps between the rod seal and wiper.



The standard compound for this seal is U2145.  
It is also available in U2150, U2151, U4150 and H2155.

For compound descriptions and temperature ranges, please refer to pages 26-37.



**MFP PART NUMBERS**

**D-0250U2145**  
SEAL TYPE    DASH #    COMPOUND

**Max. Velocity: 0.5 m/s (1.5 ft./s)**

MFP PART NUMBER	ROD APPLICATION				
	ød1	ØD1	L1	ød2	L2
<b>TOLERANCE</b>	h9	H9	+0.004/-0.000	+0.005/-0.000	
D-0250	0.250	0.497	0.124	0.410	0.210
D-0312	0.312	0.560	0.124	0.475	0.210
D-0375	0.375	0.622	0.124	0.535	0.210
D-0437	0.437	0.685	0.124	0.600	0.210
D-0500	0.500	0.747	0.124	0.660	0.210
D-0562	0.562	0.810	0.124	0.725	0.210
D-0625	0.625	0.872	0.124	0.785	0.210
D-0687	0.687	0.935	0.124	0.850	0.210
D-0750	0.750	1.122	0.187	0.995	0.305
D-0812	0.812	1.185	0.187	1.060	0.305
D-0875	0.875	1.247	0.187	1.120	0.305
D-0937	0.937	1.310	0.187	1.185	0.305
D-1000	1.000	1.372	0.187	1.245	0.305
D-1062	1.062	1.435	0.187	1.310	0.305
D-1125	1.125	1.497	0.187	1.370	0.305
D-1187	1.187	1.560	0.187	1.435	0.305
D-1250	1.250	1.622	0.187	1.495	0.305
D-1312	1.312	1.687	0.187	1.560	0.305
D-1375	1.375	1.747	0.187	1.620	0.305
D-1437	1.437	1.810	0.187	1.685	0.305
D-1500	1.500	1.872	0.187	1.745	0.305
D-1625	1.625	1.997	0.187	1.870	0.305
D-1687	1.687	2.059	0.187	1.932	0.305

**D STYLE**

**ROD WIPERS**

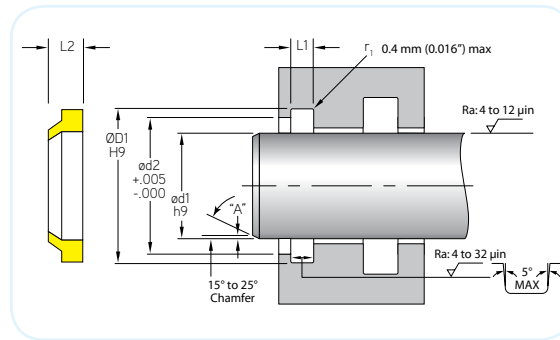




# D Style Rod Wiper

A product of MFP Seals.

**MFPSEALS**

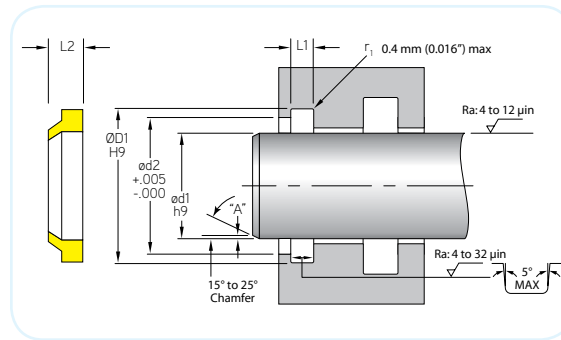


D STYLE

ROD WIPERS

## ROD APPLICATION

MFP PART NUMBER	ød1	ØD1	L1	ød2	L2
TOLERANCE	h9	H9	+0.003/-0.003	+0.005/-0.000	
D-1750	1.750	2.122	0.187	1.995	0.305
D-1875	1.875	2.247	0.187	2.120	0.305
D-2000	2.000	2.497	0.249	2.327	0.395
D-2125	2.125	2.622	0.249	2.452	0.395
D-2187	2.187	2.685	0.249	2.515	0.395
D-2250	2.250	2.747	0.249	2.577	0.395
D-2375	2.375	2.872	0.249	2.702	0.395
D-2500	2.500	2.997	0.249	2.827	0.395
D-2562	2.562	3.060	0.249	2.890	0.395
D-2625	2.625	3.122	0.249	2.952	0.395
D-2750	2.750	3.247	0.249	3.077	0.395
D-2875	2.875	3.372	0.249	3.202	0.395
D-3000	3.000	3.497	0.249	3.327	0.395
D-3125	3.125	3.622	0.249	3.452	0.395
D-3250	3.250	3.747	0.249	3.577	0.395
D-3375	3.375	3.872	0.249	3.702	0.395
D-3500	3.500	3.997	0.249	3.827	0.395
D-3625	3.625	4.122	0.249	3.952	0.395
D-3750	3.750	4.247	0.249	4.077	0.395
D-3875	3.875	4.372	0.249	4.202	0.395
D-4000	4.000	4.497	0.249	4.327	0.395
D-4125	4.125	4.622	0.249	4.452	0.395
D-4250	4.250	4.747	0.249	4.577	0.395
D-4375	4.375	4.872	0.249	4.702	0.395
D-4500	4.500	5.247	0.374	4.993	0.585
D-4625	4.625	5.372	0.374	5.118	0.585
D-4750	4.750	5.497	0.374	5.243	0.585
D-4875	4.875	5.622	0.374	5.368	0.585
D-5000	5.000	5.747	0.374	5.493	0.585
D-5250	5.250	5.997	0.374	5.743	0.585
D-5375	5.375	6.122	0.374	5.868	0.585
D-5500	5.500	6.247	0.374	5.993	0.585
D-5625	5.625	6.372	0.374	6.118	0.585
D-5750	5.750	6.497	0.374	6.243	0.585
D-5875	5.875	6.622	0.374	6.368	0.585



MFP PART NUMBER	ROD APPLICATION				
	$\varnothing d1$	$\varnothing D1$	L1	$\varnothing d2$	L2
<b>TOLERANCE</b>	<b>h9</b>	<b>H9</b>	<b>+0.003/-0.003</b>	<b>+0.005/-0.000</b>	
D-6000	6.000	6.747	0.374	6.493	0.585
D-6250	6.250	6.997	0.374	6.743	0.585
D-6375	6.375	7.122	0.374	6.868	0.585
D-6500	6.500	7.247	0.374	6.993	0.585
D-6750	6.750	7.497	0.374	7.243	0.585
D-6875	6.875	7.622	0.374	7.368	0.585
D-7000	7.000	7.747	0.374	7.493	0.585
D-7250	7.250	7.997	0.374	7.743	0.585
D-7500	7.500	8.247	0.374	7.993	0.585
D-7750	7.750	8.497	0.374	8.243	0.585
D-8000	8.000	8.747	0.374	8.493	0.585
D-8250	8.250	8.997	0.374	8.743	0.585
D-8500	8.500	9.247	0.374	8.993	0.585
D-8750	8.750	9.497	0.374	9.243	0.585
D-9000	9.000	9.747	0.374	9.493	0.585
D-9250	9.250	9.997	0.374	9.743	0.585

**D STYLE**

**ROD WIPERS**



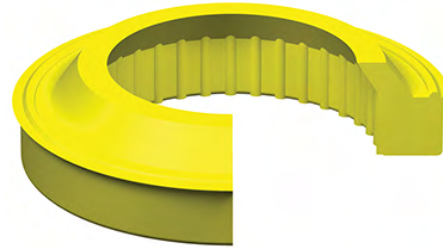
# DM Style Rod Wiper

A product of MFP Seals.

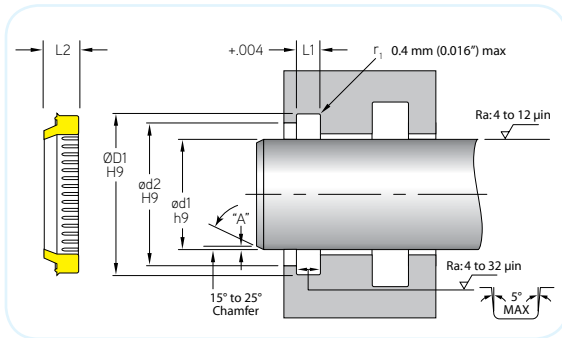
**MFPSEALS**

## DM Style Rod Wiper

MFP Seals' industry standard, DM Style Rod Wipers are designed to fit into a standard housing and provide heavy duty exclusion of dirt and debris. Designed to ensure maximum contact with the wiping surface, the DM Style Rod Wiper includes an outer diameter sealing lip providing a tailored fit within the housing. A sealing bead is also provided to prevent moisture and contaminants from passing the outside of the wiper. The inside diameter of the wiper has ribbing for pressure relief to prevent blow-out.



The standard compound for this seal is U2145. It is also available in U2150, U2151, U4150 and H2155.



### MFP PART NUMBERS

**DM-0625U2145**

SEAL TYPE      ød1      COMPOUND

Max. Velocity: 0.5 m/s (1.5 ft./s)

MFP PART NUMBER	ROD APPLICATION				
	ød1	ØD1	L1	ød2	L2
<b>TOLERANCE</b>	h9	H9	+0.004/-0.000	+0.005/-0.000	
DM-0625	0.625	0.872	0.124	0.785	0.210
DM-0750	0.750	1.122	0.187	0.995	0.305
DM-0875	0.875	1.247	0.187	1.120	0.305
DM-1000	1.000	1.372	0.187	1.245	0.305
DM-1125	1.125	1.497	0.187	1.370	0.305
DM-1250	1.250	1.622	0.187	1.495	0.305
DM-1375	1.375	1.747	0.187	1.620	0.305
DM-1500	1.500	1.872	0.187	1.745	0.305
DM-1750	1.750	2.122	0.187	1.995	0.305
DM-2000	2.000	2.497	0.249	2.327	0.395
DM-2250	2.250	2.747	0.249	2.577	0.395
DM-2500	2.500	2.997	0.249	2.827	0.395
DM-2750	2.750	3.247	0.249	3.077	0.395
DM-2875	2.875	3.372	0.249	3.202	0.395
DM-3000	3.000	3.497	0.249	3.327	0.395
DM-3375	3.375	3.872	0.249	3.702	0.395
DM-3500	3.500	3.997	0.249	3.827	0.395
DM-4000	4.000	4.497	0.249	4.327	0.395
DM-4500	4.500	5.247	0.374	4.993	0.585
DM-5000	5.000	5.747	0.374	5.493	0.585
DM-5500	5.500	6.247	0.374	5.993	0.585
DM-6000	6.000	6.747	0.374	6.493	0.585

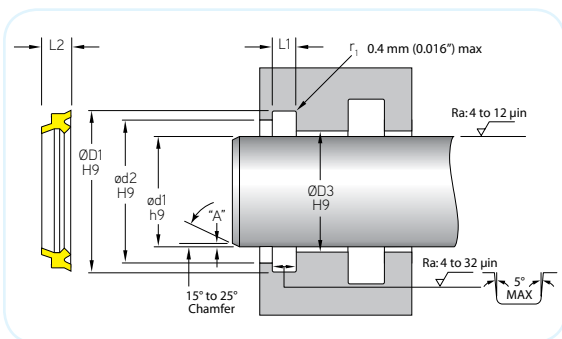


**H Style Rod Wiper**

MFP Seals' H Style Rod Wipers are a one piece snap-in design, for medium duty cycle applications. MFP Seals' H Style Rod wipers are a standard in industrial cylinders with an AN or BV style U-Cup as rod seals. The H Style Rod Wipers feature a wiper/scraper lip as well as a secondary U-Cup which serves as a extra safeguard against leakage.



*The standard compound for this seal is U2145.  
It is also available in U2150, U2151, U4150,  
H2155, CN80 and VT90.*



**MFP PART NUMBERS**

**H-0250U2145**

SEAL TYPE    ød1    COMPOUND

**Max. Velocity: 0.5 m/s (1.5 ft./s)**

MFP PART NUMBER	ROD APPLICATION					
	ød1	ØD1	L1	ød2	ØD3	L2
TOLERANCE	h9	H9	+0.005/-0.000	H9	H9	
H-0500	0.500	0.802	0.203	0.620	0.501	0.245
H-0625	0.625	0.927	0.203	0.745	0.626	0.245
H-0750	0.750	1.052	0.203	0.870	0.751	0.245
H-0875	0.875	1.240	0.218	1.010	0.876	0.275
H-1000	1.000	1.365	0.218	1.135	1.001	0.275
H-1125	1.125	1.490	0.218	1.260	1.126	0.275
H-1250	1.250	1.615	0.218	1.385	1.251	0.275
H-1375	1.375	1.740	0.218	1.510	1.376	0.275
H-1500	1.500	1.865	0.218	1.635	1.501	0.275
H-1625	1.625	1.990	0.218	1.760	1.626	0.275
H-1750	1.750	2.115	0.218	1.885	1.751	0.275
H-1875	1.875	2.240	0.218	2.010	1.876	0.275
H-2000	2.000	2.365	0.218	2.135	2.001	0.275
H-2125	2.125	2.490	0.218	2.260	2.126	0.275
H-2250	2.250	2.745	0.281	2.385	2.251	0.351
H-2375	2.375	2.870	0.281	2.510	2.376	0.351
H-2500	2.500	2.995	0.281	2.635	2.501	0.351
H-2625	2.625	3.120	0.281	2.760	2.626	0.351
H-2750	2.750	3.245	0.281	2.885	2.751	0.351
H-3000	3.000	3.495	0.281	3.135	3.001	0.351
H-3250	3.250	3.745	0.281	3.385	3.251	0.351
H-3500	3.500	3.995	0.281	3.635	3.501	0.351
H-3750	3.750	4.245	0.281	3.885	3.751	0.351

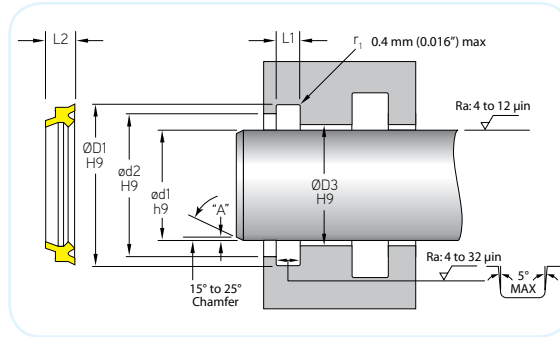
**H STYLE**  
**ROD WIPERS**



# H Style Rod Wiper

A product of MFP Seals.

**MFPSEALS**



H STYLE

ROD WIPERS

MFP PART NUMBER	ROD APPLICATION					
	ød1	ØD1	L1	ød2	ØD3	L2
TOLERANCE	h9	H9	+0.005/-0.000	H9	H9	
H-4000	4.000	4.495	0.281	4.135	4.001	0.351
H-4250	4.250	4.745	0.281	4.385	4.251	0.351
H-4500	4.500	4.995	0.281	4.635	4.501	0.351
H-4750	4.750	5.245	0.281	4.885	4.751	0.351
H-5000	5.000	5.495	0.281	5.135	5.001	0.351
H-5250	5.250	5.745	0.281	5.385	5.251	0.351
H-5500	5.500	5.995	0.281	5.635	5.501	0.351
H-6000	6.000	6.495	0.281	6.135	6.001	0.351
H-6500	6.500	6.995	0.281	6.635	6.501	0.351
H-7000	7.000	7.495	0.281	7.135	7.001	0.351
H-7500	7.500	7.995	0.281	7.635	7.501	0.351
H-8000	8.000	8.495	0.281	8.135	8.001	0.351
H-8500	8.500	8.995	0.281	8.635	8.501	0.351

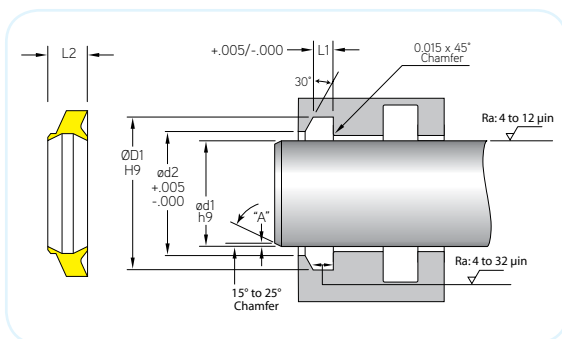


**K Style Rod Wiper**

MFP Seals' K Style wipers are a one piece snap-in type rod wiper designed for light duty use in mobile cylinders with an angled retainer. The K Style rod wipers feature a wiper/scrapper lip as well as a sealing lip for secondary sealing of the system (Secondary U-Cup).



*The standard compound for this seal is U2145. It is also available in U2150, U2151, U4150 and H2155.*



**MFP PART NUMBERS**

**K-1375U2145**  
 SEAL TYPE    ød1    COMPOUND

**Max. Velocity: 0.5 m/s (1.5 ft./s)**

MFP PART NUMBER	ROD APPLICATION				
	ød1	ØD1	L1	ød2	L2
<b>TOLERANCE</b>	h9	H9	+0.005/-0.000	+0.005/-0.000	
K-0500	0.500	0.760	0.155	0.625	0.315
K-0625	0.625	0.885	0.155	0.750	0.315
K-0750	0.750	1.135	0.195	0.832	0.366
K-0875	0.875	1.260	0.195	0.957	0.366
K-1000	1.000	1.385	0.195	1.082	0.366
K-1187	1.187	1.572	0.195	1.269	0.366
K-1250	1.250	1.635	0.195	1.332	0.366
K-1375	1.375	1.760	0.195	1.457	0.366
K-1500	1.500	1.885	0.195	1.582	0.366
K-1625	1.625	2.010	0.195	1.707	0.366
K-1750	1.750	2.135	0.195	1.832	0.366
K-1875	1.875	2.260	0.195	1.957	0.366
K-2000	2.000	2.385	0.195	2.082	0.366
K-2125	2.125	2.510	0.195	2.207	0.366
K-2250	2.250	2.635	0.195	2.332	0.366
K-2251	2.250	2.760	0.255	2.407	0.483
K-2500	2.500	2.885	0.195	2.582	0.366
K-2501	2.500	3.010	0.255	2.657	0.483
K-2750	2.750	3.260	0.255	2.907	0.483
K-3000	3.000	3.385	0.195	3.082	0.366

**K STYLE**

**ROD WIPERS**

For surface finish information please refer to page 17, Surface Finish: ISO 4287. For ISO tolerance, refer to page 18.

For compound descriptions and temperature ranges, please refer to pages 26-37.

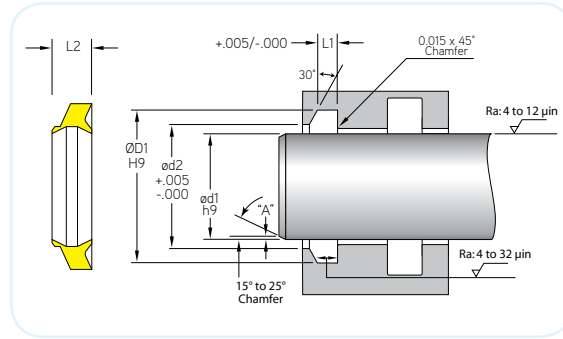




# K Style Rod Wiper

A product of MFP Seals.

**MFPSEALS**



K STYLE

ROD WIPERS

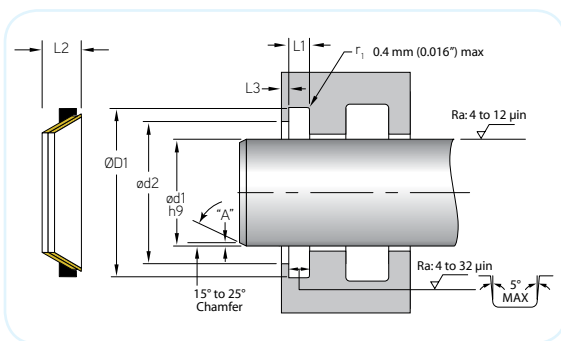
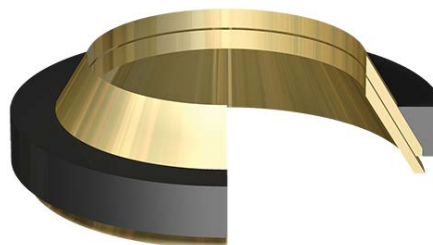
MFP PART NUMBER	ROD APPLICATION				
	ød1	ØD1	L1	ød2	L2
TOLERANCE	h9	H9	+0.005/-0.000	+0.005/-0.000	
K-3001	3.000	3.510	0.255	3.157	0.483
K-3250	3.250	3.760	0.255	3.407	0.483
K-3500	3.500	3.885	0.195	3.582	0.366
K-3501	3.500	4.010	0.255	3.657	0.483
K-3625	3.625	4.135	0.255	3.782	0.483
K-3750	3.750	4.260	0.255	3.907	0.483
K-4000	4.000	4.510	0.255	4.157	0.483
K-4250	4.250	4.760	0.255	4.407	0.483
K-4500	4.500	5.010	0.255	4.657	0.483
K-4750	4.750	5.260	0.255	4.907	0.483
K-5000	5.000	5.510	0.255	5.157	0.483
K-6000	6.000	6.510	0.255	6.157	0.483
K-6500	6.500	7.010	0.255	6.657	0.483
K-7000	7.000	7.510	0.255	7.157	0.483
K-8000	8.000	8.510	0.255	8.157	0.483
K-8125	8.125	8.635	0.255	8.282	0.483
K-9125	9.125	9.635	0.255	9.282	0.483
K-9375	9.375	9.885	0.255	9.532	0.483



**Metallic Rod Wiper - Style S**

Style S - Metallic Rod Wipers effectively remove contaminants from the rod surface, helping to prevent the intrusion of foreign materials, allowing packings to last longer and maintain a better seal. They are self-adjusting, low-friction, long-lasting and are simple to install.

Our S Style wiper is comprised of two flexible brass or bronze rings encased in a synthetic rubber cushion. The cushion ring helps absorb side loads while exerting an inward force to keep the metal scraping rings in contact with the rod surface.



**MFP PART NUMBERS**

**S-3435-0500-BN**  
 SEAL TYPE    SERIES    ROD    CUSHION MATERIAL

*Cushion - FKM  
 Scraper Rings - Brass or Bronze*

**STYLE S**

**ROD WIPERS**

**SNAP-IN ROD APPLICATION**

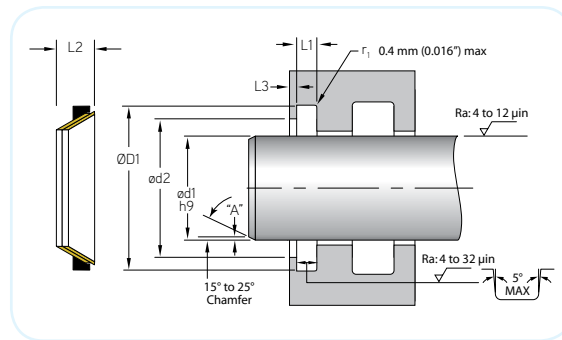
MFP PART NUMBER	ød1	ØD1	ød2	L1	L3
<b>.125" - GROOVE</b>	h9	+0.03/-0.03	+0.00/-0.10	+0.03/-0.01	+0.015/-0.000
S-3435-0500-BN	0.500	0.750	0.714	0.125	0.018
S-3435-0625-BN	0.625	0.875	0.839	0.125	0.018
S-3435-0750-BN	0.750	1.000	0.964	0.125	0.018
S-3435-1000-BN	1.000	1.250	1.214	0.125	0.018
<b>.187" - GROOVE</b>	h9	+0.03/-0.03	+0.00/-0.10	+0.03/-0.01	+0.015/-0.000
S-3436-0750-BN	0.750	1.125	1.082	0.187	0.022
S-3436-0875-BN	0.875	1.250	1.207	0.187	0.022
S-3436-1000-BN	1.000	1.375	1.332	0.187	0.022
S-3436-1125-BN	1.125	1.500	1.457	0.187	0.022
S-3436-1250-BN	1.250	1.625	1.582	0.187	0.022
S-3436-1375-BN	1.375	1.750	1.707	0.187	0.022
S-3436-1500-BN	1.500	1.875	1.832	0.187	0.022
S-3436-1625-BN	1.625	2.000	1.957	0.187	0.022
S-3436-1750-BN	1.750	2.125	2.082	0.187	0.022
S-3436-1875-BN	1.875	2.250	2.207	0.187	0.022
S-3436-2000-BN	2.000	2.375	2.332	0.187	0.022
S-3436-2125-BN	2.125	2.500	2.457	0.187	0.022
S-3436-2250-BN	2.250	2.625	2.582	0.187	0.022
S-3436-2500-BN	2.500	2.875	2.832	0.187	0.022



# Metallic Rod Wiper - Style S

A product of MFP Seals.

**MFPSEALS**



## SNAP-IN ROD APPLICATION

MFP PART NUMBER	ød1	ØD1	ød2	L1	L3
<b>.250" - GROOVE</b>	h9	+0.003/-0.003	+0.000/-0.010	+0.003/-0.001	+0.015/-0.000
S-3437-2000-BN	2.000	2.500	2.440	0.250	0.030
S-3437-2125-BN	2.125	2.625	2.565	0.250	0.030
S-3437-2250-BN	2.250	2.750	2.690	0.250	0.030
S-3437-2500-BN	2.500	3.000	2.940	0.250	0.030
S-3437-2750-BN	2.750	3.250	3.190	0.250	0.030
S-3437-2875-BN	2.875	3.375	3.315	0.250	0.030
S-3437-3000-BN	3.000	3.500	3.440	0.250	0.030
S-3437-3250-BN	3.250	3.750	3.690	0.250	0.030
S-3437-3500-BN	3.500	4.000	3.940	0.250	0.030
S-3437-4000-BN	4.000	4.500	4.440	0.250	0.030
S-3437-4250-BN	4.250	4.750	4.690	0.250	0.030
<b>.375" - GROOVE</b>	h9	+0.003/-0.003	+0.000/-0.010	+0.003/-0.001	+0.015/-0.000
S-3438-4500-BN	4.500	5.250	5.160	0.375	0.045
S-3438-5000-BN	5.000	5.750	5.660	0.375	0.045
S-3438-5500-BN	5.500	6.250	6.160	0.375	0.045
S-3438-6000-BN	6.000	6.750	6.660	0.375	0.045

STYLE S

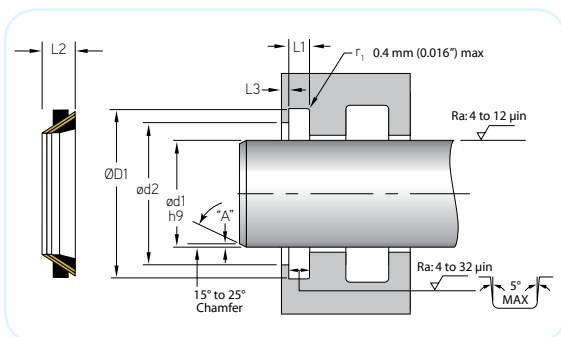
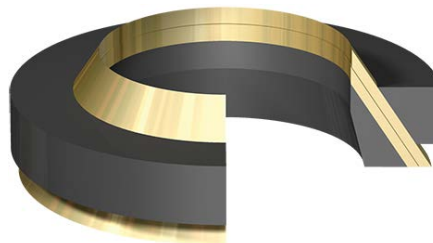
ROD WIPERS



**Metallic Rod Wiper - Style SW**

Metallic Rod Wipers effectively remove contaminants from the rod surface, helping to prevent the intrusion of foreign materials, allowing packings to last longer and maintain a better seal. They are self-adjusting, low-friction, long-lasting and are simple to install.

Our SW Style wiper is comprised of two flexible brass or bronze rings encased in a synthetic rubber cushion with a secondary rubber cushion under the scraper rings for improved stability and added sealing against the elements. The cushion ring helps absorb side loads while exerting an inward force to keep the metal scraping rings in contact with the rod surface.



**MFP PART NUMBERS**

**SW-3435-0500-BN**

SEAL TYPE      SERIES      ROD      CUSHION MATERIAL

*Cushion - FKM  
Scraper Rings - Brass or Bronze*

STYLE SW

ROD WIPERS

**SNAP-IN ROD APPLICATION**

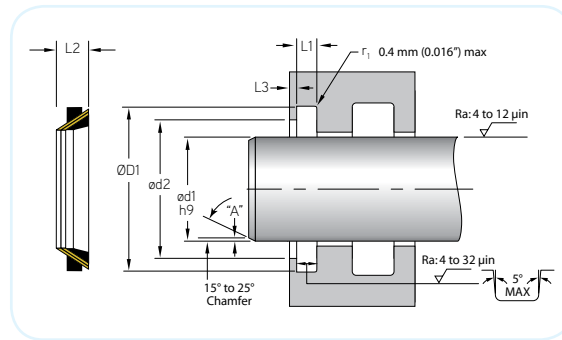
MFP PART NUMBER	ød1	ØD1	ød2	L1	L3
<b>.125" - GROOVE</b>	h9	+0.03/-0.03	+0.00/-0.10	+0.03/-0.01	+0.015/-0.000
SW-3435-0500-BN	0.500	0.750	0.714	0.125	0.018
SW-3435-0625-BN	0.625	0.875	0.839	0.125	0.018
SW-3435-0750-BN	0.750	1.000	0.964	0.125	0.018
SW-3435-1000-BN	1.000	1.250	1.214	0.125	0.018
<b>.187" - GROOVE</b>	h9	+0.03/-0.03	+0.00/-0.10	+0.03/-0.01	+0.015/-0.000
SW-3436-0750-BN	0.750	1.125	1.082	0.187	0.022
SW-3436-0875-BN	0.875	1.250	1.207	0.187	0.022
SW-3436-1000-BN	1.000	1.375	1.332	0.187	0.022
SW-3436-1125-BN	1.125	1.500	1.457	0.187	0.022
SW-3436-1250-BN	1.250	1.625	1.582	0.187	0.022
SW-3436-1375-BN	1.375	1.750	1.707	0.187	0.022
SW-3436-1500-BN	1.500	1.875	1.832	0.187	0.022
SW-3436-1625-BN	1.625	2.000	1.957	0.187	0.022
SW-3436-1750-BN	1.750	2.125	2.082	0.187	0.022
SW-3436-1875-BN	1.875	2.250	2.207	0.187	0.022
SW-3436-2000-BN	2.000	2.375	2.332	0.187	0.022
SW-3436-2500-BN	2.500	2.875	2.832	0.187	0.022



# Metallic Rod Wiper - Style SW

A product of MFP Seals.

**MFPSEALS**



STYLE SW

ROD WIPERS

### SNAP-IN ROD APPLICATION

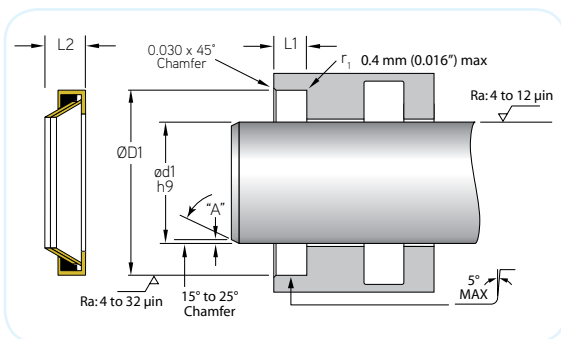
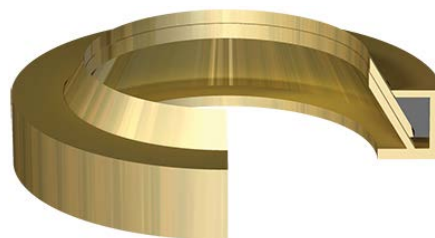
MFP PART NUMBER	ød1	ØD1	ød2	L1	L3
<b>.250" - GROOVE</b>	h9	+0.003/-0.003	+0.000/-0.010	+0.003/-0.001	+0.015/-0.000
SW-3437-2000-BN	2.000	2.500	2.440	0.250	0.030
SW-3437-2125-BN	2.125	2.625	2.565	0.250	0.030
SW-3437-2250-BN	2.250	2.750	2.690	0.250	0.030
SW-3437-2500-BN	2.500	3.000	2.940	0.250	0.030
SW-3437-2750-BN	2.750	3.250	3.190	0.250	0.030
SW-3437-2875-BN	2.875	3.375	3.315	0.250	0.030
SW-3437-3000-BN	3.000	3.500	3.440	0.250	0.030
SW-3437-3250-BN	3.250	3.750	3.690	0.250	0.030
SW-3437-3500-BN	3.500	4.000	3.940	0.250	0.030
SW-3437-4000-BN	4.000	4.500	4.440	0.250	0.030
<b>.375" - GROOVE</b>	h9	+0.003/-0.003	+0.000/-0.010	+0.003/-0.001	+0.015/-0.000
SW-3438-4500-BN	4.500	5.250	5.160	0.375	0.045
SW-3438-5000-BN	5.000	5.750	5.660	0.375	0.045
SW-3438-5500-BN	5.500	6.250	6.160	0.375	0.045
SW-3438-6000-BN	6.000	6.750	6.660	0.375	0.045



**Metallic Rod Wiper - Style SC**

Metallic Rod Wipers effectively remove contaminants from the rod surface, helping to prevent the intrusion of foreign materials, allowing packings to last longer and maintain a better seal. They are self-adjusting, low-friction, long-lasting and are simple to install.

Our SC Style wiper is comprised of two flexible brass or bronze rings encased in a synthetic rubber cushion. The cushion ring helps absorb side loads while exerting an inward force to keep the metal scraping rings in contact with the rod surface. A bronze case is added for increased durability where a press-in wiper is required.



**MFP PART NUMBERS**

**SC-3436-1000-BN**

SEAL TYPE	SERIES	ROD	CUSHION MATERIAL
-----------	--------	-----	------------------

*Case - Bronze*  
*Cushion - FKM*  
*Scraper Rings - Brass or Bronze*

STYLE SC

ROD WIPERS

MFP PART NUMBER	PRESS-IN ROD APPLICATION		
	$\phi d1$	$\phi D1$	L1
<b>.250" - GROOVE</b>	h9	+0.001/-0.001	+0.015/-0.000
SC-3436-1000-BN	1.000	1.437	0.250
SC-3436-1125-BN	1.125	1.562	0.250
SC-3436-1250-BN	1.250	1.687	0.250
SC-3436-1375-BN	1.375	1.812	0.250
SC-3436-1500-BN	1.500	1.937	0.250
SC-3436-1625-BN	1.625	2.062	0.250
SC-3436-1750-BN	1.750	2.187	0.250
SC-3436-1875-BN	1.875	1.312	0.250
<b>.312" - GROOVE</b>	h9	+0.001/-0.001	+0.015/-0.000
SC-3436-2000-BN	2.000	2.562	0.312





# Metallic Rod Wiper - Style SWC

A product of MFP Seals.



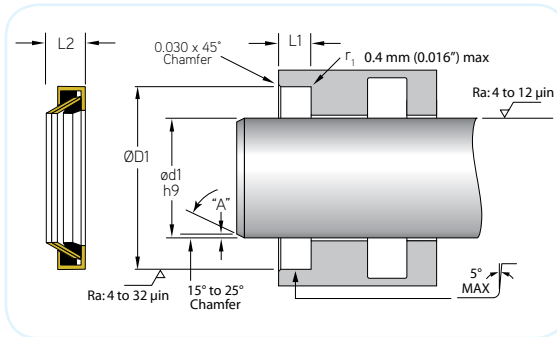
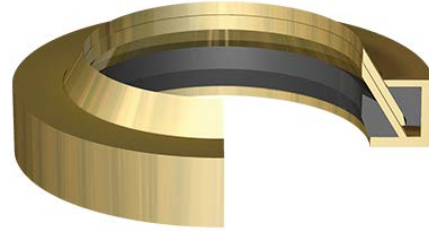
STYLE SWC

ROD WIPERS

## Metallic Rod Wiper - Style SWC

Metallic Rod Wipers effectively remove contaminants from the rod surface, helping to prevent the intrusion of foreign materials, allowing packings to last longer and maintain a better seal. They are self-adjusting, low-friction, long-lasting and are simple to install.

Our SWC Style wiper is comprised of two flexible brass or bronze rings encased in a synthetic rubber cushion with a secondary rubber cushion under the scraper rings for improved stability and added sealing against the elements. The cushion ring helps absorb side loads while exerting an inward force to keep the metal scraping rings in contact with the rod surface. A bronze case is added for increased durability where a press-in wiper is required.



## MFP PART NUMBERS

**SWC-3435-0500-BN**

SEAL TYPE      SERIES      ROD      CUSHION MATERIAL

Case - Bronze  
Cushion - FKM  
Scraper Rings - Brass or Bronze

## PRESS-IN ROD APPLICATION

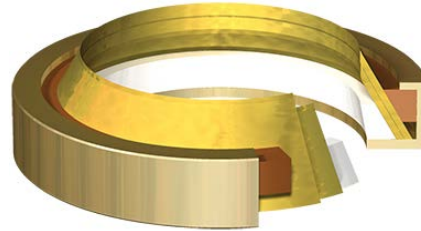
MFP PART NUMBER	ød1	ØD1	L1
<b>.250" - GROOVE</b>	h9	+0.001/-0.001	+0.015/-0.000
SWC-3436-1000-BN	1.000	1.437	0.250
SWC-3436-1125-BN	1.125	1.562	0.250
SWC-3436-1250-BN	1.250	1.687	0.250
SWC-3436-1375-BN	1.375	1.812	0.250
SWC-3436-1500-BN	1.500	1.937	0.250
SWC-3436-1625-BN	1.625	2.062	0.250
SWC-3436-1750-BN	1.750	2.187	0.250
SWC-3436-1875-BN	1.875	2.312	0.250
<b>.312" - GROOVE</b>	h9	+0.001/-0.001	+0.015/-0.000
SWC-3436-2000-BN	2.000	2.562	0.312



**Metallic Rod Wiper - Style SWCP Premium**

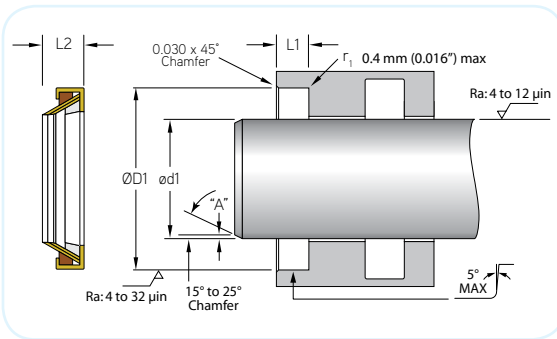
Metallic Rod Wipers effectively remove contaminants from the rod surface, helping to prevent the intrusion of foreign materials, allowing packings to last longer and maintain a better seal. They are self-adjusting, low-friction, long-lasting and are simple to install.

Our SWCP "Premium" Metallic Rod Wiper is comprised of two flexible brass or bronze rings encased in a synthetic rubber cushion with a secondary abrasion resistant, virgin PTFE, elastomeric wiper under the scraper rings for improved stability and added sealing/scraping to remove extremely fine abrasive materials. The cushion ring helps absorb side loads while exerting an inward force to keep the metal scraping rings in contact with the rod surface. A bronze case is added for increased durability where a press-in wiper is required.



**STYLE SWCP**

**ROD WIPERS**



**MFP PART NUMBERS**

**SWCP-1500X2000-312VT/TF**

SEAL TYPE	$\varnothing d1$	$\varnothing D1$	L1	CUSHION MATERIAL
-----------	------------------	------------------	----	------------------

Case - Bronze  
Cushion - Brown Viton® / T1000  
Scraper Rings - Brass

*Contact your MFP Seals Sales Representative for available sizes.*



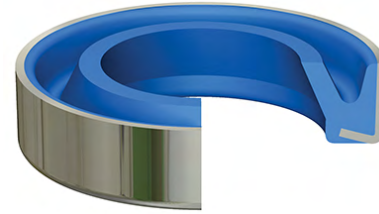
# MC - Metal Clad Rod Wiper - Urethane

A product of MFP Seals.

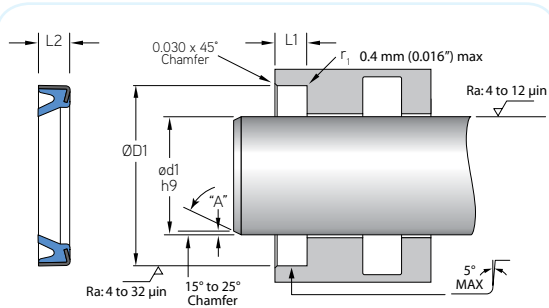


## MC Metal Clad Rod Wiper

MFP Seals' MC Metal Clad Rod Wipers are designed to handle tough scraping problems such as mud, ice and weld spatter. The seal is constructed of a Urethane wiping/scraping element which is securely bonded to a heavy duty carbon steel case.



The standard compound for this seal is U2146, with a Carbon Steel case. Other compounds are also available.



## MFP PART NUMBERS

**MC0750X1250-312U2146**

SEAL TYPE      ød1      ØD1      L1      COMPOUND

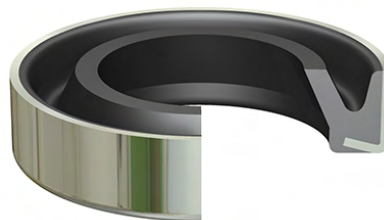
Max. Velocity: 0.5 m/s (1.5 ft./s)

MFP PART NUMBER	ROD APPLICATION		
	ød1	ØD1	L1
	<b>TOLERANCE</b>		
	h9	+0.01/-0.01	+0.15/-0.00
MC0750X1250-312	0.750	1.250	0.312
MC1000X1500-312	1.000	1.500	0.312
MC1125X1625-312	1.125	1.625	0.312
MC1250X1750-312	1.250	1.750	0.312
MC1375X1875-312	1.375	1.875	0.312
MC1500X2000-312	1.500	2.000	0.312
MC1750X2250-312	1.750	2.250	0.312
MC2000X2500-312	2.000	2.500	0.312
MC2250X2750-312	2.250	2.750	0.312
MC2500X3000-312	2.500	3.000	0.312
MC2500X3250-375	2.500	3.250	0.375
MC3000x3500-312	3.000	3.500	0.312
MC3500X4125-312	3.500	4.125	0.312
MC4000X4625-312	4.000	4.625	0.312
MC4500X5125-312	4.500	5.125	0.312
MC5000X5625-312	5.000	5.625	0.312
MC5500X6125-375	5.500	6.125	0.375

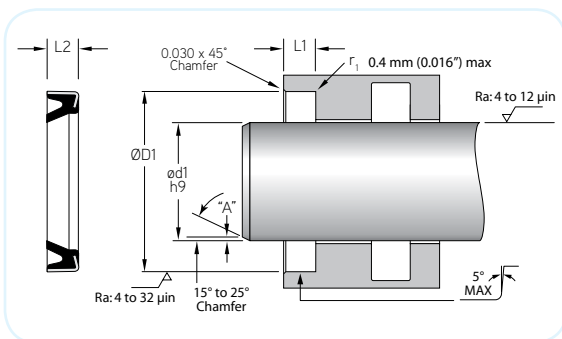


**MC Metal Clad Rod Wiper**

MFP Seals' MC Metal Clad Rod Wipers are designed to handle tough scraping problems such as mud, ice and weld spatter. The seal is constructed of a Nitrile wiping/scraping element which is securely bonded to a heavy duty carbon steel case.



*The standard compound for this seal is NBR, with a Carbon Steel case. Other compounds are also available.*



**MFP PART NUMBERS**

**MC0750X1250-312N**  
 SEAL TYPE | ØD1 | L1 | COMPOUND  
 ød1 | L1

**Max. Velocity: 0.5 m/s (1.5 ft./s)**

**Max. Velocity: 0.5 m/s (1.5 ft./s)**

MFP PART NUMBER	ROD APPLICATION		
	ød1	ØD1	L1
TOLERANCE	h9	+0.001/-0.001	+0.015/-0.000
MC0250X0437-125	0.250	0.437	0.125
MC0375X0562-094	0.375	0.563	0.093
MC0375X0625-125	0.375	0.625	0.125
MC0500X0750-125	0.500	0.750	0.125
MC0625X0875-125	0.625	0.875	0.125
MC0625X0937-187	0.625	0.937	0.187
MC0687X1000-187	0.687	1.000	0.187
MC0875X1125-125	0.875	1.125	0.125
MC0875X1250-187	0.875	1.250	0.187
MC1000X1250-125	1.000	1.250	0.125
MC1000X1375-187	1.000	1.375	0.187
MC1000X1500-187	1.000	1.500	0.187
MC1000X1500-312	1.000	1.500	0.312
MC1062X1500-187	1.062	1.500	0.187
MC1125X1375-125	1.125	1.375	0.125
MC1125X1500-187	1.125	1.500	0.187
MC1125X1562-250	1.125	1.562	0.250
MC1125X1625-250	1.125	1.625	0.250
MC1250X1500-125	1.250	1.500	0.125
MC1250X1625-250	1.250	1.625	0.250
MC1250X1687-187	1.250	1.687	0.187
MC1250X1750-250	1.250	1.750	0.250
MC1250X1875-250	1.250	1.875	0.250

**MC WIPER**

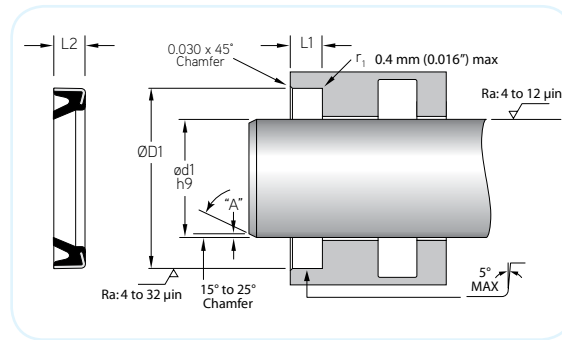
**ROD WIPERS**



# MC - Metal Clad Rod Wiper - Nitrile

A product of MFP Seals.

**MFPSEALS**



MC WIPER

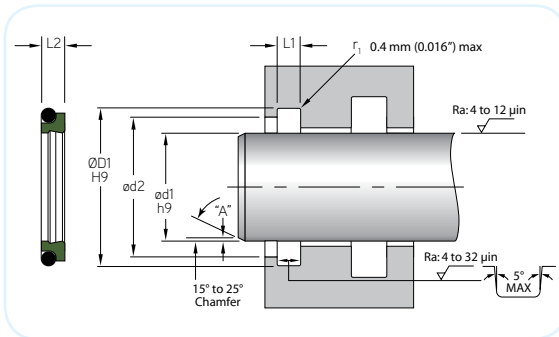
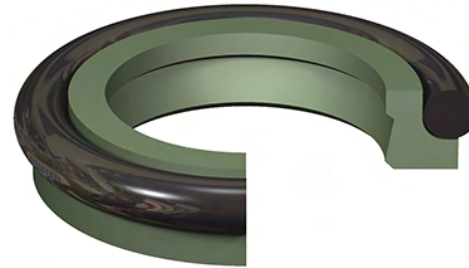
ROD WIPERS

MFP PART NUMBER	ROD APPLICATION		
	Ød1 TOLERANCE h9	ØD1 +0.001/-0.001	L1 +0.015/-0.000
MC1375X1750-187	1.375	1.750	0.187
MC1375X1875-250	1.375	1.875	0.250
MC1500X1875-187	1.500	1.875	0.187
MC1500X1875-250	1.500	1.875	0.250
MC1500X2000-250	1.500	2.000	0.250
MC1500X2000-312	1.500	2.000	0.312
MC1750X2125-187	1.750	2.125	0.187
MC1750X2250-250	1.750	2.250	0.250
MC1750X2250-312	1.750	2.250	0.312
MC1750X2375-250	1.750	2.375	0.250
MC2000X2375-187	2.000	2.375	0.187
MC2000X2500-250	2.000	2.500	0.250
MC2000X2500-312	2.000	2.500	0.312
MC2000X2625-250	2.000	2.625	0.250
MC2125X2500-187	2.125	2.500	0.187
MC2250X2875-250	2.250	2.875	0.250
MC2500X3000-250	2.500	3.000	0.250
MC2500X3125-250	2.500	3.125	0.250
MC2750X3250-250	2.750	3.250	0.250
MC3000X3500-250	3.000	3.500	0.250



**ODW Style Rod Wiper**

ODW Style Rod Wipers are a two piece design, comprised of our T5100 filled PTFE seal and an o-ring energizer. The ODW Style Rod Wiper is designed for use in light to medium duty hydraulic cylinders. They help prevent leakage in the primary rod seal by controlling excess fluid as the rod extends. Contamination is prevented from entering the cylinder by the outer sealing edge of the seal.



**MFP PART NUMBERS**

**ODW-0250X0T5100N**

SEAL TYPE | O-RING DASH # | COMPOUND | EXPANDER COMPOUND

ød1

Max. Velocity: 1.5 m/s (5 ft./s)

MFP PART NUMBER	ROD APPLICATION				
	ød1	ØD1	L1	ød2	O-Ring Dash #
<b>TOLERANCE</b>	h9	H9	+0.008/-0.000	+0.003/-0.000	
ODW-0250X0T5100N	0.250	0.440	0.146	0.310	011
ODW-0312X0T5100N	0.312	0.503	0.146	0.373	012
ODW-0375X0T5100N	0.375	0.565	0.146	0.435	013
<b>TOLERANCE</b>	h9	H9	+0.008/-0.000	+0.004/-0.000	
ODW-0437X0T5100N	0.437	0.628	0.146	0.498	014
ODW-0500X0T5100N	0.500	0.690	0.146	0.560	015
ODW-0562X0T5100N	0.562	0.753	0.146	0.623	016
ODW-0625X0T5100N	0.625	0.815	0.146	0.685	017
ODW-0687X0T5100N	0.687	0.878	0.146	0.748	018
ODW-0750X0T5100N	0.750	0.940	0.146	0.810	019
ODW-0812X0T5100N	0.812	1.003	0.146	0.873	020
ODW-0875X0T5100N	0.875	1.065	0.146	0.935	021
ODW-0937X0T5100N	0.937	1.128	0.146	0.998	022
ODW-1000X0T5100N	1.000	1.190	0.146	1.060	023
ODW-0500X1T5100N	0.500	0.770	0.196	0.560	113
ODW-0562X1T5100N	0.562	0.833	0.196	0.623	114
ODW-0625X1T5100N	0.625	0.895	0.196	0.685	115
ODW-0687X1T5100N	0.687	0.958	0.196	0.748	116
ODW-0750X1T5100N	0.750	1.020	0.196	0.810	117
ODW-0812X1T5100N	0.812	1.083	0.196	0.873	118
ODW-0875X1T5100N	0.875	1.145	0.196	0.935	119
ODW-0937X1T5100N	0.937	1.208	0.196	0.998	120
ODW-1000X1T5100N	1.000	1.270	0.196	1.060	121
ODW-1062X1T5100N	1.062	1.333	0.196	1.123	122

ODW STYLE

ROD WIPERS

For surface finish information please refer to page 17, Surface Finish: ISO 4287. For ISO tolerance, refer to page 18.

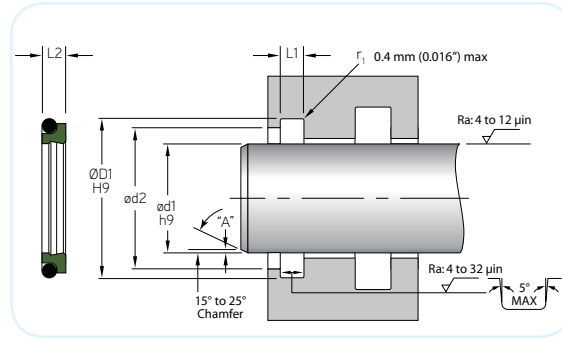
For compound descriptions and temperature ranges, please refer to pages 26-37.



# ODW Style Rod Wiper

A product of MFP Seals.

**MFPSEALS**



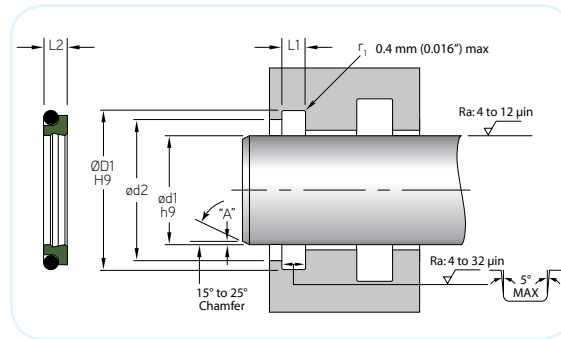
ODW STYLE

ROD WIPERS

### ROD APPLICATION

MFP PART NUMBER	ød1	ØD1	L1	ød2	O-Ring Dash #
<b>TOLERANCE</b>	h9	H9	+0.008/-0.000	+0.004/-0.000	
ODW-1125X1T5100N	1.125	1.395	0.196	1.185	123
ODW-1187X1T5100N	1.187	1.458	0.196	1.248	124
ODW-1250X1T5100N	1.250	1.520	0.196	1.310	125
ODW-1312X1T5100N	1.312	1.583	0.196	1.373	126
ODW-1375X1T5100N	1.375	1.645	0.196	1.435	127
ODW-1437X1T5100N	1.437	1.708	0.196	1.498	128
ODW-1500X1T5100N	1.500	1.770	0.196	1.560	129
ODW-1562X1T5100N	1.562	1.833	0.196	1.623	130
ODW-1625X1T5100N	1.625	1.895	0.196	1.685	131
ODW-1687X1T5100N	1.687	1.958	0.196	1.748	132
ODW-1750X1T5100N	1.750	2.020	0.196	1.810	133
ODW-1812X1T5100N	1.812	2.083	0.196	1.873	134
ODW-1875X1T5100N	1.875	2.145	0.196	1.935	135
ODW-1937X1T5100N	1.937	2.208	0.196	1.998	136
<b>TOLERANCE</b>	h9	H9	+0.008/-0.000	+0.006/-0.000	
ODW-2000X1T5100N	2.000	2.270	0.196	2.060	137
ODW-2062X1T5100N	2.062	2.333	0.196	2.123	138
ODW-2125X1T5100N	2.125	2.395	0.196	2.185	139
ODW-2187X1T5100N	2.187	2.458	0.196	2.248	140
ODW-2250X1T5100N	2.250	2.520	0.196	2.310	141
ODW-2375X1T5100N	2.375	2.645	0.196	2.435	143
ODW-2500X1T5100N	2.500	2.770	0.196	2.560	145
ODW-2625X1T5100N	2.625	2.895	0.196	2.685	147
ODW-2750X1T5100N	2.750	3.020	0.196	2.810	149
ODW-2875X1T5100N	2.875	3.145	0.196	2.935	151
ODW-3000X1T5100N	3.000	3.270	0.196	3.060	151
ODW-3125X1T5100N	3.125	3.395	0.196	3.185	152
ODW-3250X1T5100N	3.250	3.520	0.196	3.310	152
ODW-3375X1T5100N	3.375	3.645	0.196	3.435	153
ODW-3500X1T5100N	3.500	3.770	0.196	3.560	153
ODW-3625X1T5100N	3.625	3.985	0.196	3.685	154
ODW-3750X1T5100N	3.750	4.020	0.196	3.810	154
ODW-3875X1T5100N	3.875	4.145	0.196	3.935	155
ODW-4000X1T5100N	4.000	4.270	0.196	4.060	155
ODW-4125X1T5100N	4.125	4.395	0.196	4.185	156





ODW STYLE

ROD WIPERS

MFP PART NUMBER	ROD APPLICATION				
	ød1	ØD1	L1	ød2	O-Ring Dash #
<b>TOLERANCE</b>	h9	H9	+0.008/-0.000	+0.006/-0.000	
ODW-4250X1T5100N	4.250	4.520	0.196	4.310	156
ODW-4375X1T5100N	4.375	4.645	0.196	4.435	157
ODW-4500X1T5100N	4.500	4.770	0.196	4.560	157
ODW-4625X1T5100N	4.625	4.895	0.196	4.685	158
<b>TOLERANCE</b>	h9	H9	+0.008/-0.000	+0.008/-0.000	
ODW-4750X1T5100N	4.750	5.020	0.196	4.810	158
ODW-4875X1T5100N	4.875	5.145	0.196	4.935	159
ODW-5000X1T5100N	5.000	5.270	0.196	5.060	159
ODW-5125X1T5100N	5.125	5.395	0.196	5.185	160
ODW-5250X1T5100N	5.250	5.520	0.196	5.310	160
ODW-5375X1T5100N	5.375	5.645	0.196	5.435	161
ODW-5500X1T5100N	5.500	5.770	0.196	5.560	161
ODW-5625X1T5100N	5.625	5.895	0.196	5.685	162
ODW-5750X1T5100N	5.750	6.020	0.196	5.810	162
ODW-6000X1T5100N	6.000	6.270	0.196	6.060	163
ODW-6000X2T5100N	6.000	6.344	0.236	6.060	258
ODW-6250X2T5100N	6.250	6.594	0.236	6.310	259
ODW-6500X2T5100N	6.500	6.844	0.236	6.560	260
ODW-6750X2T5100N	6.750	7.094	0.236	6.810	261
ODW-7000X2T5100N	7.000	7.344	0.236	7.060	262
<b>TOLERANCE</b>	h9	H9	+0.008/-0.000	+0.010/-0.000	
ODW-7250X2T5100N	7.250	7.594	0.266	7.310	263
ODW-7500X2T5100N	7.500	7.844	0.236	7.560	264
ODW-7750X2T5100N	7.750	8.094	0.236	7.810	265
ODW-8000X2T5100N	8.000	8.344	0.236	8.060	266
ODW-8250X2T5100N	8.250	8.594	0.236	8.310	267
ODW-8500X2T5100N	8.500	8.844	0.236	8.560	268
ODW-8750X2T5100N	8.750	9.094	0.236	8.810	269
ODW-9000X2T5100N	9.000	9.344	0.236	9.060	270
ODW-9250X2T5100N	9.250	9.594	0.236	9.310	271
ODW-9500X2T5100N	9.500	9.844	0.236	9.560	272
ODW-9750X2T5100N	9.750	10.094	0.236	9.810	273
ODW-10000X2T5100N	10.000	10.344	0.236	10.060	274
ODW-10000X3T5100N	10.000	10.480	0.332	10.080	377
ODW-10500X3T5100N	10.500	10.980	0.332	10.580	378

For surface finish information please refer to page 17, Surface Finish: ISO 4287. For ISO tolerance, refer to page 18.

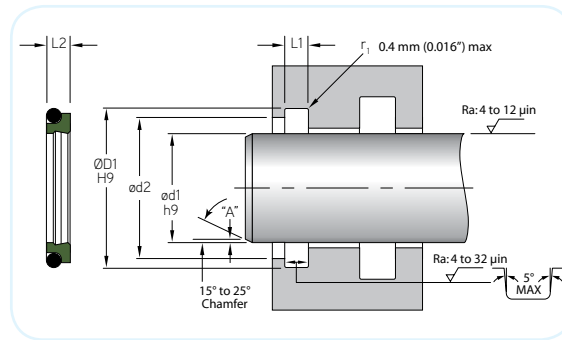
For compound descriptions and temperature ranges, please refer to pages 26-37.



# ODW Style Rod Wiper

A product of MFP Seals.

**MFPSEALS**



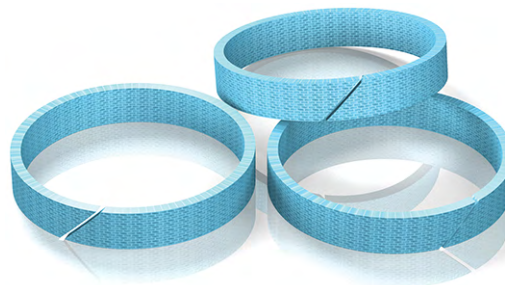
MFP PART NUMBER	ROD APPLICATION				
	$\phi d1$	$\phi D1$	L1	$\phi d2$	O-Ring Dash #
<b>TOLERANCE</b>	h9	H9	+0.008/-0.000	+0.010/-0.000	
ODW-11000X3T5100N	11.000	11.480	0.332	11.080	379
ODW-11500X3T5100N	11.500	11.980	0.332	11.580	380
ODW-12000X3T5100N	12.000	12.480	0.332	12.080	381
<b>TOLERANCE</b>	h9	H9	+0.008/-0.000	+0.012/-0.000	
ODW-12500X3T5100N	12.500	12.980	0.332	12.580	381
ODW-13000X3T5100N	13.000	13.480	0.332	13.080	382
ODW-13500X3T5100N	13.500	13.980	0.332	13.580	382
ODW-14000X3T5100N	14.000	14.480	0.332	14.080	383
ODW-14500X3T5100N	14.500	14.980	0.332	14.580	383
ODW-15000X3T5100N	15.000	15.480	0.332	15.080	384
ODW-15500X3T5100N	15.500	15.980	0.332	15.580	384
ODW-16000X3T5100N	16.000	16.480	0.332	16.080	385
ODW-16500X3T5100N	16.500	16.980	0.332	16.580	385
ODW-17000X3T5100N	17.000	17.480	0.332	17.080	386

ODW STYLE

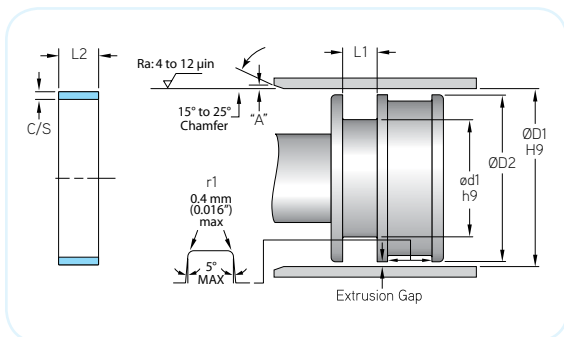
ROD WIPERS

**WR - C4000 Tight Tolerance Piston Guide Rings**

MFP Seals' C4000 Tight Tolerance Piston Guide Rings are made from synthetic fiber-reinforced polyester composites with PTFE micro-powder additions. These guide rings eliminate metal to metal contact and the consequent galling and scoring of cylinder bores. Guide rings are supplied butt cut or scarf cut, for easy installation.



Composite Wear Rings are also available in C1000 and C2000.



**MFP PART NUMBERS**

**WR01250X1000X125C4000**

SEAL TYPE	ØD1	Ød1	COMPOUND
		CROSS SECTION	

**Max. Velocity: 2.0 m/s (6.0 ft./s)**

For sizes not listed please contact your MFP Seals' Sales Representative.

MFP PART NUMBER	PISTON APPLICATION				
	ØD1	Ød1	L1	L2	C/S
TOLERANCE	H9	h9	+0.020/-0.000		+0.000/-0.002
WR01250X1000X125C4000-SC	1.250	0.999	1.010	1.000	0.125
WR01250X250X125C4000-SC	1.250	0.999	0.260	0.250	0.125
WR01250X375X125C4000-SC	1.250	0.999	0.385	0.375	0.125
WR01500X250X125C4000-SC	1.500	1.249	0.260	0.250	0.125
WR01500X375X125C4000-SC	1.500	1.249	0.385	0.375	0.125
WR01500X500X125C4000-SC	1.500	1.249	0.510	0.500	0.125
WR01750X375X125C4000-SC	1.750	1.499	0.385	0.375	0.125
WR01750X500X125C4000-SC	1.750	1.499	0.510	0.500	0.125
WR01750X750X125C4000-SC	1.750	1.499	0.760	0.750	0.125
WR01750X1000X125C4000-SC	1.750	1.499	1.010	1.000	0.125
WR01875X375X125C4000-SC	1.875	1.624	0.385	0.375	0.125
WR01875X500X125C4000-SC	1.875	1.624	0.510	0.500	0.125
WR01875X750X125C4000-SC	1.875	1.624	0.760	0.750	0.125
WR02000X250X125C4000-SC	2.000	1.749	0.260	0.250	0.125
WR02000X375X125C4000-SC	2.000	1.749	0.385	0.375	0.125
WR02000X500X125C4000-SC	2.000	1.749	0.510	0.500	0.125
WR02000X625X125C4000-SC	2.000	1.749	0.635	0.625	0.125
WR02000X750X125C4000-SC	2.000	1.749	0.760	0.750	0.125
WR02125X375X125C4000-SC	2.125	1.874	0.385	0.375	0.125
WR02125X750X125C4000-SC	2.125	1.874	0.760	0.750	0.125
WR02250X250X125C4000-SC	2.250	1.999	0.260	0.250	0.125
WR02250X375X125C4000-SC	2.250	1.999	0.385	0.375	0.125

**WR - C4000**

**WEAR RINGS**

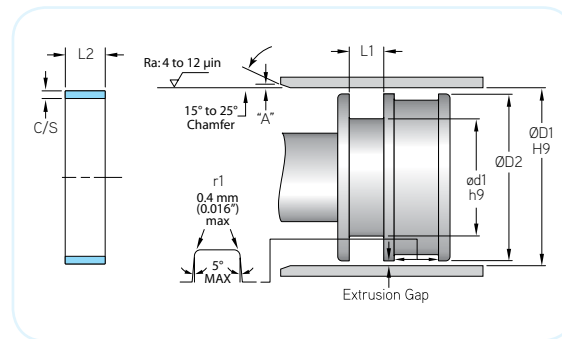
For surface finish information please refer to page 17, Surface Finish: ISO 4287. For ISO tolerance, refer to page 18.

For compound descriptions and temperature ranges, please refer to pages 26-37.

# WR - Tight Tolerance Piston Guide Ring - C4000

**MFPSEALS**

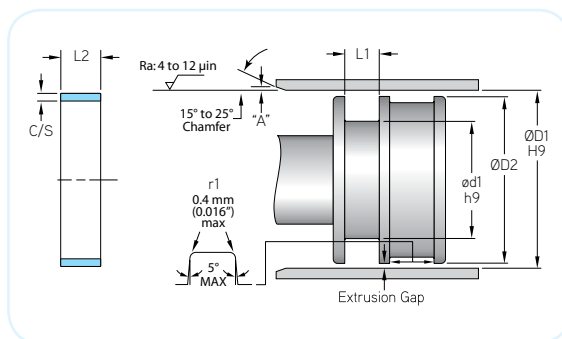
A product of MFP Seals.



MFP PART NUMBER	PISTON APPLICATION				
	ØD1	ød1	L1	L2	C/S
TOLERANCE	H9	h9	+0.020/-0.000		+0.000/-0.002
WR02250X500X125C4000-SC	2.250	1.999	0.510	0.500	0.125
WR02250X625X125C4000-SC	2.250	1.999	0.635	0.625	0.125
WR02250X750X125C4000-SC	2.250	1.999	0.760	0.750	0.125
WR02375X500X125C4000-SC	2.375	2.124	0.510	0.500	0.125
WR02375X750X125C4000-SC	2.375	2.124	0.760	0.750	0.125
WR02500X250X125C4000-SC	2.500	2.249	0.260	0.250	0.125
WR02500X375X125C4000-SC	2.500	2.249	0.385	0.375	0.125
WR02500X500X125C4000-SC	2.500	2.249	0.510	0.500	0.125
WR02500X625X125C4000-SC	2.500	2.249	0.635	0.625	0.125
WR02500X750X125C4000-SC	2.500	2.249	0.760	0.750	0.125
WR02500X1000X125C4000-SC	2.500	2.249	1.010	1.000	0.125
WR02750X250X125C4000-SC	2.750	2.499	0.260	0.250	0.125
WR02750X375X125C4000-SC	2.750	2.499	0.385	0.375	0.125
WR02750X500X125C4000-SC	2.750	2.499	0.510	0.500	0.125
WR02750X625X125C4000-SC	2.750	2.499	0.635	0.625	0.125
WR02750X750X125C4000-SC	2.750	2.499	0.760	0.750	0.125
WR02750X1000X125C4000-SC	2.750	2.499	1.010	1.000	0.125
WR02750X1500X125C4000-SC	2.750	2.499	1.510	1.500	0.125
WR02750X2000X125C4000-SC	2.750	2.499	2.010	2.000	0.125
WR02875X1000X125C4000-SC	2.875	2.624	1.010	1.000	0.125
WR03000X250X125C4000-SC	3.000	2.749	0.260	0.250	0.125
WR03000X375X125C4000-SC	3.000	2.749	0.385	0.375	0.125
WR03000X500X125C4000-SC	3.000	2.749	0.510	0.500	0.125
WR03000X625X125C4000-SC	3.000	2.749	0.635	0.625	0.125
WR03000X750X125C4000-SC	3.000	2.749	0.760	0.750	0.125
WR03000X1000X125C4000-SC	3.000	2.749	1.010	1.000	0.125
WR03125X500X125C4000-SC	3.125	2.874	0.510	0.500	0.125
WR03250X250X125C4000-SC	3.250	2.999	0.260	0.250	0.125
WR03250X312X125C4000-SC	3.250	2.999	0.322	0.312	0.125
WR03250X375X125C4000-SC	3.250	2.999	0.385	0.375	0.125
WR03250X500X125C4000-SC	3.250	2.999	0.510	0.500	0.125
WR03250X750X125C4000-SC	3.250	2.999	0.760	0.750	0.125
WR03250X1000X125C4000-SC	3.250	2.999	1.010	1.000	0.125
WR03250X1250X125C4000-SC	3.250	2.999	1.260	1.250	0.125
WR03250X1500X125C4000-SC	3.250	2.999	1.510	1.500	0.125
WR03250X2000X125C4000-SC	3.250	2.999	2.010	2.000	0.125
WR03375X750X125C4000-SC	3.375	3.124	0.760	0.750	0.125
WR03500X250X125C4000-SC	3.500	3.249	0.260	0.250	0.125

WR - C4000

WEAR RINGS



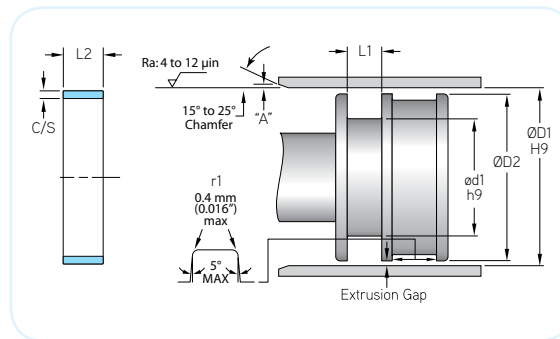
MFP PART NUMBER	PISTON APPLICATION				
	ØD1	ød1	L1	L2	C/S
TOLERANCE	H9	h9	+0.020/-0.000		+0.000/-0.002
WR03500X375X125C4000-SC	3.500	3.249	0.385	0.375	0.125
WR03500X500X125C4000-SC	3.500	3.249	0.510	0.500	0.125
WR03500X625X125C4000-SC	3.500	3.249	0.635	0.625	0.125
WR03500X750X125C4000-SC	3.500	3.249	0.760	0.750	0.125
WR03500X1000X125C4000-SC	3.500	3.249	1.010	1.000	0.125
WR03500X1500X125C4000-SC	3.500	3.249	1.510	1.500	0.125
WR03625X500X125C4000-SC	3.625	3.374	0.510	0.500	0.125
WR03625X1000X125C4000-SC	3.625	3.374	1.010	1.000	0.125
WR03750X250X125C4000-SC	3.750	3.499	0.260	0.250	0.125
WR03750X375X125C4000-SC	3.750	3.499	0.385	0.375	0.125
WR03750X500X125C4000-SC	3.750	3.499	0.510	0.500	0.125
WR03750X625X125C4000-SC	3.750	3.499	0.635	0.625	0.125
WR03750X750X125C4000-SC	3.750	3.499	0.760	0.750	0.125
WR03750X1000X125C4000-SC	3.750	3.499	1.010	1.000	0.125
WR03750X1250X125C4000-SC	3.750	3.499	1.260	1.250	0.125
WR04000X250X125C4000-SC	4.000	3.749	0.260	0.250	0.125
WR04000X375X125C4000-SC	4.000	3.749	0.385	0.375	0.125
WR04000X500X125C4000-SC	4.000	3.749	0.510	0.500	0.125
WR04000X625X125C4000-SC	4.000	3.749	0.635	0.625	0.125
WR04000X750X125C4000-SC	4.000	3.749	0.760	0.750	0.125
WR04000X1000X125C4000-SC	4.000	3.749	1.010	1.000	0.125
WR04000X1250X125C4000-SC	4.000	3.749	1.260	1.250	0.125
WR04000X1500X125C4000-SC	4.000	3.749	1.510	1.500	0.125
WR04250X375X125C4000-SC	4.250	3.999	0.385	0.375	0.125
WR04250X500X125C4000-SC	4.250	3.999	0.510	0.500	0.125
WR04250X625X125C4000-SC	4.250	3.999	0.635	0.625	0.125
WR04250X750X125C4000-SC	4.250	3.999	0.760	0.750	0.125
WR04250X1000X125C4000-SC	4.250	3.999	1.010	1.000	0.125
WR04250X1250X125C4000-SC	4.250	3.999	1.260	1.250	0.125
WR04250X1500X125C4000-SC	4.250	3.999	1.510	1.500	0.125
WR04500X375X125C4000-SC	4.500	4.249	0.385	0.375	0.125
WR04500X500X125C4000-SC	4.500	4.249	0.510	0.500	0.125
WR04500X625X125C4000-SC	4.500	4.249	0.635	0.625	0.125
WR04500X750X125C4000-SC	4.500	4.249	0.760	0.750	0.125
WR04500X1000X125C4000-SC	4.500	4.249	1.010	1.000	0.125
WR04500X1500X125C4000-SC	4.500	4.249	1.510	1.500	0.125
WR04750X375X125C4000-SC	4.750	4.499	0.385	0.375	0.125
WR04750X500X125C4000-SC	4.750	4.499	0.510	0.500	0.125

WR - C4000

WEAR RINGS

# WR - Tight Tolerance Piston Guide Ring - C4000

A product of MFP Seals.

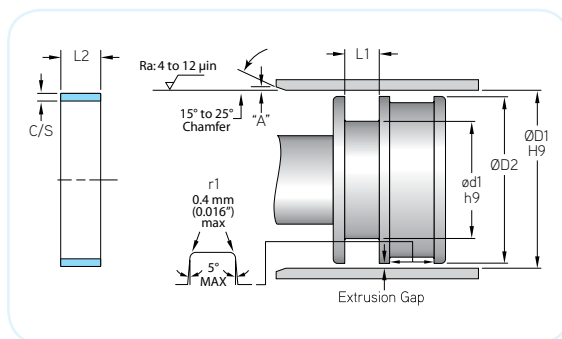


WR - C4000

WEAR RINGS

MFP PART NUMBER	PISTON APPLICATION				
	ØD1	ød1	L1	L2	C/S
TOLERANCE	H9	h9	+0.020/-0.000		+0.000/-0.002
WR04750X750X125C4000-SC	4.750	4.499	0.760	0.750	0.125
WR04750X1000X125C4000-SC	4.750	4.499	1.010	1.000	0.125
WR04750X1250X125C4000-SC	4.750	4.499	1.260	1.250	0.125
WR04750X1500X125C4000-SC	4.750	4.499	1.510	1.500	0.125
WR04750X2000X125C4000-SC	4.750	4.499	2.010	2.000	0.125
WR05000X250X125C4000-SC	5.000	4.749	0.260	0.250	0.125
WR05000X375X125C4000-SC	5.000	4.749	0.385	0.375	0.125
WR05000X500X125C4000-SC	5.000	4.749	0.510	0.500	0.125
WR05000X625X125C4000-SC	5.000	4.749	0.635	0.625	0.125
WR05000X750X125C4000-SC	5.000	4.749	0.760	0.750	0.125
WR05000X1000X125C4000-SC	5.000	4.749	1.010	1.000	0.125
WR05000X1250X125C4000-SC	5.000	4.749	1.260	1.250	0.125
WR05000X1750X125C4000-SC	5.000	4.749	1.760	1.750	0.125
WR05250X500X125C4000-SC	5.250	4.999	0.510	0.500	0.125
WR05250X625X125C4000-SC	5.250	4.999	0.635	0.625	0.125
WR05250X750X125C4000-SC	5.250	4.999	0.760	0.750	0.125
WR05250X1000X125C4000-SC	5.250	4.999	1.010	1.000	0.125
WR05250X1250X125C4000-SC	5.250	4.999	1.260	1.250	0.125
WR05250X2000X125C4000-SC	5.250	4.999	2.010	2.000	0.125
WR05500X375X125C4000-SC	5.500	5.249	0.385	0.375	0.125
WR05500X500X125C4000-SC	5.500	5.249	0.510	0.500	0.125
WR05500X625X125C4000-SC	5.500	5.249	0.635	0.625	0.125
WR05500X750X125C4000-SC	5.500	5.249	0.760	0.750	0.125
WR05500X1000X125C4000-SC	5.500	5.249	1.010	1.000	0.125
WR05500X1250X125C4000-SC	5.500	5.249	1.260	1.250	0.125
WR05750X250X125C4000-SC	5.750	5.499	0.260	0.250	0.125
WR05750X625X125C4000-SC	5.750	5.499	0.635	0.625	0.125
WR05750X750X125C4000-SC	5.750	5.499	0.760	0.750	0.125
WR05750X1000X125C4000-SC	5.750	5.499	1.010	1.000	0.125
WR05750X1500X125C4000-SC	5.750	5.499	1.510	1.500	0.125
WR06000X250X125C4000-SC	6.000	5.749	0.260	0.250	0.125
WR06000X500X125C4000-SC	6.000	5.749	0.510	0.500	0.125
WR06000X625X125C4000-SC	6.000	5.749	0.635	0.625	0.125
WR06000X750X125C4000-SC	6.000	5.749	0.760	0.750	0.125
WR06000X875X125C4000-SC	6.000	5.749	0.885	0.875	0.125
WR06000X1000X125C4000-SC	6.000	5.749	1.010	1.000	0.125
WR06000X1250X125C4000-SC	6.000	5.749	1.260	1.250	0.125
WR06000X1500X125C4000-SC	6.000	5.749	1.510	1.500	0.125





MFP PART NUMBER	PISTON APPLICATION				
	ØD1	ød1	L1	L2	C/S
<b>TOLERANCE</b>	H9	h9	+0.020/-0.000		+0.000/-0.002
WR06000X1750X125C4000-SC	6.000	5.749	1.760	1.750	0.125
WR06000X2000X125C4000-SC	6.000	5.749	2.010	2.000	0.125
WR06250X500X125C4000-SC	6.250	5.999	0.510	0.500	0.125
WR06250X625X125C4000-SC	6.250	5.999	0.635	0.625	0.125
WR06250X750X125C4000-SC	6.250	5.999	0.760	0.750	0.125
WR06250X1000X125C4000-SC	6.250	5.999	1.010	1.000	0.125
WR06250X1500X125C4000-SC	6.250	5.999	1.510	1.500	0.125
WR06250X2000X125C4000-SC	6.250	5.999	2.010	2.000	0.125
WR06500X500X125C4000-SC	6.500	6.249	0.510	0.500	0.125
WR06500X625X125C4000-SC	6.500	6.249	0.635	0.625	0.125
WR06500X750X125C4000-SC	6.500	6.249	0.760	0.750	0.125
WR06500X1000X125C4000-SC	6.500	6.249	1.010	1.000	0.125
WR06500X1250X125C4000-SC	6.500	6.249	1.260	1.250	0.125
WR06500X1500X125C4000-SC	6.500	6.249	1.510	1.500	0.125
WR06500X2000X125C4000-SC	6.500	6.249	2.010	2.000	0.125
WR06750X1000X125C4000-SC	6.750	6.499	1.010	1.000	0.125
WR06750X1500X125C4000-SC	6.750	6.499	1.510	1.500	0.125
WR07000X500X125C4000-SC	7.000	6.749	0.510	0.500	0.125
WR07000X625X125C4000-SC	7.000	6.749	0.635	0.625	0.125
WR07000X750X125C4000-SC	7.000	6.749	0.760	0.750	0.125
WR07000X1000X125C4000-SC	7.000	6.749	1.010	1.000	0.125
WR07000X1500X125C4000-SC	7.000	6.749	1.510	1.500	0.125
WR07000X1750X125C4000-SC	7.000	6.749	1.760	1.750	0.125
WR07000X2000X125C4000-SC	7.000	6.749	2.010	2.000	0.125
WR07250X500X125C4000-SC	7.250	6.999	0.510	0.500	0.125
WR07250X750X125C4000-SC	7.250	6.999	0.760	0.750	0.125
WR07250X1000X125C4000-SC	7.250	6.999	1.010	1.000	0.125
WR07250X2000X125C4000-SC	7.250	6.999	2.010	2.000	0.125
WR07500X500X125C4000-SC	7.500	7.249	0.510	0.500	0.125
WR07500X625X125C4000-SC	7.500	7.249	0.635	0.625	0.125
WR07500X750X125C4000-SC	7.500	7.249	0.760	0.750	0.125
WR07500X1000X125C4000-SC	7.500	7.249	1.010	1.000	0.125
WR07500X1500X125C4000-SC	7.500	7.249	1.510	1.500	0.125
WR07500X2000X125C4000-SC	7.500	7.249	2.010	2.000	0.125
WR07750X500X125C4000-SC	7.750	7.499	0.510	0.500	0.125
WR07750X1000X125C4000-SC	7.750	7.499	1.010	1.000	0.125
WR08000X500X125C4000-SC	8.000	7.749	0.510	0.500	0.125
WR08000X625X125C4000-SC	8.000	7.749	0.635	0.625	0.125

**WR - C4000**

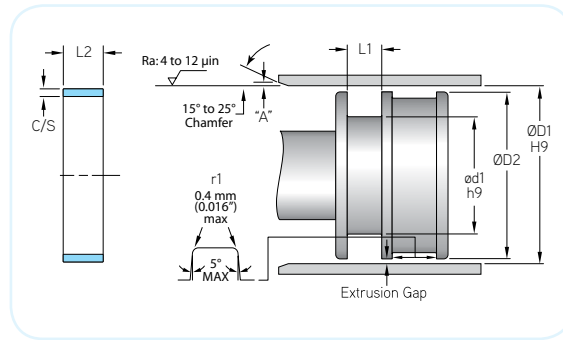
**WEAR RINGS**



# WR - Tight Tolerance Piston Guide Ring - C4000

**MFPSEALS**

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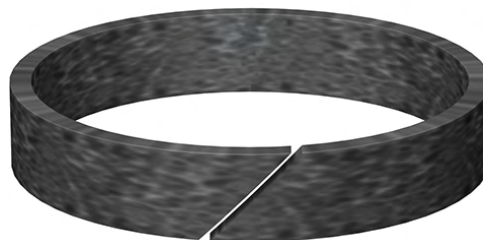
MFP PART NUMBER	PISTON APPLICATION				
	ØD1	ød1	L1	L2	C/S
TOLERANCE	H9	h9	+0.020/-0.000		+0.000/-0.002
WR08000X750X125C4000-SC	8.000	7.749	0.760	0.750	0.125
WR08000X875X125C4000-SC	8.000	7.749	0.885	0.875	0.125
WR08000X1000X125C4000-SC	8.000	7.749	1.010	1.000	0.125
WR08000X1250X125C4000-SC	8.000	7.749	1.260	1.250	0.125
WR08000X2000X125C4000-SC	8.000	7.749	2.010	2.000	0.125
WR08250X1000X125C4000-SC	8.250	7.999	1.010	1.000	0.125
WR08250X1250X125C4000-SC	8.250	7.999	1.260	1.250	0.125
WR08250X1500X125C4000-SC	8.250	7.999	1.510	1.500	0.125
WR08250X1750X125C4000-SC	8.250	7.999	1.760	1.750	0.125
WR08500X500X125C4000-SC	8.500	8.249	0.510	0.500	0.125
WR08500X625X125C4000-SC	8.500	8.249	0.635	0.625	0.125
WR08500X1000X125C4000-SC	8.500	8.249	1.010	1.000	0.125
WR08750X1000X125C4000-SC	8.750	8.499	1.010	1.000	0.125
WR09000X1000X125C4000-SC	9.000	8.749	1.010	1.000	0.125
WR09000X1500X125C4000-SC	9.000	8.749	1.510	1.500	0.125
WR09250X1500X125C4000-SC	9.250	8.999	1.510	1.500	0.125
WR09500X625X125C4000-SC	9.500	9.249	0.635	0.625	0.125
WR09500X1000X125C4000-SC	9.500	9.249	1.010	1.000	0.125
WR09750X500X125C4000-SC	9.750	9.499	0.510	0.500	0.125
WR09750X1000X125C4000-SC	9.750	9.499	1.010	1.000	0.125
WR10000X500X125C4000-SC	10.000	9.749	0.510	0.500	0.125
WR10000X1000X125C4000-SC	10.000	9.749	1.010	1.000	0.125
WR10000X1500X125C4000-SC	10.000	9.749	1.510	1.500	0.125
WR10250X1000X125C4000-SC	10.250	9.999	1.010	1.000	0.125
WR10500X1000X125C4000-SC	10.500	10.249	1.010	1.000	0.125
WR11000X1000X125C4000-SC	11.000	10.749	1.010	1.000	0.125
WR12000X1000X125C4000-SC	12.000	11.749	1.010	1.000	0.125

WR - C4000

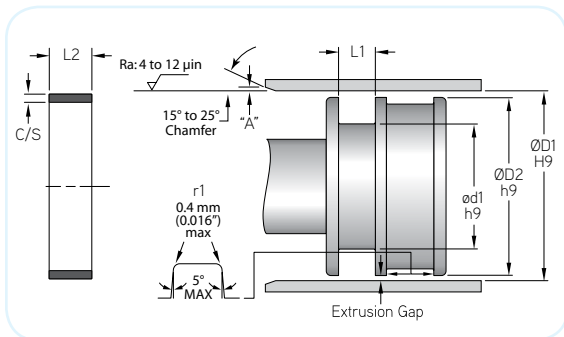
WEAR RINGS

**WR - M1005 Tight Tolerance Piston Guide Rings**

MFP Seals' M1005 Tight Tolerance Piston Guide Rings are made from glass-reinforced nylon. These guide rings eliminate metal to metal contact and the consequent galling and scoring of cylinder bores. Guide rings are supplied scarf cut, for easy installation. They are also available butt cut or step cut, upon request.



For sizes not listed please contact your MFP Seals' Sales Representative.



**MFP PART NUMBERS**

**WR01125X375X125M1005-SC**

SEAL TYPE | ØD1 | L2 | COMPOUND | CUT

CROSS SECTION

Max. Velocity: 2.2 m/s (7.2 ft./s)

MFP PART NUMBER	PISTON APPLICATION					
	ØD1	ød1	ØD2	L1	L2	C/S
TOLERANCE	H9	h9	h9	+0.010/-0.000		+0.000/-0.002
WR01125X375X125M1005-SC	1.125	0.874	1.108	0.385	0.375	0.125
WR01250X250X125M1005-SC	1.250	0.999	1.233	0.260	0.250	0.125
WR01250X500X125M1005-SC	1.250	0.999	1.233	0.510	0.500	0.125
WR01250X750X125M1005-SC	1.250	0.999	1.233	0.760	0.750	0.125
WR01500X250X125M1005-SC	1.500	1.249	1.483	0.260	0.250	0.125
WR01500X375X125M1005-SC	1.500	1.249	1.483	0.385	0.375	0.125
WR01500X500X125M1005-SC	1.500	1.249	1.483	0.510	0.500	0.125
WR01500X750X125M1005-SC	1.500	1.249	1.483	0.760	0.750	0.125
WR01750X375X125M1005-SC	1.750	1.499	1.733	0.385	0.375	0.125
WR01750X500X125M1005-SC	1.750	1.499	1.733	0.510	0.500	0.125
WR01750X750X125M1005-SC	1.750	1.499	1.733	0.760	0.750	0.125
WR01750X1000X125M1005-SC	1.750	1.499	1.733	1.010	1.000	0.125
WR01875X500X125M1005-SC	1.875	1.624	1.858	0.510	0.500	0.125
WR01875X750X125M1005-SC	1.875	1.624	1.858	0.760	0.750	0.125
WR02000X250X125M1005-SC	2.000	1.749	1.983	0.260	0.250	0.125
WR02000X375X125M1005-SC	2.000	1.749	1.983	0.385	0.375	0.125
WR02000X500X125M1005-SC	2.000	1.749	1.983	0.510	0.500	0.125
WR02000X625X125M1005-SC	2.000	1.749	1.983	0.635	0.625	0.125
WR02000X750X125M1005-SC	2.000	1.749	1.983	0.760	0.750	0.125
WR02000X1000X125M1005-SC	2.000	1.749	1.983	1.010	1.000	0.125
WR02250X187X125M1005-SC	2.250	1.999	2.233	0.197	0.187	0.125
WR02250X375X125M1005-SC	2.250	1.999	2.233	0.385	0.375	0.125

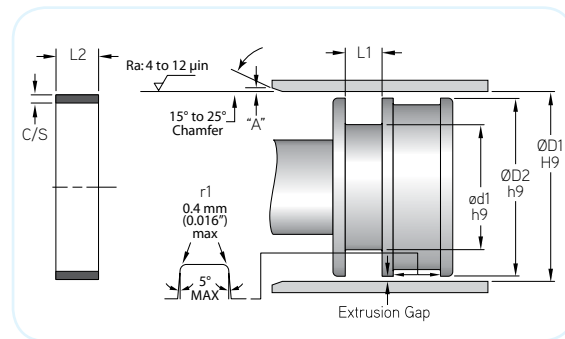
WR - M1005

WEAR RINGS

# WR - Tight Tolerance Piston Guide Ring - M1005



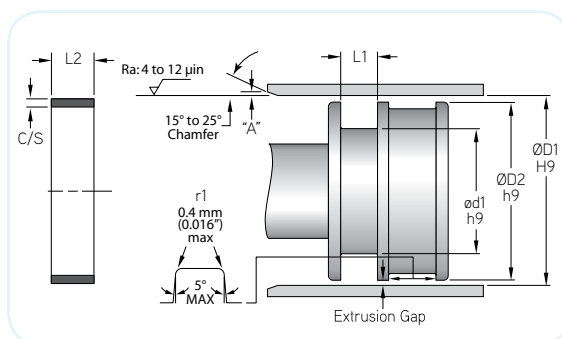
A product of MFP Seals.



WR - M1005

WEAR RINGS

MFP PART NUMBER	PISTON APPLICATION					
	ØD1	ød1	ØD2	L1	L2	C/S
TOLERANCE	H9	h9	h9	+0.010/-0.000		+0.000/-0.002
WR02250X500X125M1005-SC	2.250	1.999	2.233	0.510	0.500	0.125
WR02250X625X125M1005-SC	2.250	1.999	2.233	0.635	0.625	0.125
WR02250X750X125M1005-SC	2.250	1.999	2.233	0.760	0.750	0.125
WR02250X875X125M1005-SC	2.250	1.999	2.233	0.885	0.875	0.125
WR02250X1000X125M1005-SC	2.250	1.999	2.233	1.010	1.000	0.125
WR02500X250X125M1005-SC	2.500	2.249	2.483	0.260	0.250	0.125
WR02500X375X125M1005-SC	2.500	2.249	2.483	0.385	0.375	0.125
WR02500X500X125M1005-SC	2.500	2.249	2.483	0.510	0.500	0.125
WR02500X625X125M1005-SC	2.500	2.249	2.483	0.635	0.625	0.125
WR02500X750X125M1005-SC	2.500	2.249	2.483	0.760	0.750	0.125
WR02500X1000X125M1005-SC	2.500	2.249	2.483	1.010	1.000	0.125
WR02500X1250X125M1005-SC	2.500	2.249	2.483	1.260	1.250	0.125
WR02625X1000X125M1005-SC	2.625	2.374	2.608	1.010	1.000	0.125
WR02750X375X125M1005-SC	2.750	2.499	2.733	0.385	0.375	0.125
WR02750X500X125M1005-SC	2.750	2.499	2.733	0.510	0.500	0.125
WR02750X625X125M1005-SC	2.750	2.499	2.733	0.635	0.625	0.125
WR02750X750X125M1005-SC	2.750	2.499	2.733	0.760	0.750	0.125
WR02750X1000X125M1005-SC	2.750	2.499	2.733	1.010	1.000	0.125
WR02750X1500X125M1005-SC	2.750	2.499	2.733	1.510	1.500	0.125
WR03000X375X125M1005-SC	3.000	2.749	2.983	0.385	0.375	0.125
WR03000X500X125M1005-SC	3.000	2.749	2.983	0.510	0.500	0.125
WR03000X625X125M1005-SC	3.000	2.749	2.983	0.635	0.625	0.125
WR03000X750X125M1005-SC	3.000	2.749	2.983	0.760	0.750	0.125
WR03000X1000X125M1005-SC	3.000	2.749	2.983	1.010	1.000	0.125
WR03250X375X125M1005-SC	3.250	2.999	3.233	0.385	0.375	0.125
WR03250X500X125M1005-SC	3.250	2.999	3.233	0.510	0.500	0.125
WR03250X625X125M1005-SC	3.250	2.999	3.233	0.635	0.625	0.125
WR03250X750X125M1005-SC	3.250	2.999	3.233	0.760	0.750	0.125
WR03250X1000X125M1005-SC	3.250	2.999	3.233	1.010	1.000	0.125
WR03250X1500X125M1005-SC	3.250	2.999	3.233	1.510	1.500	0.125
WR03500X250X125M1005-SC	3.500	3.249	3.483	0.260	0.250	0.125
WR03500X375X125M1005-SC	3.500	3.249	3.483	0.385	0.375	0.125
WR03500X500X125M1005-SC	3.500	3.249	3.483	0.510	0.500	0.125
WR03500X625X125M1005-SC	3.500	3.249	3.483	0.635	0.625	0.125
WR03500X750X125M1005-SC	3.500	3.249	3.483	0.760	0.750	0.125



MFP PART NUMBER	PISTON APPLICATION					
	ØD1	ød1	ØD2	L1	L2	C/S
<b>TOLERANCE</b>	H9	h9	h9	+0.010/-0.000		+0.000/-0.002
WR03500X1000X125M1005-SC	3.500	3.249	3.483	1.010	1.000	0.125
WR03750X250X125M1005-SC	3.750	3.499	3.733	0.260	0.250	0.125
WR03750X500X125M1005-SC	3.750	3.499	3.733	0.510	0.500	0.125
WR03750X750X125M1005-SC	3.750	3.499	3.733	0.760	0.750	0.125
WR03750X1000X125M1005-SC	3.750	3.499	3.733	1.010	1.000	0.125
WR04000X375X125M1005-SC	4.000	3.749	3.983	0.385	0.375	0.125
WR04000X500X125M1005-SC	4.000	3.749	3.983	0.510	0.500	0.125
WR04000X625X125M1005-SC	4.000	3.749	3.983	0.635	0.625	0.125
WR04000X750X125M1005-SC	4.000	3.749	3.983	0.760	0.750	0.125
WR04000X875X125M1005-SC	4.000	3.749	3.983	0.885	0.875	0.125
WR04000X1000X125M1005-SC	4.000	3.749	3.983	1.010	1.000	0.125
WR04000X1250X125M1005-SC	4.000	3.749	3.983	1.260	1.250	0.125
WR04000X2000X125M1005-SC	4.000	3.749	3.983	2.010	2.000	0.125
WR04250X250X125M1005-SC	4.250	3.999	4.233	0.260	0.250	0.125
WR04250X500X125M1005-SC	4.250	3.999	4.233	0.510	0.500	0.125
WR04250X625X125M1005-SC	4.250	3.999	4.233	0.635	0.625	0.125
WR04250X750X125M1005-SC	4.250	3.999	4.233	0.760	0.750	0.125
WR04250X1000X125M1005-SC	4.250	3.999	4.233	1.010	1.000	0.125
WR04500X375X125M1005-SC	4.500	4.249	4.483	0.385	0.375	0.125
WR04500X500X125M1005-SC	4.500	4.249	4.483	0.510	0.500	0.125
WR04500X625X125M1005-SC	4.500	4.249	4.483	0.635	0.625	0.125
WR04500X1000X125M1005-SC	4.500	4.249	4.483	1.010	1.000	0.125
WR04750X500X125M1005-SC	4.750	4.499	4.733	0.510	0.500	0.125
WR04750X750X125M1005-SC	4.750	4.499	4.733	0.760	0.750	0.125
WR04750X1000X125M1005-SC	4.750	4.499	4.733	1.010	1.000	0.125
<b>TOLERANCE</b>	H9	h9	h9	+0.010/-0.000		+0.000/-0.002
WR05000X375X125M1005-SC	5.000	4.749	4.982	0.385	0.375	0.125
WR05000X500X125M1005-SC	5.000	4.749	4.982	0.510	0.500	0.125
WR05000X625X125M1005-SC	5.000	4.749	4.982	0.635	0.625	0.125
WR05000X750X125M1005-SC	5.000	4.749	4.982	0.760	0.750	0.125
WR05000X1000X125M1005-SC	5.000	4.749	4.982	1.010	1.000	0.125
WR05000X1250X125M1005-SC	5.000	4.749	4.982	1.260	1.250	0.125
WR05000X1500X125M1005-SC	5.000	4.749	4.982	1.510	1.500	0.125
WR05250X500X125M1005-SC	5.250	4.999	5.232	0.510	0.500	0.125
WR05250X625X125M1005-SC	5.250	4.999	5.232	0.635	0.625	0.125

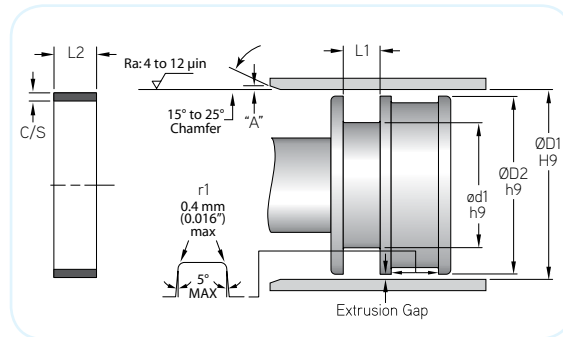
**WR - M1005**

**WEAR RINGS**

# WR - Tight Tolerance Piston Guide Ring - M1005



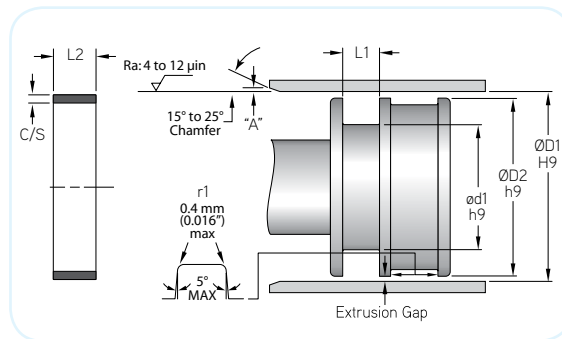
A product of MFP Seals.



WRR - M1005

WEAR RINGS

MFP PART NUMBER	PISTON APPLICATION					
	ØD1	ød1	ØD2	L1	L2	C/S
TOLERANCE	H9	h9	h9	+0.010/-0.000		+0.000/-0.002
WR05250X750X125M1005-SC	5.250	4.999	5.232	0.760	0.750	0.125
WR05250X1000X125M1005-SC	5.250	4.999	5.232	1.010	1.000	0.125
WR05250X1500X125M1005-SC	5.250	4.999	5.232	1.510	1.500	0.125
WR05375X500X125M1005-SC	5.375	5.124	5.357	0.510	0.500	0.125
WR05500X375X125M1005-SC	5.500	5.249	5.482	0.385	0.375	0.125
WR05500X500X125M1005-SC	5.500	5.249	5.482	0.510	0.500	0.125
WR05500X625X125M1005-SC	5.500	5.249	5.482	0.635	0.625	0.125
WR05500X750X125M1005-SC	5.500	5.249	5.482	0.760	0.750	0.125
WR05500X1000X125M1005-SC	5.500	5.249	5.482	1.010	1.000	0.125
WR05750X500X125M1005-SC	5.750	5.499	5.732	0.510	0.500	0.125
WR05750X750X125M1005-SC	5.750	5.499	5.732	0.760	0.750	0.125
WR05750X1000X125M1005-SC	5.750	5.499	5.732	1.010	1.000	0.125
WR05750X1250X125M1005-SC	5.750	5.499	5.732	1.260	1.250	0.125
TOLERANCE	H9	h9	h9	+0.010/-0.000		+0.000/-0.003
WR06000X500X125M1005-SC	6.000	5.749	5.980	0.510	0.500	0.125
WR06000X625X125M1005-SC	6.000	5.749	5.980	0.635	0.625	0.125
WR06000X750X125M1005-SC	6.000	5.749	5.980	0.760	0.750	0.125
WR06000X1000X125M1005-SC	6.000	5.749	5.980	1.010	1.000	0.125
WR06000X1250X125M1005-SC	6.000	5.749	5.980	1.260	1.250	0.125
WR06250X500X125M1005-SC	6.250	5.999	6.230	0.510	0.500	0.125
WR06250X625X125M1005-SC	6.250	5.999	6.230	0.635	0.625	0.125
WR06250X750X125M1005-SC	6.250	5.999	6.230	0.760	0.750	0.125
WR06250X1000X125M1005-SC	6.250	5.999	6.230	1.010	1.000	0.125
WR06500X500X125M1005-SC	6.500	6.249	6.480	0.510	0.500	0.125
WR06500X625X125M1005-SC	6.500	6.249	6.480	0.635	0.625	0.125
WR06500X750X125M1005-SC	6.500	6.249	6.480	0.760	0.750	0.125
WR06500X1000X125M1005-SC	6.500	6.249	6.480	1.010	1.000	0.125
WR06500X1500X125M1005-SC	6.500	6.249	6.480	1.510	1.500	0.125
WR06750X500X125M1005-SC	6.750	6.499	6.730	0.510	0.500	0.125
WR06750X1000X125M1005-SC	6.750	6.499	6.730	1.010	1.000	0.125
WR07000X375X125M1005-SC	7.000	6.749	6.980	0.385	0.375	0.125
WR07000X500X125M1005-SC	7.000	6.749	6.980	0.510	0.500	0.125
WR07000X625X125M1005-SC	7.000	6.749	6.980	0.635	0.625	0.125
WR07000X750X125M1005-SC	7.000	6.749	6.980	0.760	0.750	0.125
WR07000X1000X125M1005-SC	7.000	6.749	6.980	1.010	1.000	0.125



MFP PART NUMBER	PISTON APPLICATION					
	ØD1	ød1	ØD2	L1	L2	C/S
<b>TOLERANCE</b>	H9	h9	h9	+0.010/-0.000		+0.000/-0.003
WR07000X1500X125M1005-SC	7.000	6.749	6.980	1.510	1.500	0.125
WR07250X750X125M1005-SC	7.250	6.999	7.230	0.760	0.750	0.125
WR07250X1000X125M1005-SC	7.250	6.999	7.230	1.010	1.000	0.125
WR07500X500X125M1005-SC	7.500	7.249	7.480	0.510	0.500	0.125
WR07500X1000X125M1005-SC	7.500	7.249	7.480	1.010	1.000	0.125
WR07750X500X125M1005-SC	7.750	7.499	7.730	0.510	0.500	0.125
WR07750X750X125M1005-SC	7.750	7.499	7.730	0.760	0.750	0.125
<b>TOLERANCE</b>	H9	h9	h9	+0.010/-0.000		+0.000/-0.003
WR08000X500X125M1005-SC	8.000	7.749	7.979	0.510	0.500	0.125
WR08000X625X125M1005-SC	8.000	7.749	7.979	0.635	0.625	0.125
WR08000X750X125M1005-SC	8.000	7.749	7.979	0.760	0.750	0.125
WR08000X1000X125M1005-SC	8.000	7.749	7.979	1.010	1.000	0.125
WR08000X1250X125M1005-SC	8.000	7.749	7.979	1.260	1.250	0.125
WR08000X1500X125M1005-SC	8.000	7.749	7.979	1.510	1.500	0.125
WR08000X2000X125M1005-SC	8.000	7.749	7.979	2.010	2.000	0.125

**WR - M1005**

**WEAR RINGS**



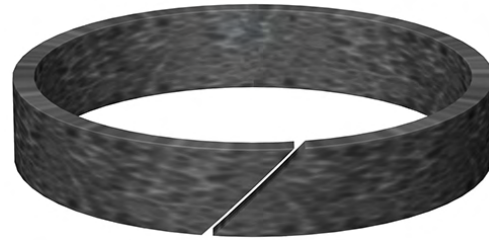
# WRR - Tight Tolerance Rod Guide Ring - M1005



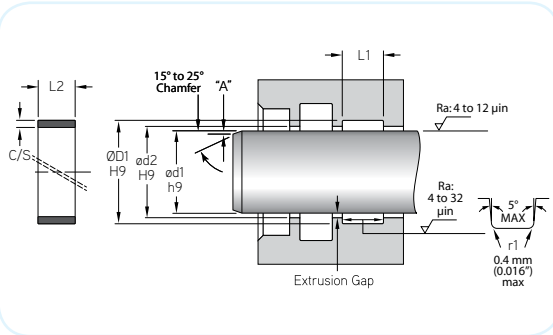
A product of MFP Seals.

## WRR - M1005 Tight Tolerance Rod Guide Rings

MFP Seals' M1005 Tight Tolerance Rod Guide Rings are made from glass-reinforced nylon. These guide rings eliminate metal to metal contact and the consequent galling and scoring of cylinder bores. Guide rings are supplied scarf cut, for easy installation. They are also available butt cut or step cut, upon request.



For sizes not listed please contact your MFP Seals' Sales Representative.



### MFP PART NUMBERS

**WRR01000X500X125M1005-SC**

SEAL TYPE       $\varnothing d1$       L2      CROSS SECTION      COMPOUND      CUT

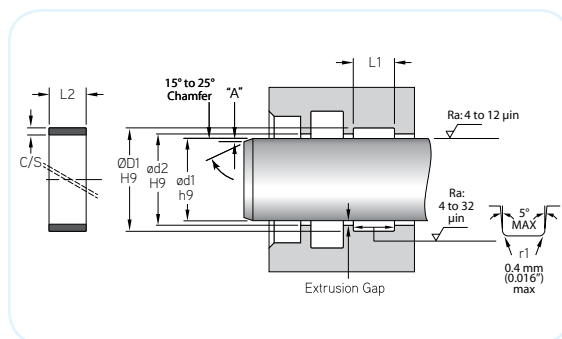
Max. Velocity: 2.2 m/s (7.2 ft./s)

MFP PART NUMBER	ROD APPLICATION					
	$\varnothing d1$	$\varnothing D1$	$\varnothing d2$	L1	L2	C/S
TOLERANCE	h9	H9	H9	+0.010/-0.000		+0.000/-0.002
WRR01000X500X125M1005-SC	1.000	1.251	1.017	1.250	0.510	0.500
WRR01250X250X125M1005-SC	1.250	1.501	1.267	1.500	0.260	0.250
WRR01250X500X125M1005-SC	1.250	1.501	1.267	1.500	0.510	0.500
WRR01250X750X125M1005-SC	1.250	1.501	1.267	1.500	0.760	0.750
WRR01500X250X125M1005-SC	1.500	1.751	1.517	1.750	0.260	0.250
WRR01500X500X125M1005-SC	1.500	1.751	1.517	1.750	0.510	0.500
WRR01500X750X125M1005-SC	1.500	1.751	1.517	1.750	0.760	0.750
WRR01500X1000X125M1005-SC	1.500	1.751	1.517	1.750	1.010	1.000
WRR01500X1500X125M1005-SC	1.500	1.751	1.517	1.750	1.510	1.500
WRR01750X375X125M1005-SC	1.750	2.001	1.767	2.000	0.385	0.375
WRR01750X500X125M1005-SC	1.750	2.001	1.767	2.000	0.510	0.500
WRR01750X625X125M1005-SC	1.750	2.001	1.767	2.000	0.635	0.625
WRR01750X1000X125M1005-SC	1.750	2.001	1.767	2.000	1.010	1.000
WRR01750X1500X125M1005-SC	1.750	2.001	1.767	2.000	1.510	1.500
WRR01875X750X125M1005-SC	1.875	2.126	1.892	2.125	0.760	0.750
WRR02000X500X125M1005-SC	2.000	2.251	2.017	2.250	0.510	0.500
WRR02000X1000X125M1005-SC	2.000	2.251	2.017	2.250	1.010	1.000
WRR02000X1250X125M1005-SC	2.000	2.251	2.017	2.250	1.260	1.250
WRR02250X1000X125M1005-SC	2.250	2.501	2.267	2.500	1.010	1.000
WRR02500X500X125M1005-SC	2.500	2.751	2.517	2.750	0.510	0.500
WRR02500X1000X125M1005-SC	2.500	2.751	2.517	2.750	1.010	1.000
WRR02500X1500X125M1005-SC	2.500	2.751	2.517	2.750	1.510	1.500

WRR - M1005

WEAR RINGS





MFP PART NUMBER	ROD APPLICATION					
	ød1	ØD1	ød2	L1	L2	C/S
TOLERANCE	h9	H9	H9	+0.010/-0.000		+0.000/-0.002
WRR02750X750X125M1005-SC	2.750	3.001	2.767	3.000	0.760	0.750
WRR02875X375X125M1005-SC	2.875	3.126	2.892	3.125	0.385	0.375
WRR03000X375X125M1005-SC	3.000	3.251	3.017	3.250	0.385	0.375
WRR03000X500X125M1005-SC	3.000	3.251	3.017	3.250	0.510	0.500
WRR03000X625X125M1005-SC	3.000	3.251	3.017	3.250	0.635	0.625
WRR03000X750X125M1005-SC	3.000	3.251	3.017	3.250	0.760	0.750
WRR03000X1000X125M1005-SC	3.000	3.251	3.017	3.250	1.010	1.000
WRR03000X1250X125M1005-SC	3.000	3.251	3.017	3.250	1.260	1.250
WRR03000X2000X125M1005-SC	3.000	3.251	3.017	3.250	2.010	2.000
WRR03250X1000X125M1005-SC	3.250	3.501	3.267	3.500	1.010	1.000
WRR03500X750X125M1005-SC	3.500	3.751	3.517	3.750	0.760	0.750
WRR03500X1000X125M1005-SC	3.500	3.751	3.517	3.750	1.010	1.000
WRR03500X1500X125M1005-SC	3.500	3.751	3.517	3.750	1.510	1.500
WRR03500X2000X125M1005-SC	3.500	3.751	3.517	3.750	2.010	2.000
WRR03875X375X125M1005-SC	3.875	4.126	3.892	4.125	0.385	0.375
WRR04000X1000X125M1005-SC	4.000	4.251	4.017	4.250	1.010	1.000
WRR04000X1500X125M1005-SC	4.000	4.251	4.017	4.250	1.510	1.500
WRR04000X2000X125M1005-SC	4.000	4.251	4.017	4.250	2.010	2.000
WRR04250X1500X125M1005-SC	4.250	4.501	4.267	4.500	1.510	1.500
WRR04375X1000X125M1005-SC	4.375	4.626	4.392	4.625	1.010	1.000
WRR04500X500X125M1005-SC	4.500	4.751	4.517	4.750	0.510	0.500
WRR04500X750X125M1005-SC	4.500	4.751	4.517	4.750	0.760	0.750
WRR04500X1500X125M1005-SC	4.500	4.751	4.517	4.750	1.510	1.500
WRR05500X1000X125M1005-SC	5.500	5.751	5.517	5.750	1.010	1.000
WRR05500X1500X125M1005-SC	5.500	5.751	5.517	5.750	1.510	1.500
WRR05500X1750X125M1005-SC	5.500	5.751	5.517	5.750	1.760	1.750
WRR06000X1500X125M1005-SC	6.000	6.251	6.020	6.250	1.510	1.500
WRR06750X1000X125M1005-SC	6.750	7.001	6.770	7.000	1.010	1.000

WRR - M1005

WEAR RINGS

# PWS - Tight Tolerance Composite Wear Strip - C4000

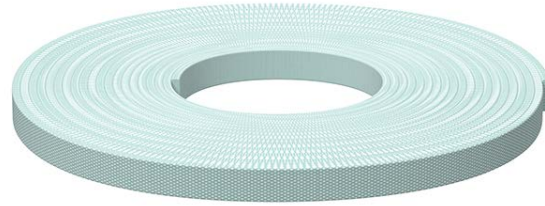


A product of MFP Seals.

## PWS - C4000 Tight Tolerance Composite Wear Strip

MFP Seals' proprietary Tight Tolerance C4000 Composite Wear Strip is designed to eliminate scoring in hydraulic and pneumatic applications by preventing metal to metal contact. Sold by the roll.

See page 16 for guide ring cutting instructions.

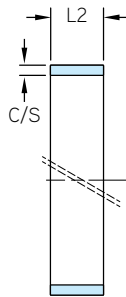


### MFP PART NUMBERS

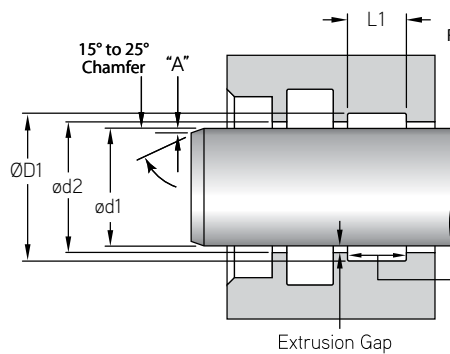
**PWS125x0250C4000-RL**

SEAL TYPE      C/S      L2      COMPOUND      ROLL

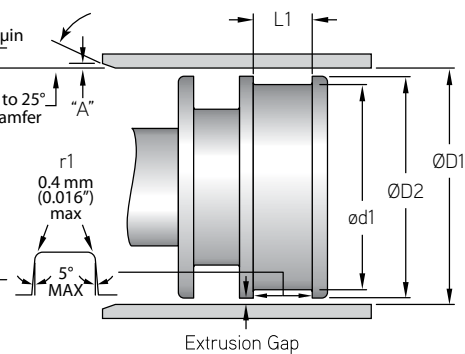
### PROFILE



### ROD APPLICATION



### PISTON APPLICATION



### ROD OR PISTON APPLICATION

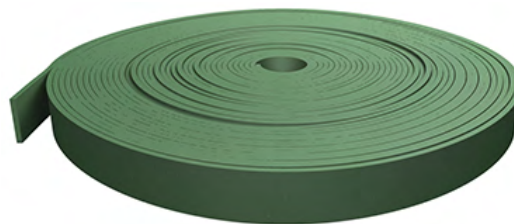
MFP PART NUMBER	ROD OR PISTON APPLICATION			ROLL LENGTH
	C/S	L2	L1	
<b>TOLERANCE</b>	<b>+ .000/- .002</b>	<b>+ .000/- .010</b>	<b>+ .010/- .000</b>	
PWS125X0250C4000-RL	0.125	0.250	0.260	32 FT
PWS125X0375C4000-RL	0.125	0.375	0.385	32 FT
PWS125X0500C4000-RL	0.125	0.500	0.510	32 FT
PWS125X0625C4000-RL	0.125	0.625	0.635	32 FT
PWS125X0750C4000-RL	0.125	0.750	0.760	32 FT
PWS125X1000C4000-RL	0.125	1.000	1.010	32 FT
PWS125X1250C4000-RL	0.125	1.250	1.260	32 FT
PWS125X1500C4000-RL	0.125	1.500	1.510	32 FT
PWS125X1750C4000-RL	0.125	1.750	1.760	32 FT
PWS125X2000C4000-RL	0.125	2.000	2.010	32 FT

PWS - C4000

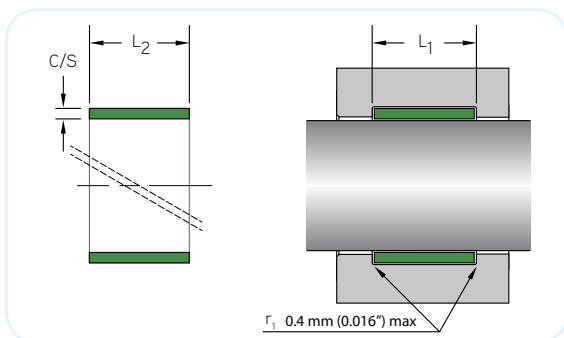
WEAR RINGS

**TWS - T5100 Tight Tolerance PTFE Wear Strip**

MFP Seals' proprietary Tight Tolerance T5100 PTFE Wear Strip is designed to eliminate scoring in hydraulic and pneumatic applications by preventing metal to metal contact. Our T5100 compound wear strip provides excellent light-duty, low friction performance. Sold by the roll.



See page 16 for guide ring cutting instructions.



**MFP PART NUMBERS**

**TWS062x0250T5100-RL**

SEAL TYPE      L2      COMPOUND      ROLL

C/S

MFP PART NUMBER	ROD OR PISTON APPLICATION			ROLL LENGTH
	C/S	L2	L1	
<b>TOLERANCE</b>	<b>+0.000/-0.002</b>	<b>+0.000/-0.010</b>	<b>+0.020/-0.000</b>	
TWS062X0250T5100-RL	0.063	0.250	0.260	115 FT
TWS062X0375T5100-RL	0.063	0.375	0.385	115 FT
TWS062X0500T5100-RL	0.063	0.500	0.510	115 FT
TWS062X0625T5100-RL	0.063	0.625	0.635	115 FT
TWS062X0750T5100-RL	0.063	0.750	0.760	115 FT
TWS062X1000T5100-RL	0.063	1.000	1.010	115 FT
TWS062X1250T5100-RL	0.063	1.250	1.260	115 FT
TWS062X1500T5100-RL	0.063	1.500	1.510	115 FT
TWS062X1750T5100-RL	0.063	1.750	1.760	115 FT
TWS062X2000T5100-RL	0.063	2.000	2.010	115 FT
TWS093X0250T5100-RL	0.094	0.250	0.260	66 FT
TWS093X0375T5100-RL	0.094	0.375	0.385	66 FT
TWS093X0500T5100-RL	0.094	0.500	0.510	66 FT
TWS093X0625T5100-RL	0.094	0.625	0.635	66 FT
TWS093X0750T5100-RL	0.094	0.750	0.765	66 FT
TWS093X1000T5100-RL	0.094	1.000	1.010	66 FT
TWS093X1250T5100-RL	0.094	1.250	1.260	66 FT
TWS093X1500T5100-RL	0.094	1.500	1.510	66 FT
TWS093X1750T5100-RL	0.094	1.750	1.760	66 FT
TWS093X2000T5100-RL	0.094	2.000	2.010	66 FT
TWS125X0250T5100-RL	0.125	0.250	0.260	52 FT
TWS125X0375T5100-RL	0.125	0.375	0.385	52 FT
TWS125X0500T5100-RL	0.125	0.500	0.510	52 FT
TWS125X0625T5100-RL	0.125	0.625	0.635	52 FT

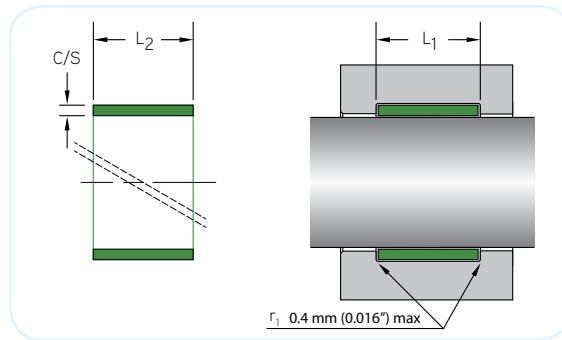
TWS - T5100

WEAR RINGS

# TWS - Tight Tolerance PTFE Wear Strip - T5100

A product of MFP Seals.

**MFPSEALS**



MFP PART NUMBER	ROD OR PISTON APPLICATION			ROLL LENGTH
	C/S	L2	L1	
<b>TOLERANCE</b>	+0.000/-0.002	+0.000/-0.010	+0.020/-0.000	
TWS125X0750T5100-RL	0.125	0.750	0.760	52 FT
TWS125X1000T5100-RL	0.125	1.000	1.010	52 FT
TWS125X1250T5100-RL	0.125	1.250	1.260	52 FT
TWS125X1500T5100-RL	0.125	1.500	1.510	52 FT
TWS125X1750T5100-RL	0.125	1.750	1.760	52 FT
TWS125X2000T5100-RL	0.125	2.000	2.010	52 FT

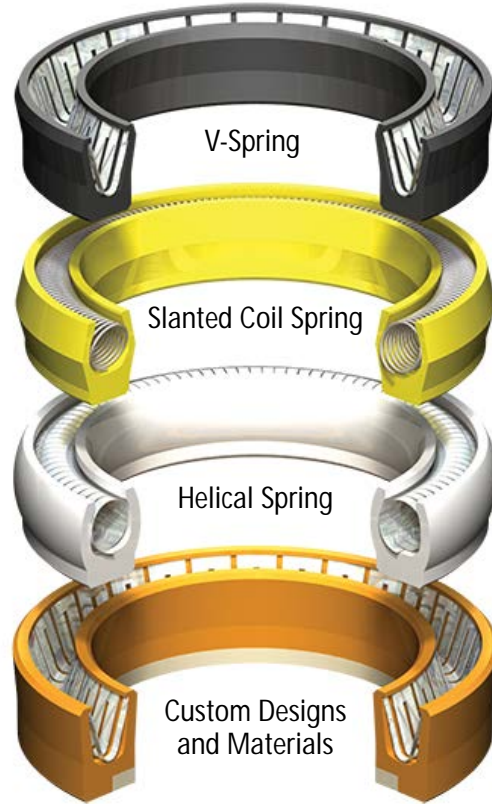
TWS - T5100

WEAR RINGS



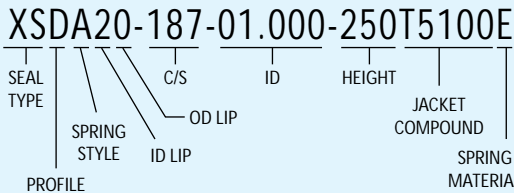
**XS Seal® - Spring Energized Seals**

MFP Seals produces a full range of spring energized seals for applications that present challenges to conventional seal designs, no matter what media will be encountered. Common uses for Spring Energized Seals range from explosive decompression resistant applications or AED seals, to extreme temperature, high surface speeds, non-lubricated systems, extreme pressure, vacuum, and more. Based on the intended use, various spring configurations such as Helical, Slanted Coil, U & V are readily available or can be custom made. MFP Seals can produce Spring Energized Seals made from Stainless Steel, Hastelloy, Elgiloy and other Alloys. Contact your MFP Seals sales representative to get your Spring Energized Seal design started today.



Custom Designs and Materials are available. Please contact your MFP Seals sales representative for more details.

**MFP PART NUMBERS**



**V Spring Energized Seals**

MFP Seals V-Spring Loaded Seals are a cantilever beam design that is applied as a radial or axial compression energizer for a U-Cup style seal. The V-Spring provides a moderate load over a wide deflection range and is used in dynamic and static seal applications.

**Slanted Coil Spring Energized Seals**

MFP Seals Slanted Coil Spring Loaded Seals produce a very flat load curve when compressed. The Slanted Coil Spring is designed for use in U-Cup seals, as well as other configurations, when a constant predictable load over a wide deflection range is desired. These Slanted Coil Spring Seals are available in light, medium and heavy load designs as well as being offered with gold, silver and nickel plating for use in Electronic and Semiconductor applications.

**Helical Spring Energized Seals**

MFP Seals Helical Spring Loaded Seals are made from a flat ribbon and wound into a round cross section helix geometry. The Helical Spring is designed for use in U-Cup style seals, as well as other configurations, for radial or axial compression energized seals and produces a very high unit load over a small deflection range. The Helical Spring Loaded Seal is usually used in static or slow dynamic applications and often for extremely low temperatures.



# XS Seal® - Spring Energized Seal



A product of MFP Seals.

SPRING ENERGIZED SEALS

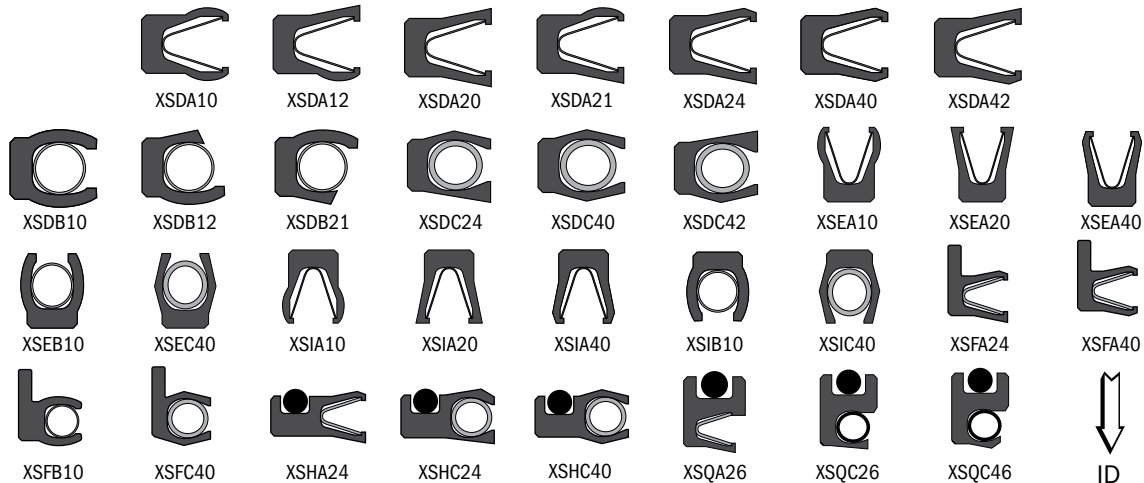
XS SEAL®

## XS SEAL® SPRING ENERGIZED SEAL PART NUMBER NOMENCLATURE - INCH SIZES

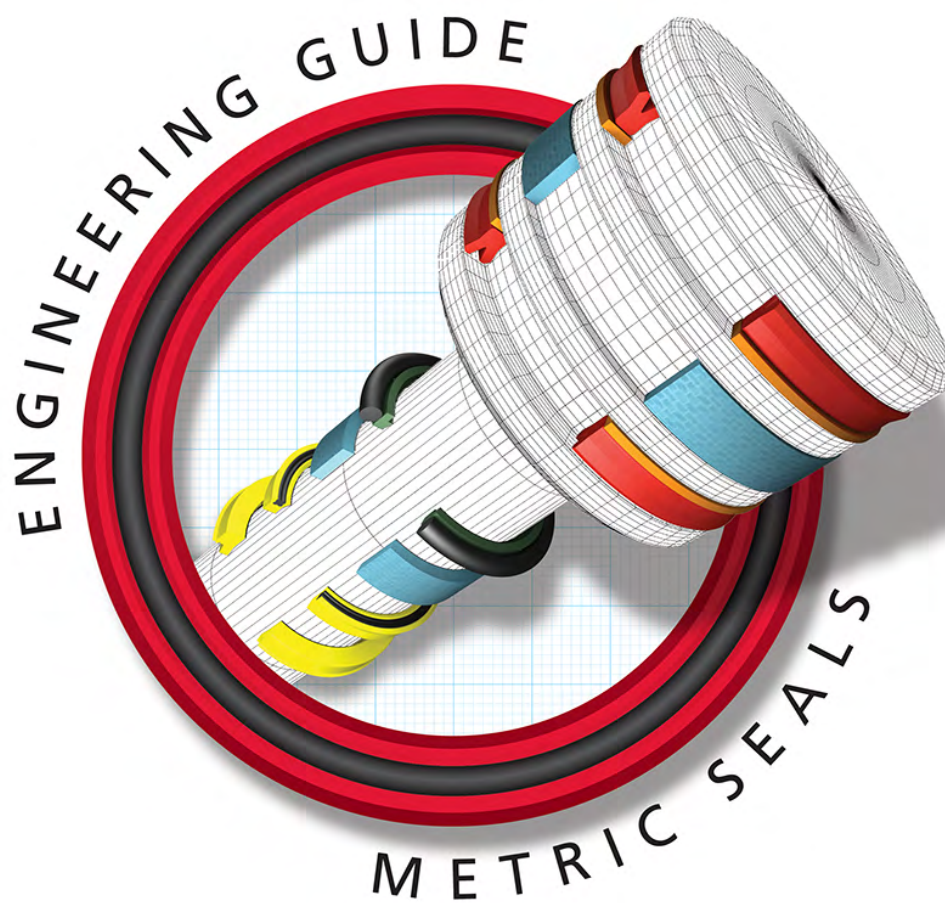
**XS D A 2 0 - 187 - 01.000 - 250 T5100E**

SEAL TYPE	C/S Examples: 125 = .125" 187 = .187" 250 = .250" 750 = .750"	L2 (Height) Examples: 125 = .125" 187 = .187" 250 = .250" 750 = .750"	OD Lip 0 - Same as ID 1 - Radius 2 - Scraper 3 - Double Bump 4 - Chamfered 5 - Multi Lip 6 - N/A	ød1 (ID) Examples: 00.250 = 0.250" 00.500 = 0.500" 01.000 = 1.000" 01.500 = 1.500"	Jacket Compound For compound descriptions and temperature ranges, Please refer to page 26. Not available in all compounds.	Spring Material E - Elgiloy H - Hastelloy S - Stainless Steel  Other materials available.
Profile D - Standard      F - Flanged              I - Internal E - External      H - O-Ring in Heel      Q - O-Ring Center						

### MFP XS SEAL® SPRING ENERGIZED SEAL PROFILES









Measurements In Millimeters				Measurements In Inches				Measurements In Millimeters				Measurements In Inches			
ID	±	CS	±	ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
<b>1.6 MM - CROSS SECTION</b>								<b>2.4 MM - CROSS SECTION</b>							
3.1	0.14	1.6	0.08	0.122	0.006	0.063	0.003	51.6	0.49	2.4	0.09	2.031	0.019	0.094	0.004
4.1	0.14	1.6	0.08	0.161	0.006	0.063	0.003	54.6	0.51	2.4	0.09	2.150	0.02	0.094	0.004
5.1	0.15	1.6	0.08	0.201	0.006	0.063	0.003	55.6	0.52	2.4	0.09	2.189	0.02	0.094	0.004
6.1	0.16	1.6	0.08	0.240	0.006	0.063	0.003	57.6	0.53	2.4	0.09	2.268	0.021	0.094	0.004
7.1	0.17	1.6	0.08	0.280	0.007	0.063	0.003	58.6	0.54	2.4	0.09	2.307	0.021	0.094	0.004
8.1	0.18	1.6	0.08	0.319	0.007	0.063	0.003	59.6	0.55	2.4	0.09	2.346	0.022	0.094	0.004
9.1	0.18	1.6	0.08	0.358	0.007	0.063	0.003	61.6	0.56	2.4	0.09	2.425	0.022	0.094	0.004
10.1	0.19	1.6	0.08	0.398	0.007	0.063	0.003	62.6	0.57	2.4	0.09	2.465	0.022	0.094	0.004
11.1	0.2	1.6	0.08	0.437	0.008	0.063	0.003	64.6	0.58	2.4	0.09	2.543	0.023	0.094	0.004
12.1	0.21	1.6	0.08	0.476	0.008	0.063	0.003	67.6	0.6	2.4	0.09	2.661	0.024	0.094	0.004
13.1	0.21	1.6	0.08	0.516	0.008	0.063	0.003	69.6	0.62	2.4	0.09	2.740	0.024	0.094	0.004
14.1	0.22	1.6	0.08	0.555	0.009	0.063	0.003	<b>3 MM - CROSS SECTION</b>							
15.1	0.23	1.6	0.08	0.594	0.009	0.063	0.003	19.5	0.26	3	0.09	0.768	0.01	0.118	0.004
16.1	0.24	1.6	0.08	0.634	0.009	0.063	0.003	21.5	0.28	3	0.09	0.846	0.011	0.118	0.004
17.1	0.24	1.6	0.08	0.673	0.009	0.063	0.003	22.5	0.28	3	0.09	0.886	0.011	0.118	0.004
18.1	0.25	1.6	0.08	0.713	0.01	0.063	0.003	24.5	0.3	3	0.09	0.965	0.012	0.118	0.004
19.1	0.26	1.6	0.08	0.752	0.01	0.063	0.003	25.5	0.31	3	0.09	1.004	0.012	0.118	0.004
20.1	0.27	1.6	0.08	0.791	0.011	0.063	0.003	26.5	0.31	3	0.09	1.043	0.012	0.118	0.004
21.1	0.27	1.6	0.08	0.831	0.011	0.063	0.003	27.5	0.32	3	0.09	1.083	0.013	0.118	0.004
22.1	0.28	1.6	0.08	0.870	0.011	0.063	0.003	29.5	0.33	3	0.09	1.161	0.013	0.118	0.004
25.1	0.3	1.6	0.08	0.988	0.012	0.063	0.003	31.5	0.35	3	0.09	1.240	0.014	0.118	0.004
27.1	0.32	1.6	0.08	1.067	0.013	0.063	0.003	32.5	0.36	3	0.09	1.280	0.014	0.118	0.004
29.1	0.33	1.6	0.08	1.146	0.013	0.063	0.003	34.5	0.37	3	0.09	1.358	0.015	0.118	0.004
32.1	0.35	1.6	0.08	1.264	0.014	0.063	0.003	35.5	0.38	3	0.09	1.398	0.015	0.118	0.004
35.1	0.37	1.6	0.08	1.382	0.015	0.063	0.003	36.5	0.38	3	0.09	1.437	0.015	0.118	0.004
37.1	0.39	1.6	0.08	1.461	0.015	0.063	0.003	37.5	0.39	3	0.09	1.476	0.015	0.118	0.004
<b>2.4 MM - CROSS SECTION</b>								39.5	0.41	3	0.09	1.555	0.016	0.118	0.004
3.6	0.14	2.4	0.09	0.142	0.006	0.094	0.004	41.5	0.42	3	0.09	1.634	0.017	0.118	0.004
4.6	0.15	2.4	0.09	0.181	0.006	0.094	0.004	42.5	0.43	3	0.09	1.673	0.017	0.118	0.004
5.6	0.16	2.4	0.09	0.220	0.006	0.094	0.004	44.5	0.44	3	0.09	1.752	0.017	0.118	0.004
6.6	0.16	2.4	0.09	0.260	0.006	0.094	0.004	49.5	0.48	3	0.09	1.949	0.019	0.118	0.004
7.6	0.17	2.4	0.09	0.299	0.007	0.094	0.004	54.5	0.51	3	0.09	2.146	0.02	0.118	0.004
8.6	0.18	2.4	0.09	0.339	0.007	0.094	0.004	55.5	0.52	3	0.09	2.185	0.02	0.118	0.004
9.6	0.19	2.4	0.09	0.378	0.007	0.094	0.004	57.5	0.53	3	0.09	2.264	0.021	0.118	0.004
10.6	0.19	2.4	0.09	0.417	0.007	0.094	0.004	59.5	0.55	3	0.09	2.343	0.022	0.118	0.004
11.6	0.2	2.4	0.09	0.457	0.008	0.094	0.004	62.5	0.57	3	0.09	2.461	0.022	0.118	0.004
12.6	0.21	2.4	0.09	0.496	0.008	0.094	0.004	64.5	0.58	3	0.09	2.539	0.023	0.118	0.004
13.6	0.22	2.4	0.09	0.535	0.009	0.094	0.004	69.5	0.62	3	0.09	2.736	0.024	0.118	0.004
14.6	0.22	2.4	0.09	0.575	0.009	0.094	0.004	74.5	0.65	3	0.09	2.933	0.026	0.118	0.004
15.6	0.23	2.4	0.09	0.614	0.009	0.094	0.004	79.5	0.68	3	0.09	3.130	0.027	0.118	0.004
16.6	0.24	2.4	0.09	0.654	0.009	0.094	0.004	84.5	0.72	3	0.09	3.327	0.028	0.118	0.004
17.6	0.25	2.4	0.09	0.693	0.01	0.094	0.004	89.5	0.75	3	0.09	3.524	0.03	0.118	0.004
18.6	0.25	2.4	0.09	0.732	0.01	0.094	0.004	94.5	0.79	3	0.09	3.720	0.031	0.118	0.004
19.6	0.26	2.4	0.09	0.772	0.01	0.094	0.004	99.5	0.82	3	0.09	3.917	0.032	0.118	0.004
20.6	0.27	2.4	0.09	0.811	0.011	0.094	0.004	104.5	0.86	3	0.09	4.114	0.034	0.118	0.004
21.6	0.28	2.4	0.09	0.850	0.011	0.094	0.004	109.5	0.89	3	0.09	4.311	0.035	0.118	0.004
24.6	0.3	2.4	0.09	0.969	0.012	0.094	0.004	114.5	0.92	3	0.09	4.508	0.036	0.118	0.004
27.6	0.32	2.4	0.09	1.087	0.013	0.094	0.004	119.5	0.96	3	0.09	4.705	0.038	0.118	0.004
29.6	0.33	2.4	0.09	1.165	0.013	0.094	0.004	124.5	0.99	3	0.09	4.902	0.039	0.118	0.004
31.6	0.35	2.4	0.09	1.244	0.014	0.094	0.004	129.5	1.02	3	0.09	5.098	0.04	0.118	0.004
34.6	0.37	2.4	0.09	1.362	0.015	0.094	0.004	134.5	1.06	3	0.09	5.295	0.042	0.118	0.004
35.6	0.38	2.4	0.09	1.402	0.015	0.094	0.004	139.5	1.09	3	0.09	5.492	0.043	0.118	0.004
37.6	0.39	2.4	0.09	1.480	0.015	0.094	0.004	144.5	1.12	3	0.09	5.689	0.044	0.118	0.004
39.6	0.41	2.4	0.09	1.559	0.016	0.094	0.004	149.5	1.16	3	0.09	5.886	0.046	0.118	0.004
41.6	0.42	2.4	0.09	1.638	0.017	0.094	0.004	154.5	1.19	3	0.09	6.083	0.047	0.118	0.004
44.6	0.44	2.4	0.09	1.756	0.017	0.094	0.004	159.5	1.22	3	0.09	6.280	0.048	0.118	0.004
45.6	0.45	2.4	0.09	1.795	0.018	0.094	0.004	164.5	1.26	3	0.09	6.476	0.05	0.118	0.004
47.6	0.46	2.4	0.09	1.874	0.018	0.094	0.004	169.5	1.29	3	0.09	6.673	0.051	0.118	0.004
49.6	0.48	2.4	0.09	1.953	0.019	0.094	0.004	174.5	1.32	3	0.09	6.870	0.052	0.118	0.004

Measurements In Millimeters				Measurements In Inches			
ID	±	CS	±	ID	±	CS	±
<b>3 MM - CROSS SECTION</b>							
179.5	1.36	3	0.09	7.067	0.054	0.118	0.004
184.5	1.39	3	0.09	7.264	0.055	0.118	0.004
189.5	1.42	3	0.09	7.461	0.056	0.118	0.004
194.5	1.45	3	0.09	7.657	0.057	0.118	0.004
199.5	1.49	3	0.09	7.854	0.059	0.118	0.004
209.5	1.55	3	0.09	8.248	0.061	0.118	0.004
219.5	1.62	3	0.09	8.642	0.064	0.118	0.004
229.5	1.68	3	0.09	9.035	0.066	0.118	0.004
239.5	1.75	3	0.09	9.429	0.069	0.118	0.004
244.5	1.78	3	0.09	9.626	0.07	0.118	0.004
249.5	1.81	3	0.09	9.823	0.071	0.118	0.004
<b>5.7 MM - CROSS SECTION</b>							
44.3	0.44	5.7	0.13	1.744	0.017	0.224	0.005
45.3	0.45	5.7	0.13	1.783	0.018	0.224	0.005
49.5	0.48	5.7	0.13	1.949	0.019	0.224	0.005
52.3	0.5	5.7	0.13	2.059	0.02	0.224	0.005
54.3	0.51	5.7	0.13	2.138	0.02	0.224	0.005
55.3	0.52	5.7	0.13	2.177	0.02	0.224	0.005
59.3	0.55	5.7	0.13	2.335	0.022	0.224	0.005
62.3	0.57	5.7	0.13	2.453	0.022	0.224	0.005
64.3	0.58	5.7	0.13	2.531	0.023	0.224	0.005
69.3	0.61	5.7	0.13	2.728	0.024	0.224	0.005
74.3	0.65	5.7	0.13	2.925	0.026	0.224	0.005
79.3	0.68	5.7	0.13	3.122	0.027	0.224	0.005
84.3	0.72	5.7	0.13	3.319	0.028	0.224	0.005
89.3	0.75	5.7	0.13	3.516	0.03	0.224	0.005
94.3	0.79	5.7	0.13	3.713	0.031	0.224	0.005
99.3	0.82	5.7	0.13	3.909	0.032	0.224	0.005
104.3	0.85	5.7	0.13	4.106	0.033	0.224	0.005
109.3	0.89	5.7	0.13	4.303	0.035	0.224	0.005
114.3	0.92	5.7	0.13	4.500	0.036	0.224	0.005
119.3	0.96	5.7	0.13	4.697	0.038	0.224	0.005
124.3	0.99	5.7	0.13	4.894	0.039	0.224	0.005
129.3	1.02	5.7	0.13	5.091	0.04	0.224	0.005
134.3	1.06	5.7	0.13	5.287	0.042	0.224	0.005
139.3	1.09	5.7	0.13	5.484	0.043	0.224	0.005
144.3	1.12	5.7	0.13	5.681	0.044	0.224	0.005
149.3	1.16	5.7	0.13	5.878	0.046	0.224	0.005
154.3	1.19	5.7	0.13	6.075	0.047	0.224	0.005
159.3	1.22	5.7	0.13	6.272	0.048	0.224	0.005
164.3	1.26	5.7	0.13	6.468	0.05	0.224	0.005
169.3	1.29	5.7	0.13	6.665	0.051	0.224	0.005
174.3	1.32	5.7	0.13	6.862	0.052	0.224	0.005
179.3	1.35	5.7	0.13	7.059	0.053	0.224	0.005
184.3	1.39	5.7	0.13	7.256	0.055	0.224	0.005
189.3	1.42	5.7	0.13	7.453	0.056	0.224	0.005
194.3	1.45	5.7	0.13	7.650	0.057	0.224	0.005
199.3	1.49	5.7	0.13	7.846	0.059	0.224	0.005
209.3	1.55	5.7	0.13	8.240	0.061	0.224	0.005
219.3	1.62	5.7	0.13	8.634	0.064	0.224	0.005
229.3	1.68	5.7	0.13	9.028	0.066	0.224	0.005
239.3	1.75	5.7	0.13	9.421	0.069	0.224	0.005
249.3	1.81	5.7	0.13	9.815	0.071	0.224	0.005
259.3	1.88	5.7	0.13	10.209	0.074	0.224	0.005
269.3	1.94	5.7	0.13	10.602	0.076	0.224	0.005
279.3	2.01	5.7	0.13	10.996	0.079	0.224	0.005
289.3	2.07	5.7	0.13	11.390	0.081	0.224	0.005
299.3	2.14	5.7	0.13	11.783	0.084	0.224	0.005
309.3	2.2	5.7	0.13	12.177	0.087	0.224	0.005

Measurements In Millimeters				Measurements In Inches			
ID	±	CS	±	ID	±	CS	±
<b>5.7 MM - CROSS SECTION</b>							
319.3	2.26	5.7	0.13	12.571	0.089	0.224	0.005
339.3	2.39	5.7	0.13	13.358	0.094	0.224	0.005
359.3	2.52	5.7	0.13	14.146	0.099	0.224	0.005
379.3	2.65	5.7	0.13	14.933	0.104	0.224	0.005
389.3	2.71	5.7	0.13	15.327	0.107	0.224	0.005
399.3	2.77	5.7	0.13	15.720	0.109	0.224	0.005
419.3	2.9	5.7	0.13	16.508	0.114	0.224	0.005
439.3	3.03	5.7	0.13	17.295	0.119	0.224	0.005
459.3	3.15	5.7	0.13	18.083	0.124	0.224	0.005
479.3	3.28	5.7	0.13	18.870	0.129	0.224	0.005
489.3	3.34	5.7	0.13	19.264	0.131	0.224	0.005
499.3	3.4	5.7	0.13	19.657	0.134	0.224	0.005
<b>8.4 MM - CROSS SECTION</b>							
144.1	1.12	8.4	0.15	5.673	0.044	0.331	0.006
149.1	1.15	8.4	0.15	5.870	0.045	0.331	0.006
154.1	1.19	8.4	0.15	6.067	0.047	0.331	0.006
159.1	1.22	8.4	0.15	6.264	0.048	0.331	0.006
164.1	1.25	8.4	0.15	6.461	0.049	0.331	0.006
169.1	1.29	8.4	0.15	6.657	0.051	0.331	0.006
174.1	1.32	8.4	0.15	6.854	0.052	0.331	0.006
179.1	1.35	8.4	0.15	7.051	0.053	0.331	0.006
184.1	1.39	8.4	0.15	7.248	0.055	0.331	0.006
189.1	1.42	8.4	0.15	7.445	0.056	0.331	0.006
194.1	1.45	8.4	0.15	7.642	0.057	0.331	0.006
199.1	1.49	8.4	0.15	7.839	0.059	0.331	0.006
209.1	1.55	8.4	0.15	8.232	0.061	0.331	0.006
219.1	1.62	8.4	0.15	8.626	0.064	0.331	0.006
229.1	1.68	8.4	0.15	9.020	0.066	0.331	0.006
239.1	1.75	8.4	0.15	9.413	0.069	0.331	0.006
249.1	1.81	8.4	0.15	9.807	0.071	0.331	0.006

Measurements In Millimeters				Measurements In Inches				Measurements In Millimeters				Measurements In Inches			
ID	±	CS	±	ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
<b>1.80 MM - CROSS SECTION</b>															
1.80	0.13	1.80	0.08	0.071	0.005	0.071	0.003	35.50	0.38	1.80	0.08	1.398	0.015	0.071	0.003
2.00	0.13	1.80	0.08	0.079	0.005	0.071	0.003	36.50	0.38	1.80	0.08	1.437	0.015	0.071	0.003
2.24	0.13	1.80	0.08	0.088	0.005	0.071	0.003	37.50	0.39	1.80	0.08	1.476	0.015	0.071	0.003
2.50	0.13	1.80	0.08	0.098	0.005	0.071	0.003	38.70	0.40	1.80	0.08	1.524	0.016	0.071	0.003
2.80	0.13	1.80	0.08	0.110	0.005	0.071	0.003	40.00	0.41	1.80	0.08	1.575	0.016	0.071	0.003
3.15	0.14	1.80	0.08	0.124	0.006	0.071	0.003	41.20	0.42	1.80	0.08	1.622	0.017	0.071	0.003
3.55	0.14	1.80	0.08	0.140	0.006	0.071	0.003	42.50	0.43	1.80	0.08	1.673	0.017	0.071	0.003
3.75	0.14	1.80	0.08	0.148	0.006	0.071	0.003	43.70	0.44	1.80	0.08	1.720	0.017	0.071	0.003
4.00	0.14	1.80	0.08	0.157	0.006	0.071	0.003	45.00	0.44	1.80	0.08	1.772	0.017	0.071	0.003
4.50	0.15	1.80	0.08	0.177	0.006	0.071	0.003	46.20	0.45	1.80	0.08	1.819	0.018	0.071	0.003
4.75	0.15	1.80	0.08	0.187	0.006	0.071	0.003	47.50	0.46	1.80	0.08	1.870	0.018	0.071	0.003
4.87	0.15	1.80	0.08	0.192	0.006	0.071	0.003	48.70	0.47	1.80	0.08	1.917	0.019	0.071	0.003
5.00	0.15	1.80	0.08	0.197	0.006	0.071	0.003	50.00	0.48	1.80	0.08	1.969	0.019	0.071	0.003
5.15	0.15	1.80	0.08	0.203	0.006	0.071	0.003	<b>2.65 MM - CROSS SECTION</b>							
5.30	0.15	1.80	0.08	0.209	0.006	0.071	0.003	4.50	0.15	2.65	0.09	0.177	0.006	0.104	0.004
5.60	0.16	1.80	0.08	0.220	0.006	0.071	0.003	5.30	0.15	2.65	0.09	0.209	0.006	0.104	0.004
6.00	0.16	1.80	0.08	0.236	0.006	0.071	0.003	6.00	0.16	2.65	0.09	0.236	0.006	0.104	0.004
6.30	0.16	1.80	0.08	0.248	0.006	0.071	0.003	6.90	0.17	2.65	0.09	0.272	0.007	0.104	0.004
6.70	0.16	1.80	0.08	0.264	0.006	0.071	0.003	8.00	0.17	2.65	0.09	0.315	0.007	0.104	0.004
6.90	0.17	1.80	0.08	0.272	0.007	0.071	0.003	9.00	0.18	2.65	0.09	0.354	0.007	0.104	0.004
7.10	0.17	1.80	0.08	0.280	0.007	0.071	0.003	9.50	0.19	2.65	0.09	0.374	0.007	0.104	0.004
7.50	0.17	1.80	0.08	0.295	0.007	0.071	0.003	10.00	0.19	2.65	0.09	0.394	0.007	0.104	0.004
8.00	0.17	1.80	0.08	0.315	0.007	0.071	0.003	10.60	0.19	2.65	0.09	0.417	0.007	0.104	0.004
8.50	0.18	1.80	0.08	0.335	0.007	0.071	0.003	11.20	0.20	2.65	0.09	0.441	0.008	0.104	0.004
8.75	0.18	1.80	0.08	0.344	0.007	0.071	0.003	11.60	0.20	2.65	0.09	0.457	0.008	0.104	0.004
9.00	0.18	1.80	0.08	0.354	0.007	0.071	0.003	11.80	0.20	2.65	0.09	0.465	0.008	0.104	0.004
9.50	0.19	1.80	0.08	0.374	0.007	0.071	0.003	12.10	0.21	2.65	0.09	0.476	0.008	0.104	0.004
9.75	0.19	1.80	0.08	0.384	0.007	0.071	0.003	12.50	0.21	2.65	0.09	0.492	0.008	0.104	0.004
10.00	0.19	1.80	0.08	0.394	0.007	0.071	0.003	12.80	0.21	2.65	0.09	0.504	0.008	0.104	0.004
10.60	0.19	1.80	0.08	0.417	0.007	0.071	0.003	13.20	0.21	2.65	0.09	0.520	0.008	0.104	0.004
11.20	0.20	1.80	0.08	0.441	0.008	0.071	0.003	14.00	0.22	2.65	0.09	0.551	0.009	0.104	0.004
11.60	0.20	1.80	0.08	0.457	0.008	0.071	0.003	14.50	0.22	2.65	0.09	0.571	0.009	0.104	0.004
11.80	0.20	1.80	0.08	0.465	0.008	0.071	0.003	15.00	0.23	2.65	0.09	0.591	0.009	0.104	0.004
12.10	0.21	1.80	0.08	0.476	0.008	0.071	0.003	15.50	0.23	2.65	0.09	0.610	0.009	0.104	0.004
12.50	0.21	1.80	0.08	0.492	0.008	0.071	0.003	16.00	0.24	2.65	0.09	0.630	0.009	0.104	0.004
12.80	0.21	1.80	0.08	0.504	0.008	0.071	0.003	17.00	0.24	2.65	0.09	0.669	0.009	0.104	0.004
13.20	0.21	1.80	0.08	0.520	0.008	0.071	0.003	18.00	0.25	2.65	0.09	0.709	0.010	0.104	0.004
14.00	0.22	1.80	0.08	0.551	0.009	0.071	0.003	19.00	0.26	2.65	0.09	0.748	0.010	0.104	0.004
14.50	0.22	1.80	0.08	0.571	0.009	0.071	0.003	20.00	0.26	2.65	0.09	0.787	0.010	0.104	0.004
15.00	0.23	1.80	0.08	0.591	0.009	0.071	0.003	20.60	0.27	2.65	0.09	0.811	0.011	0.104	0.004
15.50	0.23	1.80	0.08	0.610	0.009	0.071	0.003	21.20	0.27	2.65	0.09	0.835	0.011	0.104	0.004
16.00	0.24	1.80	0.08	0.630	0.009	0.071	0.003	22.40	0.28	2.65	0.09	0.882	0.011	0.104	0.004
17.00	0.24	1.80	0.08	0.669	0.009	0.071	0.003	23.00	0.29	2.65	0.09	0.906	0.011	0.104	0.004
18.00	0.25	1.80	0.08	0.709	0.010	0.071	0.003	23.60	0.29	2.65	0.09	0.929	0.011	0.104	0.004
19.00	0.26	1.80	0.08	0.748	0.010	0.071	0.003	24.30	0.30	2.65	0.09	0.957	0.012	0.104	0.004
20.00	0.26	1.80	0.08	0.787	0.010	0.071	0.003	25.00	0.30	2.65	0.09	0.984	0.012	0.104	0.004
20.60	0.27	1.80	0.08	0.811	0.011	0.071	0.003	25.80	0.31	2.65	0.09	1.016	0.012	0.104	0.004
21.20	0.27	1.80	0.08	0.835	0.011	0.071	0.003	26.50	0.31	2.65	0.09	1.043	0.012	0.104	0.004
22.40	0.28	1.80	0.08	0.882	0.011	0.071	0.003	27.30	0.32	2.65	0.09	1.075	0.013	0.104	0.004
23.00	0.29	1.80	0.08	0.906	0.011	0.071	0.003	28.00	0.32	2.65	0.09	1.102	0.013	0.104	0.004
23.60	0.29	1.80	0.08	0.929	0.011	0.071	0.003	29.00	0.33	2.65	0.09	1.142	0.013	0.104	0.004
24.30	0.30	1.80	0.08	0.957	0.012	0.071	0.003	30.00	0.34	2.65	0.09	1.181	0.013	0.104	0.004
25.00	0.30	1.80	0.08	0.984	0.012	0.071	0.003	31.50	0.35	2.65	0.09	1.240	0.014	0.104	0.004
25.80	0.31	1.80	0.08	1.016	0.012	0.071	0.003	32.50	0.36	2.65	0.09	1.280	0.014	0.104	0.004
26.50	0.31	1.80	0.08	1.043	0.012	0.071	0.003	33.50	0.36	2.65	0.09	1.319	0.014	0.104	0.004
27.30	0.32	1.80	0.08	1.075	0.013	0.071	0.003	34.50	0.37	2.65	0.09	1.358	0.015	0.104	0.004
28.00	0.32	1.80	0.08	1.102	0.013	0.071	0.003	35.50	0.38	2.65	0.09	1.398	0.015	0.104	0.004
29.00	0.33	1.80	0.08	1.142	0.013	0.071	0.003	36.50	0.38	2.65	0.09	1.437	0.015	0.104	0.004
30.00	0.34	1.80	0.08	1.181	0.013	0.071	0.003	37.50	0.39	2.65	0.09	1.476	0.015	0.104	0.004
31.50	0.35	1.80	0.08	1.240	0.014	0.071	0.003	38.70	0.40	2.65	0.09	1.524	0.016	0.104	0.004
32.50	0.36	1.80	0.08	1.280	0.014	0.071	0.003	40.00	0.41	2.65	0.09	1.575	0.016	0.104	0.004
33.50	0.36	1.80	0.08	1.319	0.014	0.071	0.003	41.20	0.42	2.65	0.09	1.622	0.017	0.104	0.004
34.50	0.37	1.80	0.08	1.358	0.015	0.071	0.003								



Measurements In Millimeters				Measurements In Inches				Measurements In Millimeters				Measurements In Inches			
ID	±	CS	±	ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
<b>2.65 MM - CROSS SECTION</b>								<b>3.55 MM - CROSS SECTION</b>							
42.50	0.43	2.65	0.09	1.673	0.017	0.104	0.004	28.00	0.32	3.55	0.10	1.102	0.013	0.140	0.004
43.70	0.44	2.65	0.09	1.720	0.017	0.104	0.004	29.00	0.33	3.55	0.10	1.142	0.013	0.140	0.004
45.00	0.44	2.65	0.09	1.772	0.017	0.104	0.004	30.00	0.34	3.55	0.10	1.181	0.013	0.140	0.004
46.20	0.45	2.65	0.09	1.819	0.018	0.104	0.004	31.50	0.35	3.55	0.10	1.240	0.014	0.140	0.004
47.50	0.46	2.65	0.09	1.870	0.018	0.104	0.004	32.50	0.36	3.55	0.10	1.280	0.014	0.140	0.004
48.70	0.47	2.65	0.09	1.917	0.019	0.104	0.004	33.50	0.36	3.55	0.10	1.319	0.014	0.140	0.004
50.00	0.48	2.65	0.09	1.969	0.019	0.104	0.004	34.50	0.37	3.55	0.10	1.358	0.015	0.140	0.004
51.50	0.49	2.65	0.09	2.028	0.019	0.104	0.004	35.50	0.38	3.55	0.10	1.398	0.015	0.140	0.004
53.00	0.50	2.65	0.09	2.087	0.020	0.104	0.004	36.50	0.38	3.55	0.10	1.437	0.015	0.140	0.004
54.50	0.51	2.65	0.09	2.146	0.020	0.104	0.004	37.50	0.39	3.55	0.10	1.476	0.015	0.140	0.004
56.00	0.52	2.65	0.09	2.205	0.020	0.104	0.004	38.70	0.40	3.55	0.10	1.524	0.016	0.140	0.004
58.00	0.54	2.65	0.09	2.283	0.021	0.104	0.004	40.00	0.41	3.55	0.10	1.575	0.016	0.140	0.004
60.00	0.55	2.65	0.09	2.362	0.022	0.104	0.004	41.20	0.42	3.55	0.10	1.622	0.017	0.140	0.004
61.50	0.56	2.65	0.09	2.421	0.022	0.104	0.004	42.50	0.43	3.55	0.10	1.673	0.017	0.140	0.004
63.00	0.57	2.65	0.09	2.480	0.022	0.104	0.004	43.70	0.44	3.55	0.10	1.720	0.017	0.140	0.004
65.00	0.58	2.65	0.09	2.559	0.023	0.104	0.004	45.00	0.44	3.55	0.10	1.772	0.017	0.140	0.004
67.00	0.60	2.65	0.09	2.638	0.024	0.104	0.004	46.20	0.45	3.55	0.10	1.819	0.018	0.140	0.004
69.00	0.61	2.65	0.09	2.717	0.024	0.104	0.004	47.50	0.46	3.55	0.10	1.870	0.018	0.140	0.004
71.00	0.63	2.65	0.09	2.795	0.025	0.104	0.004	48.70	0.47	3.55	0.10	1.917	0.019	0.140	0.004
73.00	0.64	2.65	0.09	2.874	0.025	0.104	0.004	50.00	0.48	3.55	0.10	1.969	0.019	0.140	0.004
75.00	0.65	2.65	0.09	2.953	0.026	0.104	0.004	51.50	0.49	3.55	0.10	2.028	0.019	0.140	0.004
77.50	0.67	2.65	0.09	3.051	0.026	0.104	0.004	53.00	0.50	3.55	0.10	2.087	0.020	0.140	0.004
80.00	0.69	2.65	0.09	3.150	0.027	0.104	0.004	54.50	0.51	3.55	0.10	2.146	0.020	0.140	0.004
82.50	0.71	2.65	0.09	3.248	0.028	0.104	0.004	56.00	0.52	3.55	0.10	2.205	0.020	0.140	0.004
85.00	0.72	2.65	0.09	3.346	0.028	0.104	0.004	58.00	0.54	3.55	0.10	2.283	0.021	0.140	0.004
87.50	0.74	2.65	0.09	3.445	0.029	0.104	0.004	60.00	0.55	3.55	0.10	2.362	0.022	0.140	0.004
90.00	0.76	2.65	0.09	3.543	0.030	0.104	0.004	61.50	0.56	3.55	0.10	2.421	0.022	0.140	0.004
92.50	0.77	2.65	0.09	3.642	0.030	0.104	0.004	63.00	0.57	3.55	0.10	2.480	0.022	0.140	0.004
95.00	0.79	2.65	0.09	3.740	0.031	0.104	0.004	65.00	0.58	3.55	0.10	2.559	0.023	0.140	0.004
97.50	0.81	2.65	0.09	3.839	0.032	0.104	0.004	67.00	0.60	3.55	0.10	2.638	0.024	0.140	0.004
100.00	0.82	2.65	0.09	3.937	0.032	0.104	0.004	69.00	0.61	3.55	0.10	2.717	0.024	0.140	0.004
103.00	0.85	2.65	0.09	4.055	0.033	0.104	0.004	71.00	0.63	3.55	0.10	2.795	0.025	0.140	0.004
106.00	0.87	2.65	0.09	4.173	0.034	0.104	0.004	73.00	0.64	3.55	0.10	2.874	0.025	0.140	0.004
109.00	0.89	2.65	0.09	4.291	0.035	0.104	0.004	75.00	0.65	3.55	0.10	2.953	0.026	0.140	0.004
112.00	0.91	2.65	0.09	4.409	0.036	0.104	0.004	77.50	0.67	3.55	0.10	3.051	0.026	0.140	0.004
115.00	0.93	2.65	0.09	4.528	0.037	0.104	0.004	80.00	0.69	3.55	0.10	3.150	0.027	0.140	0.004
118.00	0.95	2.65	0.09	4.646	0.037	0.104	0.004	82.50	0.71	3.55	0.10	3.248	0.028	0.140	0.004
122.00	0.97	2.65	0.09	4.803	0.038	0.104	0.004	85.00	0.72	3.55	0.10	3.346	0.028	0.140	0.004
125.00	0.99	2.65	0.09	4.921	0.039	0.104	0.004	87.50	0.74	3.55	0.10	3.445	0.029	0.140	0.004
128.00	1.01	2.65	0.09	5.039	0.040	0.104	0.004	90.00	0.76	3.55	0.10	3.543	0.030	0.140	0.004
132.00	1.04	2.65	0.09	5.197	0.041	0.104	0.004	92.50	0.77	3.55	0.10	3.642	0.030	0.140	0.004
136.00	1.07	2.65	0.09	5.354	0.042	0.104	0.004	95.00	0.79	3.55	0.10	3.740	0.031	0.140	0.004
140.00	1.09	2.65	0.09	5.512	0.043	0.104	0.004	97.50	0.81	3.55	0.10	3.839	0.032	0.140	0.004
142.50	1.11	2.65	0.09	5.610	0.044	0.104	0.004	100.00	0.82	3.55	0.10	3.937	0.032	0.140	0.004
145.00	1.13	2.65	0.09	5.709	0.044	0.104	0.004	103.00	0.85	3.55	0.10	4.055	0.033	0.140	0.004
147.50	1.14	2.65	0.09	5.807	0.045	0.104	0.004	106.00	0.87	3.55	0.10	4.173	0.034	0.140	0.004
150.00	1.16	2.65	0.09	5.906	0.046	0.104	0.004	109.00	0.89	3.55	0.10	4.291	0.035	0.140	0.004
152.50	1.18	2.65	0.09	6.004	0.046	0.104	0.004	112.00	0.91	3.55	0.10	4.409	0.036	0.140	0.004
<b>3.55 MM - CROSS SECTION</b>								<b>3.55 MM - CROSS SECTION</b>							
18.00	0.25	3.55	0.10	0.709	0.010	0.140	0.004	115.00	0.93	3.55	0.10	4.528	0.037	0.140	0.004
19.00	0.26	3.55	0.10	0.748	0.010	0.140	0.004	118.00	0.95	3.55	0.10	4.646	0.037	0.140	0.004
20.00	0.26	3.55	0.10	0.787	0.010	0.140	0.004	122.00	0.97	3.55	0.10	4.803	0.038	0.140	0.004
20.60	0.27	3.55	0.10	0.811	0.011	0.140	0.004	125.00	0.99	3.55	0.10	4.921	0.039	0.140	0.004
21.20	0.27	3.55	0.10	0.835	0.011	0.140	0.004	128.00	1.01	3.55	0.10	5.039	0.040	0.140	0.004
22.40	0.28	3.55	0.10	0.882	0.011	0.140	0.004	132.00	1.04	3.55	0.10	5.197	0.041	0.140	0.004
23.00	0.29	3.55	0.10	0.906	0.011	0.140	0.004	136.00	1.07	3.55	0.10	5.354	0.042	0.140	0.004
23.60	0.29	3.55	0.10	0.929	0.011	0.140	0.004	140.00	1.09	3.55	0.10	5.512	0.043	0.140	0.004
24.30	0.30	3.55	0.10	0.957	0.012	0.140	0.004	142.50	1.11	3.55	0.10	5.610	0.044	0.140	0.004
25.00	0.30	3.55	0.10	0.984	0.012	0.140	0.004	145.00	1.13	3.55	0.10	5.709	0.044	0.140	0.004
25.80	0.31	3.55	0.10	1.016	0.012	0.140	0.004	147.50	1.14	3.55	0.10	5.807	0.045	0.140	0.004
26.50	0.31	3.55	0.10	1.043	0.012	0.140	0.004	150.00	1.16	3.55	0.10	5.906	0.046	0.140	0.004
27.30	0.32	3.55	0.10	1.075	0.013	0.140	0.004	152.50	1.18	3.55	0.10	6.004	0.046	0.140	0.004
								155.00	1.19	3.55	0.10	6.102	0.047	0.140	0.004
								157.50	1.21	3.55	0.10	6.201	0.048	0.140	0.004

METRIC O-RINGS

MOR

Measurements In Millimeters				Measurements In Inches				Measurements In Millimeters				Measurements In Inches			
ID	±	CS	±	ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
<b>3.55 MM - CROSS SECTION</b>								<b>5.30 MM - CROSS SECTION</b>							
160.00	1.23	3.55	0.10	6.299	0.048	0.140	0.004	145.00	1.13	5.30	0.13	5.709	0.044	0.209	0.005
162.50	1.24	3.55	0.10	6.398	0.049	0.140	0.004	147.50	1.14	5.30	0.13	5.807	0.045	0.209	0.005
165.00	1.26	3.55	0.10	6.496	0.050	0.140	0.004	150.00	1.16	5.30	0.13	5.906	0.046	0.209	0.005
167.50	1.28	3.55	0.10	6.594	0.050	0.140	0.004	152.50	1.18	5.30	0.13	6.004	0.046	0.209	0.005
170.00	1.29	3.55	0.10	6.693	0.051	0.140	0.004	155.00	1.19	5.30	0.13	6.102	0.047	0.209	0.005
172.50	1.31	3.55	0.10	6.791	0.052	0.140	0.004	157.50	1.21	5.30	0.13	6.201	0.048	0.209	0.005
175.00	1.33	3.55	0.10	6.890	0.052	0.140	0.004	160.00	1.23	5.30	0.13	6.299	0.048	0.209	0.005
177.50	1.34	3.55	0.10	6.988	0.053	0.140	0.004	162.50	1.24	5.30	0.13	6.398	0.049	0.209	0.005
180.00	1.36	3.55	0.10	7.087	0.054	0.140	0.004	165.00	1.26	5.30	0.13	6.496	0.050	0.209	0.005
182.50	1.38	3.55	0.10	7.185	0.054	0.140	0.004	167.50	1.28	5.30	0.13	6.594	0.050	0.209	0.005
185.00	1.39	3.55	0.10	7.283	0.055	0.140	0.004	170.00	1.29	5.30	0.13	6.693	0.051	0.209	0.005
187.50	1.41	3.55	0.10	7.382	0.056	0.140	0.004	172.50	1.31	5.30	0.13	6.791	0.052	0.209	0.005
190.00	1.43	3.55	0.10	7.480	0.056	0.140	0.004	175.00	1.33	5.30	0.13	6.890	0.052	0.209	0.005
195.00	1.46	3.55	0.10	7.677	0.057	0.140	0.004	177.50	1.34	5.30	0.13	6.988	0.053	0.209	0.005
200.00	1.49	3.55	0.10	7.874	0.059	0.140	0.004	180.00	1.36	5.30	0.13	7.087	0.054	0.209	0.005
								182.50	1.38	5.30	0.13	7.185	0.054	0.209	0.005
								185.00	1.39	5.30	0.13	7.283	0.055	0.209	0.005
<b>5.30 MM - CROSS SECTION</b>								<b>5.30 MM - CROSS SECTION</b>							
40.00	0.41	5.30	0.13	1.575	0.016	0.209	0.005	187.50	1.41	5.30	0.13	7.382	0.056	0.209	0.005
41.20	0.42	5.30	0.13	1.622	0.017	0.209	0.005	190.00	1.43	5.30	0.13	7.480	0.056	0.209	0.005
42.50	0.43	5.30	0.13	1.673	0.017	0.209	0.005	195.00	1.46	5.30	0.13	7.677	0.057	0.209	0.005
43.70	0.44	5.30	0.13	1.720	0.017	0.209	0.005	200.00	1.49	5.30	0.13	7.874	0.059	0.209	0.005
45.00	0.44	5.30	0.13	1.772	0.017	0.209	0.005	203.00	1.51	5.30	0.13	7.992	0.059	0.209	0.005
46.20	0.45	5.30	0.13	1.819	0.018	0.209	0.005	206.00	1.53	5.30	0.13	8.110	0.060	0.209	0.005
47.50	0.46	5.30	0.13	1.870	0.018	0.209	0.005	212.00	1.57	5.30	0.13	8.346	0.062	0.209	0.005
48.70	0.47	5.30	0.13	1.917	0.019	0.209	0.005	218.00	1.61	5.30	0.13	8.583	0.063	0.209	0.005
50.00	0.48	5.30	0.13	1.969	0.019	0.209	0.005	224.00	1.65	5.30	0.13	8.819	0.065	0.209	0.005
51.50	0.49	5.30	0.13	2.028	0.019	0.209	0.005	227.00	1.67	5.30	0.13	8.937	0.066	0.209	0.005
53.00	0.50	5.30	0.13	2.087	0.020	0.209	0.005	230.00	1.69	5.30	0.13	9.055	0.067	0.209	0.005
54.50	0.51	5.30	0.13	2.146	0.020	0.209	0.005	236.00	1.73	5.30	0.13	9.291	0.068	0.209	0.005
56.00	0.52	5.30	0.13	2.205	0.020	0.209	0.005	239.00	1.75	5.30	0.13	9.409	0.069	0.209	0.005
58.00	0.54	5.30	0.13	2.283	0.021	0.209	0.005	243.00	1.77	5.30	0.13	9.567	0.070	0.209	0.005
60.00	0.55	5.30	0.13	2.362	0.022	0.209	0.005	250.00	1.82	5.30	0.13	9.843	0.072	0.209	0.005
61.50	0.56	5.30	0.13	2.421	0.022	0.209	0.005	254.00	1.84	5.30	0.13	10.000	0.072	0.209	0.005
63.00	0.57	5.30	0.13	2.480	0.022	0.209	0.005	258.00	1.87	5.30	0.13	10.157	0.074	0.209	0.005
65.00	0.58	5.30	0.13	2.559	0.023	0.209	0.005	261.00	1.89	5.30	0.13	10.276	0.074	0.209	0.005
67.00	0.60	5.30	0.13	2.638	0.024	0.209	0.005	265.00	1.91	5.30	0.13	10.433	0.075	0.209	0.005
69.00	0.61	5.30	0.13	2.717	0.024	0.209	0.005	268.00	1.93	5.30	0.13	10.551	0.076	0.209	0.005
71.00	0.63	5.30	0.13	2.795	0.025	0.209	0.005	272.00	1.96	5.30	0.13	10.709	0.077	0.209	0.005
73.00	0.64	5.30	0.13	2.874	0.025	0.209	0.005	276.00	1.99	5.30	0.13	10.866	0.078	0.209	0.005
75.00	0.65	5.30	0.13	2.953	0.026	0.209	0.005	280.00	2.01	5.30	0.13	11.024	0.079	0.209	0.005
77.50	0.67	5.30	0.13	3.051	0.026	0.209	0.005	283.00	2.03	5.30	0.13	11.142	0.080	0.209	0.005
80.00	0.69	5.30	0.13	3.150	0.027	0.209	0.005	286.00	2.05	5.30	0.13	11.260	0.081	0.209	0.005
82.50	0.71	5.30	0.13	3.248	0.028	0.209	0.005	290.00	2.08	5.30	0.13	11.417	0.082	0.209	0.005
85.00	0.72	5.30	0.13	3.346	0.028	0.209	0.005	295.00	2.11	5.30	0.13	11.614	0.083	0.209	0.005
87.50	0.74	5.30	0.13	3.445	0.029	0.209	0.005	300.00	2.14	5.30	0.13	11.811	0.084	0.209	0.005
90.00	0.76	5.30	0.13	3.543	0.030	0.209	0.005	303.00	2.16	5.30	0.13	11.929	0.085	0.209	0.005
92.50	0.77	5.30	0.13	3.642	0.030	0.209	0.005	307.00	2.19	5.30	0.13	12.087	0.086	0.209	0.005
95.00	0.79	5.30	0.13	3.740	0.031	0.209	0.005	311.00	2.21	5.30	0.13	12.244	0.087	0.209	0.005
97.50	0.81	5.30	0.13	3.839	0.032	0.209	0.005	315.00	2.24	5.30	0.13	12.402	0.088	0.209	0.005
100.00	0.82	5.30	0.13	3.937	0.032	0.209	0.005	320.00	2.27	5.30	0.13	12.598	0.089	0.209	0.005
103.00	0.85	5.30	0.13	4.055	0.033	0.209	0.005	325.00	2.30	5.30	0.13	12.795	0.091	0.209	0.005
106.00	0.87	5.30	0.13	4.173	0.034	0.209	0.005	330.00	2.33	5.30	0.13	12.992	0.092	0.209	0.005
109.00	0.89	5.30	0.13	4.291	0.035	0.209	0.005	335.00	2.36	5.30	0.13	13.189	0.093	0.209	0.005
112.00	0.91	5.30	0.13	4.409	0.036	0.209	0.005	340.00	2.40	5.30	0.13	13.386	0.094	0.209	0.005
115.00	0.93	5.30	0.13	4.528	0.037	0.209	0.005	345.00	2.43	5.30	0.13	13.583	0.096	0.209	0.005
118.00	0.95	5.30	0.13	4.646	0.037	0.209	0.005	350.00	2.46	5.30	0.13	13.780	0.097	0.209	0.005
122.00	0.97	5.30	0.13	4.803	0.038	0.209	0.005	355.00	2.49	5.30	0.13	13.976	0.098	0.209	0.005
125.00	0.99	5.30	0.13	4.921	0.039	0.209	0.005	360.00	2.52	5.30	0.13	14.173	0.099	0.209	0.005
128.00	1.01	5.30	0.13	5.039	0.040	0.209	0.005	365.00	2.56	5.30	0.13	14.370	0.101	0.209	0.005
132.00	1.04	5.30	0.13	5.197	0.041	0.209	0.005	370.00	2.59	5.30	0.13	14.567	0.102	0.209	0.005
136.00	1.07	5.30	0.13	5.354	0.042	0.209	0.005	375.00	2.62	5.30	0.13	14.764	0.103	0.209	0.005
140.00	1.09	5.30	0.13	5.512	0.043	0.209	0.005	379.00	2.64	5.30	0.13	14.921	0.104	0.209	0.005
142.50	1.11	5.30	0.13	5.610	0.044	0.209	0.005	383.00	2.67	5.30	0.13	15.079	0.105	0.209	0.005





Measurements In Millimeters				Measurements In Inches				Measurements In Millimeters				Measurements In Inches			
ID	±	CS	±	ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
<b>5.30 MM - CROSS SECTION</b>								<b>7.00 MM - CROSS SECTION</b>							
387.00	2.70	5.30	0.13	15.236	0.106	0.209	0.005	307.00	2.19	7.00	0.15	12.087	0.086	0.276	0.006
391.00	2.72	5.30	0.13	15.394	0.107	0.209	0.005	311.00	2.21	7.00	0.15	12.244	0.087	0.276	0.006
395.00	2.75	5.30	0.13	15.551	0.108	0.209	0.005	315.00	2.24	7.00	0.15	12.402	0.088	0.276	0.006
400.00	2.78	5.30	0.13	15.748	0.109	0.209	0.005	320.00	2.27	7.00	0.15	12.598	0.089	0.276	0.006
								325.00	2.30	7.00	0.15	12.795	0.091	0.276	0.006
								330.00	2.33	7.00	0.15	12.992	0.092	0.276	0.006
								335.00	2.36	7.00	0.15	13.189	0.093	0.276	0.006
								340.00	2.40	7.00	0.15	13.386	0.094	0.276	0.006
								345.00	2.43	7.00	0.15	13.583	0.096	0.276	0.006
								350.00	2.46	7.00	0.15	13.780	0.097	0.276	0.006
								355.00	2.49	7.00	0.15	13.976	0.098	0.276	0.006
								360.00	2.52	7.00	0.15	14.173	0.099	0.276	0.006
								365.00	2.56	7.00	0.15	14.370	0.101	0.276	0.006
								370.00	2.59	7.00	0.15	14.567	0.102	0.276	0.006
								375.00	2.62	7.00	0.15	14.764	0.103	0.276	0.006
								379.00	2.64	7.00	0.15	14.921	0.104	0.276	0.006
								383.00	2.67	7.00	0.15	15.079	0.105	0.276	0.006
								387.00	2.70	7.00	0.15	15.236	0.106	0.276	0.006
								391.00	2.72	7.00	0.15	15.394	0.107	0.276	0.006
								395.00	2.75	7.00	0.15	15.551	0.108	0.276	0.006
								400.00	2.78	7.00	0.15	15.748	0.109	0.276	0.006
								406.00	2.82	7.00	0.15	15.984	0.111	0.276	0.006
								412.00	2.85	7.00	0.15	16.220	0.112	0.276	0.006
								418.00	2.89	7.00	0.15	16.457	0.114	0.276	0.006
								425.00	2.94	7.00	0.15	16.732	0.116	0.276	0.006
								429.00	2.96	7.00	0.15	16.890	0.117	0.276	0.006
								433.00	2.99	7.00	0.15	17.047	0.118	0.276	0.006
								437.00	3.01	7.00	0.15	17.205	0.119	0.276	0.006
								443.00	3.05	7.00	0.15	17.441	0.120	0.276	0.006
								450.00	3.09	7.00	0.15	17.717	0.122	0.276	0.006
								456.00	3.13	7.00	0.15	17.953	0.123	0.276	0.006
								462.00	3.17	7.00	0.15	18.189	0.125	0.276	0.006
								466.00	3.19	7.00	0.15	18.346	0.126	0.276	0.006
								470.00	3.22	7.00	0.15	18.504	0.127	0.276	0.006
								475.00	3.25	7.00	0.15	18.701	0.128	0.276	0.006
								479.00	3.28	7.00	0.15	18.858	0.129	0.276	0.006
								483.00	3.30	7.00	0.15	19.016	0.130	0.276	0.006
								487.00	3.33	7.00	0.15	19.173	0.131	0.276	0.006
								493.00	3.36	7.00	0.15	19.409	0.132	0.276	0.006
								500.00	3.41	7.00	0.15	19.685	0.134	0.276	0.006
								508.00	3.46	7.00	0.15	20.000	0.136	0.276	0.006
								515.00	3.50	7.00	0.15	20.276	0.138	0.276	0.006
								523.00	3.55	7.00	0.15	20.591	0.140	0.276	0.006
								530.00	3.60	7.00	0.15	20.866	0.142	0.276	0.006
								538.00	3.65	7.00	0.15	21.181	0.144	0.276	0.006
								545.00	3.69	7.00	0.15	21.457	0.145	0.276	0.006
								553.00	3.74	7.00	0.15	21.772	0.147	0.276	0.006
								560.00	3.78	7.00	0.15	22.047	0.149	0.276	0.006
								570.00	3.85	7.00	0.15	22.441	0.152	0.276	0.006
								580.00	3.91	7.00	0.15	22.835	0.154	0.276	0.006
								590.00	3.97	7.00	0.15	23.228	0.156	0.276	0.006
								600.00	4.03	7.00	0.15	23.622	0.159	0.276	0.006
								608.00	4.08	7.00	0.15	23.937	0.161	0.276	0.006
								615.00	4.12	7.00	0.15	24.213	0.162	0.276	0.006
								623.00	4.17	7.00	0.15	24.528	0.164	0.276	0.006
								630.00	4.22	7.00	0.15	24.803	0.166	0.276	0.006
								640.00	4.28	7.00	0.15	25.197	0.169	0.276	0.006
								650.00	4.34	7.00	0.15	25.591	0.171	0.276	0.006
								660.00	4.40	7.00	0.15	25.984	0.173	0.276	0.006
								670.00	4.47	7.00	0.15	26.378	0.176	0.276	0.006

METRIC O-RINGS

MOR



JIS B 2401	WIDTH		ID	±	JIS B 2401	WIDTH		ID	±	JIS B 2401	WIDTH		ID	±
P - 3			2.8	0.14	P - 71			70.6	0.62	G - 25			24.4	0.25
P - 4			3.8	0.14	P - 75			74.6	0.65	G - 30			29.4	0.29
P - 5			4.8	0.15	P - 80			79.6	0.69	G - 35			34.4	0.33
P - 6			5.8	0.15	P - 85			84.6	0.73	G - 40			39.4	0.37
P - 7	1.9	±0.08	6.8	0.16	P - 90			89.6	0.77	G - 45			44.4	0.41
P - 8			7.8	0.16	P - 95			94.6	0.81	G - 50			49.4	0.45
P - 9			8.8	0.17	P - 100			99.6	0.84	G - 55			54.4	0.49
P - 10			9.8	0.17	P - 102			101.6	0.85	G - 60			59.4	0.53
P - 10A			9.8	0.17	P - 105			104.6	0.87	G - 65			64.4	0.57
P - 11			10.8	0.18	P - 110	5.7	+0.13	109.6	0.91	G - 70			69.4	0.61
P - 11.2			11.0	0.18	P - 112			111.6	0.92	G - 75			74.4	0.65
P - 12			11.8	0.19	P - 115			114.6	0.94	G - 80			79.4	0.69
P - 12.5			12.3	0.19	P - 120			119.6	0.98	G - 85	3.1	+0.1	84.4	0.73
P - 14	2.4	±0.09	13.8	0.19	P - 125			124.6	1.01	G - 90			89.4	0.77
P - 15			14.8	0.20	P - 130			129.6	1.05	G - 95			94.4	0.81
P - 16			15.8	0.20	P - 132			131.6	1.06	G - 100			99.4	0.85
P - 18			17.8	0.21	P - 135			134.6	1.09	G - 105			104.4	0.87
P - 20			19.8	0.22	P - 140			139.6	1.12	G - 110			109.4	0.91
P - 21			20.8	0.23	P - 145			144.6	1.16	G - 115			114.4	0.94
P - 22			21.8	0.24	P - 150			149.6	1.19	G - 120			119.4	0.98
P - 22A			21.7	0.24	P - 150A			149.5	1.19	G - 125			124.4	1.01
P - 22.4			22.1	0.24	P - 155			154.5	1.23	G - 130			129.4	1.05
P - 24			23.7	0.24	P - 160			159.5	1.26	G - 135			134.4	1.08
P - 25			24.7	0.25	P - 165			164.5	1.30	G - 140			139.4	1.12
P - 25.5			25.2	0.25	P - 170			169.5	1.33	G - 145			144.4	1.16
P - 26			25.7	0.26	P - 175			174.5	1.37	G - 150			149.3	1.19
P - 28			27.7	0.28	P - 180			179.5	1.40	G - 155			154.3	1.23
P - 29			28.7	0.29	P - 185			184.5	1.44	G - 160			159.3	1.26
P - 29.5			29.2	0.29	P - 190			189.5	1.48	G - 165			164.3	1.30
P - 30			29.7	0.29	P - 195			194.5	1.51	G - 170			169.3	1.33
P - 31			30.7	0.30	P - 200			199.5	1.55	G - 175			174.3	1.37
P - 31.5			31.2	0.31	P - 205			204.5	1.58	G - 180			179.3	1.40
P - 32	3.5	±0.10	31.7	0.31	P - 209			208.5	1.61	G - 185	5.7	+0.13	184.3	1.44
P - 34			33.7	0.33	P - 210			209.5	1.62	G - 190			189.3	1.47
P - 35			34.7	0.34	P - 215			214.5	1.65	G - 195			194.3	1.51
P - 35.5			35.2	0.34	P - 220			219.5	1.68	G - 200			199.3	1.55
P - 36			35.7	0.34	P - 225			224.5	1.71	G - 205			204.3	1.58
P - 38			37.7	0.37	P - 230			229.5	1.75	G - 210			209.3	1.61
P - 39			38.7	0.37	P - 235			234.5	1.78	G - 215			214.3	1.64
P - 40			39.7	0.37	P - 240	8.4	+0.15	239.5	1.81	G - 220			219.3	1.68
P - 41			40.7	0.38	P - 245			244.5	1.84	G - 225			224.3	1.71
P - 42			41.7	0.39	P - 250			249.5	1.88	G - 230			229.3	1.73
P - 44			43.7	0.41	P - 255			291.5	1.91	G - 235			234.3	1.77
P - 45			44.7	0.41	P - 260			201.5	1.94	G - 240			239.3	1.81
P - 46			45.7	0.42	P - 265			204.5	1.97	G - 245			244.3	1.84
P - 48			47.7	0.44	P - 270			207.5	2.01	G - 250			249.3	1.88
P - 49			48.7	0.45	P - 275			274.5	2.04	G - 255			254.3	1.91
P - 50			49.7	0.45	P - 280			279.5	2.07	G - 260			259.3	1.94
P - 48A			47.6	0.45	P - 285			284.5	2.10	G - 265			264.3	1.97
P - 50A			49.6	0.45	P - 290			289.5	2.14	G - 270			269.3	2.01
P - 52			51.6	0.47	P - 295			294.5	2.17	G - 275			274.3	2.04
P - 53			52.6	0.48	P - 300			299.5	2.20	G - 280			279.3	2.07
P - 55			54.6	0.49	P - 315			314.5	2.30	G - 285			284.3	2.10
P - 56			55.6	0.50	P - 320			319.5	2.33	G - 290			289.3	2.14
P - 58	5.7	±1.13	57.6	0.52	P - 335			334.5	2.42	G - 295			294.3	2.17
P - 60			59.6	0.53	P - 340			339.5	2.45	G - 300			299.3	2.20
P - 62			61.6	0.55	P - 355			354.5	2.54	G - 305			304.3	2.24
P - 63			62.6	0.56	P - 360			359.5	2.57	G - 310			309.3	2.27
P - 65			64.6	0.57	P - 375			374.5	2.67	G - 315			314.3	2.30
P - 67			66.6	0.59	P - 385			384.5	2.73	G - 320			319.3	2.33
P - 70			69.6	0.61	P - 400			399.5	2.81	G - 325			324.3	2.36



JIS B 2401	WIDTH		ID	±
G - 335			334.3	2.42
G - 340			339.3	2.45
G - 345			344.3	2.48
G - 350			349.3	2.51
G - 355			354.3	2.54
G - 360			359.3	2.57
G - 365	5.7	+0.13	364.3	2.60
G - 370			369.3	2.63
G - 375			374.3	2.67
G - 380			379.3	2.70
G - 385			384.3	2.73
G - 390			389.3	2.76
G - 395			394.3	2.79
G - 400			399.3	2.82
V - 15			14.5	0.20
V - 24			23.5	0.24
V - 34			33.5	0.33
V - 40	4	+0.10	39.5	0.37
V - 55			54.5	0.49
V - 70			69.0	0.61
V - 85			84.0	0.72
V - 100			99.0	0.83
V - 120			119.0	0.97
V - 150			148.5	1.18
V - 175			173.0	1.36
V - 225			222.5	1.70
V - 275			272.0	2.02
V - 325	6	+0.15	321.5	2.34
V - 380			376.0	2.68
V - 430			425.5	2.99
V - 480			475.0	3.30
V - 530			524.5	3.60
V - 585			579.0	3.92
V - 640			633.5	4.24
V - 690	10	+0.30	683.0	4.54
V - 740			732.5	4.83
V - 790			782.0	5.12
V - 845			836.5	5.44
V - 950			940.5	6.06
V - 1055			1044.0	6.67

SM O-Rings	WIDTH		ID	±
SM - 3			2.5	0.15
SM - 4			3.5	0.15
SM - 5			4.5	0.15
SM - 6			5.5	0.15
SM - 7			6.5	0.15
SM - 8			7.5	0.15
SM - 9			8.5	0.15
SM - 10			9.5	0.15
SM - 11.2	1.5	+0.1	10.7	0.15
SM - 12			11.5	0.15
SM - 12.5			12.0	0.15
SM - 14			13.5	0.15
SM - 15			14.5	0.15
SM - 16			15.5	0.15
SM - 18			17.5	0.15
SM - 20			19.5	0.15
SM - 22			21.5	0.15

SM O-Rings	WIDTH		ID	±
SM - 22.4			21.9	0.15
SM - 24			23.5	0.15
SM - 25			24.5	0.15
SM - 26			25.5	0.15
SM - 28			27.5	0.15
SM - 29			28.5	0.15
SM - 30			29.5	0.15
SM - 31.5			31.0	0.15
SM - 32			31.5	0.15
SM - 34			33.5	0.15
SM - 35.5			34.5	0.15
SM - 36	2.0	+0.1	35.0	0.15
SM - 38			35.5	0.15
SM - 39			37.5	0.15
SM - 40			38.5	0.15
SM - 42			39.5	0.25
SM - 44			41.5	0.25
SM - 45			43.5	0.25
SM - 46			44.5	0.25
SM - 48			45.5	0.25
SM - 50			47.5	0.25
SM - 53			49.5	0.25
SM - 55			52.5	0.25
SM - 56			54.5	0.25
SM - 60			55.5	0.25
SM - 63			59.5	0.25
SM - 65			62.5	0.25
SM - 67			66.5	0.25
SM - 70			69.5	0.25
SM - 71			70.5	0.4
SM - 75			74.5	0.4
SM - 80			79.5	0.4
SM - 85			84.5	0.4
SM - 90			89.5	0.4
SM - 95			94.5	0.4
SM - 100	2.0	+0.1	99.5	0.4
SM - 105			104.5	0.4
SM - 110			109.5	0.4
SM - 112			111.5	0.4
SM - 115			114.5	0.4
SM - 120			119.5	0.4
SM - 125			124.5	0.4
SM - 130			129.5	0.6
SM - 132			131.5	0.6
SM - 135			134.5	0.6
SM - 140			139.5	0.6
SM - 145			144.5	0.6
SM - 150			149.5	0.6

SM O-Rings	WIDTH		ID	±
KS - 1			2.75	0.13
KS - 2			3.75	0.13
KS - 3			4.75	0.13
KS - 4	1.70		5.75	0.13
KS - 5			6.75	0.13
KS - 6			7.75	0.13
KS - 7		+0.08	8.75	0.13
KS - 8			9.75	0.13
KS - 9			9.70	0.13
KS - 10			11.70	0.13
KS - 11	2.25		13.70	0.13
KS - 12			15.70	0.13
KS - 13			17.70	0.13
KS - 14			19.70	0.13
KS - 15			19.60	0.15
KS - 16			21.60	0.15
KS - 17			23.60	0.15
KS - 18			24.60	0.15
KS - 19			25.60	0.15
KS - 20	3.30	+0.10	27.60	0.15
KS - 21			29.60	0.15
KS - 22			31.60	0.15
KS - 23			33.60	0.15
KS - 24			35.60	0.15
KS - 25			37.60	0.15
KS - 26			39.60	0.15

METRIC O-RINGS

MOR

Measurements In Millimeters				Measurements In Millimeters				Measurements In Millimeters				Measurements In Millimeters			
ID	±	CS	±	ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
<b>1.00 MM - CROSS SECTION</b>				<b>1.00 MM - CROSS SECTION</b>				<b>1.50 MM - CROSS SECTION</b>				<b>2.00 MM - CROSS SECTION</b>			
1.00	0.12	1.00	0.07	1.50	0.12	1.50	0.08	45.00	0.42	1.50	0.08	6.00	0.15	2.00	0.08
1.50	0.12	1.00	0.07	1.85	0.13	1.50	0.08	46.00	0.43	1.50	0.08	6.50	0.16	2.00	0.08
2.00	0.13	1.00	0.07	2.00	0.13	1.50	0.08	47.00	0.44	1.50	0.08	7.00	0.16	2.00	0.08
2.50	0.13	1.00	0.07	2.50	0.13	1.50	0.08	48.00	0.44	1.50	0.08	8.00	0.16	2.00	0.08
3.00	0.14	1.00	0.07	3.00	0.14	1.50	0.08	49.00	0.45	1.50	0.08	9.00	0.17	2.00	0.08
3.50	0.14	1.00	0.07	3.50	0.14	1.50	0.08	50.00	0.46	1.50	0.08	9.50	0.17	2.00	0.08
4.00	0.14	1.00	0.07	4.00	0.14	1.50	0.08	51.00	0.47	1.50	0.08	10.00	0.17	2.00	0.08
4.50	0.14	1.00	0.07	4.50	0.14	1.50	0.08	52.00	0.47	1.50	0.08	11.00	0.18	2.00	0.08
5.00	0.15	1.00	0.07	5.00	0.15	1.50	0.08	53.00	0.48	1.50	0.08	11.50	0.19	2.00	0.08
5.50	0.15	1.00	0.07	5.50	0.15	1.50	0.08	54.00	0.50	1.50	0.08	12.00	0.19	2.00	0.08
6.00	0.15	1.00	0.07	6.00	0.15	1.50	0.08	55.00	0.50	1.50	0.08	12.50	0.19	2.00	0.08
6.50	0.16	1.00	0.07	6.50	0.15	1.50	0.08	56.00	0.51	1.50	0.08	13.00	0.19	2.00	0.08
7.00	0.16	1.00	0.07	7.00	0.16	1.50	0.08	57.00	0.52	1.50	0.08	14.00	0.19	2.00	0.08
7.50	0.16	1.00	0.07	7.50	0.16	1.50	0.08	58.00	0.52	1.50	0.08	15.00	0.20	2.00	0.08
8.00	0.16	1.00	0.07	8.00	0.16	1.50	0.08	59.00	0.54	1.50	0.08	16.00	0.20	2.00	0.08
8.50	0.16	1.00	0.07	8.50	0.16	1.50	0.08	60.00	0.54	1.50	0.08	17.00	0.21	2.00	0.08
9.00	0.17	1.00	0.07	9.00	0.17	1.50	0.08	61.00	0.55	1.50	0.08	18.00	0.21	2.00	0.08
9.50	0.17	1.00	0.07	9.50	0.17	1.50	0.08	62.00	0.55	1.50	0.08	19.00	0.22	2.00	0.08
10.00	0.17	1.00	0.07	10.00	0.17	1.50	0.08	63.00	0.56	1.50	0.08	19.50	0.22	2.00	0.08
10.50	0.18	1.00	0.07	10.50	0.18	1.50	0.08	64.00	0.58	1.50	0.08	20.00	0.22	2.00	0.08
11.00	0.18	1.00	0.07	10.70	0.18	1.50	0.08	65.00	0.58	1.50	0.08	21.00	0.23	2.00	0.08
11.50	0.19	1.00	0.07	11.00	0.18	1.50	0.08	66.00	0.59	1.50	0.08	22.00	0.24	2.00	0.08
12.00	0.19	1.00	0.07	11.50	0.18	1.50	0.08	67.00	0.59	1.50	0.08	23.00	0.24	2.00	0.08
12.50	0.19	1.00	0.07	12.00	0.19	1.50	0.08	68.00	0.61	1.50	0.08	23.50	0.24	2.00	0.08
13.00	0.19	1.00	0.07	12.50	0.19	1.50	0.08	69.00	0.61	1.50	0.08	24.00	0.24	2.00	0.08
13.50	0.19	1.00	0.07	13.00	0.19	1.50	0.08	70.00	0.62	1.50	0.08	24.50	0.25	2.00	0.08
14.00	0.19	1.00	0.07	13.50	0.19	1.50	0.08	71.00	0.63	1.50	0.08	25.00	0.25	2.00	0.08
14.50	0.20	1.00	0.07	14.00	0.19	1.50	0.08	72.00	0.63	1.50	0.08	26.00	0.26	2.00	0.08
15.00	0.20	1.00	0.07	14.50	0.19	1.50	0.08	73.00	0.64	1.50	0.08	27.00	0.26	2.00	0.08
15.50	0.20	1.00	0.07	15.00	0.20	1.50	0.08	74.00	0.65	1.50	0.08	28.00	0.28	2.00	0.08
16.00	0.20	1.00	0.07	15.50	0.20	1.50	0.08	75.00	0.65	1.50	0.08	29.00	0.29	2.00	0.08
16.50	0.21	1.00	0.07	16.00	0.20	1.50	0.08	76.00	0.66	1.50	0.08	29.50	0.29	2.00	0.08
17.00	0.21	1.00	0.07	17.00	0.21	1.50	0.08	77.00	0.67	1.50	0.08	30.00	0.29	2.00	0.08
17.50	0.21	1.00	0.07	17.50	0.21	1.50	0.08	78.00	0.67	1.50	0.08	31.00	0.31	2.00	0.08
18.00	0.21	1.00	0.07	18.00	0.21	1.50	0.08	79.00	0.68	1.50	0.08	32.00	0.32	2.00	0.08
18.50	0.22	1.00	0.07	19.00	0.22	1.50	0.08	80.00	0.69	1.50	0.08	33.00	0.32	2.00	0.08
19.00	0.22	1.00	0.07	19.50	0.22	1.50	0.08	81.00	0.69	1.50	0.08	33.50	0.32	2.00	0.08
19.50	0.22	1.00	0.07	20.00	0.22	1.50	0.08	82.00	0.70	1.50	0.08	34.00	0.33	2.00	0.08
20.00	0.22	1.00	0.07	21.00	0.23	1.50	0.08	83.00	0.71	1.50	0.08	35.00	0.34	2.00	0.08
20.50	0.22	1.00	0.07	21.50	0.23	1.50	0.08	84.00	0.72	1.50	0.08	36.00	0.35	2.00	0.08
21.00	0.23	1.00	0.07	22.00	0.24	1.50	0.08	85.00	0.72	1.50	0.08	36.50	0.35	2.00	0.08
21.50	0.23	1.00	0.07	23.00	0.24	1.50	0.08	86.00	0.73	1.50	0.08	37.00	0.36	2.00	0.08
22.00	0.24	1.00	0.07	24.00	0.24	1.50	0.08	87.00	0.74	1.50	0.08	37.50	0.36	2.00	0.08
22.50	0.24	1.00	0.07	25.00	0.25	1.50	0.08	88.00	0.74	1.50	0.08	38.00	0.36	2.00	0.08
23.00	0.24	1.00	0.07	26.00	0.26	1.50	0.08	89.00	0.75	1.50	0.08	38.50	0.37	2.00	0.08
23.50	0.24	1.00	0.07	27.00	0.26	1.50	0.08	90.00	0.76	1.50	0.08	39.00	0.37	2.00	0.08
24.00	0.24	1.00	0.07	28.00	0.28	1.50	0.08	91.00	0.76	1.50	0.08	40.00	0.38	2.00	0.08
24.50	0.25	1.00	0.07	28.50	0.28	1.50	0.08	92.00	0.77	1.50	0.08	41.00	0.39	2.00	0.08
25.00	0.25	1.00	0.07	29.00	0.29	1.50	0.08	93.00	0.78	1.50	0.08	42.00	0.40	2.00	0.08
26.00	0.25	1.00	0.07	30.00	0.29	1.50	0.08	94.00	0.78	1.50	0.08	43.00	0.40	2.00	0.08
27.00	0.26	1.00	0.07	31.50	0.31	1.50	0.08	95.00	0.79	1.50	0.08	44.00	0.41	2.00	0.08
28.00	0.26	1.00	0.07	32.00	0.32	1.50	0.08	96.00	0.80	1.50	0.08	45.00	0.42	2.00	0.08
29.00	0.27	1.00	0.07	33.00	0.32	1.50	0.08	97.00	0.80	1.50	0.08	46.00	0.43	2.00	0.08
30.00	0.27	1.00	0.07	34.00	0.33	1.50	0.08	98.00	0.81	1.50	0.08	47.00	0.44	2.00	0.08
31.00	0.28	1.00	0.07	35.00	0.34	1.50	0.08	99.00	0.82	1.50	0.08	48.00	0.44	2.00	0.08
32.00	0.29	1.00	0.07	36.00	0.35	1.50	0.08	100.00	0.82	1.50	0.08	49.00	0.45	2.00	0.08
33.00	0.29	1.00	0.07	37.00	0.36	1.50	0.08	<b>2.00 MM - CROSS SECTION</b>				50.00	0.46	2.00	0.08
34.00	0.30	1.00	0.07	38.00	0.36	1.50	0.08	2.00	0.13	2.00	0.08	51.00	0.47	2.00	0.08
35.00	0.30	1.00	0.07	39.00	0.37	1.50	0.08	3.00	0.14	2.00	0.08	52.00	0.47	2.00	0.08
36.00	0.31	1.00	0.07	40.00	0.38	1.50	0.08	3.50	0.14	2.00	0.08	53.00	0.48	2.00	0.08
37.00	0.31	1.00	0.07	41.00	0.39	1.50	0.08	4.00	0.14	2.00	0.08	54.00	0.50	2.00	0.08
38.00	0.32	1.00	0.07	42.00	0.40	1.50	0.08	4.50	0.14	2.00	0.08	55.00	0.50	2.00	0.08
39.00	0.33	1.00	0.07	43.00	0.40	1.50	0.08	5.00	0.15	2.00	0.08	55.50	0.51	2.00	0.08
40.00	0.33	1.00	0.07	44.00	0.41	1.50	0.08					56.00	0.51	2.00	0.08



Measurements In Millimeters				Measurements In Millimeters				Measurements In Millimeters				Measurements In Millimeters			
ID	±	CS	±	ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
<b>2.00 MM - CROSS SECTION</b>				<b>2.50 MM - CROSS SECTION</b>				<b>2.50 MM - CROSS SECTION</b>				<b>2.50 MM - CROSS SECTION</b>			
57.00	0.52	2.00	0.08	16.00	0.20	2.50	0.09	79.00	0.68	2.50	0.09	142.00	1.11	2.50	0.09
58.00	0.52	2.00	0.08	17.00	0.21	2.50	0.09	80.00	0.69	2.50	0.09	143.00	1.11	2.50	0.09
59.00	0.54	2.00	0.08	18.00	0.21	2.50	0.09	81.00	0.69	2.50	0.09	144.00	1.12	2.50	0.09
60.00	0.54	2.00	0.08	19.00	0.22	2.50	0.09	82.00	0.70	2.50	0.09	145.00	1.13	2.50	0.09
61.00	0.55	2.00	0.08	20.00	0.22	2.50	0.09	83.00	0.71	2.50	0.09	146.00	1.13	2.50	0.09
62.00	0.55	2.00	0.08	21.00	0.23	2.50	0.09	84.00	0.72	2.50	0.09	147.00	1.14	2.50	0.09
63.00	0.56	2.00	0.08	22.00	0.24	2.50	0.09	85.00	0.72	2.50	0.09	148.00	1.15	2.50	0.09
64.00	0.58	2.00	0.08	23.00	0.24	2.50	0.09	86.00	0.73	2.50	0.09	149.00	1.15	2.50	0.09
64.50	0.58	2.00	0.08	24.00	0.24	2.50	0.09	87.00	0.74	2.50	0.09	150.00	1.16	2.50	0.09
65.00	0.58	2.00	0.08	25.00	0.25	2.50	0.09	88.00	0.74	2.50	0.09	162.00	1.24	2.50	0.09
66.00	0.59	2.00	0.08	26.00	0.26	2.50	0.09	89.00	0.75	2.50	0.09	<b>3.00 MM - CROSS SECTION</b>			
67.00	0.59	2.00	0.08	27.00	0.26	2.50	0.09	90.00	0.76	2.50	0.09	3.00	0.14	3.00	0.09
68.00	0.61	2.00	0.08	28.00	0.28	2.50	0.09	91.00	0.76	2.50	0.09	4.00	0.14	3.00	0.09
69.00	0.61	2.00	0.08	29.00	0.29	2.50	0.09	92.00	0.77	2.50	0.09	5.00	0.15	3.00	0.09
69.50	0.61	2.00	0.08	30.00	0.29	2.50	0.09	93.00	0.78	2.50	0.09	6.00	0.15	3.00	0.09
70.00	0.62	2.00	0.08	31.00	0.31	2.50	0.09	94.00	0.78	2.50	0.09	7.00	0.16	3.00	0.09
71.00	0.63	2.00	0.08	32.00	0.32	2.50	0.09	95.00	0.79	2.50	0.09	8.00	0.16	3.00	0.09
72.00	0.63	2.00	0.08	33.00	0.32	2.50	0.09	96.00	0.80	2.50	0.09	9.00	0.17	3.00	0.09
73.00	0.64	2.00	0.08	34.00	0.33	2.50	0.09	97.00	0.80	2.50	0.09	9.50	0.17	3.00	0.09
74.00	0.65	2.00	0.08	35.00	0.34	2.50	0.09	98.00	0.81	2.50	0.09	10.00	0.17	3.00	0.09
75.00	0.65	2.00	0.08	36.00	0.35	2.50	0.09	99.00	0.82	2.50	0.09	11.00	0.18	3.00	0.09
76.00	0.66	2.00	0.08	37.00	0.36	2.50	0.09	100.00	0.82	2.50	0.09	12.00	0.19	3.00	0.09
77.00	0.67	2.00	0.08	38.00	0.36	2.50	0.09	101.00	0.83	2.50	0.09	13.00	0.19	3.00	0.09
78.00	0.67	2.00	0.08	39.00	0.37	2.50	0.09	102.00	0.84	2.50	0.09	13.50	0.19	3.00	0.09
79.00	0.68	2.00	0.08	40.00	0.38	2.50	0.09	103.00	0.85	2.50	0.09	14.00	0.19	3.00	0.09
80.00	0.69	2.00	0.08	41.00	0.39	2.50	0.09	104.00	0.85	2.50	0.09	15.00	0.20	3.00	0.09
81.00	0.69	2.00	0.08	42.00	0.40	2.50	0.09	105.00	0.86	2.50	0.09	15.50	0.20	3.00	0.09
82.00	0.70	2.00	0.08	43.00	0.40	2.50	0.09	106.00	0.87	2.50	0.09	16.00	0.20	3.00	0.09
83.00	0.71	2.00	0.08	44.00	0.41	2.50	0.09	107.00	0.87	2.50	0.09	17.00	0.21	3.00	0.09
84.00	0.72	2.00	0.08	45.00	0.42	2.50	0.09	108.00	0.88	2.50	0.09	17.50	0.21	3.00	0.09
85.00	0.72	2.00	0.08	46.00	0.43	2.50	0.09	109.00	0.89	2.50	0.09	18.00	0.21	3.00	0.09
86.00	0.73	2.00	0.08	47.00	0.44	2.50	0.09	110.00	0.89	2.50	0.09	19.00	0.22	3.00	0.09
87.00	0.74	2.00	0.08	48.00	0.44	2.50	0.09	111.00	0.90	2.50	0.09	20.00	0.22	3.00	0.09
88.00	0.74	2.00	0.08	49.00	0.45	2.50	0.09	112.00	0.91	2.50	0.09	21.00	0.23	3.00	0.09
89.00	0.75	2.00	0.08	50.00	0.46	2.50	0.09	113.00	0.91	2.50	0.09	22.00	0.24	3.00	0.09
90.00	0.76	2.00	0.08	51.00	0.47	2.50	0.09	114.00	0.92	2.50	0.09	23.00	0.24	3.00	0.09
91.00	0.76	2.00	0.08	52.00	0.47	2.50	0.09	115.00	0.93	2.50	0.09	24.00	0.24	3.00	0.09
92.00	0.77	2.00	0.08	53.00	0.48	2.50	0.09	116.00	0.93	2.50	0.09	25.00	0.25	3.00	0.09
93.00	0.78	2.00	0.08	54.00	0.50	2.50	0.09	117.00	0.94	2.50	0.09	26.00	0.26	3.00	0.09
94.00	0.78	2.00	0.08	55.00	0.50	2.50	0.09	118.00	0.95	2.50	0.09	27.00	0.26	3.00	0.09
95.00	0.79	2.00	0.08	56.00	0.51	2.50	0.09	119.00	0.95	2.50	0.09	28.00	0.28	3.00	0.09
96.00	0.80	2.00	0.08	57.00	0.52	2.50	0.09	120.00	0.96	2.50	0.09	28.50	0.28	3.00	0.09
97.00	0.80	2.00	0.08	58.00	0.52	2.50	0.09	121.00	0.97	2.50	0.09	29.00	0.29	3.00	0.09
98.00	0.81	2.00	0.08	59.00	0.54	2.50	0.09	122.00	0.97	2.50	0.09	29.50	0.29	3.00	0.09
99.00	0.82	2.00	0.08	60.00	0.54	2.50	0.09	123.00	0.98	2.50	0.09	30.00	0.29	3.00	0.09
100.00	0.82	2.00	0.08	61.00	0.55	2.50	0.09	124.00	0.99	2.50	0.09	31.00	0.31	3.00	0.09
105.00	0.86	2.00	0.08	62.00	0.55	2.50	0.09	125.00	0.99	2.50	0.09	32.00	0.32	3.00	0.09
109.00	0.89	2.00	0.08	63.00	0.56	2.50	0.09	126.00	1.00	2.50	0.09	33.00	0.32	3.00	0.09
<b>2.50 MM - CROSS SECTION</b>				64.00	0.58	2.50	0.09	127.00	1.01	2.50	0.09	34.00	0.33	3.00	0.09
3.00	0.14	2.50	0.09	65.00	0.58	2.50	0.09	128.00	1.01	2.50	0.09	35.00	0.34	3.00	0.09
4.00	0.14	2.50	0.09	66.00	0.59	2.50	0.09	129.00	1.02	2.50	0.09	36.00	0.35	3.00	0.09
5.00	0.15	2.50	0.09	67.00	0.59	2.50	0.09	130.00	1.03	2.50	0.09	36.50	0.35	3.00	0.09
6.00	0.15	2.50	0.09	68.00	0.61	2.50	0.09	131.00	1.03	2.50	0.09	37.00	0.36	3.00	0.09
7.00	0.16	2.50	0.09	69.00	0.61	2.50	0.09	132.00	1.04	2.50	0.09	37.50	0.36	3.00	0.09
8.00	0.16	2.50	0.09	70.00	0.62	2.50	0.09	133.00	1.05	2.50	0.09	38.00	0.36	3.00	0.09
9.00	0.17	2.50	0.09	71.00	0.63	2.50	0.09	134.00	1.00	2.50	0.09	39.00	0.37	3.00	0.09
10.00	0.17	2.50	0.09	72.00	0.63	2.50	0.09	135.00	1.06	2.50	0.09	40.00	0.38	3.00	0.09
11.00	0.18	2.50	0.09	73.00	0.64	2.50	0.09	136.00	1.07	2.50	0.09	41.00	0.39	3.00	0.09
12.00	0.19	2.50	0.09	74.00	0.65	2.50	0.09	137.00	1.07	2.50	0.09	42.00	0.40	3.00	0.09
13.00	0.19	2.50	0.09	75.00	0.65	2.50	0.09	138.00	1.08	2.50	0.09	42.50	0.40	3.00	0.09
14.00	0.19	2.50	0.09	76.00	0.66	2.50	0.09	139.00	1.09	2.50	0.09	43.00	0.40	3.00	0.09
15.00	0.20	2.50	0.09	77.00	0.67	2.50	0.09	140.00	1.09	2.50	0.09	44.00	0.41	3.00	0.09
				78.00	0.67	2.50	0.09	141.00	1.10	2.50	0.09				

METRIC O-RINGS

MOR

Measurements In Millimeters				Measurements In Millimeters				Measurements In Millimeters				Measurements In Millimeters			
ID	±	CS	±	ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
3.00 MM - CROSS SECTION				3.00 MM - CROSS SECTION				3.00 MM - CROSS SECTION				3.00 MM - CROSS SECTION			
45.00	0.42	3.00	0.09	106.00	0.87	3.00	0.09	169.00	1.29	3.00	0.09	232.00	1.70	3.00	0.09
46.00	0.43	3.00	0.09	107.00	0.87	3.00	0.09	170.00	1.29	3.00	0.09	233.00	1.71	3.00	0.09
47.00	0.44	3.00	0.09	108.00	0.88	3.00	0.09	171.00	1.30	3.00	0.09	234.00	1.71	3.00	0.09
48.00	0.44	3.00	0.09	109.00	0.89	3.00	0.09	172.00	1.31	3.00	0.09	235.00	1.72	3.00	0.09
49.00	0.45	3.00	0.09	110.00	0.89	3.00	0.09	173.00	1.31	3.00	0.09	236.00	1.73	3.00	0.09
50.00	0.46	3.00	0.09	111.00	0.90	3.00	0.09	174.00	1.32	3.00	0.09	237.00	1.73	3.00	0.09
51.00	0.47	3.00	0.09	112.00	0.91	3.00	0.09	175.00	1.33	3.00	0.09	238.00	1.74	3.00	0.09
52.00	0.47	3.00	0.09	113.00	0.91	3.00	0.09	176.00	1.33	3.00	0.09	239.00	1.75	3.00	0.09
53.00	0.48	3.00	0.09	114.00	0.92	3.00	0.09	177.00	1.34	3.00	0.09	240.00	1.75	3.00	0.09
54.00	0.50	3.00	0.09	115.00	0.93	3.00	0.09	178.00	1.35	3.00	0.09	241.00	1.76	3.00	0.09
55.00	0.50	3.00	0.09	116.00	0.93	3.00	0.09	179.00	1.35	3.00	0.09	242.00	1.77	3.00	0.09
56.00	0.51	3.00	0.09	117.00	0.94	3.00	0.09	180.00	1.36	3.00	0.09	243.00	1.77	3.00	0.09
57.00	0.52	3.00	0.09	118.00	0.95	3.00	0.09	181.00	1.37	3.00	0.09	244.00	1.78	3.00	0.09
58.00	0.52	3.00	0.09	119.00	0.95	3.00	0.09	182.00	1.37	3.00	0.09	245.00	1.78	3.00	0.09
59.00	0.54	3.00	0.09	120.00	0.96	3.00	0.09	183.00	1.38	3.00	0.09	246.00	1.79	3.00	0.09
60.00	0.54	3.00	0.09	121.00	0.97	3.00	0.09	184.00	1.39	3.00	0.09	247.00	1.80	3.00	0.09
61.00	0.55	3.00	0.09	122.00	0.97	3.00	0.09	185.00	1.39	3.00	0.09	248.00	1.80	3.00	0.09
62.00	0.55	3.00	0.09	123.00	0.98	3.00	0.09	186.00	1.40	3.00	0.09	249.00	1.81	3.00	0.09
63.00	0.56	3.00	0.09	124.00	0.99	3.00	0.09	187.00	1.41	3.00	0.09	250.00	1.82	3.00	0.09
64.00	0.58	3.00	0.09	125.00	0.99	3.00	0.09	188.00	1.41	3.00	0.09	260.00	1.88	3.00	0.09
65.00	0.58	3.00	0.09	126.00	1.00	3.00	0.09	189.00	1.42	3.00	0.09	270.00	1.95	3.00	0.09
66.00	0.59	3.00	0.09	127.00	1.01	3.00	0.09	190.00	1.43	3.00	0.09	280.00	2.01	3.00	0.09
67.00	0.59	3.00	0.09	128.00	1.01	3.00	0.09	191.00	1.43	3.00	0.09	285.00	2.04	3.00	0.09
68.00	0.61	3.00	0.09	129.00	1.02	3.00	0.09	192.00	1.44	3.00	0.09	290.00	2.08	3.00	0.09
69.00	0.61	3.00	0.09	130.00	1.03	3.00	0.09	193.00	1.45	3.00	0.09	310.00	2.20	3.00	0.09
70.00	0.62	3.00	0.09	131.00	1.03	3.00	0.09	194.00	1.45	3.00	0.09	<b>4.00 MM - CROSS SECTION</b>			
71.00	0.63	3.00	0.09	132.00	1.04	3.00	0.09	195.00	1.46	3.00	0.09	4.00	0.14	4.00	0.10
72.00	0.63	3.00	0.09	133.00	1.05	3.00	0.09	196.00	1.46	3.00	0.09	5.00	0.15	4.00	0.10
73.00	0.64	3.00	0.09	134.00	1.05	3.00	0.09	197.00	1.47	3.00	0.09	6.00	0.15	4.00	0.10
74.00	0.65	3.00	0.09	135.00	1.06	3.00	0.09	198.00	1.48	3.00	0.09	7.00	0.16	4.00	0.10
75.00	0.65	3.00	0.09	136.00	1.07	3.00	0.09	199.00	1.48	3.00	0.09	8.00	0.16	4.00	0.10
76.00	0.66	3.00	0.09	137.00	1.07	3.00	0.09	200.00	1.49	3.00	0.09	9.00	0.17	4.00	0.10
77.00	0.67	3.00	0.09	138.00	1.08	3.00	0.09	201.00	1.50	3.00	0.09	10.00	0.17	4.00	0.10
78.00	0.67	3.00	0.09	139.00	1.09	3.00	0.09	202.00	1.50	3.00	0.09	11.00	0.18	4.00	0.10
79.00	0.68	3.00	0.09	140.00	1.09	3.00	0.09	203.00	1.51	3.00	0.09	12.00	0.19	4.00	0.10
80.00	0.69	3.00	0.09	141.00	1.10	3.00	0.09	204.00	1.52	3.00	0.09	13.00	0.19	4.00	0.10
81.00	0.69	3.00	0.09	142.00	1.11	3.00	0.09	205.00	1.52	3.00	0.09	14.00	0.19	4.00	0.10
82.00	0.70	3.00	0.09	143.00	1.11	3.00	0.09	206.00	1.53	3.00	0.09	15.00	0.20	4.00	0.10
83.00	0.71	3.00	0.09	144.00	1.12	3.00	0.09	207.00	1.54	3.00	0.09	16.00	0.20	4.00	0.10
84.00	0.72	3.00	0.09	145.00	1.13	3.00	0.09	208.00	1.54	3.00	0.09	17.00	0.21	4.00	0.10
85.00	0.72	3.00	0.09	146.00	1.13	3.00	0.09	209.00	1.55	3.00	0.09	18.00	0.21	4.00	0.10
86.00	0.73	3.00	0.09	147.00	1.14	3.00	0.09	210.00	1.56	3.00	0.09	19.00	0.22	4.00	0.10
87.00	0.74	3.00	0.09	148.00	1.15	3.00	0.09	211.00	1.56	3.00	0.09	20.00	0.22	4.00	0.10
88.00	0.74	3.00	0.09	149.00	1.15	3.00	0.09	212.00	1.57	3.00	0.09	21.00	0.23	4.00	0.10
89.00	0.75	3.00	0.09	150.00	1.16	3.00	0.09	213.00	1.58	3.00	0.09	22.00	0.24	4.00	0.10
90.00	0.76	3.00	0.09	151.00	1.17	3.00	0.09	214.00	1.58	3.00	0.09	23.00	0.24	4.00	0.10
91.00	0.76	3.00	0.09	152.00	1.17	3.00	0.09	215.00	1.59	3.00	0.09	24.00	0.24	4.00	0.10
92.00	0.77	3.00	0.09	153.00	1.18	3.00	0.09	216.00	1.60	3.00	0.09	25.00	0.25	4.00	0.10
93.00	0.78	3.00	0.09	154.00	1.19	3.00	0.09	217.00	1.60	3.00	0.09	26.00	0.26	4.00	0.10
94.00	0.78	3.00	0.09	155.00	1.19	3.00	0.09	218.00	1.61	3.00	0.09	27.00	0.26	4.00	0.10
94.50	0.79	3.00	0.09	156.00	1.20	3.00	0.09	219.00	1.62	3.00	0.09	28.00	0.28	4.00	0.10
95.00	0.79	3.00	0.09	157.00	1.21	3.00	0.09	220.00	1.62	3.00	0.09	29.00	0.29	4.00	0.10
96.00	0.80	3.00	0.09	158.00	1.21	3.00	0.09	221.00	1.63	3.00	0.09	30.00	0.29	4.00	0.10
97.00	0.80	3.00	0.09	159.00	1.22	3.00	0.09	222.00	1.64	3.00	0.09	31.00	0.31	4.00	0.10
98.00	0.81	3.00	0.09	160.00	1.23	3.00	0.09	223.00	1.64	3.00	0.09	32.00	0.32	4.00	0.10
98.50	0.81	3.00	0.09	161.00	1.23	3.00	0.09	224.00	1.65	3.00	0.09	33.00	0.32	4.00	0.10
99.00	0.82	3.00	0.09	162.00	1.24	3.00	0.09	225.00	1.65	3.00	0.09	34.00	0.33	4.00	0.10
100.00	0.82	3.00	0.09	163.00	1.25	3.00	0.09	226.00	1.66	3.00	0.09	35.00	0.34	4.00	0.10
101.00	0.83	3.00	0.09	164.00	1.25	3.00	0.09	227.00	1.67	3.00	0.09	36.00	0.35	4.00	0.10
102.00	0.84	3.00	0.09	165.00	1.26	3.00	0.09	228.00	1.67	3.00	0.09	37.00	0.36	4.00	0.10
103.00	0.85	3.00	0.09	166.00	1.27	3.00	0.09	229.00	1.68	3.00	0.09	38.00	0.36	4.00	0.10
104.00	0.85	3.00	0.09	167.00	1.27	3.00	0.09	230.00	1.69	3.00	0.09	39.00	0.37	4.00	0.10
105.00	0.86	3.00	0.09	168.00	1.28	3.00	0.09	231.00	1.69	3.00	0.09				





Measurements In Millimeters				Measurements In Millimeters				Measurements In Millimeters				Measurements In Millimeters			
ID	±	CS	±	ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
4.00 MM - CROSS SECTION				4.00 MM - CROSS SECTION				4.00 MM - CROSS SECTION				4.00 MM - CROSS SECTION			
40.00	0.38	4.00	0.10	103.00	0.85	4.00	0.10	165.00	1.26	4.00	0.10	228.00	1.67	4.00	0.10
41.00	0.39	4.00	0.10	104.00	0.85	4.00	0.10	166.00	1.27	4.00	0.10	229.00	1.68	4.00	0.10
42.00	0.40	4.00	0.10	105.00	0.86	4.00	0.10	167.00	1.27	4.00	0.10	230.00	1.69	4.00	0.10
43.00	0.40	4.00	0.10	106.00	0.87	4.00	0.10	168.00	1.28	4.00	0.10	231.00	1.69	4.00	0.10
44.00	0.41	4.00	0.10	107.00	0.87	4.00	0.10	169.00	1.29	4.00	0.10	232.00	1.70	4.00	0.10
45.00	0.42	4.00	0.10	108.00	0.88	4.00	0.10	170.00	1.29	4.00	0.10	233.00	1.71	4.00	0.10
46.00	0.43	4.00	0.10	109.00	0.89	4.00	0.10	171.00	1.30	4.00	0.10	234.00	1.71	4.00	0.10
47.00	0.44	4.00	0.10	110.00	0.89	4.00	0.10	172.00	1.31	4.00	0.10	235.00	1.72	4.00	0.10
48.00	0.44	4.00	0.10	111.00	0.90	4.00	0.10	173.00	1.31	4.00	0.10	236.00	1.73	4.00	0.10
49.00	0.45	4.00	0.10	112.00	0.91	4.00	0.10	174.00	1.32	4.00	0.10	237.00	1.73	4.00	0.10
50.00	0.46	4.00	0.10	113.00	0.91	4.00	0.10	175.00	1.33	4.00	0.10	238.00	1.74	4.00	0.10
51.00	0.47	4.00	0.10	114.00	0.92	4.00	0.10	176.00	1.33	4.00	0.10	239.00	1.75	4.00	0.10
52.00	0.47	4.00	0.10	115.00	0.93	4.00	0.10	177.00	1.34	4.00	0.10	240.00	1.75	4.00	0.10
53.00	0.48	4.00	0.10	116.00	0.93	4.00	0.10	178.00	1.35	4.00	0.10	241.00	1.76	4.00	0.10
54.00	0.50	4.00	0.10	117.00	0.94	4.00	0.10	179.00	1.35	4.00	0.10	242.00	1.77	4.00	0.10
55.00	0.50	4.00	0.10	118.00	0.95	4.00	0.10	180.00	1.36	4.00	0.10	243.00	1.77	4.00	0.10
56.00	0.51	4.00	0.10	119.00	0.95	4.00	0.10	181.00	1.37	4.00	0.10	244.00	1.78	4.00	0.10
57.00	0.52	4.00	0.10	120.00	0.96	4.00	0.10	182.00	1.37	4.00	0.10	245.00	1.78	4.00	0.10
58.00	0.52	4.00	0.10	121.00	0.97	4.00	0.10	183.00	1.38	4.00	0.10	246.00	1.79	4.00	0.10
59.00	0.54	4.00	0.10	122.00	0.97	4.00	0.10	184.00	1.39	4.00	0.10	247.00	1.80	4.00	0.10
60.00	0.54	4.00	0.10	123.00	0.98	4.00	0.10	185.00	1.39	4.00	0.10	248.00	1.80	4.00	0.10
61.00	0.55	4.00	0.10	124.00	0.99	4.00	0.10	186.00	1.40	4.00	0.10	249.00	1.81	4.00	0.10
62.00	0.55	4.00	0.10	125.00	0.99	4.00	0.10	187.00	1.41	4.00	0.10	250.00	1.82	4.00	0.10
63.00	0.56	4.00	0.10	126.00	1.00	4.00	0.10	188.00	1.41	4.00	0.10	251.00	1.82	4.00	0.10
64.00	0.58	4.00	0.10	127.00	1.01	4.00	0.10	189.00	1.42	4.00	0.10	252.00	1.83	4.00	0.10
65.00	0.58	4.00	0.10	128.00	1.01	4.00	0.10	190.00	1.43	4.00	0.10	253.00	1.84	4.00	0.10
66.00	0.59	4.00	0.10	129.00	1.02	4.00	0.10	191.00	1.43	4.00	0.10	254.00	1.84	4.00	0.10
67.00	0.59	4.00	0.10	130.00	1.03	4.00	0.10	192.00	1.44	4.00	0.10	255.00	1.85	4.00	0.10
68.00	0.61	4.00	0.10	131.00	1.03	4.00	0.10	193.00	1.45	4.00	0.10	256.00	1.86	4.00	0.10
69.00	0.61	4.00	0.10	132.00	1.04	4.00	0.10	194.00	1.45	4.00	0.10	257.00	1.86	4.00	0.10
70.00	0.62	4.00	0.10	133.00	1.05	4.00	0.10	195.00	1.46	4.00	0.10	258.00	1.87	4.00	0.10
71.00	0.63	4.00	0.10	134.00	1.05	4.00	0.10	196.00	1.46	4.00	0.10	259.00	1.88	4.00	0.10
72.00	0.63	4.00	0.10	135.00	1.06	4.00	0.10	197.00	1.47	4.00	0.10	260.00	1.88	4.00	0.10
73.00	0.64	4.00	0.10	136.00	1.07	4.00	0.10	198.00	1.48	4.00	0.10	261.00	1.89	4.00	0.10
74.00	0.65	4.00	0.10	137.00	1.07	4.00	0.10	199.00	1.48	4.00	0.10	262.00	1.89	4.00	0.10
75.00	0.65	4.00	0.10	138.00	1.08	4.00	0.10	200.00	1.49	4.00	0.10	263.00	1.90	4.00	0.10
76.00	0.66	4.00	0.10	139.00	1.09	4.00	0.10	201.00	1.50	4.00	0.10	264.00	1.91	4.00	0.10
77.00	0.67	4.00	0.10	140.00	1.09	4.00	0.10	202.00	1.50	4.00	0.10	265.00	1.91	4.00	0.10
78.00	0.67	4.00	0.10	140.50	1.10	4.00	0.10	203.00	1.51	4.00	0.10	266.00	1.92	4.00	0.10
79.00	0.68	4.00	0.10	141.00	1.10	4.00	0.10	204.00	1.52	4.00	0.10	267.00	1.93	4.00	0.10
80.00	0.69	4.00	0.10	142.00	1.11	4.00	0.10	205.00	1.52	4.00	0.10	268.00	1.93	4.00	0.10
81.00	0.69	4.00	0.10	143.00	1.11	4.00	0.10	206.00	1.53	4.00	0.10	269.00	1.94	4.00	0.10
82.00	0.70	4.00	0.10	144.00	1.12	4.00	0.10	207.00	1.54	4.00	0.10	270.00	1.95	4.00	0.10
83.00	0.71	4.00	0.10	145.00	1.13	4.00	0.10	208.00	1.54	4.00	0.10	271.00	1.95	4.00	0.10
84.00	0.72	4.00	0.10	146.00	1.13	4.00	0.10	209.00	1.55	4.00	0.10	272.00	1.96	4.00	0.10
85.00	0.72	4.00	0.10	147.00	1.14	4.00	0.10	210.00	1.56	4.00	0.10	273.00	1.97	4.00	0.10
86.00	0.73	4.00	0.10	148.00	1.15	4.00	0.10	211.00	1.56	4.00	0.10	274.00	1.97	4.00	0.10
87.00	0.74	4.00	0.10	149.00	1.15	4.00	0.10	212.00	1.57	4.00	0.10	275.00	1.98	4.00	0.10
88.00	0.74	4.00	0.10	150.00	1.16	4.00	0.10	213.00	1.58	4.00	0.10	276.00	1.99	4.00	0.10
89.00	0.75	4.00	0.10	151.00	1.17	4.00	0.10	214.00	1.58	4.00	0.10	277.00	1.99	4.00	0.10
90.00	0.76	4.00	0.10	152.00	1.17	4.00	0.10	215.00	1.59	4.00	0.10	278.00	2.00	4.00	0.10
91.00	0.76	4.00	0.10	153.00	1.18	4.00	0.10	216.00	1.60	4.00	0.10	279.00	2.00	4.00	0.10
92.00	0.77	4.00	0.10	154.00	1.19	4.00	0.10	217.00	1.60	4.00	0.10	280.00	2.01	4.00	0.10
93.00	0.78	4.00	0.10	155.00	1.19	4.00	0.10	218.00	1.61	4.00	0.10	281.00	2.02	4.00	0.10
94.00	0.78	4.00	0.10	156.00	1.20	4.00	0.10	219.00	1.62	4.00	0.10	282.00	2.02	4.00	0.10
95.00	0.79	4.00	0.10	157.00	1.21	4.00	0.10	220.00	1.62	4.00	0.10	283.00	2.03	4.00	0.10
96.00	0.80	4.00	0.10	158.00	1.21	4.00	0.10	221.00	1.63	4.00	0.10	284.00	2.04	4.00	0.10
97.00	0.80	4.00	0.10	159.00	1.22	4.00	0.10	222.00	1.64	4.00	0.10	285.00	2.04	4.00	0.10
98.00	0.81	4.00	0.10	160.00	1.23	4.00	0.10	223.00	1.64	4.00	0.10	286.00	2.05	4.00	0.10
99.00	0.82	4.00	0.10	161.00	1.23	4.00	0.10	224.00	1.65	4.00	0.10	287.00	2.06	4.00	0.10
100.00	0.82	4.00	0.10	162.00	1.24	4.00	0.10	225.00	1.65	4.00	0.10	288.00	2.06	4.00	0.10
101.00	0.83	4.00	0.10	163.00	1.25	4.00	0.10	226.00	1.66	4.00	0.10	289.00	2.07	4.00	0.10
102.00	0.84	4.00	0.10	164.00	1.25	4.00	0.10	227.00	1.67	4.00	0.10	290.00	2.08	4.00	0.10

METRIC O-RINGS

MOR



Measurements In Millimeters				Measurements In Millimeters				Measurements In Millimeters				Measurements In Millimeters			
ID	±	CS	±	ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
4.00 MM - CROSS SECTION				4.00 MM - CROSS SECTION				4.00 MM - CROSS SECTION				4.00 MM - CROSS SECTION			
291.00	2.08	4.00	0.10	354.00	2.49	4.00	0.10	417.00	2.89	4.00	0.10	480.00	3.28	4.00	0.10
292.00	2.09	4.00	0.10	355.00	2.49	4.00	0.10	418.00	2.89	4.00	0.10	481.00	3.29	4.00	0.10
293.00	2.10	4.00	0.10	356.00	2.50	4.00	0.10	419.00	2.90	4.00	0.10	482.00	3.30	4.00	0.10
294.00	2.10	4.00	0.10	357.00	2.50	4.00	0.10	420.00	2.90	4.00	0.10	483.00	3.30	4.00	0.10
295.00	2.11	4.00	0.10	358.00	2.51	4.00	0.10	421.00	2.91	4.00	0.10	484.00	3.31	4.00	0.10
296.00	2.11	4.00	0.10	359.00	2.52	4.00	0.10	422.00	2.92	4.00	0.10	485.00	3.31	4.00	0.10
297.00	2.12	4.00	0.10	360.00	2.52	4.00	0.10	423.00	2.92	4.00	0.10	486.00	3.32	4.00	0.10
298.00	2.13	4.00	0.10	361.00	2.53	4.00	0.10	424.00	2.93	4.00	0.10	487.00	3.33	4.00	0.10
299.00	2.13	4.00	0.10	362.00	2.54	4.00	0.10	425.00	2.94	4.00	0.10	488.00	3.33	4.00	0.10
300.00	2.14	4.00	0.10	363.00	2.54	4.00	0.10	426.00	2.94	4.00	0.10	489.00	3.34	4.00	0.10
301.00	2.15	4.00	0.10	364.00	2.55	4.00	0.10	427.00	2.95	4.00	0.10	490.00	3.35	4.00	0.10
302.00	2.15	4.00	0.10	365.00	2.56	4.00	0.10	428.00	2.96	4.00	0.10	491.00	3.35	4.00	0.10
303.00	2.16	4.00	0.10	366.00	2.56	4.00	0.10	429.00	2.96	4.00	0.10	492.00	3.36	4.00	0.10
304.00	2.17	4.00	0.10	367.00	2.57	4.00	0.10	430.00	2.97	4.00	0.10	493.00	3.36	4.00	0.10
305.00	2.17	4.00	0.10	368.00	2.57	4.00	0.10	431.00	2.97	4.00	0.10	494.00	3.37	4.00	0.10
306.00	2.18	4.00	0.10	369.00	2.58	4.00	0.10	432.00	2.98	4.00	0.10	495.00	3.38	4.00	0.10
307.00	2.19	4.00	0.10	370.00	2.59	4.00	0.10	433.00	2.99	4.00	0.10	496.00	3.38	4.00	0.10
308.00	2.19	4.00	0.10	371.00	2.59	4.00	0.10	434.00	2.99	4.00	0.10	497.00	3.39	4.00	0.10
309.00	2.20	4.00	0.10	372.00	2.60	4.00	0.10	435.00	3.00	4.00	0.10	498.00	3.40	4.00	0.10
310.00	2.20	4.00	0.10	373.00	2.61	4.00	0.10	436.00	3.01	4.00	0.10	499.00	3.40	4.00	0.10
311.00	2.21	4.00	0.10	374.00	2.61	4.00	0.10	437.00	3.01	4.00	0.10	500.00	3.41	4.00	0.10
312.00	2.22	4.00	0.10	375.00	2.62	4.00	0.10	438.00	3.02	4.00	0.10	525.00	3.56	4.00	0.10
313.00	2.22	4.00	0.10	376.00	2.63	4.00	0.10	439.00	3.02	4.00	0.10	530.00	3.60	4.00	0.10
314.00	2.23	4.00	0.10	377.00	2.63	4.00	0.10	440.00	3.03	4.00	0.10	540.00	3.66	4.00	0.10
315.00	2.24	4.00	0.10	378.00	2.64	4.00	0.10	441.00	3.04	4.00	0.10	550.00	3.72	4.00	0.10
316.00	2.24	4.00	0.10	379.00	2.64	4.00	0.10	442.00	3.04	4.00	0.10	560.00	3.78	4.00	0.10
317.00	2.25	4.00	0.10	380.00	2.65	4.00	0.10	443.00	3.05	4.00	0.10				
318.00	2.26	4.00	0.10	381.00	2.66	4.00	0.10	444.00	3.06	4.00	0.10				
319.00	2.26	4.00	0.10	382.00	2.66	4.00	0.10	445.00	3.06	4.00	0.10	<b>5.00 MM - CROSS SECTION</b>			
320.00	2.27	4.00	0.10	383.00	2.67	4.00	0.10	446.00	3.07	4.00	0.10	4.00	0.14	5.00	0.13
321.00	2.27	4.00	0.10	384.00	2.68	4.00	0.10	447.00	3.08	4.00	0.10	5.00	0.15	5.00	0.13
322.00	2.28	4.00	0.10	385.00	2.68	4.00	0.10	448.00	3.08	4.00	0.10	6.00	0.15	5.00	0.13
323.00	2.29	4.00	0.10	386.00	2.69	4.00	0.10	449.00	3.09	4.00	0.10	7.00	0.16	5.00	0.13
324.00	2.29	4.00	0.10	387.00	2.70	4.00	0.10	450.00	3.09	4.00	0.10	8.00	0.16	5.00	0.13
325.00	2.30	4.00	0.10	388.00	2.70	4.00	0.10	451.00	3.10	4.00	0.10	9.00	0.17	5.00	0.13
326.00	2.31	4.00	0.10	389.00	2.71	4.00	0.10	452.00	3.11	4.00	0.10	10.00	0.17	5.00	0.13
327.00	2.31	4.00	0.10	390.00	2.71	4.00	0.10	453.00	3.11	4.00	0.10	11.00	0.18	5.00	0.13
328.00	2.32	4.00	0.10	391.00	2.72	4.00	0.10	454.00	3.12	4.00	0.10	12.00	0.19	5.00	0.13
329.00	2.33	4.00	0.10	392.00	2.73	4.00	0.10	455.00	3.13	4.00	0.10	13.00	0.19	5.00	0.13
330.00	2.33	4.00	0.10	393.00	2.73	4.00	0.10	456.00	3.13	4.00	0.10	14.00	0.19	5.00	0.13
331.00	2.34	4.00	0.10	394.00	2.74	4.00	0.10	457.00	3.14	4.00	0.10	15.00	0.20	5.00	0.13
332.00	2.35	4.00	0.10	395.00	2.75	4.00	0.10	458.00	3.14	4.00	0.10	16.00	0.20	5.00	0.13
333.00	2.35	4.00	0.10	396.00	2.75	4.00	0.10	459.00	3.15	4.00	0.10	17.00	0.21	5.00	0.13
334.00	2.36	4.00	0.10	397.00	2.76	4.00	0.10	460.00	3.16	4.00	0.10	18.00	0.21	5.00	0.13
335.00	2.36	4.00	0.10	398.00	2.77	4.00	0.10	461.00	3.16	4.00	0.10	19.00	0.22	5.00	0.13
336.00	2.37	4.00	0.10	399.00	2.77	4.00	0.10	462.00	3.17	4.00	0.10	20.00	0.22	5.00	0.13
337.00	2.38	4.00	0.10	400.00	2.78	4.00	0.10	463.00	3.18	4.00	0.10	21.00	0.23	5.00	0.13
338.00	2.38	4.00	0.10	401.00	2.78	4.00	0.10	464.00	3.18	4.00	0.10	22.00	0.24	5.00	0.13
339.00	2.39	4.00	0.10	402.00	2.79	4.00	0.10	465.00	3.19	4.00	0.10	23.00	0.24	5.00	0.13
340.00	2.40	4.00	0.10	403.00	2.80	4.00	0.10	466.00	3.19	4.00	0.10	24.00	0.24	5.00	0.13
341.00	2.40	4.00	0.10	404.00	2.80	4.00	0.10	467.00	3.20	4.00	0.10	25.00	0.25	5.00	0.13
342.00	2.41	4.00	0.10	405.00	2.81	4.00	0.10	468.00	3.21	4.00	0.10	26.00	0.26	5.00	0.13
343.00	2.42	4.00	0.10	406.00	2.82	4.00	0.10	469.00	3.21	4.00	0.10	27.00	0.26	5.00	0.13
344.00	2.42	4.00	0.10	407.00	2.82	4.00	0.10	470.00	3.22	4.00	0.10	28.00	0.28	5.00	0.13
345.00	2.43	4.00	0.10	408.00	2.83	4.00	0.10	471.00	3.23	4.00	0.10	29.00	0.29	5.00	0.13
346.00	2.43	4.00	0.10	409.00	2.84	4.00	0.10	472.00	3.23	4.00	0.10	30.00	0.29	5.00	0.13
347.00	2.44	4.00	0.10	410.00	2.84	4.00	0.10	473.00	3.24	4.00	0.10	31.00	0.31	5.00	0.13
348.00	2.45	4.00	0.10	411.00	2.85	4.00	0.10	474.00	3.24	4.00	0.10	32.00	0.32	5.00	0.13
349.00	2.45	4.00	0.10	412.00	2.85	4.00	0.10	475.00	3.25	4.00	0.10	33.00	0.32	5.00	0.13
350.00	2.46	4.00	0.10	413.00	2.86	4.00	0.10	476.00	3.26	4.00	0.10	34.00	0.33	5.00	0.13
351.00	2.47	4.00	0.10	414.00	2.87	4.00	0.10	477.00	3.26	4.00	0.10	35.00	0.34	5.00	0.13
352.00	2.47	4.00	0.10	415.00	2.87	4.00	0.10	478.00	3.27	4.00	0.10	36.00	0.35	5.00	0.13
353.00	2.48	4.00	0.10	416.00	2.88	4.00	0.10	479.00	3.28	4.00	0.10	37.00	0.36	5.00	0.13
												38.00	0.36	5.00	0.13



Measurements In Millimeters				Measurements In Millimeters				Measurements In Millimeters				Measurements In Millimeters			
ID	±	CS	±	ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
4.00 MM - CROSS SECTION				5.00 MM - CROSS SECTION				5.00 MM - CROSS SECTION				5.00 MM - CROSS SECTION			
39.00	0.37	5.00	0.13	102.00	0.84	5.00	0.13	165.00	1.26	5.00	0.13	228.00	1.67	5.00	0.13
40.00	0.38	5.00	0.13	103.00	0.85	5.00	0.13	166.00	1.27	5.00	0.13	229.00	1.68	5.00	0.13
41.00	0.39	5.00	0.13	104.00	0.85	5.00	0.13	167.00	1.27	5.00	0.13	230.00	1.69	5.00	0.13
42.00	0.40	5.00	0.13	105.00	0.86	5.00	0.13	168.00	1.28	5.00	0.13	231.00	1.69	5.00	0.13
43.00	0.40	5.00	0.13	106.00	0.87	5.00	0.13	169.00	1.29	5.00	0.13	232.00	1.70	5.00	0.13
44.00	0.41	5.00	0.13	107.00	0.87	5.00	0.13	170.00	1.29	5.00	0.13	233.00	1.71	5.00	0.13
45.00	0.42	5.00	0.13	108.00	0.88	5.00	0.13	171.00	1.30	5.00	0.13	234.00	1.71	5.00	0.13
46.00	0.43	5.00	0.13	109.00	0.89	5.00	0.13	172.00	1.31	5.00	0.13	235.00	1.72	5.00	0.13
47.00	0.44	5.00	0.13	110.00	0.89	5.00	0.13	173.00	1.31	5.00	0.13	236.00	1.73	5.00	0.13
48.00	0.44	5.00	0.13	111.00	0.90	5.00	0.13	174.00	1.32	5.00	0.13	237.00	1.73	5.00	0.13
49.00	0.45	5.00	0.13	112.00	0.91	5.00	0.13	175.00	1.33	5.00	0.13	238.00	1.74	5.00	0.13
50.00	0.46	5.00	0.13	113.00	0.91	5.00	0.13	176.00	1.33	5.00	0.13	239.00	1.75	5.00	0.13
51.00	0.47	5.00	0.13	114.00	0.92	5.00	0.13	177.00	1.34	5.00	0.13	240.00	1.75	5.00	0.13
52.00	0.47	5.00	0.13	115.00	0.93	5.00	0.13	178.00	1.35	5.00	0.13	241.00	1.76	5.00	0.13
53.00	0.48	5.00	0.13	116.00	0.93	5.00	0.13	179.00	1.35	5.00	0.13	242.00	1.77	5.00	0.13
54.00	0.50	5.00	0.13	117.00	0.94	5.00	0.13	180.00	1.36	5.00	0.13	243.00	1.77	5.00	0.13
55.00	0.50	5.00	0.13	118.00	0.95	5.00	0.13	181.00	1.37	5.00	0.13	244.00	1.78	5.00	0.13
56.00	0.51	5.00	0.13	119.00	0.95	5.00	0.13	182.00	1.37	5.00	0.13	245.00	1.78	5.00	0.13
57.00	0.52	5.00	0.13	120.00	0.96	5.00	0.13	183.00	1.38	5.00	0.13	246.00	1.79	5.00	0.13
58.00	0.52	5.00	0.13	121.00	0.97	5.00	0.13	184.00	1.39	5.00	0.13	247.00	1.80	5.00	0.13
59.00	0.54	5.00	0.13	122.00	0.97	5.00	0.13	185.00	1.39	5.00	0.13	248.00	1.80	5.00	0.13
60.00	0.54	5.00	0.13	123.00	0.98	5.00	0.13	186.00	1.40	5.00	0.13	249.00	1.81	5.00	0.13
61.00	0.55	5.00	0.13	124.00	0.99	5.00	0.13	187.00	1.41	5.00	0.13	250.00	1.82	5.00	0.13
62.00	0.55	5.00	0.13	125.00	0.99	5.00	0.13	188.00	1.41	5.00	0.13	251.00	1.82	5.00	0.13
63.00	0.56	5.00	0.13	126.00	1.00	5.00	0.13	189.00	1.42	5.00	0.13	252.00	1.83	5.00	0.13
64.00	0.58	5.00	0.13	127.00	1.01	5.00	0.13	190.00	1.43	5.00	0.13	253.00	1.84	5.00	0.13
65.00	0.58	5.00	0.13	128.00	1.01	5.00	0.13	191.00	1.43	5.00	0.13	254.00	1.84	5.00	0.13
66.00	0.59	5.00	0.13	129.00	1.02	5.00	0.13	192.00	1.44	5.00	0.13	255.00	1.85	5.00	0.13
67.00	0.59	5.00	0.13	130.00	1.03	5.00	0.13	193.00	1.45	5.00	0.13	256.00	1.86	5.00	0.13
68.00	0.61	5.00	0.13	131.00	1.03	5.00	0.13	194.00	1.45	5.00	0.13	257.00	1.86	5.00	0.13
69.00	0.61	5.00	0.13	132.00	1.04	5.00	0.13	195.00	1.46	5.00	0.13	258.00	1.87	5.00	0.13
70.00	0.62	5.00	0.13	133.00	1.05	5.00	0.13	196.00	1.46	5.00	0.13	259.00	1.88	5.00	0.13
71.00	0.63	5.00	0.13	134.00	1.05	5.00	0.13	197.00	1.47	5.00	0.13	260.00	1.88	5.00	0.13
72.00	0.63	5.00	0.13	135.00	1.06	5.00	0.13	198.00	1.48	5.00	0.13	261.00	1.89	5.00	0.13
73.00	0.64	5.00	0.13	136.00	1.07	5.00	0.13	199.00	1.48	5.00	0.13	262.00	1.89	5.00	0.13
74.00	0.65	5.00	0.13	137.00	1.07	5.00	0.13	200.00	1.49	5.00	0.13	263.00	1.90	5.00	0.13
75.00	0.65	5.00	0.13	138.00	1.08	5.00	0.13	201.00	1.50	5.00	0.13	264.00	1.91	5.00	0.13
76.00	0.66	5.00	0.13	139.00	1.09	5.00	0.13	202.00	1.50	5.00	0.13	265.00	1.91	5.00	0.13
77.00	0.67	5.00	0.13	140.00	1.09	5.00	0.13	203.00	1.51	5.00	0.13	266.00	1.92	5.00	0.13
78.00	0.67	5.00	0.13	141.00	1.10	5.00	0.13	204.00	1.52	5.00	0.13	267.00	1.93	5.00	0.13
79.00	0.68	5.00	0.13	142.00	1.11	5.00	0.13	205.00	1.52	5.00	0.13	268.00	1.93	5.00	0.13
80.00	0.69	5.00	0.13	143.00	1.11	5.00	0.13	206.00	1.53	5.00	0.13	269.00	1.94	5.00	0.13
81.00	0.69	5.00	0.13	144.00	1.12	5.00	0.13	207.00	1.54	5.00	0.13	270.00	1.95	5.00	0.13
82.00	0.70	5.00	0.13	145.00	1.13	5.00	0.13	208.00	1.54	5.00	0.13	271.00	1.95	5.00	0.13
83.00	0.71	5.00	0.13	146.00	1.13	5.00	0.13	209.00	1.55	5.00	0.13	272.00	1.96	5.00	0.13
84.00	0.72	5.00	0.13	147.00	1.14	5.00	0.13	210.00	1.56	5.00	0.13	273.00	1.97	5.00	0.13
85.00	0.72	5.00	0.13	148.00	1.15	5.00	0.13	211.00	1.56	5.00	0.13	274.00	1.97	5.00	0.13
86.00	0.73	5.00	0.13	149.00	1.15	5.00	0.13	212.00	1.57	5.00	0.13	275.00	1.98	5.00	0.13
87.00	0.74	5.00	0.13	150.00	1.16	5.00	0.13	213.00	1.58	5.00	0.13	276.00	1.99	5.00	0.13
88.00	0.74	5.00	0.13	151.00	1.17	5.00	0.13	214.00	1.58	5.00	0.13	277.00	1.99	5.00	0.13
89.00	0.75	5.00	0.13	152.00	1.17	5.00	0.13	215.00	1.59	5.00	0.13	278.00	2.00	5.00	0.13
90.00	0.76	5.00	0.13	153.00	1.18	5.00	0.13	216.00	1.60	5.00	0.13	279.00	2.00	5.00	0.13
91.00	0.76	5.00	0.13	154.00	1.19	5.00	0.13	217.00	1.60	5.00	0.13	280.00	2.01	5.00	0.13
92.00	0.77	5.00	0.13	155.00	1.19	5.00	0.13	218.00	1.61	5.00	0.13	281.00	2.02	5.00	0.13
93.00	0.78	5.00	0.13	156.00	1.20	5.00	0.13	219.00	1.62	5.00	0.13	282.00	2.02	5.00	0.13
94.00	0.78	5.00	0.13	157.00	1.21	5.00	0.13	220.00	1.62	5.00	0.13	283.00	2.03	5.00	0.13
95.00	0.79	5.00	0.13	158.00	1.21	5.00	0.13	221.00	1.63	5.00	0.13	284.00	2.04	5.00	0.13
96.00	0.80	5.00	0.13	159.00	1.22	5.00	0.13	222.00	1.64	5.00	0.13	285.00	2.04	5.00	0.13
97.00	0.80	5.00	0.13	160.00	1.23	5.00	0.13	223.00	1.64	5.00	0.13	286.00	2.05	5.00	0.13
98.00	0.81	5.00	0.13	161.00	1.23	5.00	0.13	224.00	1.65	5.00	0.13	287.00	2.06	5.00	0.13
99.00	0.82	5.00	0.13	162.00	1.24	5.00	0.13	225.00	1.65	5.00	0.13	288.00	2.06	5.00	0.13
100.00	0.82	5.00	0.13	163.00	1.25	5.00	0.13	226.00	1.66	5.00	0.13	289.00	2.07	5.00	0.13
101.00	0.83	5.00	0.13	164.00	1.25	5.00	0.13	227.00	1.67	5.00	0.13	290.00	2.08	5.00	0.13

METRIC O-RINGS

MOR

Measurements In Millimeters				Measurements In Millimeters				Measurements In Millimeters				Measurements In Millimeters			
ID	±	CS	±	ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
5.00 MM - CROSS SECTION				5.00 MM - CROSS SECTION				5.00 MM - CROSS SECTION				6.00 MM - CROSS SECTION			
291.00	2.08	5.00	0.13	354.00	2.49	5.00	0.13	485.00	3.31	5.00	0.13	205.00	1.52	6.00	0.15
292.00	2.09	5.00	0.13	355.00	2.49	5.00	0.13	490.00	3.35	5.00	0.13	210.00	1.56	6.00	0.15
293.00	2.10	5.00	0.13	356.00	2.50	5.00	0.13	495.00	3.38	5.00	0.13	215.00	1.59	6.00	0.15
294.00	2.10	5.00	0.13	357.00	2.50	5.00	0.13	500.00	3.41	5.00	0.13	220.00	1.62	6.00	0.15
295.00	2.11	5.00	0.13	358.00	2.51	5.00	0.13	505.00	3.44	5.00	0.13	225.00	1.65	6.00	0.15
296.00	2.11	5.00	0.13	359.00	2.52	5.00	0.13	510.00	3.47	5.00	0.13	230.00	1.69	6.00	0.15
297.00	2.12	5.00	0.13	360.00	2.52	5.00	0.13	515.00	3.50	5.00	0.13	235.00	1.72	6.00	0.15
298.00	2.13	5.00	0.13	361.00	2.53	5.00	0.13	520.00	3.53	5.00	0.13	240.00	1.75	6.00	0.15
299.00	2.13	5.00	0.13	362.00	2.54	5.00	0.13	525.00	3.56	5.00	0.13	245.00	1.78	6.00	0.15
300.00	2.14	5.00	0.13	363.00	2.54	5.00	0.13	530.00	3.60	5.00	0.13	250.00	1.82	6.00	0.15
301.00	2.15	5.00	0.13	364.00	2.55	5.00	0.13	535.00	3.63	5.00	0.13	255.00	1.88	6.00	0.15
302.00	2.15	5.00	0.13	365.00	2.56	5.00	0.13	540.00	3.66	5.00	0.13	260.00	1.95	6.00	0.15
303.00	2.16	5.00	0.13	366.00	2.56	5.00	0.13	545.00	3.69	5.00	0.13	275.00	1.98	6.00	0.15
304.00	2.17	5.00	0.13	367.00	2.57	5.00	0.13	550.00	3.72	5.00	0.13	280.00	2.01	6.00	0.15
305.00	2.17	5.00	0.13	368.00	2.57	5.00	0.13	555.00	3.75	5.00	0.13	295.00	2.11	6.00	0.15
306.00	2.18	5.00	0.13	369.00	2.58	5.00	0.13	560.00	3.78	5.00	0.13	300.00	2.14	6.00	0.15
307.00	2.19	5.00	0.13	370.00	2.59	5.00	0.13	565.00	3.81	5.00	0.13	310.00	2.20	6.00	0.15
308.00	2.19	5.00	0.13	371.00	2.59	5.00	0.13	570.00	3.85	5.00	0.13	320.00	2.27	6.00	0.15
309.00	2.20	5.00	0.13	372.00	2.60	5.00	0.13	575.00	3.88	5.00	0.13	325.00	2.30	6.00	0.15
310.00	2.20	5.00	0.13	373.00	2.61	5.00	0.13	580.00	3.91	5.00	0.13	330.00	2.33	6.00	0.15
311.00	2.21	5.00	0.13	374.00	2.61	5.00	0.13	585.00	3.93	5.00	0.13	340.00	2.40	6.00	0.15
312.00	2.22	5.00	0.13	375.00	2.62	5.00	0.13	590.00	3.97	5.00	0.13	350.00	2.46	6.00	0.15
313.00	2.22	5.00	0.13	376.00	2.63	5.00	0.13	595.00	4.00	5.00	0.13	360.00	2.52	6.00	0.15
314.00	2.23	5.00	0.13	377.00	2.63	5.00	0.13	600.00	4.03	5.00	0.13	375.00	2.62	6.00	0.15
315.00	2.24	5.00	0.13	378.00	2.64	5.00	0.13	<b>6.00 MM - CROSS SECTION</b>				380.00	2.65	6.00	0.15
316.00	2.24	5.00	0.13	379.00	2.64	5.00	0.13					20.00	0.26	6.00	0.15
317.00	2.25	5.00	0.13	380.00	2.65	5.00	0.13	25.00	0.30	6.00	0.15	410.00	2.84	6.00	0.15
318.00	2.26	5.00	0.13	381.00	2.66	5.00	0.13	30.00	0.34	6.00	0.15	425.00	2.94	6.00	0.15
319.00	2.26	5.00	0.13	382.00	2.66	5.00	0.13	35.00	0.37	6.00	0.15	450.00	3.09	6.00	0.15
320.00	2.27	5.00	0.13	383.00	2.67	5.00	0.13	40.00	0.41	6.00	0.15	460.00	3.16	6.00	0.15
321.00	2.27	5.00	0.13	384.00	2.68	5.00	0.13	45.00	0.44	6.00	0.15	470.00	3.22	6.00	0.15
322.00	2.28	5.00	0.13	385.00	2.68	5.00	0.13	50.00	0.48	6.00	0.15	475.00	3.25	6.00	0.15
323.00	2.29	5.00	0.13	386.00	2.69	5.00	0.13	55.00	0.52	6.00	0.15	490.00	3.35	6.00	0.15
324.00	2.29	5.00	0.13	387.00	2.70	5.00	0.13	60.00	0.55	6.00	0.15	500.00	3.41	6.00	0.15
325.00	2.30	5.00	0.13	388.00	2.70	5.00	0.13	65.00	0.58	6.00	0.15	525.00	3.56	6.00	0.15
326.00	2.31	5.00	0.13	389.00	2.71	5.00	0.13	70.00	0.62	6.00	0.15	550.00	3.72	6.00	0.15
327.00	2.31	5.00	0.13	390.00	2.71	5.00	0.13	75.00	0.65	6.00	0.15	555.00	3.75	6.00	0.15
328.00	2.32	5.00	0.13	391.00	2.72	5.00	0.13	80.00	0.69	6.00	0.15	575.00	3.88	6.00	0.15
329.00	2.33	5.00	0.13	392.00	2.73	5.00	0.13	85.00	0.72	6.00	0.15	600.00	4.03	6.00	0.15
330.00	2.33	5.00	0.13	393.00	2.73	5.00	0.13	90.00	0.76	6.00	0.15				
331.00	2.34	5.00	0.13	394.00	2.74	5.00	0.13	95.00	0.79	6.00	0.15				
332.00	2.35	5.00	0.13	395.00	2.75	5.00	0.13	100.00	0.82	6.00	0.15				
333.00	2.35	5.00	0.13	396.00	2.75	5.00	0.13	105.00	0.86	6.00	0.15				
334.00	2.36	5.00	0.13	397.00	2.76	5.00	0.13	110.00	0.89	6.00	0.15				
335.00	2.36	5.00	0.13	398.00	2.77	5.00	0.13	115.00	0.93	6.00	0.15				
336.00	2.37	5.00	0.13	399.00	2.77	5.00	0.13	120.00	0.96	6.00	0.15				
337.00	2.38	5.00	0.13	400.00	2.78	5.00	0.13	125.00	0.99	6.00	0.15				
338.00	2.38	5.00	0.13	405.00	2.81	5.00	0.13	130.00	1.03	6.00	0.15				
339.00	2.39	5.00	0.13	410.00	2.84	5.00	0.13	135.00	1.06	6.00	0.15				
340.00	2.40	5.00	0.13	415.00	2.87	5.00	0.13	140.00	1.09	6.00	0.15				
341.00	2.40	5.00	0.13	420.00	2.90	5.00	0.13	145.00	1.13	6.00	0.15				
342.00	2.41	5.00	0.13	425.00	2.94	5.00	0.13	150.00	1.16	6.00	0.15				
343.00	2.42	5.00	0.13	430.00	2.97	5.00	0.13	155.00	1.19	6.00	0.15				
344.00	2.42	5.00	0.13	435.00	3.00	5.00	0.13	160.00	1.23	6.00	0.15				
345.00	2.43	5.00	0.13	440.00	3.03	5.00	0.13	165.00	1.26	6.00	0.15				
346.00	2.43	5.00	0.13	445.00	3.06	5.00	0.13	170.00	1.29	6.00	0.15				
347.00	2.44	5.00	0.13	450.00	3.09	5.00	0.13	175.00	1.33	6.00	0.15				
348.00	2.45	5.00	0.13	455.00	3.13	5.00	0.13	180.00	1.36	6.00	0.15				
349.00	2.45	5.00	0.13	460.00	3.16	5.00	0.13	185.00	1.39	6.00	0.15				
350.00	2.46	5.00	0.13	465.00	3.19	5.00	0.13	190.00	1.43	6.00	0.15				
351.00	2.47	5.00	0.13	470.00	3.22	5.00	0.13	195.00	1.46	6.00	0.15				
352.00	2.47	5.00	0.13	475.00	3.25	5.00	0.13	200.00	1.49	6.00	0.15				
353.00	2.48	5.00	0.13	480.00	3.28	5.00	0.13								



Measurements In Millimeters				Measurements In Inches				Measurements In Millimeters				Measurements In Inches			
ID	±	CS	±	ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
<b>1.6 MM - CROSS SECTION</b>								<b>3 MM - CROSS SECTION</b>							
3.1	0.14	1.6	0.08	0.122	0.006	0.063	0.003	26.2	0.31	3	0.09	1.031	0.012	0.118	0.004
4.1	0.14	1.6	0.08	0.161	0.006	0.063	0.003	28.2	0.32	3	0.09	1.11	0.013	0.118	0.004
5.1	0.15	1.6	0.08	0.201	0.006	0.063	0.003	29.2	0.33	3	0.09	1.15	0.013	0.118	0.004
6.1	0.16	1.6	0.08	0.24	0.006	0.063	0.003	30.2	0.34	3	0.09	1.189	0.013	0.118	0.004
7.1	0.17	1.6	0.08	0.28	0.007	0.063	0.003	31.2	0.35	3	0.09	1.228	0.014	0.118	0.004
8.1	0.18	1.6	0.08	0.319	0.007	0.063	0.003	32.2	0.35	3	0.09	1.268	0.014	0.118	0.004
9.1	0.18	1.6	0.08	0.358	0.007	0.063	0.003	34.2	0.37	3	0.09	1.346	0.015	0.118	0.004
10.1	0.19	1.6	0.08	0.398	0.007	0.063	0.003	35.2	0.38	3	0.09	1.386	0.015	0.118	0.004
11.1	0.2	1.6	0.08	0.437	0.008	0.063	0.003	36.2	0.38	3	0.09	1.425	0.015	0.118	0.004
12.1	0.21	1.6	0.08	0.476	0.008	0.063	0.003	37.2	0.39	3	0.09	1.465	0.015	0.118	0.004
13.1	0.21	1.6	0.08	0.516	0.008	0.063	0.003	39.2	0.4	3	0.09	1.543	0.016	0.118	0.004
14.1	0.22	1.6	0.08	0.555	0.009	0.063	0.003	40.2	0.41	3	0.09	1.583	0.016	0.118	0.004
15.1	0.23	1.6	0.08	0.594	0.009	0.063	0.003	42.2	0.42	3	0.09	1.661	0.017	0.118	0.004
16.1	0.24	1.6	0.08	0.634	0.009	0.063	0.003	44.2	0.44	3	0.09	1.74	0.017	0.118	0.004
17.1	0.24	1.6	0.08	0.673	0.009	0.063	0.003	45.2	0.45	3	0.09	1.78	0.018	0.118	0.004
18.1	0.25	1.6	0.08	0.713	0.01	0.063	0.003	46.2	0.45	3	0.09	1.819	0.018	0.118	0.004
19.1	0.26	1.6	0.08	0.752	0.01	0.063	0.003	49.5	0.48	3	0.09	1.949	0.019	0.118	0.004
20.1	0.27	1.6	0.08	0.791	0.011	0.063	0.003	50.2	0.48	3	0.09	1.976	0.019	0.118	0.004
21.1	0.27	1.6	0.08	0.831	0.011	0.063	0.003	54.5	0.51	3	0.09	2.146	0.02	0.118	0.004
22.1	0.28	1.6	0.08	0.87	0.011	0.063	0.003	55.2	0.52	3	0.09	2.173	0.02	0.118	0.004
25.1	0.3	1.6	0.08	0.988	0.012	0.063	0.003	56.2	0.52	3	0.09	2.213	0.02	0.118	0.004
27.1	0.32	1.6	0.08	1.067	0.013	0.063	0.003	57.2	0.53	3	0.09	2.252	0.021	0.118	0.004
29.1	0.33	1.6	0.08	1.146	0.013	0.063	0.003	59.5	0.55	3	0.09	2.343	0.022	0.118	0.004
32.1	0.35	1.6	0.08	1.264	0.014	0.063	0.003	60.5	0.55	3	0.09	2.382	0.022	0.118	0.004
35.1	0.37	1.6	0.08	1.382	0.015	0.063	0.003	62.2	0.57	3	0.09	2.449	0.022	0.118	0.004
37.1	0.39	1.6	0.08	1.461	0.015	0.063	0.003	64.5	0.58	3	0.09	2.539	0.023	0.118	0.004
69.5	0.62	3	0.09	2.736	0.024	0.118	0.004	74.5	0.65	3	0.09	2.933	0.026	0.118	0.004
<b>2.4 MM - CROSS SECTION</b>								<b>5.7 MM - CROSS SECTION</b>							
3.3	0.14	2.4	0.09	0.13	0.006	0.094	0.004	79.5	0.68	3	0.09	3.13	0.027	0.118	0.004
4.3	0.15	2.4	0.09	0.169	0.006	0.094	0.004	84.5	0.72	3	0.09	3.327	0.028	0.118	0.004
5.3	0.15	2.4	0.09	0.209	0.006	0.094	0.004	89.5	0.75	3	0.09	3.524	0.03	0.118	0.004
6.3	0.16	2.4	0.09	0.248	0.006	0.094	0.004	94.5	0.79	3	0.09	3.72	0.031	0.118	0.004
7.3	0.17	2.4	0.09	0.287	0.007	0.094	0.004	99.5	0.82	3	0.09	3.917	0.032	0.118	0.004
8.3	0.18	2.4	0.09	0.327	0.007	0.094	0.004	104.5	0.86	3	0.09	4.114	0.034	0.118	0.004
9.3	0.18	2.4	0.09	0.366	0.007	0.094	0.004	109.5	0.89	3	0.09	4.311	0.035	0.118	0.004
10.3	0.19	2.4	0.09	0.406	0.007	0.094	0.004	114.5	0.92	3	0.09	4.508	0.036	0.118	0.004
11.3	0.2	2.4	0.09	0.445	0.008	0.094	0.004	119.5	0.96	3	0.09	4.705	0.038	0.118	0.004
12.3	0.21	2.4	0.09	0.484	0.008	0.094	0.004	124.5	0.99	3	0.09	4.902	0.039	0.118	0.004
13.3	0.22	2.4	0.09	0.524	0.009	0.094	0.004	129.5	1.02	3	0.09	5.098	0.04	0.118	0.004
14.3	0.22	2.4	0.09	0.563	0.009	0.094	0.004	134.5	1.06	3	0.09	5.295	0.042	0.118	0.004
15.3	0.23	2.4	0.09	0.602	0.009	0.094	0.004	139.5	1.09	3	0.09	5.492	0.043	0.118	0.004
16.3	0.24	2.4	0.09	0.642	0.009	0.094	0.004	144.5	1.12	3	0.09	5.689	0.044	0.118	0.004
17.3	0.25	2.4	0.09	0.681	0.01	0.094	0.004	35.2	0.38	5.7	0.13	1.386	0.015	0.224	0.005
18.3	0.25	2.4	0.09	0.72	0.01	0.094	0.004	36.2	0.38	5.7	0.13	1.425	0.015	0.224	0.005
19.3	0.26	2.4	0.09	0.76	0.01	0.094	0.004	37.2	0.39	5.7	0.13	1.465	0.015	0.224	0.005
20.3	0.27	2.4	0.09	0.799	0.011	0.094	0.004	39.2	0.4	5.7	0.13	1.543	0.016	0.224	0.005
21.3	0.27	2.4	0.09	0.839	0.011	0.094	0.004	41.2	0.42	5.7	0.13	1.622	0.017	0.224	0.005
22.3	0.28	2.4	0.09	0.878	0.011	0.094	0.004	44.2	0.44	5.7	0.13	1.74	0.017	0.224	0.005
23.3	0.29	2.4	0.09	0.917	0.011	0.094	0.004	45.2	0.45	5.7	0.13	1.78	0.018	0.224	0.005
25.3	0.3	2.4	0.09	0.996	0.012	0.094	0.004	47.2	0.46	5.7	0.13	1.858	0.018	0.224	0.005
27.3	0.32	2.4	0.09	1.075	0.013	0.094	0.004	49.2	0.47	5.7	0.13	1.937	0.019	0.224	0.005
30.3	0.34	2.4	0.09	1.193	0.013	0.094	0.004	51.2	0.49	5.7	0.13	2.016	0.019	0.224	0.005
33.3	0.36	2.4	0.09	1.311	0.014	0.094	0.004	52.2	0.5	5.7	0.13	2.055	0.02	0.224	0.005
<b>3 MM - CROSS SECTION</b>								<b>5.7 MM - CROSS SECTION</b>							
17.2	0.24	3	0.09	0.677	0.009	0.118	0.004	54.2	0.51	5.7	0.13	2.134	0.02	0.224	0.005
18.2	0.25	3	0.09	0.717	0.01	0.118	0.004	57.2	0.53	5.7	0.13	2.252	0.021	0.224	0.005
19.2	0.26	3	0.09	0.756	0.01	0.118	0.004	59.2	0.54	5.7	0.13	2.331	0.021	0.224	0.005
20.2	0.27	3	0.09	0.795	0.011	0.118	0.004	61.2	0.56	5.7	0.13	2.409	0.022	0.224	0.005
21.2	0.27	3	0.09	0.835	0.011	0.118	0.004	62.2	0.57	5.7	0.13	2.449	0.022	0.224	0.005
22.2	0.28	3	0.09	0.874	0.011	0.118	0.004	64.2	0.58	5.7	0.13	2.528	0.023	0.224	0.005
24.2	0.3	3	0.09	0.953	0.012	0.118	0.004	67.2	0.6	5.7	0.13	2.646	0.024	0.224	0.005
25.2	0.3	3	0.09	0.992	0.012	0.118	0.004	69.2	0.61	5.7	0.13	2.724	0.024	0.224	0.005

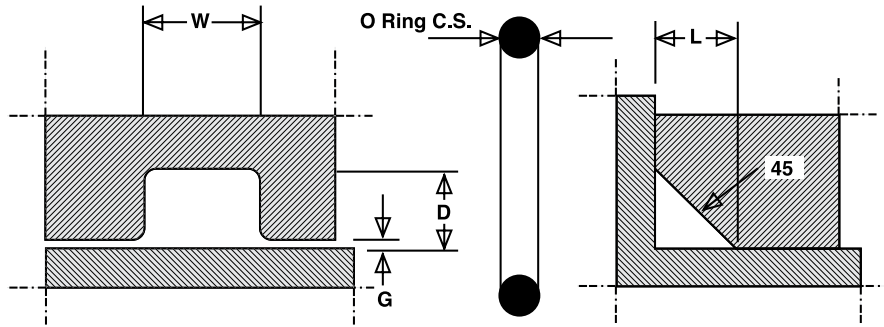
METRIC O-RINGS

MOR



Measurements In Millimeters				Measurements In Inches				Measurements In Millimeters				Measurements In Inches			
ID	±	CS	±	ID	±	CS	±	ID	±	CS	±	ID	±	CS	±
<b>5.7 MM - CROSS SECTION</b>								<b>8.4 MM - CROSS SECTION</b>							
71.2	0.63	5.7	0.13	2.803	0.025	0.224	0.005	144.1	1.12	8.4	0.15	5.673	0.044	0.331	0.006
72.2	0.63	5.7	0.13	2.843	0.025	0.224	0.005	149.1	1.15	8.4	0.15	5.87	0.045	0.331	0.006
74.2	0.65	5.7	0.13	2.921	0.026	0.224	0.005	154.1	1.19	8.4	0.15	6.067	0.047	0.331	0.006
77.2	0.67	5.7	0.13	3.039	0.026	0.224	0.005	159.1	1.22	8.4	0.15	6.264	0.048	0.331	0.006
79.2	0.68	5.7	0.13	3.118	0.027	0.224	0.005	164.1	1.25	8.4	0.15	6.461	0.049	0.331	0.006
81.2	0.7	5.7	0.13	3.197	0.028	0.224	0.005	169.1	1.29	8.4	0.15	6.657	0.051	0.331	0.006
82.2	0.7	5.7	0.13	3.236	0.028	0.224	0.005	174.1	1.32	8.4	0.15	6.854	0.052	0.331	0.006
84.2	0.72	5.7	0.13	3.315	0.028	0.224	0.005	179.1	1.35	8.4	0.15	7.051	0.053	0.331	0.006
87.2	0.74	5.7	0.13	3.433	0.029	0.224	0.005	184.1	1.39	8.4	0.15	7.248	0.055	0.331	0.006
89.2	0.75	5.7	0.13	3.512	0.03	0.224	0.005	189.1	1.42	8.4	0.15	7.445	0.056	0.331	0.006
92.2	0.77	5.7	0.13	3.63	0.03	0.224	0.005	194.1	1.45	8.4	0.15	7.642	0.057	0.331	0.006
94.2	0.79	5.7	0.13	3.709	0.031	0.224	0.005	199.1	1.49	8.4	0.15	7.839	0.059	0.331	0.006
97.2	0.81	5.7	0.13	3.827	0.032	0.224	0.005	209.1	1.55	8.4	0.15	8.232	0.061	0.331	0.006
99.2	0.82	5.7	0.13	3.906	0.032	0.224	0.005	219.1	1.62	8.4	0.15	8.626	0.064	0.331	0.006
104.2	0.85	5.7	0.13	4.102	0.033	0.224	0.005	229.1	1.68	8.4	0.15	9.02	0.066	0.331	0.006
109.2	0.89	5.7	0.13	4.299	0.035	0.224	0.005	239.1	1.75	8.4	0.15	9.413	0.069	0.331	0.006
114.2	0.92	5.7	0.13	4.496	0.036	0.224	0.005	249.1	1.81	8.4	0.15	9.807	0.071	0.331	0.006
119.2	0.95	5.7	0.13	4.693	0.037	0.224	0.005								
124.2	0.99	5.7	0.13	4.89	0.039	0.224	0.005								
129.2	1.02	5.7	0.13	5.087	0.04	0.224	0.005								
134.2	1.06	5.7	0.13	5.283	0.042	0.224	0.005								
139.2	1.09	5.7	0.13	5.48	0.043	0.224	0.005								
144.2	1.12	5.7	0.13	5.677	0.044	0.224	0.005								
149.2	1.16	5.7	0.13	5.874	0.046	0.224	0.005								
154.2	1.19	5.7	0.13	6.071	0.047	0.224	0.005								
159.2	1.22	5.7	0.13	6.268	0.048	0.224	0.005								
164.2	1.26	5.7	0.13	6.465	0.05	0.224	0.005								
169.2	1.29	5.7	0.13	6.661	0.051	0.224	0.005								
174.2	1.32	5.7	0.13	6.858	0.052	0.224	0.005								
179.2	1.35	5.7	0.13	7.055	0.053	0.224	0.005								
184.2	1.39	5.7	0.13	7.252	0.055	0.224	0.005								
189.2	1.42	5.7	0.13	7.449	0.056	0.224	0.005								
194.2	1.45	5.7	0.13	7.646	0.057	0.224	0.005								
199.2	1.49	5.7	0.13	7.843	0.059	0.224	0.005								
204.2	1.52	5.7	0.13	8.039	0.06	0.224	0.005								
209.2	1.55	5.7	0.13	8.236	0.061	0.224	0.005								
219.2	1.62	5.7	0.13	8.63	0.064	0.224	0.005								
229.2	1.68	5.7	0.13	9.024	0.066	0.224	0.005								
239.2	1.75	5.7	0.13	9.417	0.069	0.224	0.005								
249.2	1.81	5.7	0.13	9.811	0.071	0.224	0.005								
259.2	1.88	5.7	0.13	10.205	0.074	0.224	0.005								
269.2	1.94	5.7	0.13	10.598	0.076	0.224	0.005								
279.2	2.01	5.7	0.13	10.992	0.079	0.224	0.005								
289.2	2.07	5.7	0.13	11.386	0.081	0.224	0.005								
299.2	2.13	5.7	0.13	11.78	0.084	0.224	0.005								
319.2	2.26	5.7	0.13	12.567	0.089	0.224	0.005								
339.2	2.39	5.7	0.13	13.354	0.094	0.224	0.005								
359.2	2.52	5.7	0.13	14.142	0.099	0.224	0.005								
379.2	2.65	5.7	0.13	14.929	0.104	0.224	0.005								
399.2	2.77	5.7	0.13	15.717	0.109	0.224	0.005								
419.2	2.9	5.7	0.13	16.504	0.114	0.224	0.005								
439.2	3.03	5.7	0.13	17.291	0.119	0.224	0.005								
459.2	3.15	5.7	0.13	18.079	0.124	0.224	0.005								
479.2	3.28	5.7	0.13	18.866	0.129	0.224	0.005								
499.2	3.4	5.7	0.13	19.654	0.134	0.224	0.005								





O Ring C.S.	Dynamic		Static		No B/U W	One B/U W	Two B/U W	Triangular	
	D	Tol.	D	Tol.				L	Tol.
1.0	0.90		0.80		1.30	-	-	1.40	
1.2	1.08	+0.00	0.96		1.56	-	-	1.60	
1.5	1.35	-0.05	1.20		1.95	-	-	2.00	
1.9	1.72		1.53		2.57	4.10	6.00	2.65	
2.0	1.80		1.60	+0.00 -0.05	2.60	4.10	5.50	2.70	
2.4	2.16		1.92		3.12	4.60	6.00	3.20	-0.00 +0.05
2.5	2.25		2.00		3.25	4.80	6.20	3.40	
2.7	2.41		2.13		3.50	4.80	6.50	3.65	
3.0	2.70	+0.06	2.40		3.90	5.40	6.80	4.00	
3.1	2.75	-0.06	2.42		4.00	5.50	6.90	4.10	
3.5	3.15		2.80	+0.10 -0.10	4.55	6.10	7.50	4.80	
4.0	3.60		3.20		5.20	6.70	8.10	5.40	
5.0	4.50		4.00		6.50	8.40	10.20	6.70	
5.7	5.18	+0.10	4.60	+0.15	7.47	9.30	11.10	7.70	-0.00
6.0	5.40	-0.10	4.80	-0.15	7.80	9.90	12.30	8.00	+0.10
8.4	7.65		6.80		11.05	13.20	15.40	11.40	



# Metric O-Rings

A product of MFP Seals.



## METRIC - O-RINGS

MFP Seals produces O-Rings in inch and metric sizes. The metric sizes are available in BS2518, GB/T 3452.1, J.I.S. B2401, SMS1586, and standard metric measurements. MFP Seals stocks O-Rings in a wide range of materials. A listing of available materials appears below.

This information is only to be used as a guide to the selection of seal compounds. Application, as well as temperature, pressures, media, and finishes, should all be considered when choosing seal compounds. Other compounds are available.



### MFP PART NUMBERS

**MOR-1.0x001.5N6001**

SEAL TYPE | ID | COMPOUND  
CROSS SECTION

### COMPOUNDS FORMULATED FOR O-RINGS

Compound Name	Designation	Hardness	Color	Temperature Range	
E7101	EPDM	70 Shore A	Black	-50°C to +100°C	(-58°F to +212°F)
E7102	EPDM	80 Shore A	Black	-50°C to +100°C	(-58°F to +212°F)
E7103 (NSF61)	EPDM	70 Shore A	Black	-50°C to +100°C	(-58°F to +212°F)
E7105 (WRAS/NSF61)	EPDM	70 Shore A	Black	-50°C to +150°C	(-58°F to +302°F)
FC7500 - Fluorochem®	FKME	75 Shore A	Black	-22°C to +250°C	(-7°F to +482°F)
FC7510 - Fluorochem®	FKM	75 Shore A	Black	-20°C to +200°C	(-4°F to +392°F)
FC7525 - Fluorochem®	FFKM	75 Shore A	Black	-15°C to +320°C	(+5°F to +608°F)
FC7550 - Fluorochem®	FFKM	75 Shore A	White	-15°C to +320°C	(+5°F to +608°F)
FC7575 - Fluorochem®	FFKM	90 Shore A	Black	-15°C to +320°C	(+5°F to +608°F)
FC7600 - Fluorochem®	FFKM	90 Shore A	Black	0°C to +260°C	(+32°F to +500°F)
FC7625 - Fluorochem®	FFKM	90 Shore A	Black	-4°C to +230°C	(+25°F to +446°F)
FC7650 - Fluorochem®	FFKM	70 Shore A	Black	-20°C to +230°C	(-4°F to +446°F)
FC7675 - Fluorochem®	FFKM	75 Shore A	Black	-4°C to +230°C	(+25°F to +446°F)
FC7700 - Fluorochem®	FFKM	75 Shore A	Black	-7°C to +230°C	(+20°F to +446°F)
FC7725 - Fluorochem®	FFKM	75 Shore A	White	-7°C to +230°C	(+20°F to +446°F)
FC7750 - Fluorochem®	FFKM	75 Shore A	Black	-6°C to +300°C	(+21°F to +570°F)
FC7775 - Fluorochem®	FFKM	75 Shore A	Black	-7°C to +230°C	(+20°F to +446°F)
FC7800 - Fluorochem®	FFKM	75 Shore A	Black	-5°C to +320°C	(+23°F to +608°F)
FS7101	FVMQ	70 Shore A	Blue	-60°C to +200°C	(-76°F to +392°F)
N6001	NBR	70 Shore A	Black	-40°C to +100°C	(-40°F to +212°F)
N6003	NBR	90 Shore A	Black	-20°C to +100°C	(-4°F to +212°F)
N6007	HNBR	70 Shore A	Black	-40°C to +125°C	(-40°F to +257°F)
N6008	HNBR	80 Shore A	Black	-35°C to +150°C	(-31°F to +302°F)
N6009	HNBR	90 Shore A	Black	-30°C to +150°C	(-22°F to +302°F)
N6010	HNBR	70 Shore A	Green	-40°C to +150°C	(-40°F to +302°F)
N6011	HNBR	80 Shore A	Green	-25°C to +150°C	(-13°F to +302°F)
N6012	HNBR	90 Shore A	Green	-20°C to +150°C	(-4°F to +302°F)
S7100*	SIL	70 Shore A	Rust Red	-55°C to +240°C	(-67°F to +464°F)
U6865	TPU	70 Shore A	Natural	-81°C to +100°C	(-115°F to +212°F)

*This information is only to be used as a guide to the selection of seal compounds. Application, as well as temperature, pressures, media, and finishes, should all be considered when choosing seal compounds. Other compounds may be available based on application. This is not a complete list of available compounds. For more information contact MFP Seals at sales@mfpseals.com or (248) 585-8170. Fluorochem® (2012) and Ultraflex® (2011) are registered trademarks of Martin Fluid Power Co., Inc. \*FDA Grade w/o Certification. AFLAS® is a registered trademark of the Asahi Glass Co., Ltd.*

For compound descriptions and temperature ranges, please refer to pages 26-37.

www.mfpseals.com

For surface finish information please refer to page 17, Surface Finish: ISO 4287. For ISO tolerance, refer to page 18.

METRIC O-RINGS

MOR



**COMPOUNDS FORMULATED FOR O-RINGS**

Compound Name	Designation	Hardness	Color	Temperature Range
U9251	TPU	90 Shore A	Natural	-54°C to +150°C (-65°F to +300°F)
V1125 - Aflas <sup>®</sup>	FKM	80 Shore A	Black	-0°C to +230°C (+32°F to +446°F)
V7100	FKM	75 Shore A	Black	-20°C to +200°C (-4°F to +392°F)
V7125	FKM	75 Shore A	Black	-15°C to +200°C (+5°F to +392°F)
V7150	FKM	75 Shore A	Black	-15°C to +200°C (+5°F to +392°F)
V7155	FKM	75 Shore A	Brown	-15°C to +200°C (+5°F to +392°F)
V7165	FKM	90 Shore A	Black	-20°C to +200°C (-4°F to +392°F)
V7175	FKM	90 Shore A	Black	-10°C to +200°C (+14°F to +392°F)
V7200	FKM	90 Shore A	Black	-30°C to +250°C (-22°F to +482°F)
V7250	FKM	75 Shore A	Green	-15°C to +200°C (+5°F to +392°F)
V7325 (AMS-R-83485)	FKM-GLT	75 Shore A	Black	-40°C to +200°C (-40°F to +392°F)
V7350	FEPM	90 Shore A	Black	-20°C to +220°C (-4°F to +428°F)



METRIC O-RINGS

MORC



# Metric Extruded O-Ring Cord Stock

A product of MFP Seals.



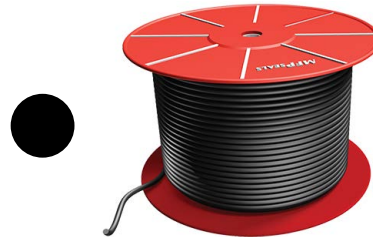
## Metric Extruded O-Ring Cord Stock

Extruded O-Ring cord is used whenever a standard size O-Ring will not fit a particular groove, or when a split O-Ring is required for the application. O-Ring cord can be trimmed to any length, providing a custom fit. Sold by the foot or spool.

Also available in inch sizes (See ORC).

*The standard compound for this seal is N6001. It is also available in N6003, V7525 and V7550.*

*For compound descriptions and temperature ranges, please refer to pages 26 - 37.*



### MFP PART NUMBERS

## MORC-1.0N6001

SEAL TYPE

COMPOUND

CROSS SECTION

METRIC O-RINGS

MORC

### EXTRUDED O-RING CORD STOCK

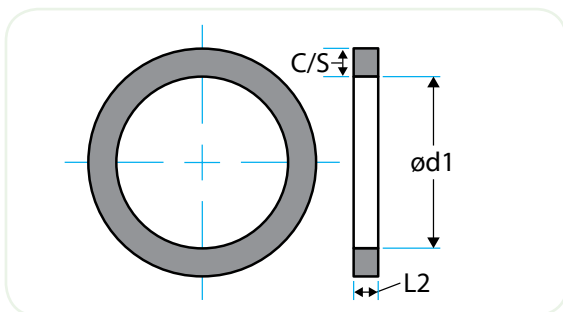
MFP PART NUMBER	C/S	TOL +/-
MORC-1.0	1.0 MM	.13 MM
MORC-1.6	1.6 MM	.13 MM
MORC-2.0	2.0 MM	.13 MM
MORC-2.4	2.4 MM	.13 MM
MORC-2.5	2.5 MM	.13 MM
MORC-3.0	3.0 MM	.13 MM
MORC-3.5	3.5 MM	.18 MM
MORC-4.0	4.0 MM	.18 MM
MORC-4.5	4.5 MM	.18 MM
MORC-5.0	5.0 MM	.18 MM
MORC-5.7	5.7 MM	.18 MM
MORC-6.0	6.0 MM	.18 MM
MORC-6.5	6.5 MM	.18 MM
MORC-7.0	7.0 MM	.18 MM
MORC-7.5	7.5 MM	.18 MM
MORC-8.0	8.0 MM	.25 MM
MORC-8.4	8.4 MM	.25 MM
MORC-9.0	9.0 MM	.25 MM
MORC-10.0	10.0 MM	.25 MM
MORC-11.0	11.0 MM	.25 MM
MORC-12.0	12.0 MM	.25 MM
MORC-13.0	13.0 MM	.25 MM
MORC-14.0	14.0 MM	.40 MM
MORC-15.0	15.0 MM	.40 MM
MORC-16.0	16.0 MM	.40 MM
MORC-18.0	18.0 MM	.50 MM
MORC-20.0	20.0 MM	.50 MM
MORC-24.0	24.0 MM	.50 MM
MORC-25.0	25.0 MM	.90 MM

**Metric Back-Up Rings**

MFP Seals Back-Up Rings are installed on the downstream side of an O-Ring to help prevent premature failure and leakage. If the sealing ring can not resist increasingly higher pressure, part of the seal will be forced into the diametrical gap. Back-Up Rings are used to block the clearance gap and provide support for the seal in either Rod or Piston applications.



The standard compound for this seal is T1000.



**MFP PART NUMBERS**

**MBU-2.0x010.0PTFE**

SEAL TYPE      C/S      ID      COMPOUND

Compound Name	Designation	Hardness	Color	Temperature Range
T1000	PTFE	55 Shore D	White	-200°C to +260°C (-328°F to +500°F)

**ROD OR PISTON APPLICATION**

MFP PART NUMBER	C/S	ød1	L2
MBU-1.5X003.0PTFE	1.5	3	1.25
MBU-1.5X004.0PTFE	1.5	4	1.25
MBU-1.5X005.0PTFE	1.5	5	1.25
MBU-1.5X006.0PTFE	1.5	6	1.25
MBU-1.5X007.0PTFE	1.5	7	1.25
MBU-1.5X008.0PTFE	1.5	8	1.25
MBU-1.5X009.0PTFE	1.5	9	1.25
MBU-1.5X010.0PTFE	1.5	10	1.25
MBU-2.0X010.0PTFE	2.0	10	1.25
MBU-2.0X011.0PTFE	2.0	11	1.25
MBU-2.0X011.2PTFE	2.0	11.2	1.25
MBU-2.0X012.0PTFE	2.0	12	1.25
MBU-2.0X012.5PTFE	2.0	12.5	1.25
MBU-2.0X013.0PTFE	2.0	13	1.25
MBU-2.0X014.0PTFE	2.0	14	1.25
MBU-2.0X015.0PTFE	2.0	15	1.25
MBU-2.0X016.0PTFE	2.0	16	1.25
MBU-2.0X017.0PTFE	2.0	17	1.25
MBU-2.0X018.0PTFE	2.0	18	1.25
MBU-2.0X019.0PTFE	2.0	19	1.25

# Metric Back-Up Rings

A product of MFP Seals.

**MFPSEALS**

METRIC BACK-UP RINGS

MBU

MFP PART NUMBER	C/S	ROD OR PISTON APPLICATION	
		ød1	L2
MBU-2.0X020.0PTFE	2.0	20	1.25
MBU-2.0X021.0PTFE	2.0	21	1.25
MBU-2.0X022.0PTFE	2.0	22	1.25
MBU-2.5X025.0PTFE	2.5	25	1.25
MBU-2.5X030.0PTFE	2.5	30	1.25
MBU-2.5X035.0PTFE	2.5	35	1.25
MBU-2.5X040.0PTFE	2.5	40	1.25
MBU-2.5X045.0PTFE	2.5	45	1.25
MBU-2.5X050.0PTFE	2.5	50	1.25
MBU-2.5X052.0PTFE	2.5	52	1.25
MBU-2.5X055.0PTFE	2.5	55	1.25
MBU-2.5X057.0PTFE	2.5	57	1.25
MBU-2.5X058.0PTFE	2.5	58	1.25
MBU-2.5X060.0PTFE	2.5	60	1.25
MBU-2.5X062.0PTFE	2.5	62	1.25
MBU-2.5X065.0PTFE	2.5	65	1.25
MBU-2.5X070.0PTFE	2.5	70	1.25
MBU-2.5X075.0PTFE	2.5	75	1.25
MBU-2.5X080.0PTFE	2.5	80	1.25
MBU-2.5X085.0PTFE	2.5	85	1.25
MBU-2.5X090.0PTFE	2.5	90	1.25
MBU-2.5X095.0PTFE	2.5	95	1.25
MBU-2.5X100.0PTFE	2.5	100	1.25
MBU-2.5X105.0PTFE	2.5	105	1.25
MBU-2.5X106.0PTFE	2.5	106	1.25
MBU-2.5X108.0PTFE	2.5	108	1.25
MBU-2.5X110.0PTFE	2.5	110	1.25
MBU-2.5X115.0PTFE	2.5	115	1.25
MBU-2.5X116.0PTFE	2.5	116	1.25
MBU-2.5X120.0PTFE	2.5	120	1.25
MBU-2.5X125.0PTFE	2.5	125	1.25
MBU-2.5X126.0PTFE	2.5	126	1.25
MBU-2.5X128.0PTFE	2.5	128	1.25
MBU-2.5X130.0PTFE	2.5	130	1.25
MBU-2.5X135.0PTFE	2.5	135	1.25
MBU-2.5X136.0PTFE	2.5	136	1.25
MBU-2.5X140.0PTFE	2.5	140	1.25
MBU-2.5X145.0PTFE	2.5	145	1.25
MBU-2.5X146.0PTFE	2.5	146	1.25
MBU-3.0X022.0PTFE	3.0	22	1.25
MBU-3.0X022.4PTFE	3.0	22.4	1.25
MBU-3.0X024.0PTFE	3.0	24	1.25
MBU-3.0X025.0PTFE	3.0	25	1.25
MBU-3.0X025.5PTFE	3.0	25.5	1.25
MBU-3.0X026.0PTFE	3.0	26	1.25
MBU-3.0X028.0PTFE	3.0	28	1.25
MBU-3.0X029.0PTFE	3.0	29	1.25



MFP PART NUMBER	ROD OR PISTON APPLICATION		
	C/S	ød1	L2
MBU-3.0X029.5PTFE	3.0	29.5	1.25
MBU-3.0X030.0PTFE	3.0	30	1.25
MBU-3.0X031.0PTFE	3.0	31	1.25
MBU-3.0X031.5PTFE	3.0	31.5	1.25
MBU-3.0X032.0PTFE	3.0	32	1.25
MBU-3.0X034.0PTFE	3.0	34	1.25
MBU-3.0X035.0PTFE	3.0	35	1.25
MBU-3.0X035.5PTFE	3.0	35.5	1.25
MBU-3.0X036.0PTFE	3.0	36	1.25
MBU-3.0X038.0PTFE	3.0	38	1.25
MBU-3.0X039.0PTFE	3.0	39	1.25
MBU-3.0X040.0PTFE	3.0	40	1.25
MBU-3.0X041.0PTFE	3.0	41	1.25
MBU-3.0X042.0PTFE	3.0	42	1.25
MBU-3.0X043.0PTFE	3.0	43	1.25
MBU-3.0X044.0PTFE	3.0	44	1.25
MBU-3.0X045.0PTFE	3.0	45	1.25
MBU-3.0X046.0PTFE	3.0	46	1.25
MBU-3.0X048.0PTFE	3.0	48	1.25
MBU-3.0X049.0PTFE	3.0	49	1.25
MBU-3.0X050.0PTFE	3.0	50	1.25
MBU-5.0X048.0PTFE	5.0	48	1.9
MBU-5.0X050.0PTFE	5.0	50	1.9
MBU-5.0X052.0PTFE	5.0	52	1.9
MBU-5.0X053.0PTFE	5.0	53	1.9
MBU-5.0X055.0PTFE	5.0	55	1.9
MBU-5.0X056.0PTFE	5.0	56	1.9
MBU-5.0X058.0PTFE	5.0	58	1.9
MBU-5.0X060.0PTFE	5.0	60	1.9
MBU-5.0X062.0PTFE	5.0	62	1.9
MBU-5.0X063.0PTFE	5.0	63	1.9
MBU-5.0X065.0PTFE	5.0	65	1.9
MBU-5.0X067.0PTFE	5.0	67	1.9
MBU-5.0X070.0PTFE	5.0	70	1.9
MBU-5.0X071.0PTFE	5.0	71	1.9
MBU-5.0X075.0PTFE	5.0	75	1.9
MBU-5.0X080.0PTFE	5.0	80	1.9
MBU-5.0X085.0PTFE	5.0	85	1.9
MBU-5.0X090.0PTFE	5.0	90	1.9
MBU-5.0X095.0PTFE	5.0	95	1.9
MBU-5.0X100.0PTFE	5.0	100	1.9
MBU-5.0X102.0PTFE	5.0	102	1.9
MBU-5.0X105.0PTFE	5.0	105	1.9
MBU-5.0X110.0PTFE	5.0	110	1.9
MBU-5.0X112.0PTFE	5.0	112	1.9
MBU-5.0X115.0PTFE	5.0	115	1.9
MBU-5.0X120.0PTFE	5.0	120	1.9

For surface finish information please refer to page 17, Surface Finish: ISO 4287. For ISO tolerance, refer to page 18.

For compound descriptions and temperature ranges, please refer to pages 26-37.



# Metric Back-Up Rings

A product of MFP Seals.

**MFPSEALS**

METRIC BACK-UP RINGS

MBU

MFP PART NUMBER	ROD OR PISTON APPLICATION		
	C/S	ød1	L2
MBU-5.0X125.0PTFE	5.0	125	1.9
MBU-5.0X130.0PTFE	5.0	130	1.9
MBU-5.0X132.0PTFE	5.0	132	1.9
MBU-5.0X135.0PTFE	5.0	135	1.9
MBU-5.0X140.0PTFE	5.0	140	1.9
MBU-5.0X145.0PTFE	5.0	145	1.9
MBU-5.0X150.0PTFE	5.0	150	1.9
MBU-5.0X152.0PTFE	5.0	152	1.9
MBU-5.0X155.0PTFE	5.0	155	1.9
MBU-5.0X160.0PTFE	5.0	160	1.9
MBU-5.0X165.0PTFE	5.0	165	1.9
MBU-5.0X170.0PTFE	5.0	170	1.9
MBU-5.0X175.0PTFE	5.0	175	1.9
MBU-5.0X180.0PTFE	5.0	180	1.9
MBU-5.0X185.0PTFE	5.0	185	1.9
MBU-5.0X190.0PTFE	5.0	190	1.9
MBU-5.0X192.0PTFE	5.0	192	1.9
MBU-5.0X195.0PTFE	5.0	195	1.9
MBU-5.0X200.0PTFE	5.0	200	1.9
MBU-5.0X205.0PTFE	5.0	205	1.9
MBU-5.0X210.0PTFE	5.0	210	1.9
MBU-5.0X215.0PTFE	5.0	215	1.9
MBU-5.0X220.0PTFE	5.0	220	1.9
MBU-5.0X225.0PTFE	5.0	225	1.9
MBU-5.0X230.0PTFE	5.0	230	1.9
MBU-5.0X235.0PTFE	5.0	235	1.9
MBU-5.0X240.0PTFE	5.0	240	1.9
MBU-5.0X245.0PTFE	5.0	245	1.9
MBU-5.0X250.0PTFE	5.0	250	1.9
MBU-5.0X255.0PTFE	5.0	255	1.9
MBU-5.0X260.0PTFE	5.0	260	1.9
MBU-5.0X265.0PTFE	5.0	265	1.9
MBU-5.0X270.0PTFE	5.0	270	1.9
MBU-5.0X275.0PTFE	5.0	275	1.9
MBU-5.0X280.0PTFE	5.0	280	1.9
MBU-5.0X285.0PTFE	5.0	285	1.9
MBU-5.0X290.0PTFE	5.0	290	1.9
MBU-5.0X295.0PTFE	5.0	295	1.9
MBU-5.0X300.0PTFE	5.0	300	1.9
MBU-7.5X150.0PTFE	7.5	150	2.75
MBU-7.5X155.0PTFE	7.5	155	2.75
MBU-7.5X160.0PTFE	7.5	160	2.75
MBU-7.5X165.0PTFE	7.5	165	2.75
MBU-7.5X170.0PTFE	7.5	170	2.75
MBU-7.5X175.0PTFE	7.5	175	2.75
MBU-7.5X180.0PTFE	7.5	180	2.75
MBU-7.5X185.0PTFE	7.5	185	2.75

MFP PART NUMBER	ROD OR PISTON APPLICATION		
	C/S	ød1	L2
MBU-7.5X190.0PTFE	7.5	190	2.75
MBU-7.5X195.0PTFE	7.5	195	2.75
MBU-7.5X200.0PTFE	7.5	200	2.75
MBU-7.5X205.0PTFE	7.5	205	2.75
MBU-7.5X209.0PTFE	7.5	209	2.75
MBU-7.5X210.0PTFE	7.5	210	2.75
MBU-7.5X215.0PTFE	7.5	215	2.75
MBU-7.5X220.0PTFE	7.5	220	2.75
MBU-7.5X225.0PTFE	7.5	225	2.75
MBU-7.5X230.0PTFE	7.5	230	2.75
MBU-7.5X235.0PTFE	7.5	235	2.75
MBU-7.5X240.0PTFE	7.5	240	2.75
MBU-7.5X245.0PTFE	7.5	245	2.75
MBU-7.5X250.0PTFE	7.5	250	2.75
MBU-7.5X255.0PTFE	7.5	255	2.75
MBU-7.5X260.0PTFE	7.5	260	2.75
MBU-7.5X265.0PTFE	7.5	265	2.75
MBU-7.5X270.0PTFE	7.5	270	2.75
MBU-7.5X275.0PTFE	7.5	275	2.75
MBU-7.5X280.0PTFE	7.5	280	2.75
MBU-7.5X285.0PTFE	7.5	285	2.75
MBU-7.5X290.0PTFE	7.5	290	2.75
MBU-7.5X295.0PTFE	7.5	295	2.75
MBU-7.5X300.0PTFE	7.5	300	2.75

# Metric Back-Up Ring - J.I.S. Size Chart

A product of MFP Seals.

**MFPSEALS**

METRIC BACK-UP RINGS

MBU

JIS O-RING	C/S	ID	OD	THK
P - 3	1.5	3	6	1.25
P - 4		4	7	1.25
P - 5		5	8	1.25
P - 6		6	9	1.25
P - 7		7	10	1.25
P - 8		8	11	1.25
P - 9		9	12	1.25
P - 10		10	13	1.25
P - 10A		10	14	1.25
P - 11		11	15	1.25
P - 11.2	11.2	15.2	1.25	
P - 12	12	16	1.25	
P - 12.5	12.5	16.5	1.25	
P - 14	2	14	18	1.25
P - 15		15	19	1.25
P - 16		16	20	1.25
P - 17		17	21	1.25
P - 18		18	22	1.25
P - 19		19	23	1.25
P - 20		20	24	1.25
P - 21		21	25	1.25
P - 22		22	26	1.25
G - 25		2.5	25	30
G - 30	30		35	1.25
G - 35	35		40	1.25
G - 40	40		45	1.25
G - 42	42		47	1.25
G - 45	45		50	1.25
G - 50	50		55	1.25
G - 55	55		60	1.25
G - 58	58		63	1.25
G - 60	60		65	1.25
G - 65	65		70	1.25
G - 70	70		75	1.25
G - 75	75		80	1.25
G - 80	80		85	1.25
G - 85	85		90	1.25
G - 90	90		95	1.25
G - 95	95		100	1.25
G - 100	100		105	1.25
G - 105	105		110	1.25
G - 110	110		115	1.25
G - 115	115	120	1.25	
G - 120	120	125	1.25	
G - 125	125	130	1.25	
G - 130	130	135	1.25	
G - 135	135	140	1.25	
G - 140	140	145	1.25	
G - 145	145	150	1.25	

JIS O-RING	C/S	ID	OD	THK
P - 22A	3	22	28	1.25
P - 22.4		22.4	28.4	1.25
P - 24		24	30	1.25
P - 25		25	31	1.25
P - 25.5		25.5	31.5	1.25
P - 26		26	32	1.25
P - 28		28	34	1.25
P - 29		29	35	1.25
P - 29.5		29.5	35.5	1.25
P - 30		30	36	1.25
P - 31		31	37	1.25
P - 31.5		31.5	37.5	1.25
P - 32		32	38	1.25
P - 34		34	40	1.25
P - 35		35	41	1.25
P - 35.5		35.5	41.5	1.25
P - 36		36	42	1.25
P - 38		38	44	1.25
P - 39		39	45	1.25
P - 40		40	46	1.25
P - 41	41	47	1.25	
P - 42	42	48	1.25	
P - 44	44	50	1.25	
P - 45	45	51	1.25	
P - 46	46	52	1.25	
P - 48	48	54	1.25	
P - 49	49	55	1.25	
P - 50	50	56	1.25	
P - 48A	5	48	58	1.9
P - 50A		50	60	1.9
P - 52		52	62	1.9
P - 53		53	63	1.9
P - 55		55	65	1.9
P - 56		56	66	1.9
P - 58		58	68	1.9
P - 60		60	70	1.9
P - 62		62	72	1.9
P - 63		63	73	1.9
P - 65		65	75	1.9
P - 67		67	77	1.9
P - 70		70	80	1.9
P - 71		71	81	1.9
P - 75		75	85	1.9
P - 80		80	90	1.9
P - 85		85	95	1.9
P - 90		90	100	1.9
P - 95		95	105	1.9
P - 100		100	110	1.9
P - 102	102	112	1.9	

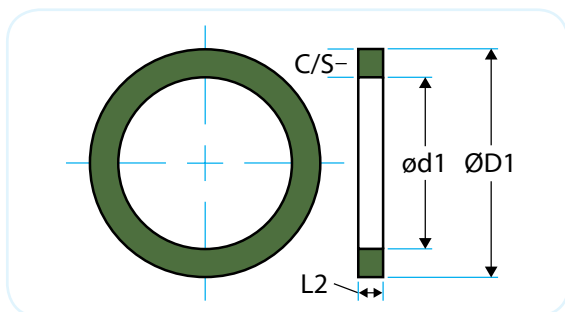
JIS O-RING	C/S	ID	OD	THK
P - 105	5	105	115	1.9
P - 110		110	120	1.9
P - 112		112	122	1.9
P - 115		115	125	1.9
P - 120		120	130	1.9
P - 125		125	135	1.9
P - 130		130	140	1.9
P - 132		132	142	1.9
P - 135		135	145	1.9
P - 140		140	150	1.9
P - 145		145	155	1.9
P - 150		150	160	1.9
G - 150		150	160	1.9
G - 155		155	165	1.9
G - 160		160	170	1.9
G - 165		165	175	1.9
G - 170		170	180	1.9
G - 175		175	185	1.9
G - 180		180	190	1.9
G - 185		185	195	1.9
G - 190	190	200	1.9	
G - 195	195	205	1.9	
G - 200	200	210	1.9	
G - 210	210	220	1.9	
G - 220	220	230	1.9	
G - 230	230	240	1.9	
G - 240	240	250	1.9	
G - 250	250	260	1.9	
P - 150A	7.5	150	165	2.75
P - 155		155	170	2.75
P - 160		160	175	2.75
P - 165		165	180	2.75
P - 170		170	185	2.75
P - 175		175	190	2.75
P - 180		180	195	2.75
P - 185		185	200	2.75
P - 190		190	205	2.75
P - 195		195	210	2.75
P - 200		200	215	2.75
P - 205		205	220	2.75
P - 209		209	224	2.75
P - 210		210	225	2.75
P - 215		215	230	2.75
P - 220		220	235	2.75
P - 225		225	240	2.75
P - 230		230	245	2.75
P - 235		235	250	2.75
P - 240		240	255	2.75

**Metric Back-Up Rings**

MFP Seals Back-Up Rings are installed on the downstream side of an O-Ring to help prevent premature failure and leakage. If the sealing ring can not resist increasingly higher pressure, part of the seal will be forced into the diametrical gap. Back-Up Rings are used to block the clearance gap and provide support for the seal in either Rod or Piston applications.



The standard compound for this seal is T5100.



**MFP PART NUMBERS**

**MBTU-20x30T5100**

SEAL TYPE      ød1      ØD1      COMPOUND

Compound Name	Designation	Hardness	Color	Temperature Range
T5100	PTFE	58 Shore D	Green	-200°C to +260°C (-328°F to +500°F)

MFP PART NUMBER	ROD OR PISTON APPLICATION		
	ød1	ØD1	L2
MBTU-20X30X2T5100	20.00	30.00	2.00
MBTU-20X33X2T5100	20.00	33.00	2.00
MBTU-22X30X2T5100	22.00	30.00	2.00
MBTU-22X33X2T5100	22.00	33.00	2.00
MBTU-22X35X2T5100	22.00	35.00	2.00
MBTU-22.4X30X2T5100	22.40	30.00	2.00
MBTU-22.4X33X2T5100	22.40	33.00	2.00
MBTU-23.5X31.5X2T5100	23.50	31.50	2.00
MBTU-24X32X2T5100	24.00	32.00	2.00
MBTU-25X33X2T5100	25.00	33.00	2.00
MBTU-25X33X3T5100	25.00	33.00	3.00
MBTU-25X35X3T5100	25.00	35.00	3.00
MBTU-27X40X3T5100	27.00	40.00	3.00
MBTU-28X35.5X3T5100	28.00	35.50	3.00
MBTU-28X36X3T5100	28.00	36.00	3.00
MBTU-28X40X3T5100	28.00	40.00	3.00
MBTU-28X41X3T5100	28.00	41.00	3.00
MBTU-30X40X3T5100	30.00	40.00	3.00
MBTU-31.5X41.5X3T5100	31.50	41.50	3.00
MBTU-31.5X44.5X3T5100	31.50	44.50	3.00
MBTU-32X38X3T5100	32.00	38.00	3.00
MBTU-32X42X3T5100	32.00	42.00	3.00

# Metric Back-Up Rings

A product of MFP Seals.

**MFPSEALS**

METRIC BACK-UP RINGS

MBTU

MFP PART NUMBER	ROD OR PISTON APPLICATION		
	C/S	ID	THK
MBTU-32X48X3T5100	32.00	48.00	3.00
MBTU-34X50X3T5100	34.00	50.00	3.00
MBTU-35X45X3T5100	35.00	45.00	3.00
MBTU-35X50X3T5100	35.00	50.00	3.00
MBTU-35.5X45X3T5100	35.50	45.00	3.00
MBTU-35.5X51.5X3T5100	35.50	51.50	3.00
MBTU-36X46X3T5100	36.00	46.00	3.00
MBTU-40X50X3T5100	40.00	50.00	3.00
MBTU-40X55X3T5100	40.00	55.00	3.00
MBTU-40X56X3T5100	40.00	56.00	3.00
MBTU-45X55X3T5100	45.00	55.00	3.00
MBTU-45X56X3T5100	45.00	56.00	3.00
MBTU-45X60X3T5100	45.00	60.00	3.00
MBTU-47X61X3T5100	47.00	61.00	3.00
MBTU-47X63X3T5100	47.00	63.00	3.00
MBTU-48X63X3T5100	48.00	63.00	3.00
MBTU-50X60X3T5100	50.00	60.00	3.00
MBTU-50X63X3T5100	50.00	63.00	3.00
MBTU-50X65X3T5100	50.00	65.00	3.00
MBTU-50X70X3T5100	50.00	70.00	3.00
MBTU-53X63X3T5100	53.00	63.00	3.00
MBTU-54X60X3T5100	54.00	60.00	3.00
MBTU-55X65X3T5100	55.00	65.00	3.00
MBTU-55X68X3T5100	55.00	68.00	3.00
MBTU-55X70X3T5100	55.00	70.00	3.00
MBTU-55X71X3T5100	55.00	71.00	3.00
MBTU-55X75X3T5100	55.00	75.00	3.00
MBTU-60X70X3T5100	60.00	70.00	3.00
MBTU-60X71X3T5100	60.00	71.00	3.00
MBTU-60X73X3T5100	60.00	73.00	3.00
MBTU-60X75X3T5100	60.00	75.00	3.00
MBTU-60X76X3T5100	60.00	76.00	3.00
MBTU-60X80X3T5100	60.00	80.00	3.00
MBTU-61X71X3T5100	61.00	71.00	3.00
MBTU-63X73X3T5100	63.00	73.00	3.00
MBTU-64X80X3T5100	64.00	80.00	3.00
MBTU-65X75X3T5100	65.00	75.00	3.00
MBTU-65X78X3T5100	65.00	78.00	3.00
MBTU-65X80X3T5100	65.00	80.00	3.00
MBTU-65X85X3T5100	65.00	85.00	3.00
MBTU-67X77X3T5100	67.00	77.00	3.00
MBTU-70X80X3T5100	70.00	80.00	3.00
MBTU-70X83X3T5100	70.00	83.00	3.00
MBTU-70X85X3T5100	70.00	85.00	3.00
MBTU-70X90X3T5100	70.00	90.00	3.00
MBTU-71X80X3T5100	71.00	80.00	3.00
MBTU-71X81X3T5100	71.00	81.00	3.00

MFP PART NUMBER	ROD OR PISTON APPLICATION		
	C/S	ID	THK
MBTU-75X85X3T5100	75.00	85.00	3.00
MBTU-75X88X3T5100	75.00	88.00	3.00
MBTU-75X90X3T5100	75.00	90.00	3.00
MBTU-75X95X3T5100	75.00	95.00	3.00
MBTU-80X90X3T5100	80.00	90.00	3.00
MBTU-80X93X3T5100	80.00	93.00	3.00
MBTU-80X95X3T5100	80.00	95.00	3.00
MBTU-80X100X3T5100	80.00	100.00	3.00
MBTU-85X100X2T5100	85.00	100.00	2.00
MBTU-85X100X3T5100	85.00	100.00	3.00
MBTU-85X105X3T5100	85.00	105.00	3.00
MBTU-90X105X3T5100	90.00	105.00	3.00
MBTU-90X110X3T5100	90.00	110.00	3.00
MBTU-95X105X3T5100	95.00	105.00	3.00
MBTU-95X110X3T5100	95.00	110.00	3.00
MBTU-95X115X3T5100	95.00	115.00	3.00
MBTU-100X115X3T5100	100.00	115.00	3.00
MBTU-100X120X3T5100	100.00	120.00	3.00
MBTU-100X125X3T5100	100.00	125.00	3.00
MBTU-105X120X3T5100	105.00	120.00	3.00
MBTU-105X125X3T5100	105.00	125.00	3.00
MBTU-106X120X3T5100	106.00	120.00	3.00
MBTU-106X123X3T5100	106.00	123.00	3.00
MBTU-110X125X3T5100	110.00	125.00	3.00
MBTU-110X130X3T5100	110.00	130.00	3.00
MBTU-112X125X3T5100	112.00	125.00	3.00
MBTU-112X132X3T5100	112.00	132.00	3.00
MBTU-115X130X3T5100	115.00	130.00	3.00
MBTU-115X135X3T5100	115.00	135.00	3.00
MBTU-120X135X3T5100	120.00	135.00	3.00
MBTU-120X140X3T5100	120.00	140.00	3.00
MBTU-125X140X3T5100	125.00	140.00	3.00
MBTU-125X150X3T5100	125.00	150.00	3.00
MBTU-130X145X3T5100	130.00	145.00	3.00
MBTU-130X150X3T5100	130.00	150.00	3.00
MBTU-135X150X3T5100	135.00	150.00	3.00
MBTU-135X160X3T5100	135.00	160.00	3.00
MBTU-136X150X3T5100	136.00	150.00	3.00
MBTU-140X155X3T5100	140.00	155.00	3.00
MBTU-140X160X3T5100	140.00	160.00	3.00
MBTU-140X165X3T5100	140.00	165.00	3.00
MBTU-145X160X3T5100	145.00	160.00	3.00
MBTU-145X165X3T5100	145.00	165.00	3.00
MBTU-145X170X3T5100	145.00	170.00	3.00
MBTU-150X165X3T5100	150.00	165.00	3.00
MBTU-155X170X4T5100	155.00	170.00	4.00
MBTU-155X180X4T5100	155.00	180.00	4.00



# Metric Back-Up Rings

A product of MFP Seals.



METRIC BACK-UP RINGS

MBTU

MFP PART NUMBER	ROD OR PISTON APPLICATION		
	C/S	ID	THK
MBTU-160X175X4T5100	160.00	175.00	4.00
MBTU-160X180X4T5100	160.00	180.00	4.00
MBTU-160X185X4T5100	160.00	185.00	4.00
MBTU-165X180X4T5100	165.00	180.00	4.00
MBTU-170X180X4T5100	170.00	180.00	4.00
MBTU-170X190X4T5100	170.00	190.00	4.00
MBTU-170X200X4T5100	170.00	200.00	4.00
MBTU-175X190X4T5100	175.00	190.00	4.00
MBTU-175X200X4T5100	175.00	200.00	4.00
MBTU-180X200X4T5100	180.00	200.00	4.00
MBTU-180X205X4T5100	180.00	205.00	4.00
MBTU-190X200X4T5100	190.00	200.00	4.00
MBTU-190X210X4T5100	190.00	210.00	4.00
MBTU-200X220X4T5100	200.00	220.00	4.00
MBTU-200X225X4T5100	200.00	225.00	4.00
MBTU-204X224X4T5100	204.00	224.00	4.00
MBTU-205X220X4T5100	205.00	220.00	4.00
MBTU-205X225X4T5100	205.00	225.00	4.00
MBTU-210X230X4T5100	210.00	230.00	4.00
MBTU-220X240X4T5100	220.00	240.00	4.00
MBTU-225X245X4T5100	225.00	245.00	4.00
MBTU-225X250X4T5100	225.00	250.00	4.00
MBTU-230X250X4T5100	230.00	250.00	4.00
MBTU-240X260X4T5100	240.00	260.00	4.00
MBTU-250X270X4T5100	250.00	270.00	4.00
MBTU-250X275X4T5100	250.00	275.00	4.00
MBTU-255X280X4T5100	255.00	280.00	4.00
MBTU-260X285X4T5100	260.00	285.00	4.00
MBTU-265X290X4T5100	265.00	290.00	4.00
MBTU-265X297X4T5100	265.00	297.00	4.00
MBTU-270X295X4T5100	270.00	295.00	4.00
MBTU-270X300X4T5100	270.00	300.00	4.00
MBTU-275X300X4T5100	275.00	300.00	4.00
MBTU-280X305X4T5100	280.00	305.00	4.00
MBTU-280X312X4T5100	280.00	312.00	4.00
MBTU-290X315X4T5100	290.00	315.00	4.00
MBTU-300X325X4T5100	300.00	325.00	4.00
MBTU-300X332X4T5100	300.00	332.00	4.00



**MSUC - Metric Symmetrical U-Cup**

MFP Seals' MSUC symmetrical U-Cup is suitable for rod and piston applications. The MSUC features a knife trimmed sealing lip for increased sealing ability and the design was enhanced using finite element analysis giving you the best product on the market. Produced from our U2151 compound the seal offers extremely low compression set and excellent extrusion resistance.

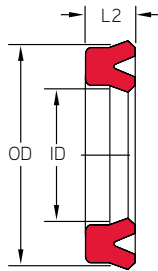
The standard compound for this seal is U2151.  
It is also available in compounds U2145, U2150, U4150 and H2155.

**MFP PART NUMBERS**

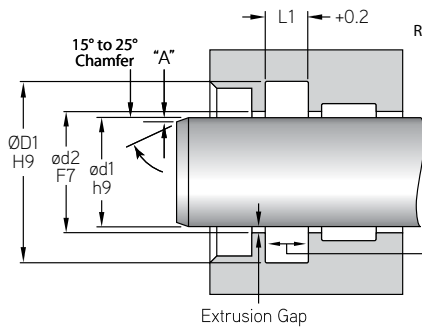
**MSUC-006X012X04.0U2151**

SEAL TYPE       $\varnothing d1$        $\varnothing D1$       L2      COMPOUND

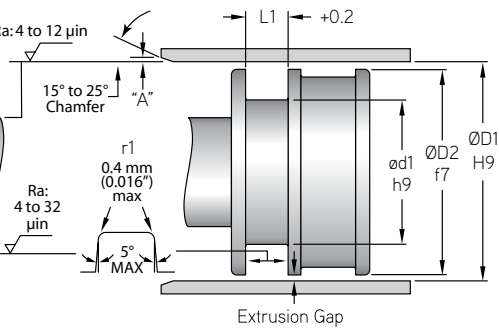
**PROFILE**



**ROD APPLICATION**



**PISTON APPLICATION**



Pressure: 400 bar (5,800 psi)    Max. Velocity: 0.5 m/s (1.5 ft./s)

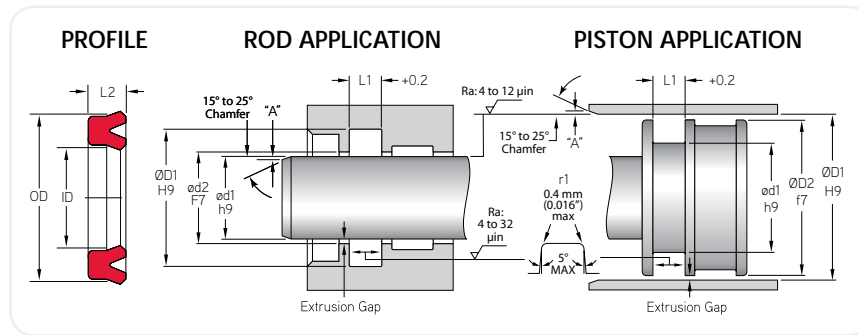
**ROD OR PISTON APPLICATION**

MFP PART NUMBER	$\varnothing d1$	$\varnothing d2$	$\varnothing D1$	$\varnothing D2$	L2	L1
TOLERANCE	h9	F7	H9	f7		+0.2
MSUC-006X012X04.0	6	6	12	12	4	4.5
MSUC-006X012X06.0	6	6	12	12	6	7
MSUC-008X014X06.0	8	8	14	14	6	7
MSUC-008X016X06.0	8	8	16	16	6	7
MSUC-008X016X08.0	8	8	16	16	8	9
MSUC-010X015X03.0	10	10	15	15	3	4
MSUC-010X016X04.5	10	10	16	16	4.5	5.5
MSUC-010X018X06.0	10	10	18	18	6	6.6
MSUC-012X019X05.0	12	12	19	19	5	6



# MSUC - Metric Symmetrical U-Cup

A product of MFP Seals.

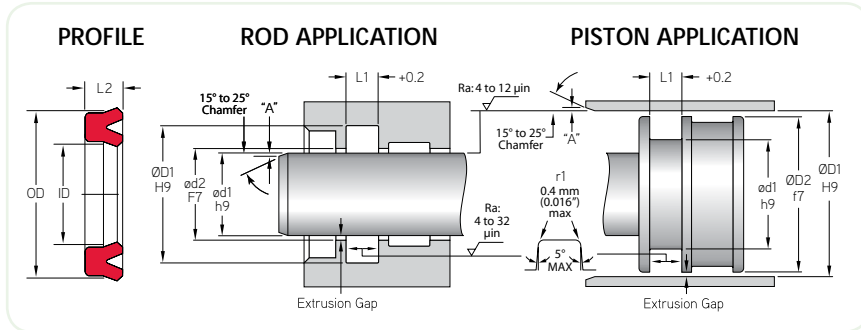


## ROD OR PISTON APPLICATION

MFP PART NUMBER	$\odot d1$	$\odot d2$	$\odot D1$	$\odot D2$	L2	L1
TOLERANCE	h9	F7	H9	f7		+0.2
MSUC-015X021X04.0	15	15	21	21	4	5
MSUC-016X024X05.0	16	16	24	24	5	5.7
MSUC-018X026X05.0	18	18	26	26	5	5.7
MSUC-018X026X08.0	18	18	26	26	8	9
MSUC-020X026X05.0	20	20	26	26	5	6
MSUC-020X028X04.0	20	20	28	28	4	5
MSUC-020X028X05.0	20	20	28	28	5	5.7
MSUC-020X032X08.0	20	20	32	32	8	9
MSUC-022x030x04.0	22	22	30	30	4	5
MSUC-025X033X05.0	25	25	33	33	5	5.7
MSUC-025X040X10.0	25	25	40	40	10	11
MSUC-028X036X05.0	28	28	36	36	5	6
MSUC-030X040X06.0	30	30	40	40	6	7
MSUC-030X040X07.0	30	30	40	40	7	8
MSUC-030X040X08.0	30	30	40	40	8	9
MSUC-030X040X10.0	30	30	40	40	10	11
MSUC-035X045X06.0	35	35	45	45	6	7
MSUC-035X045X07.0	35	35	45	45	7	8
MSUC-035X045X10.0	35	35	45	45	10	11
MSUC-040X048X06.0	40	40	48	48	6	7
MSUC-040X048X08.0	40	40	48	48	8	9
MSUC-040X050X06.0	40	40	50	50	6	7
MSUC-040X050X07.0	40	40	50	50	7	8
MSUC-040X050X08.0	40	40	50	50	8	9
MSUC-040X050X10.0	40	40	50	50	10	11
MSUC-045X055X06.0	45	45	55	55	6	7
MSUC-045X055X07.0	45	45	55	55	7	8
MSUC-045X055X10.0	45	45	55	55	10	11
MSUC-045X060X10.0	45	45	60	60	10	11
MSUC-050X060X06.0	50	50	60	60	6	7
MSUC-050X060X07.0	50	50	60	60	7	8
MSUC-050X060X08.0	50	50	60	60	8	9
MSUC-052X062X06.0	52	52	62	62	6	7
MSUC-053X063X06.0	53	53	63	63	6	7
MSUC-055X065X06.0	55	55	65	65	6	7

MSUC

METRIC SYMMETRICAL U-CUP



**ROD OR PISTON APPLICATION**

MFP PART NUMBER	Ød1	Ød2	ØD1	ØD2	L2	L1
<b>TOLERANCE</b>	h9	F7	H9	f7		+0.2
MSUC-060X070X06.0	60	60	70	70	6	7
MSUC-060X072X10.0	60	60	72	72	10	11
MSUC-065X075X06.0	65	65	75	75	6	7
MSUC-070X080X06.0	70	70	80	80	6	7
MSUC-070X090X12.0	70	70	90	90	12	13
MSUC-075X085X06.0	75	75	85	85	6	7
MSUC-080X090X06.0	80	80	90	90	6	7
MSUC-085X100X09.0	85	85	100	100	9	10
MSUC-090X105X09.0	90	90	105	105	9	10
MSUC-090X115X09.0	90	90	115	115	9	10
MSUC-095X110X09.0	95	95	110	110	9	10

MSUC

METRIC SYMMETRICAL U-CUP

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**Sealing In Success™**



# Metric X-PAC® Loaded B-Lip - Symmetrical U-Cup

A product of MFP Seals.

**MFPSEALS®**

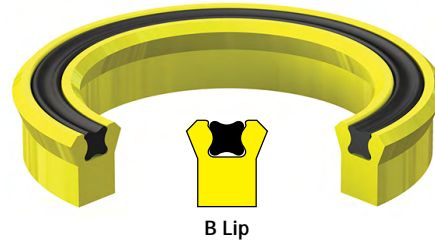
METRIC X-PAC®  
B-LIP

METRIC SYMMETRICAL U-CUP

## MXP - Metric X-PAC® Loaded B-Lip Symmetrical U-Cup

Metric X-PAC® U-Cups are a very versatile reciprocating seal design, for use up to 350 bar (5,000 psi). The rubber expander creates a compression style seal while still operating as a pressure actuated U-Cup design. The result is better low-pressure sealing and less startup leakage. The primary function of the B-Lip X-PAC® is for linear rod applications. However, they can also be used for piston applications when straight lip tooling is not available. MFP Seals' X-PAC® U-Cups feature a knife trimmed sealing lip for increased sealability.

Glands must be a minimum of 110% of the height of seal used. Free space is necessary to allow for the thermal expansion of the seal material and swell due to the effects of the system fluids. Pressure must be able to contact both sealing lips.



The standard compound for this seal is U2145.  
It is also available in compounds U2150, U2151, U4150 and H2155, with an N6014 X-Ring expander.

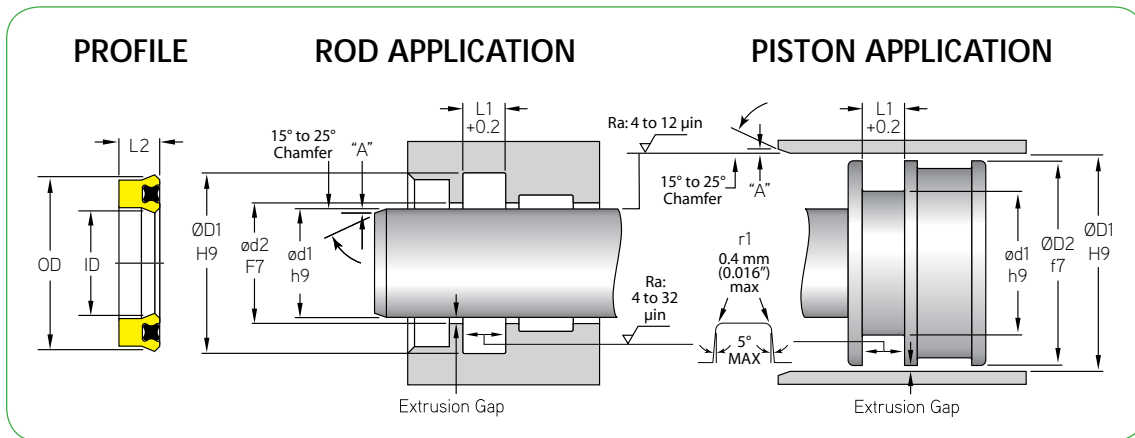
### MFP PART NUMBERS

**MXP-008X016X05.7BU2145**

SEAL TYPE      ØD1      L2      COMPOUND  
ød1      PROFILE STYLE

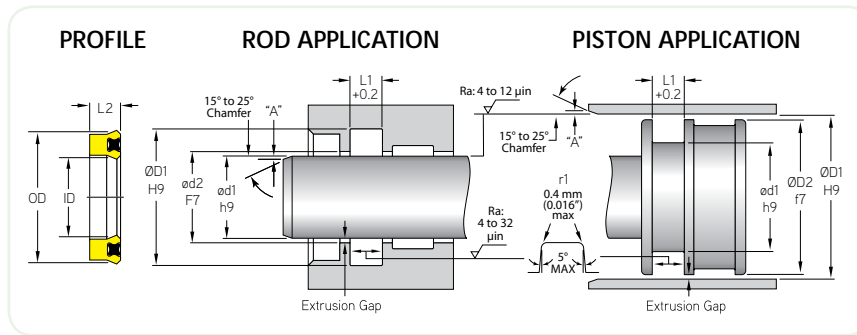
Pressure: 350 bar (5,000 psi)

Max. Velocity: 0.5 m/s (1.5 ft./s)



### ROD OR PISTON APPLICATION

MFP PART NUMBER	ød1	ød2	ØD1	ØD2	L2	L1
<b>TOLERANCE</b>	h9	F7	H9	f7		+0.2
MXP-008X016X05.7B	8	8	16	16	5.7	6.7
MXP-009X017X05.7B	9	9	17	17	5.7	6.7
MXP-009X019X08.0B	9	9	19	19	8	9
MXP-010X016X06.3B	10	10	16	16	6.3	7.3
MXP-010X018X05.7B	10	10	18	18	5.7	6.7
MXP-010X018X08.0B	10	10	18	18	8	9
MXP-010X020X08.0B	10	10	20	20	8	9
MXP-011.2X019.2X05.0B	11.2	11.2	19.2	19.2	5	6
MXP-012X018X06.0B	12	12	18	18	6	7
MXP-012X019X04.6B	12	12	19	19	4.6	5.6



**ROD OR PISTON APPLICATION**

MFP PART NUMBER	ød1	ød2	ØD1	ØD2	L2	L1
TOLERANCE	h9	F7	H9	f7		+0.2
MXP-012X020X05.0B	12	12	20	20	5	6
MXP-012X020X06.4B	12	12	20	20	6.4	7.4
MXP-012X020X07.3B	12	12	20	20	7.3	8.3
MXP-012X022X06.0B	12	12	22	22	6	7
MXP-012X022X07.3B	12	12	22	22	7.3	8.3
MXP-012X022X08.0B	12	12	22	22	8	9
MXP-012.5X022.5X08.0B	12.5	12.5	22.5	22.5	8	9
MXP-013X019X04.0B	13	13	19	19	4	5
MXP-014X021X04.6B	14	14	21	21	4.6	5.6
MXP-014X022X05.0B	14	14	22	22	5	6
MXP-014X024X05.5B	14	14	24	24	5.5	6.5
MXP-014X024X08.0B	14	14	24	24	8	9
MXP-015X022X05.0B	15	15	22	22	5	6
MXP-015X025X08.0B	15	15	25	25	8	9
MXP-016X022X04.0B	16	16	22	22	4	5
MXP-016X024X05.0B	16	16	24	24	5	6
MXP-016X024X08.0B	16	16	24	24	8	9
MXP-016X026X08.0B	16	16	26	26	8	9
MXP-017X025X10.0B	17	17	25	25	10	11
MXP-018X025X04.6B	18	18	25	25	4.6	5.6
MXP-018X026X05.0B	18	18	26	26	5	6
MXP-018X026X05.2B	18	18	26	26	5.2	6.2
MXP-018X028X08.0B	18	18	28	28	8	9
MXP-020X026X05.0B	20	20	26	26	5	6
MXP-020X027X06.0B	20	20	27	27	6	7
MXP-020X028X05.0B	20	20	28	28	5	6
MXP-020X028X05.7B	20	20	28	28	5.7	6.7
MXP-020X028X07.2B	20	20	28	28	7.2	8.2
MXP-020X030X06.0B	20	20	30	30	6	7
MXP-020X030X07.2B	20	20	30	30	7.2	8.2
MXP-020X030X08.0B	20	20	30	30	8	9
MXP-020X032X06.0B	20	20	32	32	6	7
MXP-020X032X08.0B	20	20	32	32	8	9
MXP-020X035X10.0B	20	20	35	35	10	11
MXP-020X035X12.0B	20	20	35	35	12	13
MXP-020X040X12.0B	20	20	40	40	12	13
MXP-022X028X05.3B	22	22	28	28	5.3	6.3

METRIC X-PAC®  
B-LIP

METRIC SYMMETRICAL U-CUP

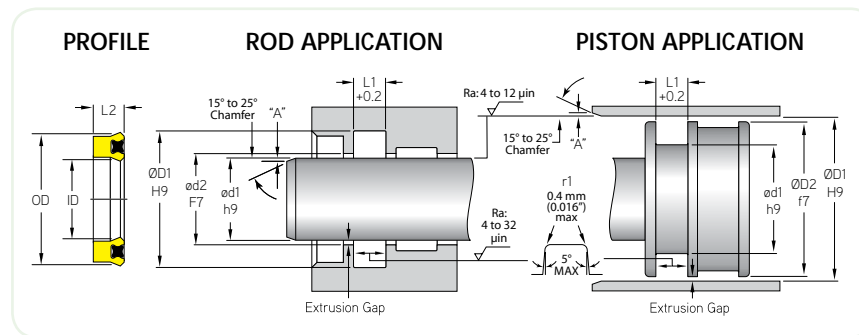




# Metric X-PAC® Loaded B-Lip - Symmetrical U-Cup

A product of MFP Seals.

**MFPSEALS®**

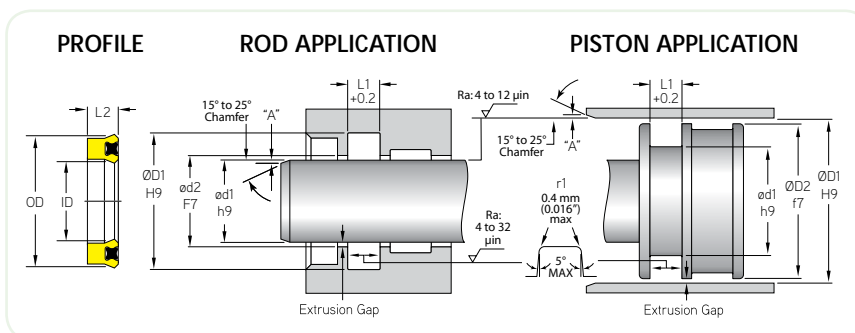


METRIC X-PAC®  
B-LIP

METRIC SYMMETRICAL U-CUP

## ROD OR PISTON APPLICATION

MFP PART NUMBER	ød1	ød2	ØD1	ØD2	L2	L1
TOLERANCE	h9	F7	H9	f7		+0.2
MXP-022X029X04.6B	22	22	29	29	4.6	5.6
MXP-022X030X05.0B	22	22	30	30	5	6
MXP-022X030X05.7B	22	22	30	30	5.7	6.7
MXP-022X030X06.0B	22	22	30	30	6	7
MXP-022X030X07.0B	22	22	30	30	7	8
MXP-022X030X07.2B	22	22	30	30	7.2	8.2
MXP-022X030X08.0B	22	22	30	30	8	9
MXP-022X032X06.0B	22	22	32	32	6	7
MXP-022X032X07.3B	22	22	32	32	7.3	8.3
MXP-022X032.4X08.0B	22	22	32.4	32.4	8	9
MXP-022X035X08.0B	22	22	35	35	8	9
MXP-022X035X10.0B	22	22	35	35	10	11
MXP-022X040X12.0B	22	22	40	40	12	13
MXP-022.4X030X05.0B	22.4	22.4	30	30	5	6
MXP-022.4X032.4X08.0B	22.4	22.4	32.4	32.4	8	9
MXP-23.5X31.5X05.0B	23.5	23.5	31.5	31.5	5	6
MXP-025X033X05.0B	25	25	33	33	5	6
MXP-025X033X05.5B	25	25	33	33	5.5	6.5
MXP-025X033X08.0B	25	25	33	33	8	9
MXP-025X033X10.0B	25	25	33	33	10	11
MXP-025X035X07.3B	25	25	35	35	7.3	8.3
MXP-025X035X08.0B	25	25	35	35	8	9
MXP-025X035X10.0B	25	25	35	35	10	11
MXP-025X038X08.0B	25	25	38	38	8	9
MXP-025X038X10.0B	25	25	38	38	10	11
MXP-025X040X10.0B	25	25	40	40	10	11
MXP-028X035.5X05.0B	28	28	35.5	35.5	5	6
MXP-028X036X05.3B	28	28	36	36	5.3	6.3
MXP-028X036X08.0B	28	28	36	36	8	9
MXP-028X037.5X07.8B	28	28	37.5	37.5	7.8	8.8
MXP-028X038X10.0B	28	28	38	38	10	11
MXP-028X040X10.0B	28	28	40	40	10	11
MXP-028X043X10.2B	28	28	43	43	10.2	11.2
MXP-028X048X12.0B	28	28	48	48	12	13
MXP-030X037X06.0B	30	30	37	37	6	7
MXP-030X038X05.7B	30	30	38	38	5.7	6.7
MXP-030X038X06.3B	30	30	38	38	6.3	7.3



**ROD OR PISTON APPLICATION**

MFP PART NUMBER	ød1	ød2	ØD1	ØD2	L2	L1
TOLERANCE	h9	F7	H9	f7		+0.2
MXP-030X038X08.0B	30	30	38	38	8	9
MXP-030X040X06.0B	30	30	40	40	6	7
MXP-030X040X06.5B	30	30	40	40	6.5	7.5
MXP-030X040X07.0B	30	30	40	40	7	8
MXP-030X040X07.3B	30	30	40	40	7.3	8.3
MXP-030X040X10.0B	30	30	40	40	10	11
MXP-030X042X09.0B	30	30	42	42	9	10
MXP-030X042X10.0B	30	30	42	42	10	11
MXP-030X045X09.0B	30	30	45	45	9	10
MXP-030X045X09.3B	30	30	45	45	9.3	10.3
MXP-030X045X10.0B	30	30	45	45	10	11
MXP-030X050X10.0B	30	30	50	50	10	11
MXP-031.5X041.5X06.0B	31.5	31.5	41.5	41.5	6	7
MXP-032X040X05.7B	32	32	40	40	5.7	6.7
MXP-032X040X05.7B	32	32	40	40	7.5	8.5
MXP-032X040X08.0B	32	32	40	40	8	9
MXP-032X042X07.3B	32	32	42	42	7.3	8.3
MXP-032X042X10.0B	32	32	42	42	10	11
MXP-032X044X05.0B	32	32	44	44	5	6
MXP-032X044X05.5B	32	32	44	44	5.5	6.5
MXP-032X044X06.3B	32	32	44	44	6.3	7.3
MXP-032X045X10.0B	32	32	45	45	10	11
MXP-032X047X10.0B	32	32	47	47	10	11
MXP-032X048X10.0B	32	32	48	48	10	11
MXP-033X040X08.0B	33	33	40	40	8	9
MXP-033X043X10.0B	33	33	43	43	10	11
MXP-035X042X08.0B	35	35	42	42	8	9
MXP-035X043X06.4B	35	35	43	43	6.4	7.4
MXP-035X043X08.0B	35	35	43	43	8	9
MXP-035X045X06.0B	35	35	45	45	6	7
MXP-035X045X07.3B	35	35	45	45	7.3	8.3
MXP-035X045X08.0B	35	35	45	45	8	9
MXP-035X045X10.0B	35	35	45	45	10	11
MXP-035X050X10.0B	35	35	50	50	10	11
MXP-035X050X11.4B	35	35	50	50	11.4	12.4
MXP-035X051X10.0B	35	35	51	51	10	11
MXP-035X055X10.0B	35	35	55	55	10	11

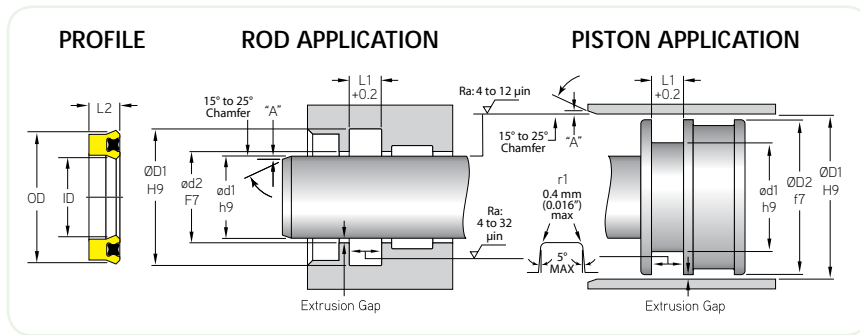
METRIC X-PAC®  
B-LIP

METRIC SYMMETRICAL U-CUP



# Metric X-PAC® Loaded B-Lip - Symmetrical U-Cup

A product of MFP Seals.

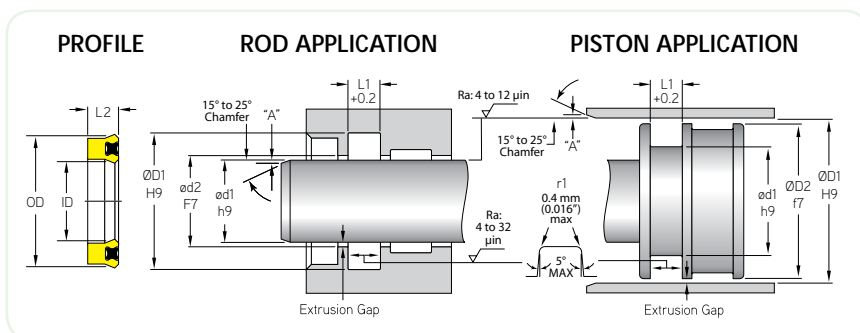


METRIC X-PAC®  
B-LIP

METRIC SYMMETRICAL U-CUP

## ROD OR PISTON APPLICATION

MFP PART NUMBER	ød1	ød2	ØD1	ØD2	L2	L1
TOLERANCE	h9	F7	H9	f7		+0.2
MXP-035.5X045X06.0B	35.5	35.5	45	45	6	7
MXP-036X043X05.3B	36	36	43	43	5.3	6.3
MXP-036X044X06.0B	36	36	44	44	6	7
MXP-036X044X08.0B	36	36	44	44	8	9
MXP-036X046X07.3B	36	36	46	46	7.3	8.3
MXP-036X046X10.0B	36	36	46	46	10	11
MXP-036X052X10.0B	36	36	52	52	10	11
MXP-037X047X08.0B	37	37	47	47	8	9
MXP-040X048X05.0B	40	40	48	48	5	6
MXP-040X048X05.7B	40	40	48	48	5.7	6.7
MXP-040X048X06.0B	40	40	48	48	6	7
MXP-040X048X08.0B	40	40	48	48	8	9
MXP-040X050X06.0B	40	40	50	50	6	7
MXP-040X050X06.5B	40	40	50	50	6.5	7.5
MXP-040X050X07.0B	40	40	50	50	7	8
MXP-040X050X07.3B	40	40	50	50	7.3	8.3
MXP-040X050X08.0B	40	40	50	50	8	9
MXP-040X050X10.0B	40	40	50	50	10	11
MXP-040X053X08.0B	40	40	53	53	8	9
MXP-040X055X09.0B	40	40	55	55	9	10
MXP-040X055X10.0B	40	40	55	55	10	11
MXP-040X056X10.0B	40	40	56	56	10	11
MXP-040X060X12.0B	40	40	60	60	12	13
MXP-041.7X050.7X07.1B	41.7	41.7	50.7	50.7	7.1	8.1
MXP-042X050X06.0B	42	42	50	50	6	7
MXP-042X055X07.0B	42	42	55	55	7	8
MXP-045X053X05.0B	45	45	53	53	5	6
MXP-045X053X08.0B	45	45	53	53	8	9
MXP-045X055X06.0B	45	45	55	55	6	7
MXP-045X055X07.3B	45	45	55	55	7.3	8.3
MXP-045X055X10.0B	45	45	55	55	10	11
MXP-045X056X07.0B	45	45	56	56	7	8
MXP-045X060X09.0B	45	45	60	60	9	10
MXP-045X060X10.0B	45	45	60	60	10	11
MXP-045X060X11.5B	45	45	60	60	11.5	12.5
MXP-045X065X12.0B	45	45	65	65	12	13
MXP-045X070X15.0B	45	45	70	70	15	16



**ROD OR PISTON APPLICATION**

MFP PART NUMBER	ød1	ød2	ØD1	ØD2	L2	L1
TOLERANCE	h9	F7	H9	f7		+0.2
MXP-048X063X10.2B	48	48	63	63	10.2	11.2
MXP-048X068X12.0B	48	48	68	68	12	13
MXP-050X058X08.0B	50	50	58	58	8	9
MXP-050X060X06.0B	50	50	60	60	6	7
MXP-050X060X07.3B	50	50	60	60	7.3	8.3
MXP-050X060X08.0B	50	50	60	60	8	9
MXP-050X060X10.0B	50	50	60	60	10	11
MXP-050X060X12.0B	50	50	60	60	12	13
MXP-050X063X08.0B	50	50	63	63	8	9
MXP-050X063X10.0B	50	50	63	63	10	11
MXP-050X065X09.0B	50	50	65	65	9	10
MXP-050X065X10.0B	50	50	65	65	10	11
MXP-050X065X11.4B	50	50	65	65	11.4	12.4
MXP-050X070X10.0B	50	50	70	70	10	11
MXP-050X070X12.0B	50	50	70	70	12	13
MXP-053X063X06.0B	53	53	63	63	6	7
MXP-053X063X06.5B	53	53	63	63	6.5	7.5
MXP-053X063X07.3B	53	53	63	63	7.3	8.3
MXP-053X063X10.0B	53	53	63	63	10	11
MXP-055X065X06.0B	55	55	65	65	6	7
MXP-055X065X07.3B	55	55	65	65	7.3	8.3
MXP-055X065X10.0B	55	55	65	65	10	11
MXP-055X065X12.0B	55	55	65	65	12	13
MXP-055X068X10.0B	55	55	68	68	10	11
MXP-055X070X09.0B	55	55	70	70	9	10
MXP-055X070X12.0B	55	55	70	70	12	13
MXP-055X075X12.0B	55	55	75	75	12	13
MXP-055X080X15.0B	55	55	80	80	15	16
MXP-056X064X08.0B	56	56	64	64	8	9
MXP-056X066X07.3B	56	56	66	66	6	7
MXP-056X066X10.0B	56	56	66	66	10	11
MXP-056X071X11.4B	56	56	71	71	11.4	12.4
MXP-057X070X09.0B	57	57	70	70	9	10
MXP-060X068X08.0B	60	60	68	68	8	9
MXP-060X070X06.0B	60	60	70	70	6	7
MXP-060X070X07.3B	60	60	70	70	7.3	8.3
MXP-060X070X08.0B	60	60	70	70	8	9

METRIC X-PAC®  
B-LIP

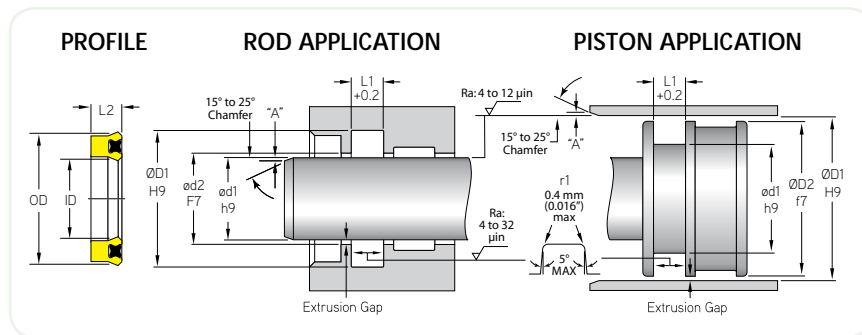
METRIC SYMMETRICAL U-CUP



# Metric X-PAC® Loaded B-Lip - Symmetrical U-Cup

A product of MFP Seals.

**MFPSEALS®**

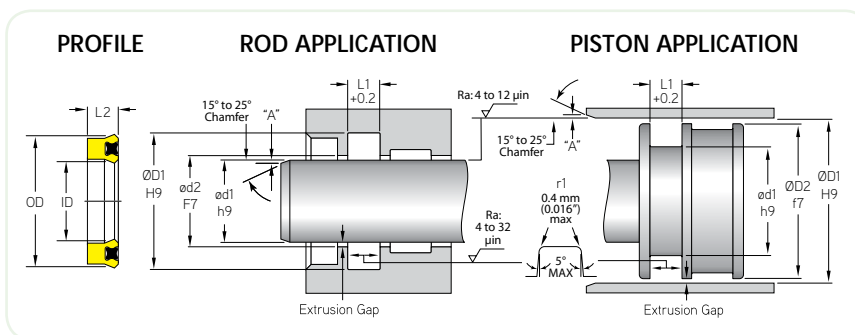


METRIC X-PAC®  
B-LIP

METRIC SYMMETRICAL U-CUP

## ROD OR PISTON APPLICATION

MFP PART NUMBER	ød1	ød2	ØD1	ØD2	L2	L1
<b>TOLERANCE</b>	h9	F7	H9	f7		+0.2
MXP-060X070X09.0B	60	60	70	70	9	10
MXP-060X070X10.0B	60	60	70	70	10	11
MXP-060X070X12.0B	60	60	70	70	12	13
MXP-060X071X07.0B	60	60	71	71	7	8
MXP-060X073X10.0B	60	60	73	73	10	11
MXP-060X075X09.0B	60	60	75	75	9	10
MXP-060X075X10.0B	60	60	75	75	10	11
MXP-060X075X11.0B	60	60	75	75	11	12
MXP-060X080X12.0B	60	60	80	80	12	13
MXP-060X080X14.5B	60	60	80	80	14.5	15.5
MXP-062X072X12.0B	62	62	72	72	12	13
MXP-063X071X08.0B	63	63	71	71	8	9
MXP-063X073X06.0B	63	63	73	73	6	7
MXP-063X073X12.0B	63	63	73	73	12	13
MXP-063X075X08.7B	63	63	75	75	8.7	9.7
MXP-063X078X10.6B	63	63	78	78	10.6	11.6
MXP-063X078X11.4B	63	63	78	78	11.4	12.4
MXP-063X083X15.0B	63	63	83	83	15	16
MXP-064X080X12.0B	64	64	80	80	12	13
MXP-065X073X08.0B	65	65	73	73	8	9
MXP-065X075X06.0B	65	65	75	75	6	7
MXP-065X075X08.0B	65	65	75	75	8	9
MXP-065X075X10.0B	65	65	75	75	10	11
MXP-065X075X12.0B	65	65	75	75	12	13
MXP-065X078X10.0B	65	65	78	78	10	11
MXP-065X080X09.0B	65	65	80	80	9	10
MXP-065X080X10.0B	65	65	80	80	10	11
MXP-065X080X11.4B	65	65	80	80	11.4	12.4
MXP-065X080X12.0B	65	65	80	80	12	13
MXP-065X085X12.0B	65	65	85	85	12	13
MXP-067X077X06.0B	67	67	77	77	6	7
MXP-070X078X08.0B	70	70	78	78	8	9
MXP-070X080X06.0B	70	70	80	80	6	7
MXP-070X080X10.0B	70	70	80	80	10	11
MXP-070X080X12.0B	70	70	80	80	12	13
MXP-070X083X10.0B	70	70	83	83	10	11
MXP-070X085X09.0B	70	70	85	85	9	10



MFP PART NUMBER	ROD OR PISTON APPLICATION					
	ød1	ød2	ØD1	ØD2	L2	L1
<b>TOLERANCE</b>	h9	F7	H9	f7		+0.2
MXP-070X085X10.0B	70	70	85	85	10	11
MXP-070X085X11.4B	70	70	85	85	11.4	12.4
MXP-070X085X12.0B	70	70	85	85	12	13
MXP-070X090X12.0B	70	70	90	90	12	13
MXP-070X090X15.0B	70	70	90	90	15	16
MXP-071X080X06.0B	71	71	80	80	6	7
MXP-071X080X06.5B	71	71	80	80	6.5	7.5
MXP-072X082X08.0B	72	72	82	82	8	9
MXP-072X087X09.0B	72	72	87	87	9	10
MXP-075X083X06.0B	75	75	83	83	6	7
MXP-075X085X06.0B	75	75	85	85	6	7
MXP-075X085X08.0B	75	75	85	85	8	9
MXP-075X085X10.0B	75	75	85	85	10	11
MXP-075X085X12.0B	75	75	85	85	12	13
MXP-075X090X09.0B	75	75	90	90	9	10
MXP-075X090X10.0B	75	75	90	90	10	11
MXP-075X090X11.0B	75	75	90	90	11	12
MXP-075X090X11.4B	75	75	90	90	11.4	12.4
MXP-075X095X12.0B	75	75	95	95	12	13
MXP-075X100X15.0B	75	75	100	100	15	16
MXP-078X090X11.0B	78	78	90	90	11	12
MXP-080X088X08.0B	80	80	88	88	8	9
MXP-080X090X06.0B	80	80	90	90	6	7
MXP-080X090X08.0B	80	80	90	90	8	9
MXP-080X090X10.0B	80	80	90	90	10	11
MXP-080X090X12.0B	80	80	90	90	12	13
MXP-080X092X09.5B	80	80	92	92	9.5	10.5
MXP-080X093X10.0B	80	80	93	93	10	11
MXP-080X095X09.0B	80	80	95	95	9	10
MXP-080X095X11.0B	80	80	95	95	11	12
MXP-080X095X11.4B	80	80	95	95	11.4	12.4
MXP-080X100X12.0B	80	80	100	100	12	13
MXP-080X100X14.5B	80	80	100	100	14.5	15.5
MXP-080X100X15.0B	80	80	100	100	15	16
MXP-082X092X10.0B	82	82	92	92	10	11
MXP-084X098X12.0B	84	84	98	98	12	13
MXP-085X100X09.0B	85	85	100	100	9	10

METRIC X-PAC®  
B-LIP

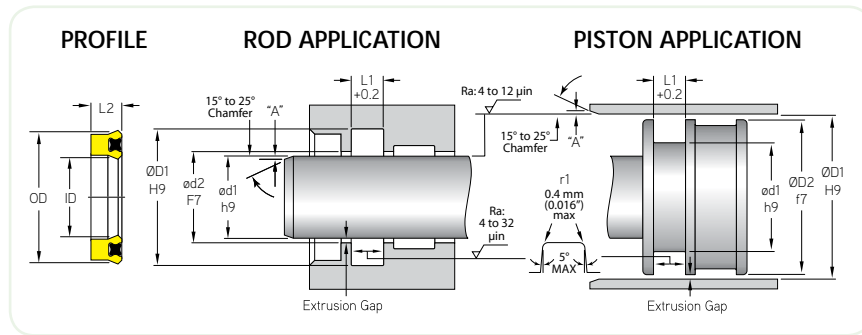
METRIC SYMMETRICAL U-CUP





# Metric X-PAC® Loaded B-Lip - Symmetrical U-Cup

A product of MFP Seals.

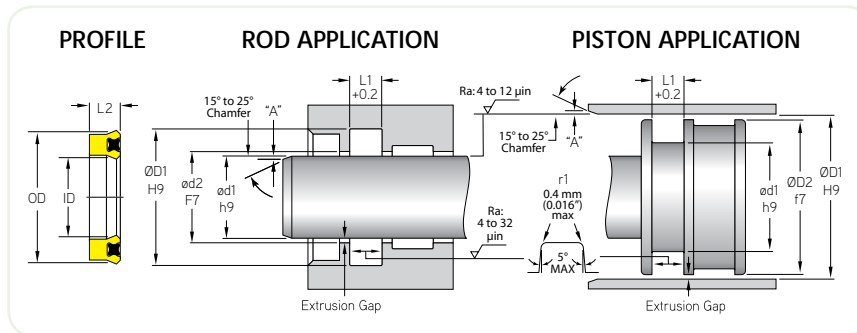


METRIC X-PAC®  
B-LIP

METRIC SYMMETRICAL U-CUP

## ROD OR PISTON APPLICATION

MFP PART NUMBER	ød1	ød2	ØD1	ØD2	L2	L1
TOLERANCE	h9	F7	H9	f7		+0.2
MXP-085X100X10.0B	85	85	100	100	10	11
MXP-085X100X12.0B	85	85	100	100	12	13
MXP-085X105X12.0B	85	85	105	105	12	13
MXP-085X105X14.5B	85	85	105	105	14.5	15.5
MXP-088X102X10.5B	88	88	102	102	10.5	11.5
MXP-090X098X08.0B	90	90	98	98	8	9
MXP-090X100X06.0B	90	90	100	100	6	7
MXP-090X100X07.0B	90	90	100	100	7	8
MXP-090X105X09.0B	90	90	105	105	9	10
MXP-090X105X10.0B	90	90	105	105	10	11
MXP-090X105X11.4B	90	90	105	105	11.4	12.4
MXP-090X105X12.0B	90	90	105	105	12	13
MXP-090X105X10.0B	90	90	105	105	10	11
MXP-090X105X11.4B	90	90	105	105	11.4	12.4
MXP-090X105X12.0B	90	90	105	105	12	13
MXP-090X110X12.0B	90	90	110	110	12	13
MXP-090X110X14.5B	90	90	110	110	14.5	15.5
MXP-095X105X06.0B	95	95	105	105	6	7
MXP-095X110X09.0B	95	95	110	110	9	10
MXP-095X110X10.0B	95	95	110	110	10	11
MXP-095X110X11.4B	95	95	110	110	11.4	12.4
MXP-095X110X12.0B	95	95	110	110	12	13
MXP-095X110X09.0B	95	95	110	110	9	10
MXP-095X110X10.0B	95	95	110	110	10	11
MXP-095X110X12.0B	95	95	110	110	12	13
MXP-095X115X12.0B	95	95	115	115	12	13
MXP-097X105X13.0B	97	97	105	105	13	14
MXP-098X110X16.0B	98	98	110	110	16	17
MXP-098X112X10.5B	98	98	112	112	10.5	11.5
MXP-100X050.7X07.1B	100	100	108	108	8	9
MXP-100X115X09.0B	100	100	115	115	9	10
MXP-100X115X10.0B	100	100	115	115	10	11
MXP-100X115X12.0B	100	100	115	115	12	13
MXP-100X115X09.0B	100	100	115	115	9	10
MXP-100X115X10.0B	100	100	115	115	10	11
MXP-100X115X12.0B	100	100	115	115	12	13
MXP-100X120X12.0B	100	100	120	120	12	13



**ROD OR PISTON APPLICATION**

MFP PART NUMBER	ød1	ød2	ØD1	ØD2	L2	L1
TOLERANCE	h9	F7	H9	f7		+0.2
MXP-100X120X14.5B	100	100	120	120	14.5	15.5
MXP-100X125X12.4B	100	100	125	125	12.4	13.4
MXP-100X125X15.0B	100	100	125	125	15	16
MXP-100X125X18.0B	100	100	125	125	18	19
MXP-105X120X09.0B	105	105	120	120	9	10
MXP-105X120X09.0B	105	105	120	120	9	10
MXP-105X125X11.4B	105	105	125	125	11.4	12.4
MXP-105X125X12.0B	105	105	125	125	12	13
MXP-105X125X15.0B	105	105	125	125	15	16
MXP-106X120X08.5B	106	106	120	120	8.5	9.5
MXP-110X125X09.0B	110	110	125	125	9	10
MXP-110X125X09.2B	110	110	125	125	9.2	10.2
MXP-110X125X10.0B	110	110	125	125	10	11
MXP-110X125X11.4B	110	110	125	125	11.4	12.4
MXP-110X125X12.0B	110	110	125	125	12	13
MXP-110X125X09.0B	110	110	125	125	9	10
MXP-110X125X09.2B	110	110	125	125	9.2	10.2
MXP-110X125X10.0B	110	110	125	125	10	11
MXP-110X125X12.0B	110	110	125	125	12	13
MXP-110X130X12.0B	110	110	130	130	12	13
MXP-110X130X14.5B	110	110	130	130	14.5	15.5
MXP-110X130X15.0B	110	110	130	130	15	16
MXP-110X135X18.0B	110	110	135	135	18	19
MXP-112X125X07.0B	112	112	125	125	7	8
MXP-112X125X09.0B	112	112	125	125	9	10
MXP-115X130X08.5B	115	115	130	130	8.5	9.5
MXP-115X130X11.4B	115	115	130	130	11.4	12.4
MXP-115X130X08.5B	115	115	130	130	8.5	9.5
MXP-115X135X12.0B	115	115	135	135	12	13
MXP-115X140X18.0B	115	115	140	140	18	19
MXP-118X133X09.0B	118	118	133	133	9	10
MXP-120X130X15.0B	120	120	130	130	15	16
MXP-120X135X09.0B	120	120	135	135	9	10
MXP-120X135X011.4B	120	120	135	135	11.4	12.4
MXP-120X135X09.0B	120	120	135	135	9	10
MXP-120X135X15.0B	120	120	135	135	15	16
MXP-120X140X10.0B	120	120	140	140	10	11

METRIC X-PAC®  
B-LIP

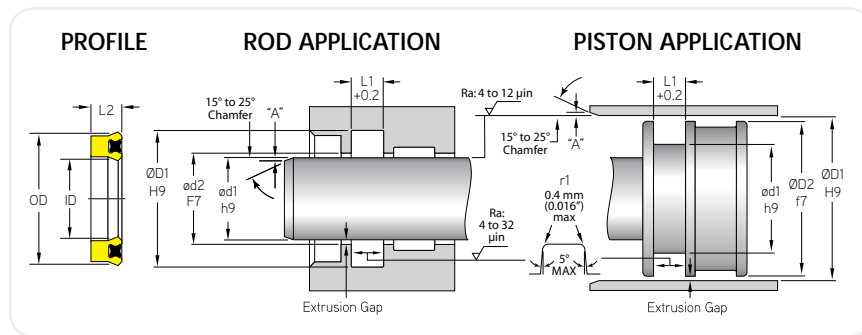
METRIC SYMMETRICAL U-CUP



# Metric X-PAC® Loaded B-Lip - Symmetrical U-Cup

A product of MFP Seals.

**MFPSEALS®**

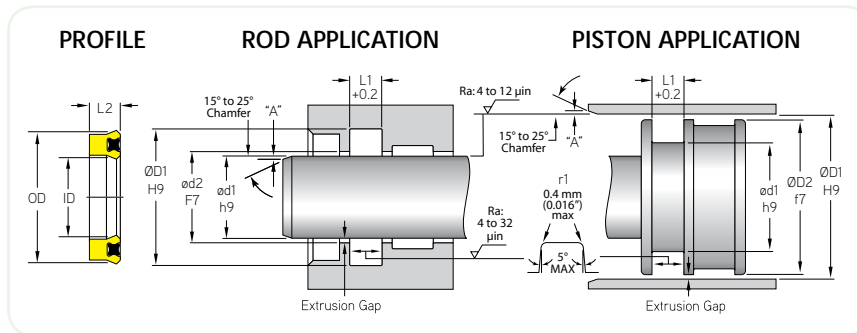


METRIC X-PAC®  
B-LIP

METRIC SYMMETRICAL U-CUP

## ROD OR PISTON APPLICATION

MFP PART NUMBER	ød1	ød2	ØD1	ØD2	L2	L1
TOLERANCE	h9	F7	H9	f7		+0.2
MXP-120X140X12.0B	120	120	140	140	12	13
MXP-120X140X14.5B	120	120	140	140	14.5	15.5
MXP-120X140X15.0B	120	120	140	140	15	16
MXP-125X135X15.0B	125	125	135	135	15	16
MXP-125X140X09.0B	125	125	140	140	9	10
MXP-125X140X11.4B	125	125	140	140	11.4	12.4
MXP-125X140X09.0B	125	125	140	140	9	10
MXP-125X145X14.5B	125	125	145	145	14.5	15.5
MXP-125X145X15.0B	125	125	145	145	15	16
MXP-125X150X12.0B	125	125	150	150	12	13
MXP-125X150X18.0B	125	125	150	150	18	19
MXP-130X145X09.0B	130	130	145	145	9	10
MXP-130X145X09.0B	130	130	145	145	9	10
MXP-130X150X12.0B	130	130	150	150	12	13
MXP-130X150X13.0B	130	130	150	150	13	14
MXP-130X150X15.0B	130	130	150	150	15	16
MXP-130X150X16.0B	130	130	150	150	16	17
MXP-130X160X17.0B	130	130	160	160	17	18
MXP-135X150X09.0B	135	135	150	150	9	10
MXP-135X150X09.0B	135	135	150	150	9	10
MXP-135X155X15.0B	135	135	155	155	15	16
MXP-136X150X09.0B	136	136	150	150	9	10
MXP-140X155X09.0B	140	140	155	155	9	10
MXP-140X155X09.0B	140	140	155	155	9	10
MXP-140X160X12.0B	140	140	160	160	12	13
MXP-140X160X13.0B	140	140	160	160	13	14
MXP-140X160X14.0B	140	140	160	160	14	15
MXP-140X160X14.5B	140	140	160	160	14.5	15.5
MXP-140X160X15.0B	140	140	160	160	15	16
MXP-140X165X18.2B	140	140	165	165	18.2	19.2
MXP-145X160X07.0B	145	145	160	160	7	8
MXP-145X160X09.0B	145	145	160	160	9	10
MXP-145X160X07.0B	145	145	160	160	7	8
MXP-145X160X09.0B	145	145	160	160	9	10
MXP-150X160X08.0B	150	150	160	160	8	9
MXP-150X165X09.0B	150	150	165	165	9	10
MXP-150X165X09.0B	150	150	165	165	9	10



MFP PART NUMBER	ROD OR PISTON APPLICATION					
	ød1	ød2	ØD1	ØD2	L2	L1
<b>TOLERANCE</b>	h9	F7	H9	f7		+0.2
MXP-150X170X15.0B	150	150	170	170	15	16
MXP-150X170X16.0B	150	150	170	170	16	17
MXP-150X180X18.0B	150	150	180	180	18	19
MXP-155X180X15.0B	155	155	180	180	15	16
MXP-155X180X16.0B	155	155	180	180	16	17
MXP-160X175X09.0B	160	160	175	175	9	10
MXP-160X180X09.5B	160	160	180	180	9.5	10.5
MXP-160X175X09.0B	160	160	175	175	9	10
MXP-160X180X15.0B	160	160	180	180	15	16
MXP-160X185X18.0B	160	160	185	185	18	19
MXP-160X190X16.0B	160	160	190	190	16	17
MXP-160X190X22.7B	160	160	190	190	22.7	23.7
MXP-165X180X09.5B	165	165	180	180	9.5	10.5
MXP-170X190X15.0B	170	170	190	190	15	16
MXP-170X195X16.0B	170	170	195	195	16	17
MXP-170X200X15.0B	170	170	200	200	15	16

METRIC X-PAC®  
B-LIP

METRIC SYMMETRICAL U-CUP



# MRTL - Metric Asymmetrical Twin Lip Rod Seal

A product of MFP Seals.

**MFPSEALS**

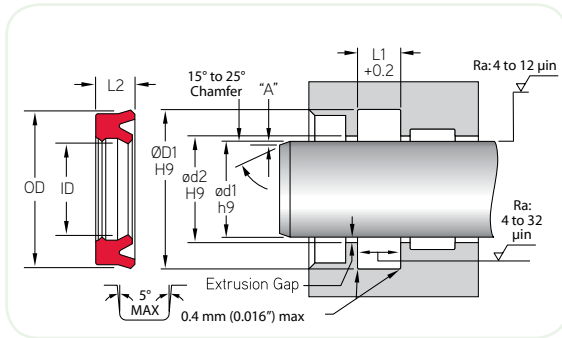
METRIC ASYMMETRICAL U-CUP

## MRTL - Metric Asymmetrical Twin-Lip Rod U-Cup

MFP Seals' MRTL Rod Seal U-Cup is an asymmetrical cup seal designed for use in hydraulic applications. The MRTL twin lip seal offers increased seal stability and superior sealing ability. This seal offers a knife trimmed lip for increased sealability. The design was enhanced using finite element analysis giving you the best product on the market. Produced from our U2151 compound, the seal offers extremely low compression set and excellent extrusion resistance.



The standard compound for this seal is U2151. It is also available in compounds U2150, U4150 and H2155.



### MFP PART NUMBERS

**MRTL-030X040X06.0U2151**

SEAL TYPE      ød1      ØD1      L2      COMPOUND

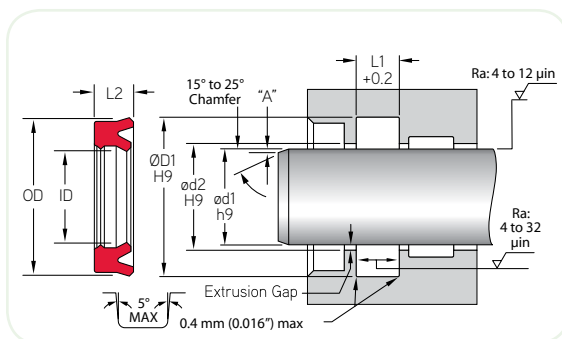
Pressure: 400 bar (5,800 psi)

Max. Velocity: 0.5 m/s (1.5 ft./s)

### PISTON APPLICATION

MFP PART NUMBER	ød1	ød2	ØD1	L2	L1
TOLERANCE	h9	F8	H9		+0.2
MRTL-012X020X05.7	12	12	20	5.7	6.3
MRTL-020X028X05.7	20	20	28	5.7	6.3
MRTL-022X030X05.7	22	22	30	5.7	6.3
MRTL-025X033X05.7	25	25	33	5.7	6.3
MRTL-030X038X05.7	30	30	38	5.7	6.3
MRTL-030X040X06.0	30	30	40	6	7
MRTL-030X040X10.0	30	30	40	10	11
MRTL-032X042X07.3	32	32	42	7.3	8
MRTL-035X043X06.3	35	35	43	6.3	7
MRTL-035X045X06.0	35	35	45	6	7
MRTL-040X050X06.0	40	40	50	6	7
MRTL-040X050X07.3	40	40	50	7.3	8
MRTL-040X050X10.0	40	40	50	10	11
MRTL-042X050X05.7	42	42	50	5.7	6.3
MRTL-045X053X05.7	45	45	53	5.7	6.3
MRTL-045X055X06.0	45	45	55	6	7
MRTL-045X055X07.3	45	45	55	7.3	8
MRTL-050X060X06.0	50	50	60	6	7
MRTL-050X060X07.3	50	50	60	7.3	8
MRTL-050X060X08.0	50	50	60	8	9
MRTL-050X060X10.0	50	50	60	10	11

MRTL



MFP PART NUMBER	PISTON APPLICATION				
	ød1	ød2	ØD1	L2	L1
TOLERANCE	h9	F8	H9		+0.2
MRTL-055X065X06.0	55	55	65	6	7
MRTL-055X065X09.0	55	55	65	9	10
MRTL-055X065X10.0	55	55	65	10	11
MRTL-055X070X09.0	55	55	70	9	10
MRTL-060X070X06.0	60	60	70	6	7
MRTL-060X075X10.0	60	60	75	10	11
MRTL-060X075X11.8	60	60	75	11.8	13
MRTL-065X075X06.0	65	65	75	6	7
MRTL-065X080X09.0	65	65	80	9	10
MRTL-070X080X06.0	70	70	80	6	7
MRTL-070X085X09.0	70	70	85	9	10
MRTL-070X085X11.4	70	70	85	11.4	12.5
MRTL-075X090X09.0	75	75	90	9	10
MRTL-080X090X06.0	80	80	90	6	7
MRTL-080X095X09.0	80	80	95	9	10
MRTL-080X095X11.5	80	80	95	11.5	12.5
MRTL-085X100X09.0	85	85	100	9	10
MRTL-090X105X09.0	90	90	105	9	10
MRTL-090X105X11.4	90	90	105	11.4	12.5
MRTL-095X110X09.0	95	95	110	9	10
MRTL-100X115X09.0	100	100	115	9	10

METRIC ASYMMETRICAL U-CUP

MRTL





# MXPRA - Metric X-PAC® Loaded Rod Seal U-Cup with Twin-Lip & Anti-Extrusion Ring

A product of MFP Seals.



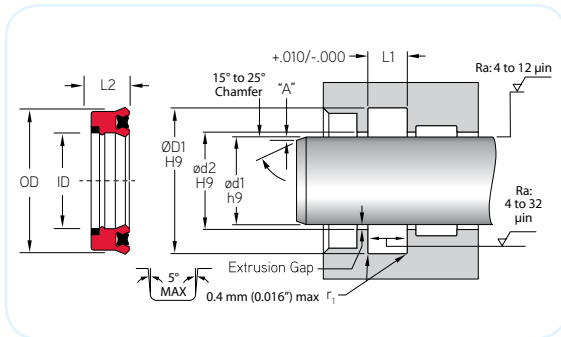
METRIC ASYMMETRICAL U-CUP

## MXPRA - Metric X-PAC® Loaded Rod Seal U-Cup with Twin-Lip & Anti-Extrusion Ring

MXPRA U-Cup is a versatile reciprocating seal for linear rod applications, up to 690 bar (10,000 psi). The rubber expander creates a compression style seal while still operating as a pressure actuated U-Cup design. The result is better low-pressure sealing and less startup leakage. The MXPRA X-PAC® offers Twin-Lip design for seal stability as well as an Anti-Extrusion Ring to prevent seal extrusion. MFP Seals' X-PAC® U-Cups feature a knife trimmed sealing lip for increased sealability.



The standard compound for this seal is U2151, with an N6014 X-Ring Expander, and M1000 Anti-Extrusion Ring. It is also available in compounds U2150, U4150, and H2155. An M1001 Anti-Extrusion Ring is also available.



### MFP PART NUMBERS

MXPRA-100X115X13.0BU2151

SEAL TYPE | CROSS SECTION | ød1 | L2 | PROFILE STYLE | COMPOUND

Pressure: 690 bar (10,000 psi)

Max. Velocity: 0.5 m/s (1.5 ft./s)

Contact your MFP Seals Sales Representative for available sizes.

MXPRA - X-PAC®

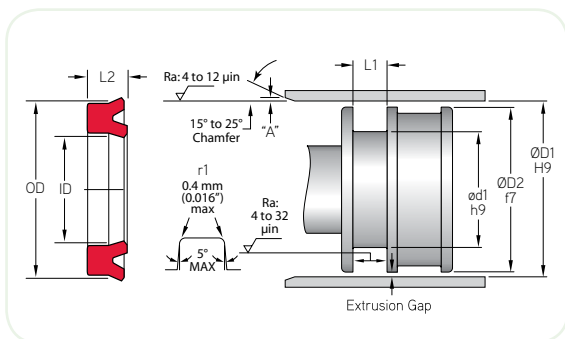


**MPUC - Metric Asymmetrical Piston U-Cup**

MFP Seals' MPUC Asymmetrical Piston U-Cup is designed for linear piston applications. The MPUC features a knife trimmed sealing lip for increased sealing ability. The design was enhanced using finite element analysis giving you the best product on the market. Produced from our U2151 compound the seal offers extremely low compression set and excellent extrusion resistance.



The standard compound for this seal is U2151.  
It is also available in compounds U2145,  
U2150, U4150 and H2155.



**MFP PART NUMBERS**

**MPUC-050X040X06.0U2151**

SEAL TYPE      ØD1      ød1      L2      COMPOUND

Pressure: 400 bar (5,800 psi)

Max. Velocity: 0.5 m/s (1.5 ft./s)

MFP PART NUMBER	PISTON APPLICATION				
	ØD1	ØD2	ød1	L2	L1
<b>TOLERANCE</b>	H9	f7	h9		+0.2
MPUC-050X040X06.0U2151	50	50	40	6	7
MPUC-050X040X07.3U2151	50	50	40	7.3	8
MPUC-063X053X06.0U2151	63	63	53	6	7
MPUC-065X055X06.0U2151	65	65	55	6	7
MPUC-070X060X06.0U2151	70	70	60	6	7
MPUC-080X070X06.0U2151	80	80	70	6	7
MPUC-090X075X11.4U2151	90	90	75	11.4	12.5
MPUC-100X085X11.4U2151	100	100	85	11.4	12.5
MPUC-120X105X09.0U2151	120	120	105	9	10
MPUC-120X105X14.5U2151	120	120	105	14.5	16
MPUC-140X125X09.0U2151	140	140	125	9	10
MPUC-160X140X14.5U2151	160	160	140	14.5	16
MPUC-225X200X18.2U2151	225	225	200	18.2	20

METRIC ASYMMETRICAL U-CUP

MPUC



# MPST - Metric (2 P.C.) Piston Seal

A product of MFP Seals.



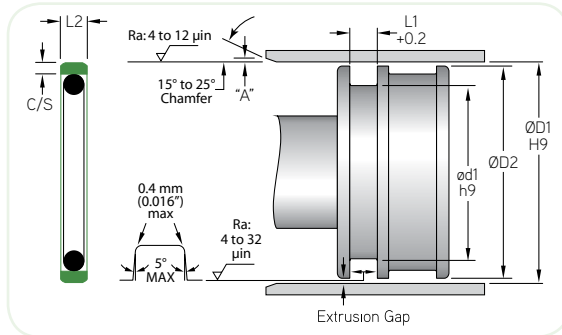
## MPST Metric (2pc) Piston Seal

MFP Seals' MPST piston seal is made for use in light to medium duty hydraulic applications. This two piece design is composed of an O-Ring energizer and a PTFE cap produced from our proprietary T5100 compound.



The standard compound for this seal is T5100 / N6001.

For increased chemical and temperature resistance, other compounds are available (See pages 26-37).



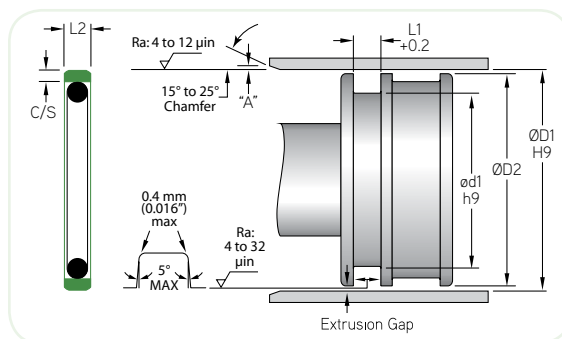
## MFP PART NUMBERS

**MPST-016x011.0x2.2T5100N**

SEAL TYPE    ØD1    ød1    L1    COMPOUND    EXPANDER COMPOUND

Pressure: 400 bar (5,800 psi)    Max. Velocity: 3.0 m/s (9 ft./s)

MFP PART NUMBER	PISTON APPLICATION		
	ØD1	ød1	L1
<b>TOLERANCE</b>	H9	h9	+0.2
MPST-010X005.0X2.2	10	5	2.2
MPST-012X007.0X2.2	12	7	2.2
MPST-014X009.0X2.2	14	9	2.2
MPST-015X007.5X3.2	15	7.5	3.2
MPST-016X011.0X2.2	16	11	2.2
MPST-016X008.5X3.2	16	8.5	3.2
MPST-018X010.5X3.2	18	10.5	3.2
MPST-020X015.0X2.2	20	15	2.2
MPST-020X012.5X3.2	20	12.5	3.2
MPST-022X014.5X3.2	22	14.5	3.2
MPST-025X017.5X3.2	25	17.5	3.2
MPST-025X014.0X4.2	25	14	4.2
MPST-028X020.5X3.2	28	20.5	3.2
MPST-030X022.5X3.2	30	22.5	3.2
MPST-032X024.5X3.2	32	24.5	3.2
MPST-032X021.0X4.2	32	21	4.2
MPST-035X027.5X3.2	35	27.5	3.2
MPST-036X028.5X3.2	36	28.5	3.2
MPST-040X032.5X3.2	40	32.5	3.2
MPST-040X029.0X4.2	40	29	4.2
MPST-045X034.0X4.2	45	34	4.2
MPST-048X037.0X4.2	48	37	4.2
MPST-050X039.0X4.2	50	39	4.2



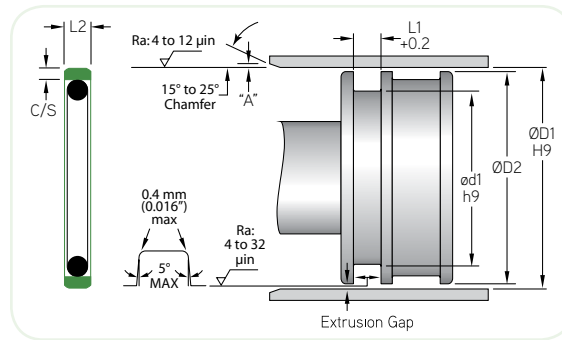
MFP PART NUMBER	PISTON APPLICATION		
	ØD1	ød1	L1
TOLERANCE	H9	h9	+0.2
MPST-050X034.5X6.3	50	34.5	6.3
MPST-052X041.0X4.2	52	41	4.2
MPST-055X044.0X4.2	55	44	4.2
MPST-060X049.0X4.2	60	49	4.2
MPST-063X055.5X3.2	63	55.5	3.2
MPST-063X052.0X4.2	63	52	4.2
MPST-063X047.5X6.3	63	47.5	6.3
MPST-065X054.0X4.2	65	54	4.2
MPST-070X054.5X6.3	70	54.5	6.3
MPST-070X059.0X4.2	70	59	4.2
MPST-075X064.0X4.2	75	64	4.2
MPST-080X069.0X4.2	80	69	4.2
MPST-080X064.5X6.3	80	64.5	6.3
MPST-080X059.0X8.1	80	59	8.1
MPST-085X064.0X8.1	85	64	8.1
MPST-085X069.5X6.3	85	69.5	6.3
MPST-090X074.5X6.3	90	74.5	6.3
MPST-090X069.0X8.1	90	69	8.1
MPST-095X079.5X6.3	95	79.5	6.3
MPST-095X074.0X8.1	95	74	8.1
MPST-100X089.0X4.2	100	89	4.2
MPST-100X084.5X6.3	100	84.5	6.3
MPST-100X079.0X8.1	100	79	8.1
MPST-105X084.0X8.1	105	84	8.1
MPST-105X089.5X6.3	105	89.5	6.3
MPST-110X089.0X8.1	110	89	8.1
MPST-110X094.5X6.3	110	94.5	6.3
MPST-115X094.0X8.1	115	94	8.1
MPST-120X099.0X8.1	120	99	8.1
MPST-120X104.5X6.3	120	104.5	6.3
MPST-125X109.5X6.3	125	109.5	6.3
MPST-125X104.0X8.1	125	104	8.1
MPST-127X111.5X6.3	127	111.5	6.3
MPST-130X109.0X8.1	130	109	8.1
MPST-130X114.5X6.3	130	114.5	6.3



# MPST - Metric (2 P.C.) Piston Seal

A product of MFP Seals.

**MFPSEALS**



METRIC PISTON ASSEMBLIES

MPST

## PISTON APPLICATION

MFP PART NUMBER	ØD1	ød1	L1
TOLERANCE	H9	h9	+0.2
MPST-135X114.0X8.1	135	114	8.1
MPST-140X119.0X8.1	140	119	8.1
MPST-150X129.0X8.1	150	129	8.1
MPST-160X144.5X6.3	160	144.5	6.3
MPST-160X135.5X8.1	160	135.5	8.1
MPST-160X139.0X8.1	160	139	8.1
MPST-170X149.0X8.1	170	149	8.1
MPST-180X159.0X8.1	180	159	8.1
MPST-190X169.0X8.1	190	169	8.1
MPST-200X184.5X6.3	200	184.5	6.3
MPST-200X175.5X8.1	200	175.5	8.1
MPST-200X179.0X8.1	200	179	8.1
MPST-210X189.0X8.1	210	189	8.1
MPST-220X199.0X8.1	220	199	8.1
MPST-225X204.0X8.1	225	204	8.1
MPST-230X209.0X8.1	230	209	8.1
MPST-240X219.0X8.1	240	219	8.1
MPST-250X229.0X8.1	250	229	8.1
MPST-260X239.0X8.1	260	239	8.1
MPST-280X259.0X8.1	280	259	8.1
MPST-300X279.0X8.1	300	279	8.1
MPST-320X295.5X8.1	320	295.5	8.1
MPST-350X325.5X8.1	350	325.5	8.1
MPST-360X335.5X8.1	360	335.5	8.1
MPST-380X355.5X8.1	380	355.5	8.1
MPST-400X375.5X8.1	400	375.5	8.1
MPST-420X395.5X8.1	420	395.5	8.1
MPST-450X425.5X8.1	450	425.5	8.1
MPST-480X455.5X8.1	480	455.5	8.1
MPST-500X475.5X8.1	500	475.5	8.1

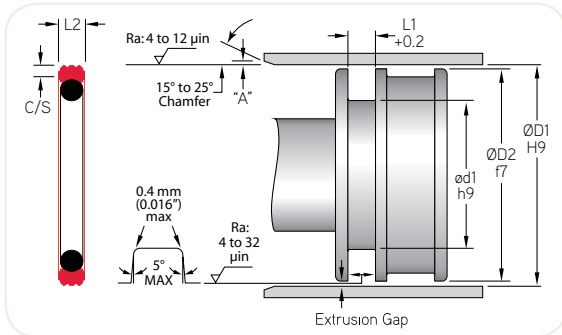


**MPSP - Metric (2pc) Piston Seal**

MFP Seals MPSP piston seal is for use in medium duty hydraulic applications. This two piece design is composed of an N6001 O-Ring expander with a Urethane cap produced from our U2151 compound the seal offers extremely low compression set and excellent extrusion resistance.



The standard compound for this seal is U2151, with an N6001 expander.



**MFP PART NUMBERS**

**MPSP-015X007.5X3.2U2151**

SEAL TYPE                      øD1                      COMPOUND  
 ØD1    L1

**Pressure: 350 bar (5,000 psi) Max. Velocity: 0.1 m/s (0.3 ft./s)**

MFP PART NUMBER	ROD APPLICATION			
	ØD1	ØD2	ød1	L1
<b>TOLERANCE</b>	H9	f7	h9	+0.2
MPSP-015X007.5X3.2	15	15	7.5	3.2
MPSP-016X008.5X3.2	16	16	8.5	3.2
MPSP-020X012.5X3.2	20	20	12.5	3.2
MPSP-022X014.5X3.2	22	22	14.5	3.2
MPSP-025X014.0X4.2	25	25	14	4.2
MPSP-025X017.5X3.2	25	25	17.5	3.2
MPSP-028X020.5X3.2	28	28	20.5	3.2
MPSP-030X022.5X3.2	30	30	22.5	3.2
MPSP-032X021.0X4.2	32	32	21	4.2
MPSP-032X024.5X3.2	32	32	24.5	3.2
MPSP-035X027.5X3.2	35	35	27.5	3.2
MPSP-040X024.5X6.3	40	40	24.5	6.3
MPSP-040X032.5X3.2	40	40	32.5	3.2
MPSP-040X029.0X4.2	40	40	29	4.2
MPSP-045X029.5X6.3	45	45	29.5	6.3
MPSP-045X034.0X4.2	45	45	34	4.2
MPSP-048X037.0X4.2	48	48	37	4.2
MPSP-049X038.0X4.2	49	49	38	4.2
MPSP-050X034.5X6.3	50	50	34.5	6.3
MPSP-050X039.0X4.2	50	50	39	4.2
MPSP-052X036.5X6.3	52	52	36.5	6.3
MPSP-054X043.0X4.2	54	54	43	4.2
MPSP-055X039.5X6.3	55	55	39.5	6.3
MPSP-055X044.0X4.2	55	55	44	4.2
MPSP-060X044.5X6.3	60	60	44.5	6.3

METRIC PISTON ASSEMBLIES

MPSP

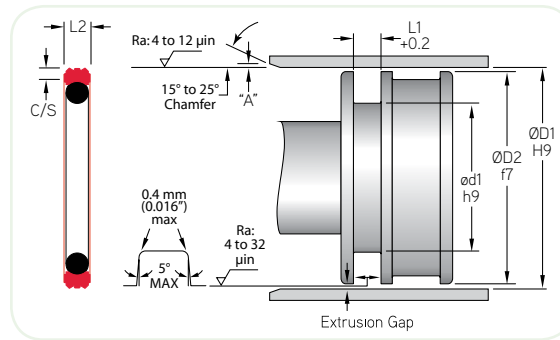




# MPSP - Metric (2 P.C.) Piston Seal

A product of MFP Seals.

**MFPSEALS®**



METRIC PISTON ASSEMBLIES

MPSP

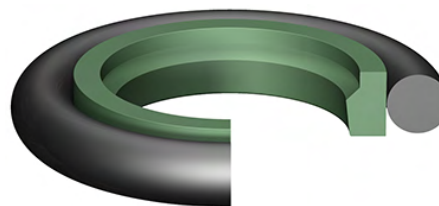
## ROD APPLICATION

MFP PART NUMBER	ØD1	ØD2	ød1	L1
TOLERANCE	H9	f7	h9	+0.2
MPSP-060X049.0X4.2	60	60	49	4.2
MPSP-063X047.5X6.3	63	63	47.5	6.3
MPSP-063X052.0X4.2	63	63	52	4.2
MPSP-065X049.5X6.3	65	65	49.5	6.3
MPSP-065X052.0X6.3	65	65	52	6.3
MPSP-065X054.0X4.2	65	65	54	4.2
MPSP-070X054.5X6.3	70	70	54.5	6.3
MPSP-070X057.0X6.3	70	70	57	6.3
MPSP-070X059.0X4.2	70	70	59	4.2
MPSP-075X059.5X6.3	75	75	59.5	6.3
MPSP-075X064.0X4.2	75	75	64	4.2
MPSP-080X064.5X6.3	80	80	64.5	6.3
MPSP-080X069.0X4.2	80	80	69	4.2
MPSP-085X069.5X6.3	85	85	69.5	6.3
MPSP-090X074.5X6.3	90	90	74.5	6.3
MPSP-100X084.5X6.3	100	100	84.5	6.3
MPSP-105X089.5X6.3	105	105	89.5	6.3
MPSP-110X094.5X6.3	110	110	94.5	6.3
MPSP-115X099.5X6.3	115	115	99.5	6.3
MPSP-120X099.0X8.1	120	120	99	8.1
MPSP-120X104.5X6.3	120	120	104.5	6.3
MPSP-125X104.0X8.1	125	125	104	8.1
MPSP-125X109.5X6.3	125	125	109.5	6.3
MPSP-130X109.0X8.1	130	130	109	8.1
MPSP-130X114.5X6.3	130	130	114.5	6.3
MPSP-135X114.0X8.1	135	135	114	8.1
MPSP-140X119.0X8.1	140	140	119	8.1
MPSP-140X124.5X6.3	140	140	124.5	6.3
MPSP-150X129.0X8.1	150	150	129	8.1
MPSP-160X139.0X8.1	160	160	139	8.1
MPSP-165X144.0X8.1	165	165	144	8.1
MPSP-170X149.0X8.1	170	170	149	8.1
MPSP-180X159.0X8.1	180	180	159	8.1
MPSP-190X169.0X8.1	190	190	169	8.1
MPSP-200X179.0X8.1	200	200	179	8.1
MPSP-210X189.0X8.1	210	210	189	8.1
MPSP-225X204.0X8.1	225	225	204	8.1
MPSP-230X209.0X8.1	230	230	209	8.1



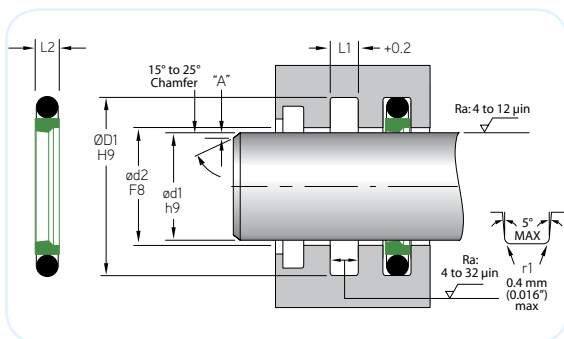
**MBRS - Metric Rod Buffer Seal**

MFP Seals' MBRS is designed for use as a buffer seal or as the primary sealing element. When used as a buffer seal a primary rod seal would be designed into the groove downstream of the pressure. The MBRS seal is composed of a two piece design consisting of a filled PTFE ring along with a rubber energizer. The MBRS offers low friction and long life due to its material composition.



The standard compound for this seal is T5100 / N6001.

For increased chemical and temperature resistance, other compounds are available (See pages 26-37).



**MFP PART NUMBERS**

**MBRS006x11.0x2.2T5100N**

SEAL TYPE    ød1    ØD1    L1    COMPOUND    EXPANDER COMPOUND

Pressure: 350 bar (5,000 psi)

Max. Velocity: 4.0 m/s (13 ft./s)

**ROD APPLICATION**

MFP PART NUMBER	ød1 / ød2	ØD1	L2	L1
TOLERANCE	h9 / F8	H9		+0.2
MBRS-006X011.0X2.2	6	11	2	2.2
MBRS-008X013.0X2.2	8	13	2	2.2
MBRS-010X015.0X2.2	10	15	2	2.2
MBRS-012X017.0X2.2	12	17	2	2.2
MBRS-012X019.5X3.2	12	19.5	3	3.2
MBRS-014X019.0X2.2	14	19	2	2.2
MBRS-014X021.5X3.2	14	21.5	3	3.2
MBRS-015X030.5X6.3	15	30.5	5.9	6.3
MBRS-016X023.5X3.2	16	23.5	3	3.2
MBRS-018X025.5X3.2	18	25.5	3	3.2
MBRS-020X027.5X3.2	20	27.5	3	3.2
MBRS-020X031.0X4.2	20	31	4	4.2
MBRS-020X035.5X6.3	20	35.5	5.9	6.3
MBRS-022X029.5X3.2	22	29.5	3	3.2
MBRS-022X033.0X4.2	22	33	4	4.2
MBRS-025X032.5X3.2	25	32.5	3	3.2
MBRS-025X036.0X4.2	25	36	4	4.2
MBRS-025X040.5X6.3	25	40.5	5.9	6.3
MBRS-028X039.0X4.2	28	39	4	4.2
MBRS-030X045.5X6.3	30	45.5	5.9	6.3
MBRS-032X043.0X4.2	32	43	4	4.2
MBRS-035X050.5X6.3	35	50.5	5.9	6.3
MBRS-036X047.0X4.2	36	47	4	4.2
MBRS-040X051.0X4.2	40	51	4	4.2
MBRS-040X055.5X6.3	40	55.5	5.9	6.3
MBRS-045X056.0X4.2	45	56	4	4.2

MBRS

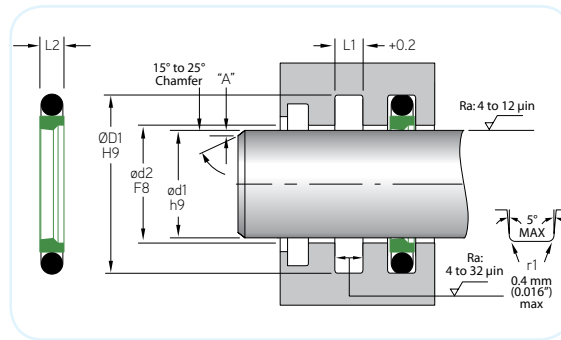
METRIC BUFFER RINGS



# MBRS - Metric Rod Buffer Seal

A product of MFP Seals.

**MFPSEALS**



MBRS

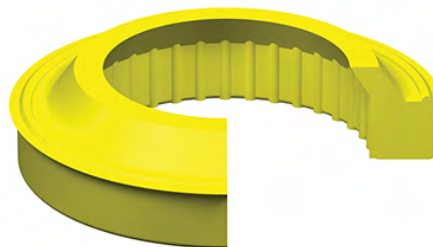
METRIC BUFFER RINGS

MFP PART NUMBER	ROD APPLICATION			
	ød1 / ød2	ØD1	L2	L1
TOLERANCE	h9 / F8	H9		+0.2
MBRS-045X060.5X6.3	45	60.5	5.9	6.3
MBRS-050X061.0X4.2	50	61	4	4.2
MBRS-050X065.5X6.3	50	65.5	5.9	6.3
MBRS-055X070.5X6.3	55	70.5	5.9	6.3
MBRS-056X067.0X4.2	56	67	4	4.2
MBRS-056X071.5X6.3	56	71.5	5.9	6.3
MBRS-060X071.0X4.2	60	71	4	4.2
MBRS-060X075.5X6.3	60	75.5	5.9	6.3
MBRS-063X074.0X4.2	63	74	4	4.2
MBRS-063X078.5X6.3	63	78.5	5.9	6.3
MBRS-065X080.5X6.3	65	80.5	5.9	6.3
MBRS-070X085.5X6.3	70	85.5	5.9	6.3
MBRS-075X090.5X6.3	75	90.5	5.9	6.3
MBRS-080X095.5X6.3	80	95.5	5.9	6.3
MBRS-085X100.5X6.3	85	100.5	5.9	6.3
MBRS-090X105.5X6.3	90	105.5	5.9	6.3
MBRS-095X110.5X6.3	95	110.5	5.9	6.3
MBRS-100X115.5X6.3	100	115.5	5.9	6.3
MBRS-105X120.5X6.3	105	120.5	5.9	6.3
MBRS-110X125.5X6.3	110	125.5	5.9	6.3
MBRS-115X130.5X6.3	115	130.5	5.9	6.3
MBRS-120X135.5X6.3	120	135.5	5.9	6.3
MBRS-125X140.5X6.3	125	140.5	5.9	6.3
MBRS-130X145.5X6.3	130	145.5	5.9	6.3
MBRS-135X150.5X6.3	135	150.5	5.9	6.3
MBRS-140X155.5X6.3	140	155.5	5.9	6.3
MBRS-145X160.5X6.3	145	160.5	5.9	6.3
MBRS-150X165.5X6.3	150	165.5	5.9	6.3
MBRS-160X175.5X6.3	160	175.5	5.9	6.3
MBRS-160X181.5X8.1	160	181.5	7.9	8.1
MBRS-165X180.5X6.3	165	180.5	5.9	6.3
MBRS-180X195.5X6.3	180	195.5	5.9	6.3
MBRS-180X201.0X8.1	180	201	7.9	8.1
MBRS-200X221.0X8.1	200	221	7.9	8.1
MBRS-220X241.0X8.1	220	241	7.9	8.1
MBRS-250X271.0X8.1	250	271	7.9	8.1
MBRS-280X304.5X8.1	280	304.5	7.9	8.1
MBRS-320X344.5X8.1	320	344.5	7.9	8.1
MBRS-360X384.5X8.1	360	384.5	7.9	8.1

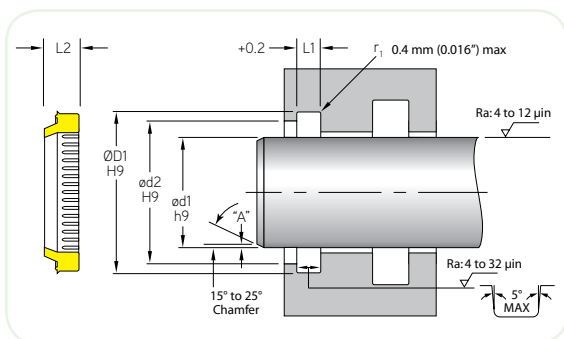


**MDRW - Metric Rod Wiper**

MFP Seals' MDRW wipers are for use in light to medium duty hydraulic & pneumatic applications. MFP's MDRW wiper offers a slotted heel to eliminate the possibility of pressure traps between the rod seal and wiper.



The standard compound for this seal is U2145. It is also available in compounds U2150, U2151, U4150 and H2155.



**MFP PART NUMBERS**

**MDRW-018x024.6x03.8U2145**

SEAL TYPE    ød1    ØD1    L1    COMPOUND

Max. Velocity: 0.5 m/s (1.5 ft./s)

MFP PART NUMBER	ROD APPLICATION				
	ød1	ØD1	ød2	L1	L2
<b>TOLERANCE</b>	h9	H9	H9	+0.2 / -0	
MDRW-018X024.6X03.8	18	24.6	21	3.8	5.3
MDRW-025X033.6X05.3	25	33.6	28	5.3	7
MDRW-030X038.6X05.3	30	38.6	33	5.3	7
MDRW-035X043.6X05.3	35	43.6	38	5.3	7
MDRW-040X048.6X05.3	40	48.6	43	5.3	7
MDRW-045X053.6X05.3	45	53.6	48	5.3	7
MDRW-045X055.6X05.3	45	55.6	48	5.3	7
MDRW-050X058.6X05.3	50	58.6	53	5.3	7
MDRW-055X063.6X05.3	55	63.6	58	5.3	7
MDRW-060X068.6X05.3	60	68.6	63	5.3	7
MDRW-063X073.6X05.3	63	73.6	66	5.3	7
MDRW-070X078.6X05.3	70	78.6	73	5.3	7
MDRW-070X080.6X05.3	70	80.6	73	5.3	7
MDRW-075X083.6X05.3	75	83.6	78	5.3	7
MDRW-080X088.6X05.3	80	88.6	83	5.3	7
MDRW-080X092.2X07.1	80	92.2	86	7.1	12
MDRW-085X093.6X05.3	85	93.6	88	5.3	7
MDRW-090X102.2X07.1	90	102.2	96	7.1	12
MDRW-095X107.2X07.1	95	107.2	101	7.1	12
MDRW-100X112.2X07.1	100	112.2	106	7.1	12

MDRW

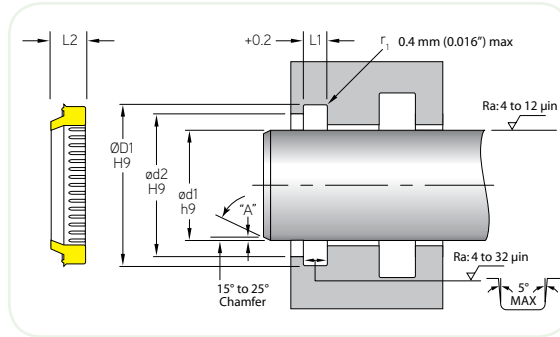
METRIC ROD WIPERS



# MDRW - Metric Rod Wiper

A product of MFP Seals.

**MFPSEALS**



MDRW

METRIC ROD WIPERS

### ROD APPLICATION

MFP PART NUMBER	$\varnothing d1$	$\varnothing D1$	$\varnothing d2$	L1	L2
TOLERANCE	h9	H9	H9	+0.2 / -0	
MDRW-110X122.2X07.1	110	122.2	116	7.1	12
MDRW-115X127.2X07.1	115	127.2	121	7.1	12
MDRW-120X132.2X07.1	120	132.2	126	7.1	12
MDRW-125X137.2X07.1	125	137.2	131	7.1	12
MDRW-130X142.2X07.1	130	142.2	136	7.1	12
MDRW-135X147.2X07.1	135	147.2	141	7.1	12
MDRW-140X152.2X07.1	140	152.2	145.6	7.1	12
MDRW-145X157.2X07.1	145	157.2	151	7.1	12
MDRW-150X162.2X07.1	150	162.2	156	7.1	12

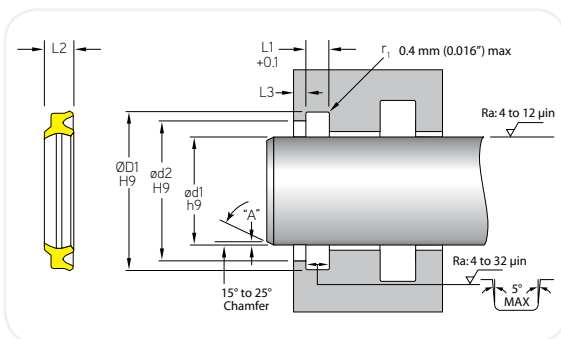


**MHRW Metric H Rod Wiper**

MFP Seals' MHRW Rod Wipers are a one piece snap-in design for medium duty cycle applications. MFP Seals' MHRW Rod wipers are a standard in industrial cylinders with an AN or BV style U-Cup as rod seals. The MHRW Rod Wipers feature a wiper/scraper lip as well as a secondary U-Cup which serves as a extra safeguard against leakage.



The standard compound for this seal is U2145.  
It is also available in compounds U2150,  
U2151, U4150 and H2155.



**MFP PART NUMBERS**

**MHRW-008.0x012.0x3.6U2145**

SEAL TYPE    ød1    ØD1    L1    COMPOUND

Max. Velocity: 0.5 m/s (1.5 ft./s)

**ROD APPLICATION**

MFP PART NUMBER	ød1	ØD1	ød2	L1	L2
TOLERANCE	h9	H9	H9	+0.1	
MHRW-008.0X012.0X3.6	8	12	10.5	3.6	5
MHRW-014.0X022.0X4.5	14	22	16.5	4.5	6
MHRW-016.0X022.0X4.0	16	22	18.5	4	5
MHRW-016.0X024.0X4.5	16	24	18.5	4.5	6
MHRW-018.0X026.0X4.5	18	26	20.5	4.5	6
MHRW-020.0X028.0X4.5	20	28	22.5	4.5	6
MHRW-022.4X030.4X4.5	22.4	30.4	24.9	4.5	6
MHRW-025.0X033.0X4.5	25	33	27.5	4.5	6
MHRW-028.0X036.0X4.5	28	36	31	4.5	6
MHRW-030.0X038.0X5.0	30	38	33	5	6.5
MHRW-032.0X040.0X5.0	32	40	35	5	6.5
MHRW-035.0X043.0X5.0	35	43	38	5	6.5
MHRW-035.5X043.5X5.0	35.5	43.5	38.5	5	6.5
MHRW-040.0X048.0X5.0	40	48	43	5	6.5
MHRW-045.0X053.0X5.0	45	53	48	5	6.5
MHRW-050.0X058.0X4.0	50	58	53	4	5.5
MHRW-050.0X058.0X5.0	50	58	53	5	6.5
MHRW-050.0X059.0X3.6	50	59	53	3.6	5
MHRW-055.0X063.0X5.0	55	63	58	5	6.5
MHRW-056.0X064.0X5.0	56	64	59	5	6.5
MHRW-060.0X068.0X5.0	60	68	63	5	6.5
MHRW-063.0X071.0X5.0	63	71	66	5	6.5
MHRW-065.0X073.0X5.0	65	73	68	5	6.5

MHRW

METRIC ROD WIPERS

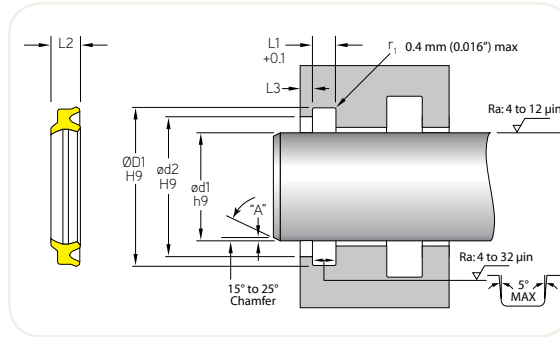




# MHRW - Metric H Rod Wiper

A product of MFP Seals.

**MFPSEALS**



MHRW

METRIC ROD WIPERS

MFP PART NUMBER	ROD APPLICATION				
	ød1	ØD1	ød2	L1	L2
<b>TOLERANCE</b>	h9	H9	H9	+0.1	
MHRW-067.0X075.0X5.0	67	75	70	5	6.5
MHRW-070.0X080.0X6.0	70	80	73	6	8
MHRW-071.0X081.0X6.0	71	81	74	6	8
MHRW-075.0X085.0X6.0	75	85	78	6	8
MHRW-080.0X090.0X6.0	80	90	83	6	8
MHRW-085.0X095.0X6.0	85	95	88	6	8
MHRW-090.0X100.0X6.0	90	100	93	6	8
MHRW-100.0X110.0X6.0	100	110	113	6	8
MHRW-112.0X122.0X6.0	112	122	116	6	8
MHRW-125.0X138.0X7.0	125	138	129	7	9.5
MHRW-140.0X153.0X7.0	140	153	144	7	9.5
MHRW-180.0X193.0X7.0	180	193	184	7	9.5



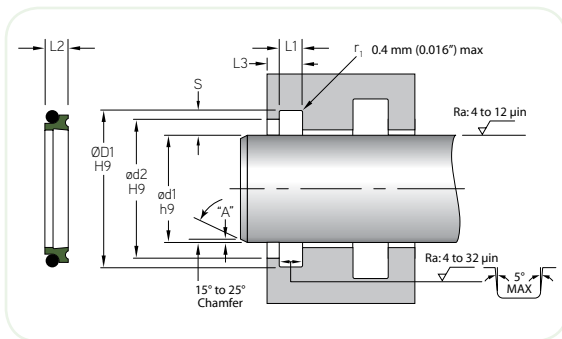
**MOHW Metric Rod Wiper**

MFP Seals' MOHW low friction wiper with integrated sealing lip is a two piece design, comprised of our T5100 filled PTFE seal and an o-ring energizer. The MOHW Rod Wiper is designed for use in light to medium duty hydraulic cylinders and helps prevent leakage in the primary rod seal by controlling excess fluid as the rod extends. Contamination is prevented from entering the cylinder by the outer sealing edge of the seal.



The standard compound for this seal is T5100 / N6001.

For increased chemical and temperature resistance, other compounds are available (See pages 26-37).



**MFP PART NUMBERS**

**MOHW-008.0x012.0x3.6T5100N**

SEAL TYPE    ød1    ØD1    L1    COMPOUND

**Max. Velocity: 1.5 m/s (5 ft./s)**

MFP PART NUMBER	ROD APPLICATION					
	ød1	ØD1	ød2	L1	L3	S
TOLERANCE	h9	H9	H9			
MOHW-008X012.8X3.7	8.00	12.80	9.50	3.70	5.70	2.40
MOHW-010X014.8X3.7	10.00	14.80	11.50	3.70	5.70	2.40
MOHW-012X018.8X5.0	12.00	18.80	13.50	5.00	7.00	3.40
MOHW-014X020.8X5.0	14.00	20.80	15.50	5.00	7.00	3.40
MOHW-015X021.8X5.0	15.00	21.80	16.50	5.00	7.00	3.40
MOHW-016X022.8X5.0	16.00	22.80	17.50	5.00	7.00	3.40
MOHW-018X024.8X5.0	18.00	24.80	19.50	5.00	7.00	3.40
MOHW-020X026.8X5.0	20.00	26.80	21.50	5.00	7.00	3.40
MOHW-022X028.8X5.0	22.00	28.80	23.50	5.00	7.00	3.40
MOHW-025X031.8X5.0	25.00	31.80	26.50	5.00	7.00	3.40
MOHW-028X034.8X5.0	28.00	34.80	29.50	5.00	7.00	3.40
MOHW-030X036.8X5.0	30.00	36.80	31.50	5.00	7.00	3.40
MOHW-032X038.8X5.0	32.00	38.80	33.50	5.00	7.00	3.40
MOHW-035X041.8X5.0	35.00	41.80	36.50	5.00	7.00	3.40
MOHW-036X042.8X5.0	36.00	42.80	37.50	5.00	7.00	3.40
MOHW-040X046.8X5.0	40.00	46.80	41.50	5.00	7.00	3.40
MOHW-045X051.8X5.0	45.00	51.80	46.50	5.00	7.00	3.40
MOHW-048X054.8X5.0	48.00	54.80	49.50	5.00	7.00	3.40
MOHW-050X056.8X5.0	50.00	56.80	51.50	5.00	7.00	3.40
MOHW-052X058.8X5.0	52.00	58.80	53.50	5.00	7.00	3.40
MOHW-055X064.8X5.0	55.00	61.80	56.50	5.00	7.00	3.40
MOHW-056X62.8X5.0	56.00	62.80	57.50	5.00	7.00	3.40
MOHW-060X066.8X5.0	60.00	66.80	61.50	5.00	7.00	3.40

MOHW

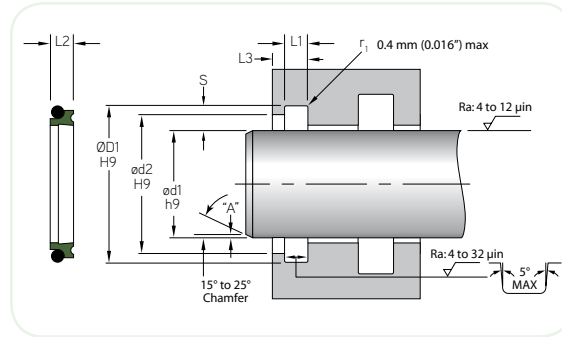
METRIC ROD WIPERS



# MOHW - Metric Rod Wiper

A product of MFP Seals.

**MFPSEALS**



MOHW

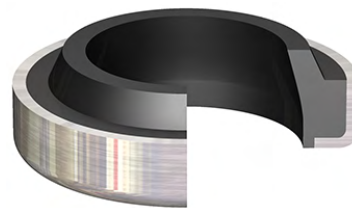
METRIC ROD WIPERS

MFP PART NUMBER	ROD APPLICATION					
	ød1	ØD1	ød2	L1	L3	S
TOLERANCE	h9	H9	H9			
MOHW-063X069.8X5.0	63.00	69.80	64.50	5.00	7.00	3.40
MOHW-065X073.8X6.0	65.00	73.80	66.50	6.00	9.00	4.40
MOHW-070X078.8X6.0	70.00	78.80	71.50	6.00	9.00	4.40
MOHW-075X083.8X6.0	75.00	83.80	76.50	6.00	9.00	4.40
MOHW-080X088.8X6.0	80.00	88.80	81.50	6.00	9.00	4.40
MOHW-085X093.8X6.0	85.00	93.80	86.50	6.00	9.00	4.40
MOHW-090X098.8X6.0	90.00	98.80	91.50	6.00	9.00	4.40
MOHW-095X103.8X6.0	95.00	103.80	96.50	6.00	9.00	4.40
MOHW-100X108.8X6.0	100.00	108.80	101.50	6.00	9.00	4.40
MOHW-105X113.8X6.0	105.00	113.80	106.50	6.00	9.00	4.40
MOHW-110X118.8X6.0	110.00	118.80	111.50	6.00	9.00	4.40
MOHW-115X123.8X6.0	115.00	123.80	116.50	6.00	9.00	4.40
MOHW-120X128.8X6.0	120.00	128.80	121.50	6.00	9.00	4.40
MOHW-125X133.8X6.0	125.00	133.80	126.50	6.00	9.00	4.40
MOHW-130X138.8X6.0	130.00	138.80	131.50	6.00	9.00	4.40
MOHW-140X148.8X6.0	140.00	148.80	141.50	6.00	9.00	4.40
MOHW-150X158.8X6.0	150.00	158.80	151.50	6.00	9.00	4.40
MOHW-160X168.8X6.0	160.00	168.80	161.50	6.00	9.00	4.40
MOHW-170X178.8X6.0	170.00	178.80	171.50	6.00	9.00	4.40
MOHW-180X188.8X6.0	180.00	188.80	181.50	6.00	9.00	4.40
MOHW-190X198.8X6.0	190.00	198.80	191.50	6.00	9.00	4.40
MOHW-200X208.8X6.0	200.00	208.80	201.50	6.00	9.00	4.40
MOHW-210X218.8X6.0	210.00	218.80	211.50	6.00	9.00	4.40
MOHW-220X228.8X6.0	220.00	228.80	221.50	6.00	9.00	4.40
MOHW-240X248.8X6.0	240.00	248.80	241.50	6.00	9.00	4.40
MOHW-250X258.8X6.0	250.00	258.80	251.50	6.00	9.00	4.40
MOHW-280X292.2X8.4	280.00	292.20	282.00	8.40	11.40	6.10
MOHW-300X312.2X8.4	300.00	312.20	302.00	8.40	11.40	6.10
MOHW-320X332.2X8.4	320.00	332.20	322.00	8.40	11.40	6.10
MOHW-350X362.2X8.4	350.00	362.20	352.00	8.40	11.40	6.10
MOHW-360X372.2X8.4	360.00	372.20	362.00	8.40	11.40	6.10
MOHW-400X412.2X8.4	400.00	412.20	402.00	8.40	11.40	6.10
MOHW-420X432.2X8.4	420.00	432.20	422.00	8.40	11.40	6.10
MOHW-450X466.0X11.0	450.00	466.00	452.00	11.00	15.00	8.00
MOHW-500X516.0X11.0	500.00	516.00	502.00	11.00	15.00	8.00

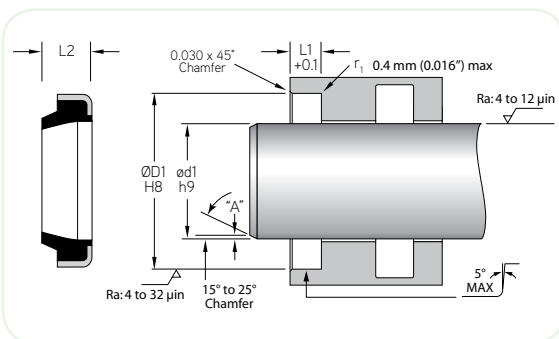


**MRCM Metric Metal Clad Rod Wiper**

MFP Seals' MRCM - Metric Metal Clad Rod Wipers are a heavy duty press-in wiper for tough scraping environments. A steel ring designed for press fitting is bonded to a Nitrile or Viton® wiping lip.



The standard compound for this seal is N6003.  
Other compounds are also available.



**MFP PART NUMBERS**

**MRCM-012x020.0x04.0**

SEAL TYPE      ød1      ØD1      L1

N6003 / Steel

Max. Velocity: 0.5 m/s (1.5 ft./s)

MFP PART NUMBER	ROD APPLICATION			
	ød1	ØD1	L1	L2
<b>TOLERANCE</b>	h9	H8	+0.1	
MRCM-012X020.0X04.0	12	20	4	6
MRCM-020X028.0X03.5	20	28	3.5	5
MRCM-020X028.0X05.0	20	28	5	8
MRCM-022X032.0X05.0	22	32	5	7
MRCM-025X035.0X05.0	25	35	5	8
MRCM-025X035.0X07.0	25	35	7	10
MRCM-028X038.0X07.0	28	38	7	10
MRCM-032X042.0X07.0	32	42	7	10
MRCM-032X045.0X04.0	32	45	4	8
MRCM-032X045.0X07.0	32	45	7	10
MRCM-036X045.0X07.0	36	45	7	10
MRCM-040X050.0X05.0	40	50	5	8
MRCM-040X050.0X07.0	40	50	7	10
MRCM-040X052.0X07.0	40	52	7	10
MRCM-042X052.0X07.0	42	52	7	10
MRCM-045X055.0X07.0	45	55	7	10
MRCM-045X057.0X07.0	45	57	7	10
MRCM-050X060.0X05.0	50	60	5	7
MRCM-050X060.0X07.0	50	60	7	10
MRCM-050X065.0X05.0	50	65	5	8
MRCM-052X062.0X07.0	52	62	7	10
MRCM-056X065.0X07.0	56	65	7	10
MRCM-060X070.0X07.0	60	70	7	10

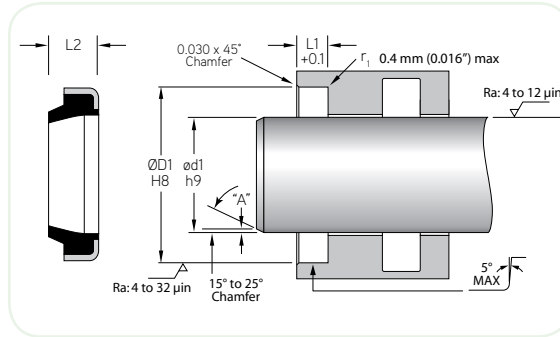
MRCM

METRIC ROD WIPERS



# MRCM - Metric Metal Clad Rod Wiper

A product of MFP Seals.



MRCM

METRIC ROD WIPERS

MFP PART NUMBER	ROD APPLICATION			
	ØD1	ØD1	L1	L2
<b>TOLERANCE</b>	h9	H8	+0.1	
MRCM-060X075.0X07.0	60	75	7	10
MRCM-063X073.0X07.0	63	73	7	10
MRCM-065X075.0X07.0	65	75	7	10
MRCM-067X083.0X07.0	67	83	7	10
MRCM-070X090.0X07.0	70	90	7	10
MRCM-075X085.0X07.0	75	85	7	10
MRCM-080X090.0X07.0	80	90	7	10
MRCM-090X100.0X07.0	90	100	7	10
MRCM-100X110.0X07.0	100	110	7	10
MRCM-115X125.0X07.0	115	125	7	10
MRCM-140X155.0X09.0	140	155	9	12
MRCM-180X195.0X10.0	180	195	10	14

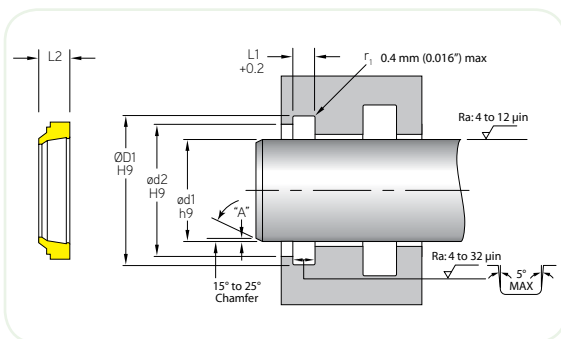


**MSRW Rod Wiper**

MFP Seals MSRW rod wiper is a snap in design for light to medium duty applications. The MSRW wiper offers a slotted heel to eliminate possibilities of pressure traps between the rod seal and wiper.



The standard compound for this seal is U2145.  
It is also available in compounds U2150,  
U2151, U4150 and H2155.



**MFP PART NUMBERS**

**MSRW-012x020x4.0U2145**

SEAL TYPE    ød1    ØD1    L1    COMPOUND

**Max. Velocity: 0.5 m/s (1.5 ft./s)**

MFP PART NUMBER	ROD APPLICATION				
	ød1	ØD1	L1	ød2	L2
TOLERANCE	h9	H9	+0.2	H9	
MSRW-012X020X4.0	12	20	4	18	7
MSRW-020X026X2.6	20	26	2.6	24	5
MSRW-020X028X4.0	20	28	4	26	7
MSRW-025X031X2.6	25	31	2.6	29	5
MSRW-025X033X4.0	25	33	4	31	7
MSRW-030X036X2.6	30	36	2.6	34	5
MSRW-030X038X4.0	30	38	4	36	7
MSRW-035X043X4.0	35	43	4	41	7
MSRW-035X045X4.0	35	45	4	43	7
MSRW-036X044X4.0	36	44	4	42	7
MSRW-038X046X4.0	38	46	4	44	7
MSRW-040X048X4.0	40	48	4	46	7
MSRW-045X053X4.0	45	53	4	51	7
MSRW-050X058X4.0	50	58	4	56	7
MSRW-055X063X4.0	55	63	4	61	7
MSRW-060X068X4.0	60	68	4	66	7
MSRW-065X073X4.0	65	73	4	71	7
MSRW-070X078X4.0	70	78	4	76	7
MSRW-075X083X4.0	75	83	4	81	7
MSRW-080X088X4.0	80	88	4	86	7
MSRW-085X093X4.0	85	93	4	91	7
MSRW-090X098X4.0	90	98	4	96	7
MSRW-100X108X4.0	100	108	4	106	7

**MSRW**

**METRIC ROD WIPERS**

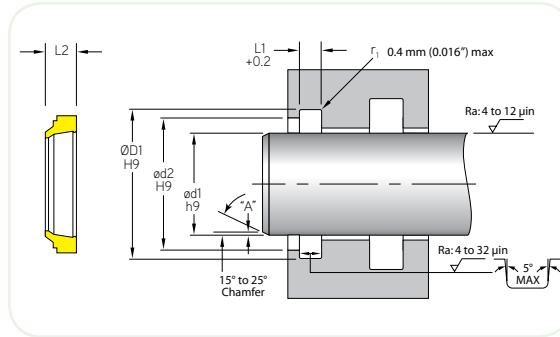




# MSRW - Metric Stepped Ribbed Rod Wiper

A product of MFP Seals.

# MFPSEALS®



MSRW

METRIC ROD WIPERS

MFP PART NUMBER	ROD APPLICATION				
	ød1	ØD1	L1	ød2	L2
<b>TOLERANCE</b>	h9	H9	+0.2	H9	
MSRW-105X113X4.0	105	113	4	111	7
MSRW-110X122X5.5	110	122	5.5	119	10
MSRW-120X132X5.5	120	132	5.5	129	10
MSRW-125X137X5.5	125	137	5.5	134	10
MSRW-140X152X5.5	140	152	5.5	149	10
MSRW-150X162X5.5	150	162	5.5	159	10
MSRW-160X172X5.5	160	172	5.5	169	10
MSRW-180X192X5.5	180	192	5.5	189	10

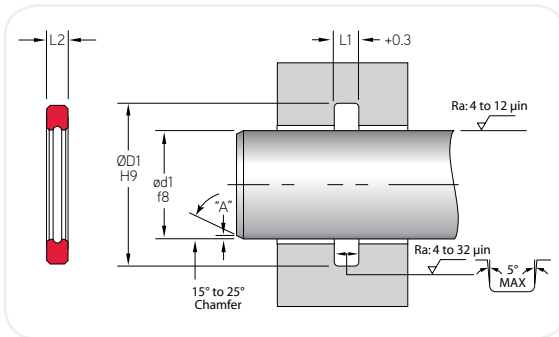


**MSS - Metric Swivel Seal**

MFP Seals' MSS is a rotary seal designed for use in hydraulic swivels. Produced from our U2151 compound, the seal offers extremely low compression set and excellent extrusion resistance.



The standard compound for this seal is U2151.  
Other compounds are also available.



**MFP PART NUMBERS**

**MSS-080x090x05U2151**

SEAL TYPE    ød1    ØD1    L1    COMPOUND

Pressure: 350 bar (5,000 psi)    Max. Velocity: 0.1 m/s (0.3 ft./s)

MFP PART NUMBER	ROD APPLICATION		
	ød1	ØD1	L1
<b>TOLERANCE</b>	f8	H9	+0.3
MSS-070X080X05	70	80	5
MSS-075X085X05	75	85	5
MSS-080X090X05	80	90	5
MSS-090X100X05	90	100	5
MSS-100X110X05	100	110	5
MSS-125X135.4X05	125	135.4	5

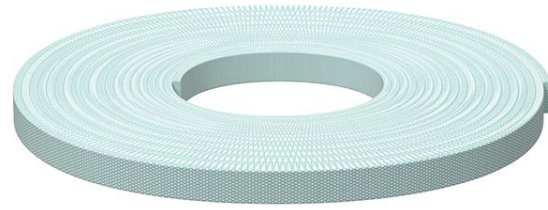
# MPWS - Metric Composite Wear Strip - C4000

A product of MFP Seals.



## MPWS - C4000 Tight Tolerance Composite Wear Strip

MFP Seals' proprietary Tight Tolerance C4000 Composite Wear Strip is designed to eliminate scoring in hydraulic and pneumatic applications by preventing metal to metal contact.

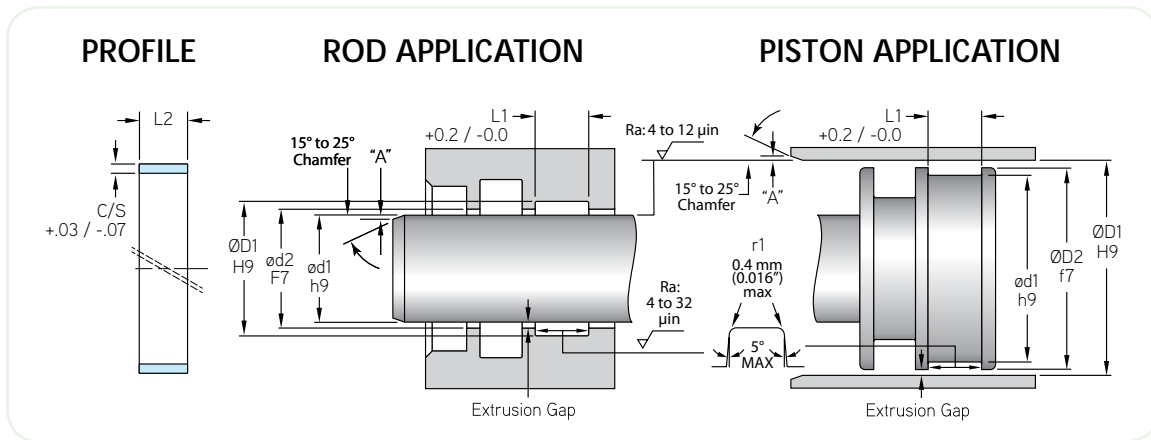


See page 16 for guide ring cutting instructions.

### MFP PART NUMBERS

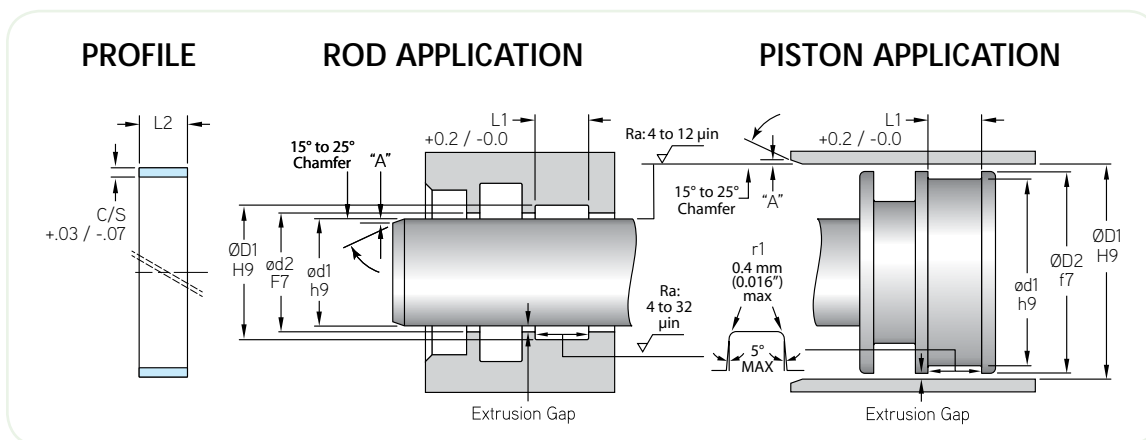
**MPWS-2.0x05.5C4000-RL**

SEAL TYPE      C/S      L1      COMPOUND      ROLL



### ROD OR PISTON APPLICATION

MFP PART NUMBER	C/S	L1	ROLL LENGTH
<b>TOLERANCE</b>	<b>+0.03/-0.07</b>	<b>+0.2/-0.0</b>	
MPWS-2.0X05.6	2.0	5.6	10 Meters
MPWS-2.0X09.7	2.0	9.7	10 Meters
MPWS-2.0X12.0	2.0	12.0	10 Meters
MPWS-2.0X15.0	2.0	15.0	10 Meters
MPWS-2.0X20.0	2.0	20.0	10 Meters
MPWS-2.0X25.0	2.0	25.0	10 Meters
MPWS-2.0X30.0	2.0	30.0	10 Meters
MPWS-2.0X35.0	2.0	35.0	10 Meters
MPWS-2.0X40.0	2.0	40.0	10 Meters
MPWS-2.0X50.0	2.0	50.0	10 Meters
MPWS-2.5X05.6	2.5	5.6	10 Meters
MPWS-2.5X09.7	2.5	9.7	10 Meters
MPWS-2.5X12.0	2.5	12.0	10 Meters
MPWS-2.5X15.0	2.5	15.0	10 Meters
MPWS-2.5X20.0	2.5	20.0	10 Meters
MPWS-2.5X25.0	2.5	25.0	10 Meters
MPWS-2.5X30.0	2.5	30.0	10 Meters
MPWS-2.5X35.0	2.5	35.0	10 Meters
MPWS-2.5X40.0	2.5	40.0	10 Meters
MPWS-2.5X50.0	2.5	50.0	10 Meters
MPWS-3.0X05.6	3.0	5.6	10 Meters



MFP PART NUMBER	ROD OR PISTON APPLICATION		
	C/S	L1	ROLL LENGTH
	<b>TOLERANCE</b> +.03 / -.07	+0.2 / -0.0	
MPWS-3.0X09.7	3.0	9.7	10 Meters
MPWS-3.0X12.0	3.0	12.0	10 Meters
MPWS-3.0X15.0	3.0	15.0	10 Meters
MPWS-3.0X20.0	3.0	20.0	10 Meters
MPWS-3.0X25.0	3.0	25.0	10 Meters
MPWS-3.0X30.0	3.0	30.0	10 Meters
MPWS-3.0X35.0	3.0	35.0	10 Meters
MPWS-3.0X40.0	3.0	40.0	10 Meters
MPWS-3.0X50.0	3.0	50.0	10 Meters
MPWS-3.5X05.6	3.5	5.6	10 Meters
MPWS-3.5X09.7	3.5	9.7	10 Meters
MPWS-3.5X12.0	3.5	12.0	10 Meters
MPWS-3.5X15.0	3.5	15.0	10 Meters
MPWS-3.5X20.0	3.5	20.0	10 Meters
MPWS-3.5X25.0	3.5	25.0	10 Meters
MPWS-3.5X30.0	3.5	30.0	10 Meters
MPWS-3.5X35.0	3.5	35.0	10 Meters
MPWS-3.5X40.0	3.5	40.0	10 Meters
MPWS-3.5X50.0	3.5	50.0	10 Meters
MPWS-4.0X05.6	4.0	5.6	10 Meters
MPWS-4.0X09.7	4.0	9.7	10 Meters
MPWS-4.0X12.0	4.0	12.0	10 Meters
MPWS-4.0X15.0	4.0	15.0	10 Meters
MPWS-4.0X20.0	4.0	20.0	10 Meters
MPWS-4.0X25.0	4.0	25.0	10 Meters
MPWS-4.0X30.0	4.0	30.0	10 Meters
MPWS-4.0X35.0	4.0	35.0	10 Meters
MPWS-4.0X40.0	4.0	40.0	10 Meters
MPWS-4.0X50.0	4.0	50.0	10 Meters
MPWS-5.0X05.6	5.0	5.6	10 Meters
MPWS-5.0X09.7	5.0	9.7	10 Meters
MPWS-5.0X12.0	5.0	12.0	10 Meters
MPWS-5.0X15.0	5.0	15.0	10 Meters
MPWS-5.0X20.0	5.0	20.0	10 Meters
MPWS-5.0X25.0	5.0	25.0	10 Meters
MPWS-5.0X30.0	5.0	30.0	10 Meters
MPWS-5.0X35.0	5.0	35.0	10 Meters
MPWS-5.0X40.0	5.0	40.0	10 Meters
MPWS-5.0X50.0	5.0	50.0	10 Meters

METRIC WEAR STRIP

MPWS - C4000

# MTWS - Metric PTFE Wear Strip - T5100

A product of MFP Seals.

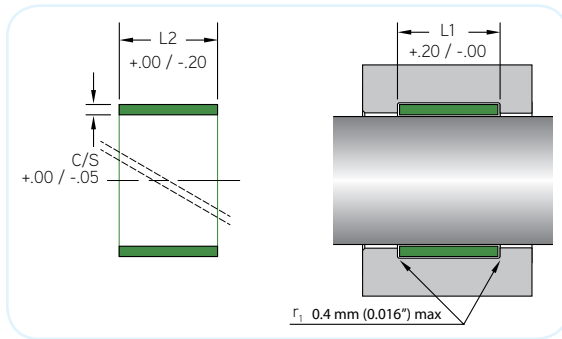


## MTWS - Tight Tolerance T5100 PTFE Wear Strip

MFP Seals' proprietary Tight Tolerance T5100 PTFE Wear Strip is designed to eliminate scoring in hydraulic and pneumatic applications by preventing metal to metal contact. Sold by the roll, our T5100 compound wear strip provides excellent light-duty, low friction performance.



See page 16 for guide ring cutting instructions.

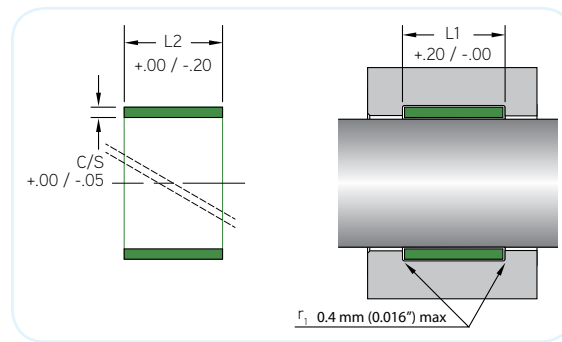


**MFP PART NUMBERS**

**MTWS3.0x05.4T5100-RL**

SEAL TYPE	C/S	L2	COMPOUND	ROLL
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MFP PART NUMBER	ROD OR PISTON APPLICATION			ROLL LENGTH
	C/S	L2	L1	
TOLERANCE	+.00/-.05	+.00/-.20	+.20/-.00	
MTWS-1.5X03.0T5100-RL	1.5	3	3.2	115 FT
MTWS-1.5X03.8T5100-RL	1.5	3.8	4	115 FT
MTWS-1.5X05.4T5100-RL	1.5	5.4	5.6	115 FT
MTWS-1.5X05.6T5100-RL	1.5	5.6	5.8	115 FT
MTWS-1.5X06.0T5100-RL	1.5	6	6.2	115 FT
MTWS-1.5X06.1T5100-RL	1.5	6.1	6.3	115 FT
MTWS-1.5X07.9T5100-RL	1.5	7.9	8.1	115 FT
MTWS-1.5X08.0T5100-RL	1.5	8	8.2	115 FT
MTWS-1.5X09.5T5100-RL	1.5	9.5	9.7	115 FT
MTWS-1.5X09.7T5100-RL	1.5	9.7	9.9	115 FT
MTWS-1.5X10.0T5100-RL	1.5	10	10.2	115 FT
MTWS-1.5X11.8T5100-RL	1.5	11.8	12	115 FT
MTWS-1.5X12.8T5100-RL	1.5	12.8	13	115 FT
MTWS-1.5X13.0T5100-RL	1.5	13	13.2	115 FT
MTWS-1.5X13.8T5100-RL	1.5	13.8	14	115 FT
MTWS-1.5X14.0T5100-RL	1.5	14	14.2	115 FT
MTWS-1.5X14.8T5100-RL	1.5	14.8	15	115 FT
MTWS-1.5X15.0T5100-RL	1.5	15	15.2	115 FT
MTWS-1.5X19.8T5100-RL	1.5	19.8	20	115 FT
MTWS-1.5X20.0T5100-RL	1.5	20	20.2	115 FT
MTWS-1.5X24.8T5100-RL	1.5	24.8	25	115 FT
MTWS-1.5X25.0T5100-RL	1.5	25	25.2	115 FT
MTWS-1.5X34.8T5100-RL	1.5	34.8	35	115 FT
MTWS-1.5X49.8T5100-RL	1.5	49.8	50	115 FT
MTWS-2.0X03.8T5100-RL	2	3.8	4	82 FT
MTWS-2.0X05.4T5100-RL	2	5.4	5.6	82 FT



MFP PART NUMBER	ROD OR PISTON APPLICATION			ROLL LENGTH
	C/S	L2	L1	
TOLERANCE	+0.00/-0.05	+0.00/-0.20	+0.20/-0.00	
MTWS-2.0X05.6T5100-RL	2	5.6	5.8	82 FT
MTWS-2.0X06.0T5100-RL	2	6	6.2	82 FT
MTWS-2.0X06.1T5100-RL	2	6.1	6.3	82 FT
MTWS-2.0X07.9T5100-RL	2	7.9	8.1	82 FT
MTWS-2.0X08.0T5100-RL	2	8	8.2	82 FT
MTWS-2.0X09.5T5100-RL	2	9.5	9.7	82 FT
MTWS-2.0X09.7T5100-RL	2	9.7	9.9	82 FT
MTWS-2.0X10.0T5100-RL	2	10	10.2	82 FT
MTWS-2.0X11.8T5100-RL	2	11.8	12	82 FT
MTWS-2.0X12.8T5100-RL	2	12.8	13	82 FT
MTWS-2.0X13.0T5100-RL	2	13	13.2	82 FT
MTWS-2.0X13.8T5100-RL	2	13.8	14	82 FT
MTWS-2.0X14.0T5100-RL	2	14	14.2	82 FT
MTWS-2.0X14.8T5100-RL	2	14.8	15	82 FT
MTWS-2.0X15.0T5100-RL	2	15	15.2	82 FT
MTWS-2.0X19.8T5100-RL	2	19.8	20	82 FT
MTWS-2.0X20.0T5100-RL	2	20	20.2	82 FT
MTWS-2.0X24.8T5100-RL	2	24.8	25	82 FT
MTWS-2.0X25.0T5100-RL	2	25	25.2	82 FT
MTWS-2.0X34.8T5100-RL	2	34.8	35	82 FT
MTWS-2.0X49.8T5100-RL	2	49.8	50	82 FT
MTWS-2.5X03.8T5100-RL	2.5	3.8	4	66 FT
MTWS-2.5X05.4T5100-RL	2.5	5.4	5.6	66 FT
MTWS-2.5X05.6T5100-RL	2.5	5.6	5.8	66 FT
MTWS-2.5X06.0T5100-RL	2.5	6	6.2	66 FT
MTWS-2.5X06.1T5100-RL	2.5	6.1	6.3	66 FT
MTWS-2.5X07.9T5100-RL	2.5	7.9	8.1	66 FT
MTWS-2.5X08.0T5100-RL	2.5	8	8.2	66 FT
MTWS-2.5X09.5T5100-RL	2.5	9.5	9.7	66 FT
MTWS-2.5X09.7T5100-RL	2.5	9.7	9.9	66 FT
MTWS-2.5X10.0T5100-RL	2.5	10	10.2	66 FT
MTWS-2.5X11.8T5100-RL	2.5	11.8	12	66 FT
MTWS-2.5X12.8T5100-RL	2.5	12.8	13	66 FT
MTWS-2.5X13.0T5100-RL	2.5	13	13.2	66 FT
MTWS-2.5X13.8T5100-RL	2.5	13.8	14	66 FT
MTWS-2.5X14.0T5100-RL	2.5	14	14.2	66 FT
MTWS-2.5X14.8T5100-RL	2.5	14.8	15	66 FT
MTWS-2.5X15.0T5100-RL	2.5	15	15.2	66 FT

METRIC WEAR STRIP

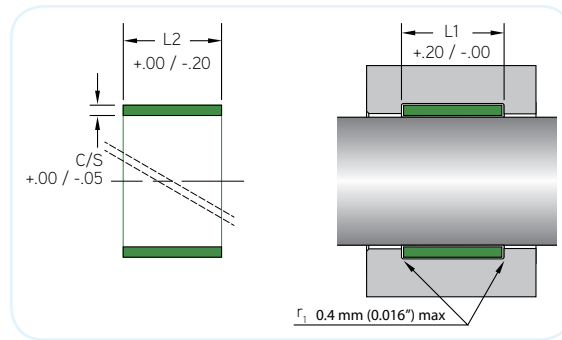
MTWS T5100



# MTWS - Metric PTFE Wear Strip - T5100

A product of MFP Seals.

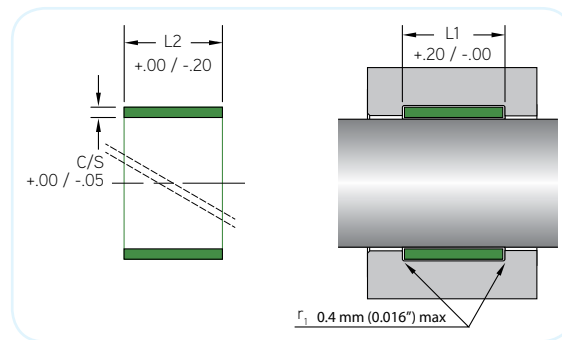
**MFPSEALS**



METRIC WEAR STRIP

MTWS T5100

MFP PART NUMBER	ROD OR PISTON APPLICATION			ROLL LENGTH
	C/S	L2	L1	
TOLERANCE	+0.00/-0.05	+0.00/-0.20	+0.20/-0.00	
MTWS-2.5X19.8T5100-RL	2.5	19.8	20	66 FT
MTWS-2.5X20.0T5100-RL	2.5	20	20.2	66 FT
MTWS-2.5X24.8T5100-RL	2.5	24.8	25	66 FT
MTWS-2.5X25.0T5100-RL	2.5	25	25.2	66 FT
MTWS-2.5X34.8T5100-RL	2.5	34.8	35	66 FT
MTWS-2.5X49.8T5100-RL	2.5	49.8	50	66 FT
MTWS3.0X05.4T5100-RL	3	5.4	5.6	53 FT
MTWS3.0X05.6T5100-RL	3	5.6	5.8	53 FT
MTWS3.0X06.0T5100-RL	3	6	6.2	53 FT
MTWS3.0X06.1T5100-RL	3	6.1	6.3	53 FT
MTWS3.0X07.9T5100-RL	3	7.9	8.1	53 FT
MTWS3.0X08.0T5100-RL	3	8	8.2	53 FT
MTWS3.0X09.5T5100-RL	3	9.5	9.7	53 FT
MTWS3.0X09.7T5100-RL	3	9.7	9.9	53 FT
MTWS3.0X10.0T5100-RL	3	10	10.2	53 FT
MTWS3.0X11.8T5100-RL	3	11.8	12	53 FT
MTWS3.0X12.8T5100-RL	3	12.8	13	53 FT
MTWS3.0X13.0T5100-RL	3	13	13.2	53 FT
MTWS3.0X13.8T5100-RL	3	13.8	14	53 FT
MTWS3.0X14.0T5100-RL	3	14	14.2	53 FT
MTWS3.0X14.8T5100-RL	3	14.8	15	53 FT
MTWS3.0X15.0T5100-RL	3	15	15.2	53 FT
MTWS3.0X19.8T5100-RL	3	19.8	20	53 FT
MTWS3.0X20.0T5100-RL	3	20	20.2	53 FT
MTWS3.0X24.8T5100-RL	3	24.8	25	53 FT
MTWS3.0X25.0T5100-RL	3	25	25.2	53 FT
MTWS3.0X34.8T5100-RL	3	34.8	35	53 FT
MTWS3.0X49.8T5100-RL	3	49.8	50	53 FT
MTWS-3.5X05.4T5100-RL	3.5	5.4	5.6	92 FT
MTWS-3.5X05.6T5100-RL	3.5	5.6	5.8	92 FT
MTWS-3.5X06.0T5100-RL	3.5	6	6.2	92 FT
MTWS-3.5X06.1T5100-RL	3.5	6.1	6.3	92 FT
MTWS-3.5X07.9T5100-RL	3.5	7.9	8.1	92 FT
MTWS-3.5X08.0T5100-RL	3.5	8	8.2	92 FT
MTWS-3.5X09.5T5100-RL	3.5	9.5	9.7	92 FT
MTWS-3.5X09.7T5100-RL	3.5	9.7	9.9	92 FT
MTWS-3.5X10.0T5100-RL	3.5	10	10.2	92 FT
MTWS-3.5X11.8T5100-RL	3.5	11.8	12	92 FT



MFP PART NUMBER	ROD OR PISTON APPLICATION			ROLL LENGTH
	C/S	L2	L1	
TOLERANCE	$+0.00 / -0.05$	$+0.00 / -0.20$	$+0.20 / -0.00$	
MTWS-3.5X12.8T5100-RL	3.5	12.8	13	92 FT
MTWS-3.5X13.0T5100-RL	3.5	13	13.2	92 FT
MTWS-3.5X13.8T5100-RL	3.5	13.8	14	92 FT
MTWS-3.5X14.0T5100-RL	3.5	14	14.2	92 FT
MTWS-3.5X14.8T5100-RL	3.5	14.8	15	92 FT
MTWS-3.5X15.0T5100-RL	3.5	15	15.2	92 FT
MTWS-3.5X19.8T5100-RL	3.5	19.8	20	92 FT
MTWS-3.5X20.0T5100-RL	3.5	20	20.2	92 FT
MTWS-3.5X24.8T5100-RL	3.5	24.8	25	92 FT
MTWS-3.5X25.0T5100-RL	3.5	25	25.2	92 FT
MTWS-3.5X34.8T5100-RL	3.5	34.8	35	92 FT
MTWS-3.5X49.8T5100-RL	3.5	49.8	50	92 FT
MTWS-4.0X05.4T5100-RL	4	5.4	5.6	79 FT
MTWS-4.0X05.6T5100-RL	4	5.6	5.8	79 FT
MTWS-4.0X06.0T5100-RL	4	6	6.2	79 FT
MTWS-4.0X06.1T5100-RL	4	6.1	6.3	79 FT
MTWS-4.0X07.9T5100-RL	4	7.9	8.1	79 FT
MTWS-4.0X08.0T5100-RL	4	8	8.2	79 FT
MTWS-4.0X09.5T5100-RL	4	9.5	9.7	79 FT
MTWS-4.0X09.7T5100-RL	4	9.7	9.9	79 FT
MTWS-4.0X10.0T5100-RL	4	10	10.2	79 FT
MTWS-4.0X11.8T5100-RL	4	11.8	12	79 FT
MTWS-4.0X12.8T5100-RL	4	12.8	13	79 FT
MTWS-4.0X13.0T5100-RL	4	13	13.2	79 FT
MTWS-4.0X13.8T5100-RL	4	13.8	14	79 FT
MTWS-4.0X14.0T5100-RL	4	14	14.2	79 FT
MTWS-4.0X14.8T5100-RL	4	14.8	15	79 FT
MTWS-4.0X15.0T5100-RL	4	15	15.2	79 FT
MTWS-4.0X19.8T5100-RL	4	19.8	20	79 FT
MTWS-4.0X20.0T5100-RL	4	20	20.2	79 FT
MTWS-4.0X24.8T5100-RL	4	24.8	25	79 FT
MTWS-4.0X25.0T5100-RL	4	25	25.2	79 FT
MTWS-4.0X34.8T5100-RL	4	34.8	35	79 FT
MTWS-4.0X49.8T5100-RL	4	49.8	50	79 FT

# MWRP - Tight Tolerance Metric Guide Ring - C1000

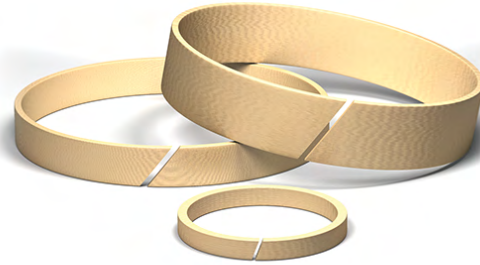
A product of MFP Seals.

**MFPSEALS**

MWRP

## MWRP - Tight Tolerance Metric Guide Rings - C1000

MFP Seals' Tight Tolerance MWRP are made from a fine weave cotton fabric and reinforced with phenolic composites. This design totally eliminates metal to metal contact and the consequent galling and scoring of cylinder bores. Wear rings are supplied butt cut or scarf cut, for easy installation, and are a low maintenance solution. Typical uses are as hydraulic cylinder wear rings, sliding bearings, bushings, or thrust bearings.



For sizes not listed please contact your MFP Seals' Sales Representative.

**Temp Range:** -40°C to 130°C (-40°F to 266°F)

**Max. Load:** 270 MPa (Static), 54 MPa (Dynamic)

**Max. PV Factor:** 0.2 MPa x m/s (Dry)  
0.38 MPa x m/s (Oil Lubricated)  
0.60 MPa x m/s (Greased)

**Frictional Coefficient:** 0.13-0.17 (Dry)

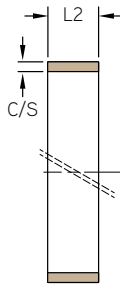
## MFP PART NUMBERS

**MWRP-040x09.5x2.5C1000**

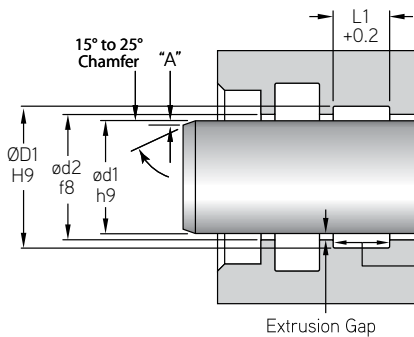
SEAL TYPE    ØD1    L1    C/S    COMPOUND

**Max. Velocity:** 2.2 m/s (7.2 ft./s)

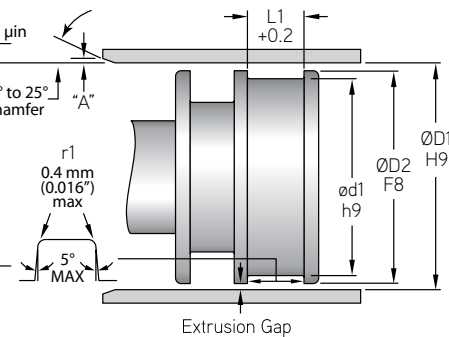
### PROFILE



### ROD APPLICATION

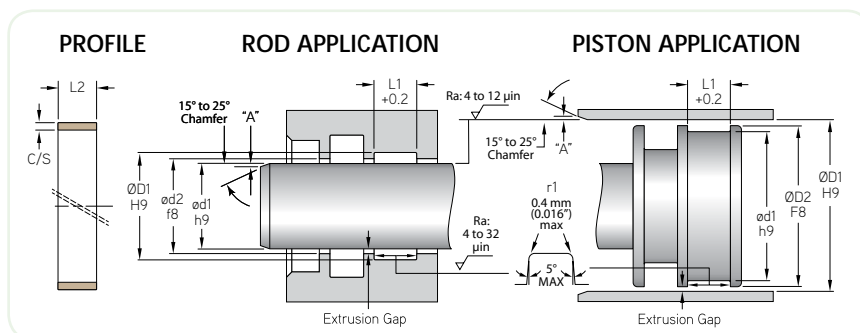


### PISTON APPLICATION



## INSTALLATION RECOMMENDATIONS

PISTON			ROD		
Bore Diameter	Groove Width	Ring Thickness	Rod Diameter	Groove Width	Ring Thickness
ØD1 (H9)	L1 (+0.2)	C/S	ød1 (f8/h9)	L1 (+0.2)	C/S
16 - 50.0	4.00	1.55	8 - 50.0	4.00	1.55
16 - 125.0	5.60	2.50	16 - 120.0	5.60	2.50
25 - 250.0	9.70	2.50	25 - 250.0	9.70	2.50
80 - 500.0	15.00	2.50	75 - 500.0	15.00	2.50
125 - 999.9	25.00	2.50	120 - 999.9	25.00	2.50
1000 - 1500.0	25.00	2.50	1000 - 1500.0	25.00	2.50
280 - 999.9	25.00	4.00	280 - 999.9	25.00	4.00
1000 - 1500.0	25.00	4.00	1000 - 1500.0	25.00	4.00



**ROD OR PISTON APPLICATION**

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-022X8.0X2.0	22	18	8	2
MWRP-025X3.8X1.5	25	22	3.8	1.5
MWRP-025X8.0X2.0	25	21	8	2
MWRP-026X8.0X2.0	26	22	8	2
MWRP-026X15.0X2.0	26	22	15	2
MWRP-029X8.0X2.0	29	25	8	2
MWRP-029X20.0X2.0	29	25	20	2
MWRP-029X25.0X2.0	29	25	25	2
MWRP-030X8.0X2.0	30	26	8	2
MWRP-030X8.0X2.5	30	25	8	2.5
MWRP-030X9.5X2.5	30	25	9.5	2.5
MWRP-030X15.0X2.5	30	25	15	2.5
MWRP-030X20.0X2.5	30	25	20	2.5
MWRP-031X16.0X1.5	31	28	16	1.5
MWRP-032X8.0X2.0	32	28	8	2
MWRP-032X20.0X2.0	32	28	20	2
MWRP-033X20.0X2.5	33	28	20	2.5
MWRP-034X10.0X2.0	34	30	10	2
MWRP-034X20.0X2.0	34	30	20	2
MWRP-034X25.0X2.0	34	30	25	2
MWRP-035X10.0X2.0	35	31	10	2
MWRP-035X9.5X2.5	35	30	9.5	2.5
MWRP-035X10.0X2.5	35	30	10	2.5
MWRP-035X20.0X2.5	35	30	20	2.5
MWRP-035X25.0X2.5	35	30	25	2.5
MWRP-035X30.0X2.5	35	30	30	2.5
MWRP-036X10.0X2.0	36	32	10	2
MWRP-036X20.0X2.0	36	32	20	2
MWRP-036X6.0X2.5	36	31	6	2.5
MWRP-038X6.0X3.0	38	32	6	3
MWRP-039X10.0X2.0	39	35	10	2
MWRP-039X25.0X2.0	39	35	25	2
MWRP-040X8.0X2.0	40	36	8	2
MWRP-040X10.0X2.0	40	36	10	2
MWRP-040X20.0X2.0	40	36	20	2
MWRP-040X9.5X2.5	40	35	9.5	2.5
MWRP-040X15.0X2.5	40	35	15	2.5

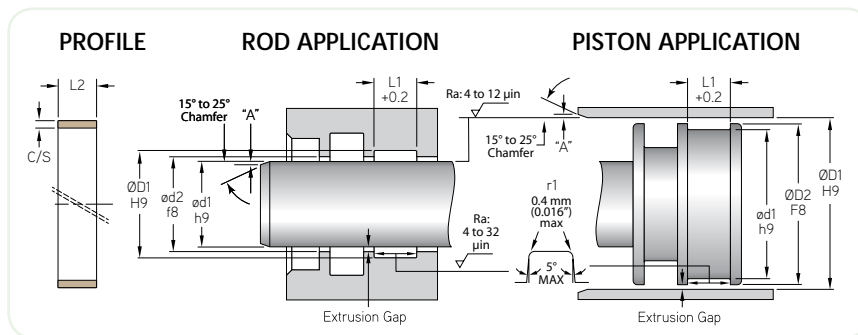
MWRP

METRIC WEAR RINGS

# MWRP - Tight Tolerance Metric Guide Ring - C1000

A product of MFP Seals.

**MFPSEALS**

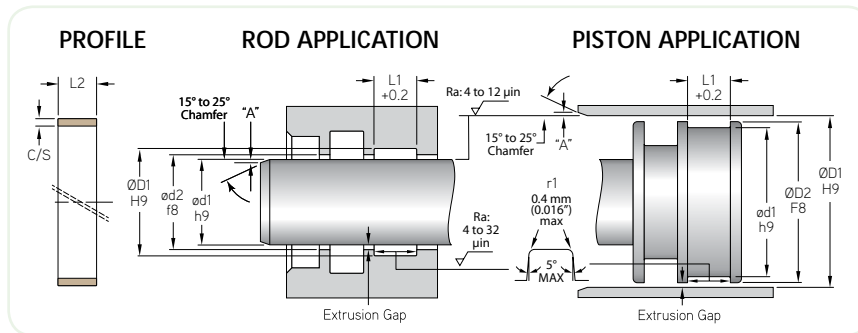


## ROD OR PISTON APPLICATION

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-040X5.0X5.0	40	30	5	5
MWRP-041X9.7X3.0	41	35	9.7	3
MWRP-045X12.0X2.0	45	41	12	2
MWRP-045X20.0X2.0	45	41	20	2
MWRP-045X5.6X2.5	45	40	5.6	2.5
MWRP-045X9.5X2.5	45	40	9.5	2.5
MWRP-045X10.0X2.5	45	40	10	2.5
MWRP-045X15.0X2.5	45	40	15	2.5
MWRP-045X20.0X2.5	45	40	20	2.5
MWRP-045X5.0X3.0	45	39	5	3
MWRP-045X14.0X3.0	45	39	14	3
MWRP-045X14.5X3.0	45	39	14.5	3
MWRP-045X15.0X3.0	45	39	15	3
MWRP-046X20.0X3.0	46	40	20	3
MWRP-046X25.0X3.0	46	40	25	3
MWRP-048X22.5X1.5	48	45	22.5	1.5
MWRP-049X8.0X2.0	49	45	8	2
MWRP-049X14.5X2.0	49	45	14.5	2
MWRP-049X15.0X2.0	49	45	15	2
MWRP-049X25.0X2.0	49	45	25	2
MWRP-050X8.0X2.0	50	46	8	2
MWRP-050X9.7X2.0	50	46	9.7	2
MWRP-050X10.0X2.0	50	46	10	2
MWRP-050X12.0X2.0	50	46	12	2
MWRP-050X14.5X2.0	50	46	14.5	2
MWRP-050X15.0X2.0	50	46	15	2
MWRP-050X20.0X2.0	50	46	20	2
MWRP-050X5.0X2.5	50	45	5	2.5
MWRP-050X5.6X2.5	50	45	5.6	2.5
MWRP-050X6.3X2.5	50	45	6.3	2.5
MWRP-050X6.8X2.5	50	45	6.8	2.5
MWRP-050X8.0X2.5	50	45	8	2.5
MWRP-050X9.5X2.5	50	45	9.5	2.5
MWRP-050X10.0X2.5	50	45	10	2.5
MWRP-050X12.0X2.5	50	45	12	2.5
MWRP-050X15.0X2.5	50	45	15	2.5
MWRP-050X20.0X2.5	50	45	20	2.5

MWRP

METRIC WEAR RINGS



**ROD OR PISTON APPLICATION**

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-050X25.0X2.5	50	45	25	2.5
MWRP-050X30.0X2.5	50	45	30	2.5
MWRP-050X35.0X2.5	50	45	35	2.5
MWRP-050X8.0X3.0	50	44	8	3
MWRP-051X22.5X2.5	51	46	22.5	2.5
MWRP-051X22.5X3.0	51	45	22.5	3
MWRP-051X38.0X3.0	51	45	38	3
MWRP-052X8.0X1.5	52	49	8	1.5
MWRP-053X8.0X1.5	53	50	8	1.5
MWRP-053X12.0X1.5	53	50	12	1.5
MWRP-055X10.0X2.0	55	51	10	2
MWRP-055X8.0X2.5	55	50	8	2.5
MWRP-055X9.5X2.5	55	50	9.5	2.5
MWRP-055X9.7X2.5	55	50	9.7	2.5
MWRP-055X10.0X2.5	55	50	10	2.5
MWRP-055X15.0X2.5	55	50	15	2.5
MWRP-055X20.0X2.5	55	50	20	2.5
MWRP-055X25.0X2.5	55	50	25	2.5
MWRP-055X30.0X2.5	55	50	30	2.5
MWRP-055X6.0X3.0	55	49	6	3
MWRP-055X15.0X3.0	55	49	15	3
MWRP-055X15.5X3.0	55	49	15.5	3
MWRP-055X20.0X3.0	55	49	20	3
MWRP-056X10.0X2.5	56	51	10	2.5
MWRP-056X15.0X2.5	56	51	15	2.5
MWRP-056X10.0X3.0	56	50	10	3
MWRP-056X16.0X3.0	56	50	16	3
MWRP-056X25.0X3.0	56	50	25	3
MWRP-056X28.0X3.0	56	50	28	3
MWRP-056X30.0X3.0	56	50	30	3
MWRP-060X25.0X2.0	60	56	25	2
MWRP-060X5.5X2.5	60	55	5.5	2.5
MWRP-060X8.0X2.5	60	55	8	2.5
MWRP-060X9.5X2.5	60	55	9.5	2.5
MWRP-060X9.7X2.5	60	55	9.7	2.5
MWRP-060X10.0X2.5	60	55	10	2.5
MWRP-060X14.5X2.5	60	55	14.5	2.5

MWRP

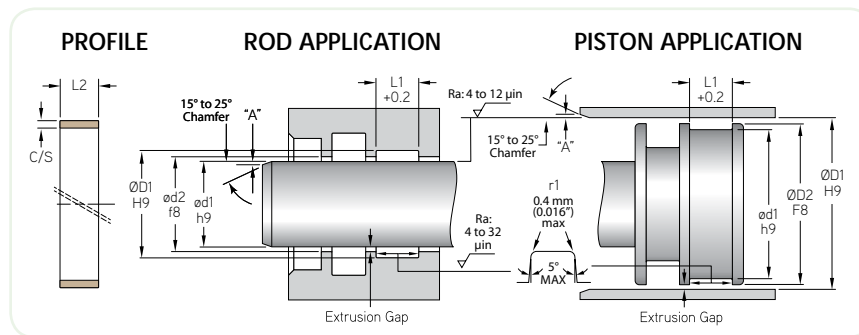
METRIC WEAR RINGS



# MWRP - Tight Tolerance Metric Guide Ring - C1000

A product of MFP Seals.

**MFPSEALS**

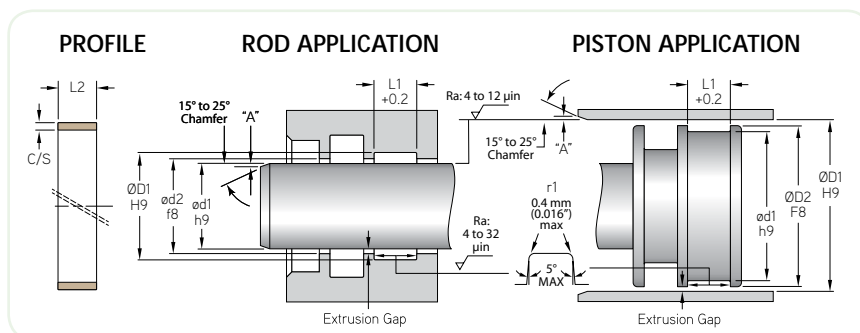


## ROD OR PISTON APPLICATION

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-060X15.0X2.5	60	55	15	2.5
MWRP-060X20.0X2.5	60	55	20	2.5
MWRP-060X25.0X2.5	60	55	25	2.5
MWRP-060X30.0X2.5	60	55	30	2.5
MWRP-060X8.0X3.0	60	54	8	3
MWRP-060X15.0X3.0	60	54	15	3
MWRP-060X20.0X3.0	60	54	20	3
MWRP-060X25.0X3.0	60	54	25	3
MWRP-061X25.0X2.0	61	57	25	2
MWRP-061X9.7X2.5	61	56	9.7	2.5
MWRP-061X10.0X2.5	61	56	10	2.5
MWRP-061X15.0X2.5	61	56	15	2.5
MWRP-062X25.0X3.0	62	56	25	3
MWRP-063X4.0X2.0	63	59	4	2
MWRP-063X8.0X2.0	63	59	8	2
MWRP-063X10.0X2.0	63	59	10	2
MWRP-063X8.0X2.5	63	58	8	2.5
MWRP-063X9.5X2.5	63	58	9.5	2.5
MWRP-063X9.7X2.5	63	58	9.7	2.5
MWRP-063X10.0X2.5	63	58	10	2.5
MWRP-063X15.0X2.5	63	58	15	2.5
MWRP-063X20.0X2.5	63	58	20	2.5
MWRP-063X25.0X2.5	63	58	25	2.5
MWRP-063X15.0X3.0	63	57	15	3
MWRP-063X16.0X3.0	63	57	16	3
MWRP-064X15.0X2.0	64	60	15	2
MWRP-065X6.3X2.5	65	60	6.3	2.5
MWRP-065X9.5X2.5	65	60	9.5	2.5
MWRP-065X10.0X2.5	65	60	10	2.5
MWRP-065X15.0X2.5	65	60	15	2.5
MWRP-065X20.0X2.5	65	60	20	2.5
MWRP-065X25.0X2.5	65	60	25	2.5
MWRP-065X30.0X2.5	65	60	30	2.5
MWRP-065X32.0X2.5	65	60	32	2.5
MWRP-065X10.0X3.0	65	59	10	3
MWRP-065X15.0X3.0	65	59	15	3
MWRP-065X16.0X3.0	65	59	16	3

MWRP

METRIC WEAR RINGS



**ROD OR PISTON APPLICATION**

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-065X20.0X3.0	65	59	20	3
MWRP-065X12.0X4.0	65	57	12	4
MWRP-065X10.0X5.0	65	55	10	5
MWRP-066X20.0X2.5	66	61	20	2.5
MWRP-066X10.0X3.0	66	60	10	3
MWRP-066X50.0X3.0	66	60	50	3
MWRP-068X15.0X2.5	68	63	15	2.5
MWRP-069X35.0X2.0	69	65	35	2
MWRP-069X10.0X2.5	69	64	10	2.5
MWRP-069X20.0X2.5	69	64	20	2.5
MWRP-069X30.0X3.0	69	63	30	3
MWRP-069X31.5X3.0	69	63	31.5	3
MWRP-070X10.0X2.0	70	66	10	2
MWRP-070X5.6X2.5	70	65	5.6	2.5
MWRP-070X9.5X2.5	70	65	9.5	2.5
MWRP-070X9.7X2.5	70	65	9.7	2.5
MWRP-070X10.0X2.5	70	65	10	2.5
MWRP-070X15.0X2.5	70	65	15	2.5
MWRP-070X20.0X2.5	70	65	20	2.5
MWRP-070X25.0X2.5	70	65	25	2.5
MWRP-070X12.0X3.0	70	64	12	3
MWRP-070X12.4X3.0	70	64	12.4	3
MWRP-070X14.0X3.0	70	64	14	3
MWRP-070X14.5X3.0	70	64	14.5	3
MWRP-070X15.0X3.0	70	64	15	3
MWRP-070X19.5X3.0	70	64	19.5	3
MWRP-070X20.0X3.0	70	64	20	3
MWRP-070X15.0X5.0	70	60	15	5
MWRP-071X10.0X2.5	71	66	10	2.5
MWRP-071X20.0X2.5	71	66	20	2.5
MWRP-075X9.5X2.5	75	70	9.5	2.5
MWRP-075X9.7X2.5	75	70	9.7	2.5
MWRP-075X10.0X2.5	75	70	10	2.5
MWRP-075X15.0X2.5	75	70	15	2.5
MWRP-075X20.0X2.5	75	70	20	2.5
MWRP-075X25.0X2.5	75	70	25	2.5
MWRP-075X30.0X2.5	75	70	30	2.5

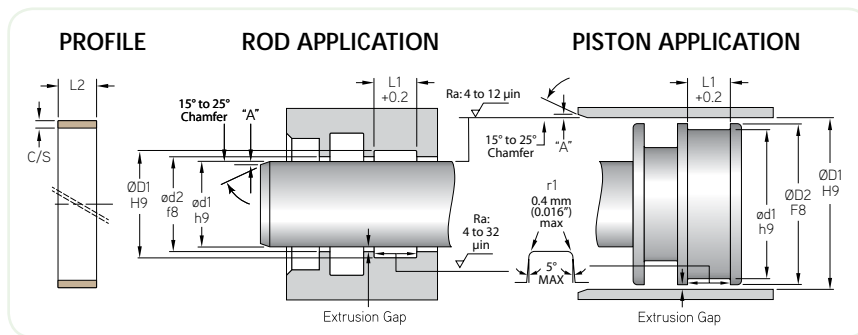
MWRP

METRIC WEAR RINGS

# MWRP - Tight Tolerance Metric Guide Ring - C1000

A product of MFP Seals.

**MFPSEALS**

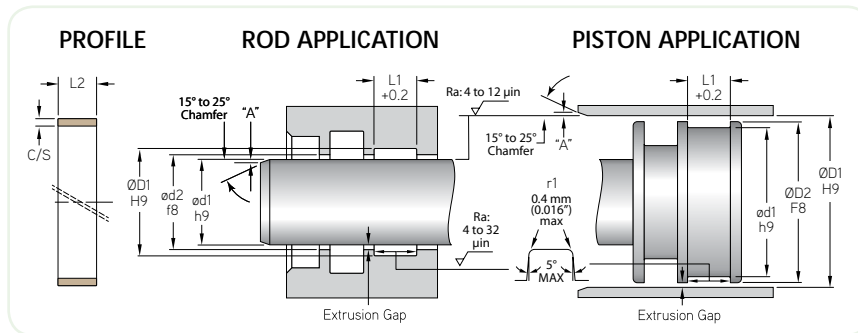


## ROD OR PISTON APPLICATION

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-075X40.0X2.5	75	70	40	2.5
MWRP-075X50.0X2.5	75	70	50	2.5
MWRP-075X12.5X3.0	75	69	12.5	3
MWRP-075X15.0X3.0	75	69	15	3
MWRP-075X20.0X3.0	75	69	20	3
MWRP-075X25.0X3.0	75	69	25	3
MWRP-075X11.8X4.0	75	67	11.8	4
MWRP-075X15.0X5.5	75	64	15	5.5
MWRP-076X20.0X2.5	76	71	20	2.5
MWRP-076X10.0X3.0	76	70	10	3
MWRP-076X20.0X3.0	76	70	20	3
MWRP-080X5.0X2.0	80	76	5	2
MWRP-080X8.0X2.0	80	76	8	2
MWRP-080X10.0X2.0	80	76	10	2
MWRP-080X15.0X2.0	80	76	15	2
MWRP-080X30.0X2.0	80	76	30	2
MWRP-080X9.5X2.5	80	75	9.5	2.5
MWRP-080X10.0X2.5	80	75	10	2.5
MWRP-080X15.0X2.5	80	75	15	2.5
MWRP-080X20.0X2.5	80	75	20	2.5
MWRP-080X25.0X2.5	80	75	25	2.5
MWRP-080X6.0X3.0	80	74	6	3
MWRP-080X10.0X3.0	80	74	10	3
MWRP-080X12.0X3.0	80	74	12	3
MWRP-080X15.0X3.0	80	74	15	3
MWRP-080X20.0X3.0	80	74	20	3
MWRP-080X25.0X3.0	80	74	25	3
MWRP-080X10.0X3.1	80	73.8	10	3.1
MWRP-080X10.0X3.5	80	73	10	3.5
MWRP-081X25.0X3.0	81	75	25	3
MWRP-081X37.5X3.0	81	75	37.5	3
MWRP-082X12.0X5.0	82	72	12	5
MWRP-083X6.0X4.0	83	75	6	4
MWRP-085X9.5X2.5	85	80	9.5	2.5
MWRP-085X9.7X2.5	85	80	9.7	2.5
MWRP-085X15.0X2.5	85	80	15	2.5
MWRP-085X20.0X2.5	85	80	20	2.5

MWRP

METRIC WEAR RINGS



**ROD OR PISTON APPLICATION**

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-085X25.0X2.5	85	80	25	2.5
MWRP-085X35.0X2.5	85	80	35	2.5
MWRP-085X10.0X3.0	85	79	10	3
MWRP-085X12.5X3.0	85	79	12.5	3
MWRP-085X15.0X3.0	85	79	15	3
MWRP-085X20.0X3.0	85	79	20	3
MWRP-085X25.0X3.0	85	79	25	3
MWRP-085X10.0X5.0	85	75	10	5
MWRP-086X25.0X3.0	86	80	25	3
MWRP-086X40.0X3.0	86	80	40	3
MWRP-089X10.0X3.5	89	82	10	3.5
MWRP-090X20.0X2.0	90	86	20	2
MWRP-090X6.0X2.5	90	85	6	2.5
MWRP-090X9.5X2.5	90	85	9.5	2.5
MWRP-090X9.7X2.5	90	85	9.7	2.5
MWRP-090X10.0X2.5	90	85	10	2.5
MWRP-090X14.7X2.5	90	85	14.7	2.5
MWRP-090X15.0X2.5	90	85	15	2.5
MWRP-090X20.0X2.5	90	85	20	2.5
MWRP-090X25.0X2.5	90	85	25	2.5
MWRP-090X35.0X2.5	90	85	35	2.5
MWRP-090X40.0X2.5	90	85	40	2.5
MWRP-090X10.0X3.0	90	84	10	3
MWRP-090X12.2X3.0	90	84	12.2	3
MWRP-090X12.5X3.0	90	84	12.5	3
MWRP-090X15.0X3.0	90	84	15	3
MWRP-090X20.0X3.0	90	84	20	3
MWRP-090X25.0X3.0	90	84	25	3
MWRP-090X30.0X3.0	90	84	30	3
MWRP-090X35.0X3.0	90	84	35	3
MWRP-090X15.0X3.2	90	83.7	15	3.2
MWRP-090X5.6X4.0	90	82	5.6	4
MWRP-090X15.0X4.0	90	82	15	4
MWRP-090X12.5X4.5	90	81	12.5	4.5
MWRP-093X12.0X4.5	93	84	12	4.5
MWRP-095X6.0X2.5	95	90	6	2.5
MWRP-095X7.9X2.5	95	90	7.9	2.5

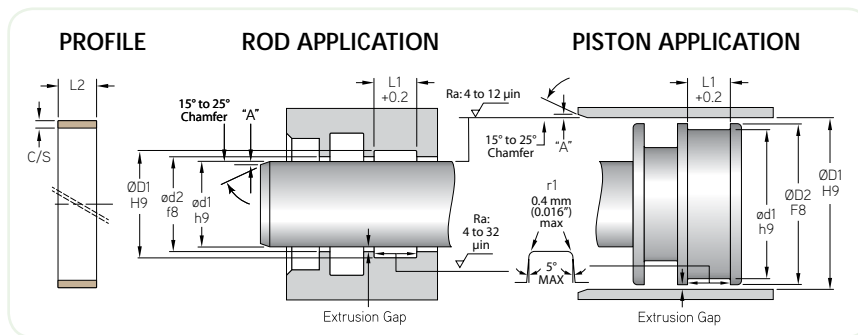
MWRP

METRIC WEAR RINGS

# MWRP - Tight Tolerance Metric Guide Ring - C1000

A product of MFP Seals.

**MFPSEALS**

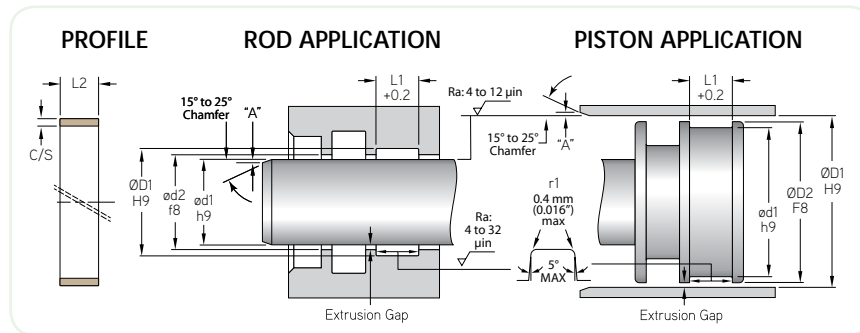


## ROD OR PISTON APPLICATION

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-095X9.5X2.5	95	90	9.5	2.5
MWRP-095X10.0X2.5	95	90	10	2.5
MWRP-095X12.5X2.5	95	90	12.5	2.5
MWRP-095X15.0X2.5	95	90	15	2.5
MWRP-095X25.0X2.5	95	90	25	2.5
MWRP-095X50.0X2.5	95	90	50	2.5
MWRP-095X12.5X3.0	95	89	12.5	3
MWRP-095X15.0X3.0	95	89	15	3
MWRP-095X20.0X3.0	95	89	20	3
MWRP-095X25.0X3.0	95	89	25	3
MWRP-095X6.0X4.0	95	87	6	4
MWRP-095X15.0X4.0	95	87	15	4
MWRP-095X12.0X4.5	95	86	12	4.5
MWRP-095X12.3X4.5	95	86	12.3	4.5
MWRP-095X12.5X4.5	95	86	12.5	4.5
MWRP-096X29.0X3.0	96	90	29	3
MWRP-100X5.0X2.0	100	96	5	2
MWRP-100X8.0X2.0	100	96	8	2
MWRP-100X9.7X2.0	100	96	9.7	2
MWRP-100X10.0X2.0	100	96	10	2
MWRP-100X15.0X2.0	100	96	15	2
MWRP-100X5.6X2.5	100	95	5.6	2.5
MWRP-100X6.0X2.5	100	95	6	2.5
MWRP-100X7.9X2.5	100	95	7.9	2.5
MWRP-100X8.0X2.5	100	95	8	2.5
MWRP-100X9.5X2.5	100	95	9.5	2.5
MWRP-100X9.8X2.5	100	95	9.8	2.5
MWRP-100X12.5X2.5	100	95	12.5	2.5
MWRP-100X15.0X2.5	100	95	15	2.5
MWRP-100X20.0X2.5	100	95	20	2.5
MWRP-100X25.0X2.5	100	95	25	2.5
MWRP-100X30.0X2.5	100	95	30	2.5
MWRP-100X10.0X3.0	100	94	10	3
MWRP-100X12.5X3.0	100	94	12.5	3
MWRP-100X14.0X3.0	100	94	14	3
MWRP-100X15.0X3.0	100	94	15	3
MWRP-100X20.0X3.0	100	94	20	3

MWRP

METRIC WEAR RINGS



**ROD OR PISTON APPLICATION**

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-100X25.0X3.0	100	94	25	3
MWRP-100X30.0X3.0	100	94	30	3
MWRP-100X15.0X3.2	100	93.6	15	3.2
MWRP-100X12.0X3.5	100	93	12	3.5
MWRP-100X10.0X4.0	100	92	10	4
MWRP-100X15.0X4.0	100	92	15	4
MWRP-100X30.0X4.0	100	92	30	4
MWRP-100X10.0X4.5	100	91	10	4.5
MWRP-100X12.1X4.5	100	91	12.1	4.5
MWRP-100X12.5X4.5	100	91	12.5	4.5
MWRP-102X8.0X3.0	102	96	8	3
MWRP-103X12.0X4.5	103	94	12	4.5
MWRP-105X20.0X2.0	105	101	20	2
MWRP-105X6.0X2.5	105	100	6	2.5
MWRP-105X6.1X2.5	105	100	6.1	2.5
MWRP-105X7.9X2.5	105	100	7.9	2.5
MWRP-105X8.0X2.5	105	100	8	2.5
MWRP-105X9.5X2.5	105	100	9.5	2.5
MWRP-105X10.0X2.5	105	100	10	2.5
MWRP-105X15.0X2.5	105	100	15	2.5
MWRP-105X20.0X2.5	105	100	20	2.5
MWRP-105X25.0X2.5	105	100	25	2.5
MWRP-105X35.0X2.5	105	100	35	2.5
MWRP-105X10.0X3.0	105	99	10	3
MWRP-105X12.3X3.0	105	99	12.3	3
MWRP-105X12.5X3.0	105	99	12.5	3
MWRP-105X15.0X3.0	105	99	15	3
MWRP-150X20.0X3.0	105	99	20	3
MWRP-105X25.0X3.0	105	99	25	3
MWRP-105X30.0X3.0	105	99	30	3
MWRP-105X12.5X4.5	105	96	12.5	4.5
MWRP-106X15.0X3.0	106	100	15	3
MWRP-106X20.0X3.0	106	100	20	3
MWRP-106X25.0X3.0	106	100	25	3
MWRP-106X25.0X3.5	106	99	25	3.5
MWRP-108X15.0X3.0	108	102	15	3
MWRP-110X15.0X2.0	110	106	15	2

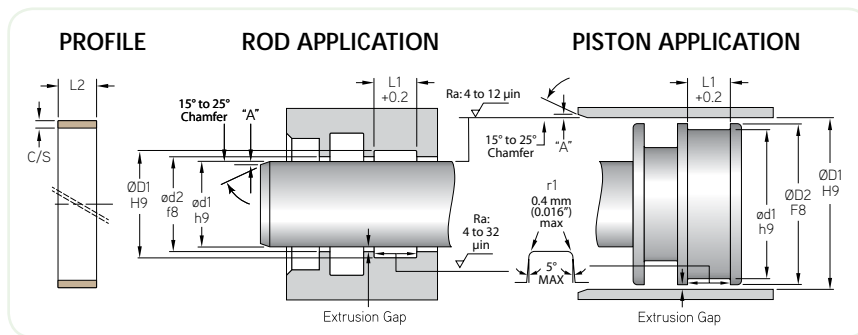
MWRP

METRIC WEAR RINGS

# MWRP - Tight Tolerance Metric Guide Ring - C1000

A product of MFP Seals.

**MFPSEALS**



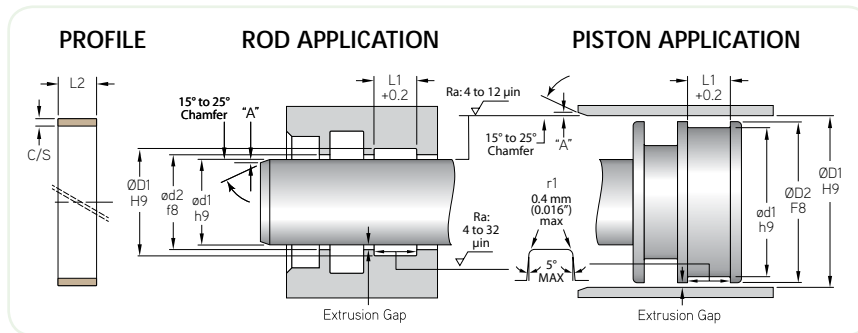
## ROD OR PISTON APPLICATION

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-110X6.0X2.5	110	105	6	2.5
MWRP-110X7.9X2.5	110	105	7.9	2.5
MWRP-110X8.0X2.5	110	105	8	2.5
MWRP-110X9.5X2.5	110	105	9.5	2.5
MWRP-110X10.0X2.5	110	105	10	2.5
MWRP-110X15.0X2.5	110	105	15	2.5
MWRP-110X20.0X2.5	110	105	20	2.5
MWRP-110X25.0X2.5	110	105	25	2.5
MWRP-110X30.0X2.5	110	105	30	2.5
MWRP-110X12.0X3.0	110	104	12	3
MWRP-110X12.3X3.0	110	104	12.3	3
MWRP-110X13.0X3.0	110	104	13	3
MWRP-110X14.0X3.0	110	104	14	3
MWRP-110X15.0X3.0	110	104	15	3
MWRP-110X20.0X3.0	110	104	20	3
MWRP-110X25.0X3.0	110	104	25	3
MWRP-110X30.0X3.0	110	104	30	3
MWRP-110X40.0X3.0	110	104	40	3
MWRP-110X35.0X3.5	110	103	35	3.5
MWRP-110X15.0X4.0	110	102	15	4
MWRP-110X10.0X4.5	110	101	10	4.5
MWRP-110X12.1X4.5	110	101	12.1	4.5
MWRP-110X12.5X4.5	110	101	12.5	4.5
MWRP-110X15.0X4.5	110	101	15	4.5
MWRP-112X10.0X3.0	112	106	10	3
MWRP-112X15.0X3.0	112	106	15	3
MWRP-112X20.0X3.0	112	106	20	3
MWRP-112X30.0X3.0	112	106	30	3
MWRP-115X6.0X2.5	115	110	6	2.5
MWRP-115X7.9X2.5	115	110	7.9	2.5
MWRP-115X8.0X2.5	115	110	8	2.5
MWRP-115X9.5X2.5	115	110	9.5	2.5
MWRP-115X10.0X2.5	115	110	10	2.5
MWRP-115X15.0X2.5	115	110	15	2.5
MWRP-115X20.0X2.5	115	110	20	2.5
MWRP-115X25.0X2.5	115	110	25	2.5
MWRP-115X30.0X2.5	115	110	30	2.5

MWRP

METRIC WEAR RINGS





**ROD OR PISTON APPLICATION**

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-115X35.0X2.5	115	110	35	2.5
MWRP-115X15.0X3.0	115	109	15	3
MWRP-115X30.0X3.0	115	109	30	3
MWRP-115X8.0X4.0	115	107	8	4
MWRP-115X15.0X4.0	115	107	15	4
MWRP-115X15.0X4.5	115	106	15	4.5
MWRP-115X15.0X5.0	115	105	15	5
MWRP-115X20.0X5.0	115	105	20	5
MWRP-116X30.0X3.0	116	110	30	3
MWRP-118X30.0X4.0	118	110	30	4
MWRP-118X15.0X5.0	118	108	15	5
MWRP-120X7.9X2.5	120	115	7.9	2.5
MWRP-120X8.0X2.5	120	115	8	2.5
MWRP-120X9.5X2.5	120	115	9.5	2.5
MWRP-120X9.7X2.5	120	115	9.7	2.5
MWRP-120X10.0X2.5	120	115	10	2.5
MWRP-120X14.6X2.5	120	115	14.6	2.5
MWRP-120X15.0X2.5	120	115	15	2.5
MWRP-120X20.0X2.5	120	115	20	2.5
MWRP-120X25.0X2.5	120	115	25	2.5
MWRP-120X10.0X3.0	120	114	10	3
MWRP-120X12.0X3.0	120	114	12	3
MWRP-120X15.0X3.0	120	114	15	3
MWRP-120X20.0X3.0	120	114	20	3
MWRP-120X25.0X3.0	120	114	25	3
MWRP-120X30.0X3.0	120	114	30	3
MWRP-120X35.0X3.0	120	114	35	3
MWRP-120X14.8X3.5	120	113	14.8	3.5
MWRP-120C30.0X3.5	120	113	30	3.5
MWRP-120X5.9X4.0	120	112	5.9	4
MWRP-120X8.0X4.0	120	112	8	4
MWRP-120X9.5X4.0	120	112	9.5	4
MWRP-120X15.0X4.0	120	112	15	4
MWRP-120X15.0X4.5	120	111	15	4.5
MWRP-120X16.0X5.0	120	110	16	5
MWRP-122X15.0X2.5	122	117	15	2.5
MWRP-123X20.0X1.5	123	120	20	1.5

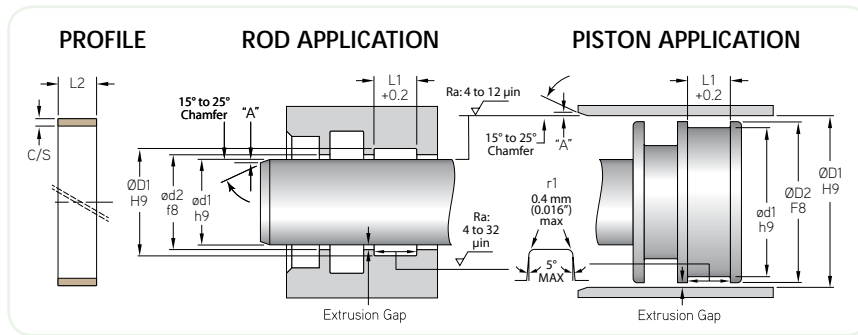
MWRP

METRIC WEAR RINGS

# MWRP - Tight Tolerance Metric Guide Ring - C1000

A product of MFP Seals.

**MFPSEALS**

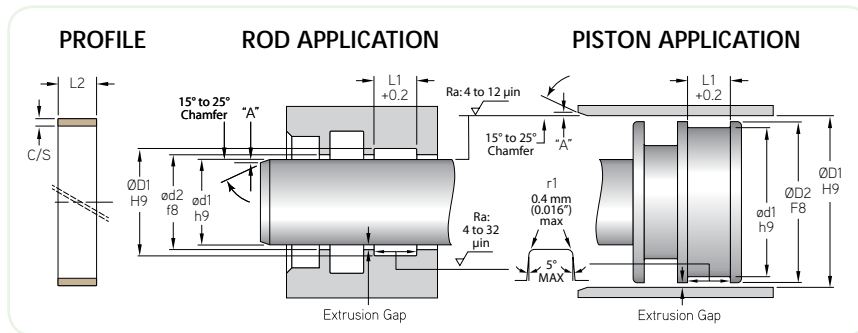


## ROD OR PISTON APPLICATION

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-124X15.0X5.0	124	114	15	5
MWRP-125X10.0X2.0	125	121	10	2
MWRP-125X7.9X2.5	125	120	7.9	2.5
MWRP-125X8.0X2.5	125	120	8	2.5
MWRP-125X9.0X2.5	125	120	9	2.5
MWRP-125X9.5X2.5	125	120	9.5	2.5
MWRP-125X10.0X2.5	125	120	10	2.5
MWRP-125X12.0X2.5	125	120	12	2.5
MWRP-125X15.0X2.5	125	120	15	2.5
MWRP-125X20.0X2.5	125	120	20	2.5
MWRP-125X25.0X2.5	125	120	25	2.5
MWRP-125X30.0X2.5	125	120	30	2.5
MWRP-125X40.0X2.5	125	120	40	2.5
MWRP-125X50.0X2.5	125	120	50	2.5
MWRP-125X8.0X3.0	125	119	8	3
MWRP-125X10.0X3.0	125	119	10	3
MWRP-125X15.0X3.0	125	119	15	3
MWRP-125X20.0X3.0	125	119	20	3
MWRP-125X25.0X3.0	125	119	25	3
MWRP-125X30.0X3.0	125	119	30	3
MWRP-125X10.0X3.5	125	118	10	3.5
MWRP-125X15.0X3.5	125	118	15	3.5
MWRP-125X18.4X3.5	125	118	18.4	3.5
MWRP-125X30.0X3.5	125	118	30	3.5
MWRP-125X50.0X3.5	125	118	50	3.5
MWRP-125X8.0X4.0	125	117	8	4
MWRP-125X15.0X5.5	125	114	15	5.5
MWRP-126X10.0X3.0	126	120	10	3
MWRP-126X30.0X3.0	126	120	30	3
MWRP-127X30.0X3.5	127	120	30	3.5
MWRP-129X30.0X5.0	129	119	30	5
MWRP-130X7.9X2.5	130	125	7.9	2.5
MWRP-130X8.0X2.5	130	125	8	2.5
MWRP-130X9.5X2.5	130	125	9.5	2.5
MWRP-130X9.7X2.5	130	125	9.7	2.5
MWRP-130X10.0X2.5	130	125	10	2.5
MWRP-130X15.0X2.5	130	125	15	2.5

MWRP

METRIC WEAR RINGS



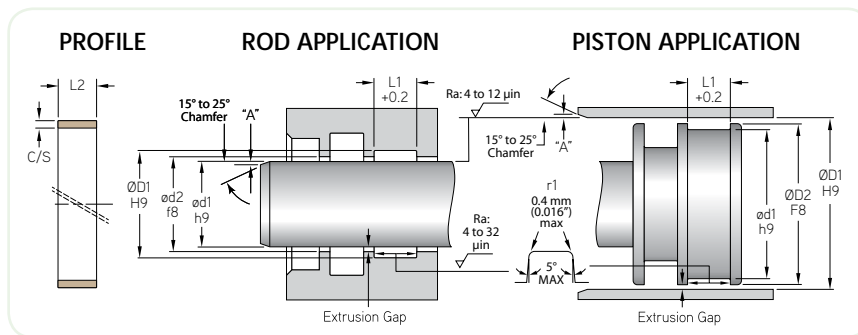
**ROD OR PISTON APPLICATION**

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-130X20.0X2.5	130	125	20	2.5
MWRP-130X25.0X2.5	130	125	25	2.5
MWRP-130X30.0X3.0	130	124	30	3
MWRP-130X10.0X3.5	130	123	10	3.5
MWRP-130X15.0X3.5	130	123	15	3.5
MWRP-130X20.0X3.5	130	123	20	3.5
MWRP-130X25.0X3.5	130	123	25	3.5
MWRP-130X30.0X3.5	130	123	30	3.5
MWRP-130X35.0X3.5	130	123	35	3.5
MWRP-130X40.0X3.5	130	123	40	3.5
MWRP-130X7.9X4.0	130	122	7.9	4
MWRP-130X8.0X4.0	130	122	8	4
MWRP-130X15.0X5.0	130	120	15	5
MWRP-130X16.0X5.0	130	120	16	5
MWRP-131X22.0X2.0	131	127	22	2
MWRP-131X25.0X3.0	131	125	25	3
MWRP-132X35.0X3.5	132	125	35	3.5
MWRP-135X7.0X2.5	135	130	7	2.5
MWRP-135X7.9X2.5	135	130	7.9	2.5
MWRP-135X8.0X2.5	135	130	8	2.5
MWRP-135X9.5X2.5	135	130	9.5	2.5
MWRP-135X15.0X2.5	135	130	15	2.5
MWRP-135X8.0X3.0	135	129	8	3
MWRP-135X14.0X3.0	135	129	14	3
MWRP-135X20.0X3.0	135	129	20	3
MWRP-135X25.0X3.0	135	129	25	3
MWRP-135X30.0X3.0	135	129	30	3
MWRP-135X35.0X3.0	135	129	35	3
MWRP-135X9.7X3.5	135	128	9.7	3.5
MWRP-135X10.0X3.5	135	128	10	3.5
MWRP-135X15.0X3.5	135	128	15	3.5
MWRP-135X25.0X3.5	135	128	25	3.5
MWRP-135X35.0X3.5	135	128	35	3.5
MWRP-135X50.0X3.5	135	128	50	3.5
MWRP-135X8.0X4.0	135	127	8	4
MWRP-135X9.7X4.0	135	127	9.7	4
MWRP-135X9.8X4.0	135	127	9.8	4

# MWRP - Tight Tolerance Metric Guide Ring - C1000

A product of MFP Seals.

**MFPSEALS**

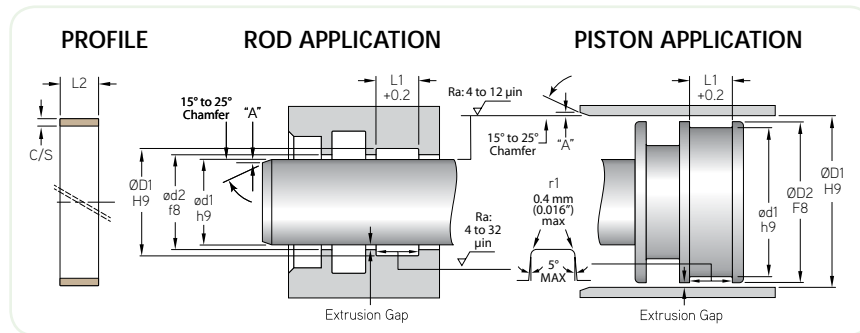


## ROD OR PISTON APPLICATION

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-135X15.0X4.0	135	127	15	4
MWRP-135X15.0X5.0	135	125	15	5
MWRP-136X10.0X3.0	136	130	10	3
MWRP-137X30.0X3.5	137	130	30	3.5
MWRP-137X17.0X5.0	137	127	17	5
MWRP-138X20.0X3.0	138	132	20	3
MWRP-140X7.9X2.5	140	135	7.9	2.5
MWRP-140X8.0X2.5	140	135	8	2.5
MWRP-140X9.5X2.5	140	135	9.5	2.5
MWRP-140X9.7X2.5	140	135	9.7	2.5
MWRP-140X10.0X2.5	140	135	10	2.5
MWRP-140X15.0X2.5	140	135	15	2.5
MWRP-140X20.0X2.5	140	135	20	2.5
MWRP-140X25.0X2.5	140	135	25	2.5
MWRP-140X30.0X2.5	140	135	30	2.5
MWRP-140X35.0X2.5	140	135	35	2.5
MWRP-140X50.0X2.5	140	135	50	2.5
MWRP-140X25.0X3.0	140	134	25	3
MWRP-140X30.0X3.0	140	134	30	3
MWRP-140X40.0X3.0	140	134	40	3
MWRP-140X50.0X3.0	140	134	50	3
MWRP-140X10.0X3.5	140	133	10	3.5
MWRP-140X15.0X3.5	140	133	15	3.5
MWRP-140X17.5X3.5	140	133	17.5	3.5
MWRP-140X20.0X3.5	140	133	20	3.5
MWRP-140X25.0X3.5	140	133	25	3.5
MWRP-140X30.0X3.5	140	133	30	3.5
MWRP-140X34.5X3.5	140	133	34.5	3.5
MWRP-140X35.0X3.5	140	133	35	3.5
MWRP-140X40.0X3.5	140	133	40	3.5
MWRP-140X45.0X3.5	140	133	45	3.5
MWRP-140X50.0X3.5	140	133	50	3.5
MWRP-140X8.0X4.0	140	132	8	4
MWRP-140X30.0X5.0	140	130	30	5
MWRP-140X17.0X6.0	140	128	17	6
MWRP-140X17.5X6.0	140	128	17.5	6
MWRP-140X20.0X6.0	140	128	20	6

MWRP

METRIC WEAR RINGS



**ROD OR PISTON APPLICATION**

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-140X15.0X11.5	140	117	15	11.5
MWRP-142X15.0X3.5	142	135	15	3.5
MWRP-145X7.9X2.5	145	140	7.9	2.5
MWRP-145X8.0X2.5	145	140	8	2.5
MWRP-145X9.5X2.5	145	140	9.5	2.5
MWRP-145X10.0X2.5	145	140	10	2.5
MWRP-145X15.0X2.5	145	140	15	2.5
MWRP-145X19.8X2.5	145	140	19.8	2.5
MWRP-145X20.0X2.5	145	140	20	2.5
MWRP-145X25.0X2.5	145	140	25	2.5
MWRP-145X50.0X2.5	145	140	50	2.5
MWRP-145X9.7X3.5	145	138	9.7	3.5
MWRP-145X10.0X3.5	145	138	10	3.5
MWRP-145X15.0X3.5	145	138	15	3.5
MWRP-145X20.0X3.5	145	138	20	3.5
MWRP-145X25.0X3.5	145	138	25	3.5
MWRP-145X30.0X3.5	145	138	30	3.5
MWRP-145X35.0X3.5	145	138	35	3.5
MWRP-145X50.0X3.5	145	138	50	3.5
MWRP-145X17.5X6.0	145	133	17.5	6
MWRP-145X40.0X7.5	145	130	40	7.5
MWRP-147X30.0X3.5	147	140	30	3.5
MWRP-147X40.0X3.5	147	140	40	3.5
MWRP-150X7.9X2.5	150	145	7.9	2.5
MWRP-150X8.0X2.5	150	145	8	2.5
MWRP-150X9.5X2.5	150	145	9.5	2.5
MWRP-150X9.7X2.5	150	145	9.7	2.5
MWRP-150X10.0X2.5	150	145	10	2.5
MWRP-150X15.0X2.5	150	145	15	2.5
MWRP-150X20.0X2.5	150	145	20	2.5
MWRP-150X25.0X2.5	150	145	25	2.5
MWRP-150X35.0X2.5	150	145	35	2.5
MWRP-150X40.0X2.5	150	145	40	2.5
MWRP-150X50.0X2.5	150	145	50	2.5
MWRP-150X20.0X3.0	150	144	20	3
MWRP-150X35.0X3.0	150	144	35	3
MWRP-150X40.0X3.0	150	144	40	3

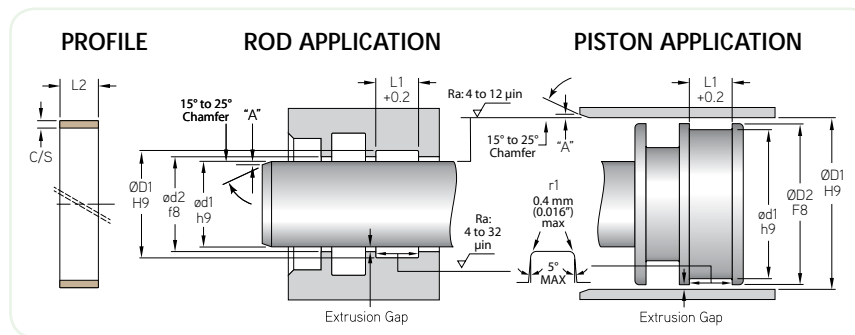
MWRP

METRIC WEAR RINGS

# MWRP - Tight Tolerance Metric Guide Ring - C1000

A product of MFP Seals.

**MFPSEALS**

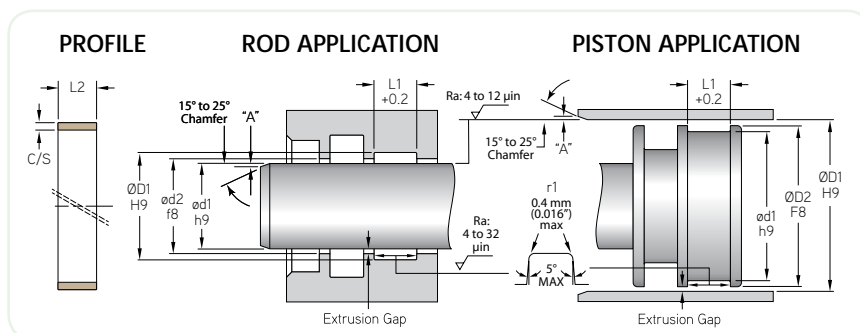


## ROD OR PISTON APPLICATION

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-150X50.0X3.0	150	144	50	3
MWRP-150X10.0X3.5	150	143	10	3.5
MWRP-150X15.0X3.5	150	143	15	3.5
MWRP-150X17.5X3.5	150	143	17.5	3.5
MWRP-150X20.0X3.5	150	143	20	3.5
MWRP-150X25.0X3.5	150	143	25	3.5
MWRP-150X30.0X3.5	150	143	30	3.5
MWRP-150X35.0X3.5	150	143	35	3.5
MWRP-150X40.0X3.5	150	143	40	3.5
MWRP-150X45.0X3.5	150	143	45	3.5
MWRP-150X50.0X3.5	150	143	50	3.5
MWRP-150X8.0X4.0	150	142	8	4
MWRP-150X15.0X4.0	150	142	15	4
MWRP-150X17.0X4.0	150	142	17	4
MWRP-150X20.0X4.0	150	142	20	4
MWRP-150X25.0X4.0	150	142	25	4
MWRP-150X9.5X5.0	150	140	9.5	5
MWRP-150X12.0X6.0	150	138	12	6
MWRP-150X17.0X6.0	150	138	17	6
MWRP-150X17.5X6.0	150	138	17.5	6
MWRP-151X50.0X3.0	151	145	50	3
MWRP-152X15.0X2.5	152	147	15	2.5
MWRP-155X7.9X2.5	155	150	7.9	2.5
MWRP-155X8.0X2.5	155	150	8	2.5
MWRP-155X9.5X2.5	155	150	9.5	2.5
MWRP-155X10.0X2.5	155	150	10	2.5
MWRP-155X15.0X2.5	155	150	15	2.5
MWRP-155X20.0X2.5	155	150	20	2.5
MWRP-155X25.0X2.5	155	150	25	2.5
MWRP-155X35.0X3.5	155	148	35	3.5
MWRP-156X35.0X3.0	156	150	35	3
MWRP-157X25.0X2.5	157	152	25	2.5
MWRP-157X40.0X3.5	157	150	40	3.5
MWRP-160X19.5X2.0	160	156	19.5	2
MWRP-160X7.9X2.5	160	155	7.9	2.5
MWRP-160X8.0X2.5	160	155	8	2.5
MWRP-160X9.5X2.5	160	155	9.5	2.5

MWRP

METRIC WEAR RINGS



**ROD OR PISTON APPLICATION**

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-160X9.7X2.5	160	155	9.7	2.5
MWRP-160X10.0X2.5	160	155	10	2.5
MWRP-160X15.0X2.5	160	155	15	2.5
MWRP-160X20.0X2.5	160	155	20	2.5
MWRP-160X24.5X2.5	160	155	24.5	2.5
MWRP-160X25.0X2.5	160	155	25	2.5
MWRP-160X50.0X2.5	160	155	50	2.5
MWRP-160X20.0X3.0	160	154	20	3
MWRP-160X10.0X3.5	160	153	10	3.5
MWRP-160X15.0X3.5	160	153	15	3.5
MWRP-160X20.0X3.5	160	153	20	3.5
MWRP-160X25.0X3.5	160	153	25	3.5
MWRP-160X30.0X3.5	160	153	30	3.5
MWRP-160X35.0X3.5	160	153	35	3.5
MWRP-160X40.0X3.5	160	153	40	3.5
MWRP-160X45.0X3.5	160	153	45	3.5
MWRP-160X35.0X4.0	160	152	35	4
MWRP-160X23.0X5.0	160	150	23	5
MWRP-160X20.0X6.0	160	148	20	6
MWRP-160X20.0X6.0	160	148	20	6
MWRP-165X7.9X2.5	165	160	7.9	2.5
MWRP-165X9.5X2.5	165	160	9.5	2.5
MWRP-165X10.0X2.5	165	160	10	2.5
MWRP-165X15.0X2.5	165	160	15	2.5
MWRP-165X20.0X2.5	165	160	20	2.5
MWRP-165X25.0X2.5	165	160	25	2.5
MWRP-165X30.0X2.5	165	160	30	2.5
MWRP-165X35.0X2.5	165	160	35	2.5
MWRP-165X40.0X2.5	165	160	40	2.5
MWRP-165X30.0X3.0	165	159	30	3
MWRP-165X15.0X3.5	165	158	15	3.5
MWRP-165X10.0X4.0	165	157	10	4
MWRP-165X15.0X4.0	165	157	15	4
MWRP-165X20.0X4.0	165	157	20	4
MWRP-165X25.0X4.0	165	157	25	4
MWRP-165X30.0X4.0	165	157	30	4
MWRP-165X35.0X4.0	165	157	35	4

MWRP

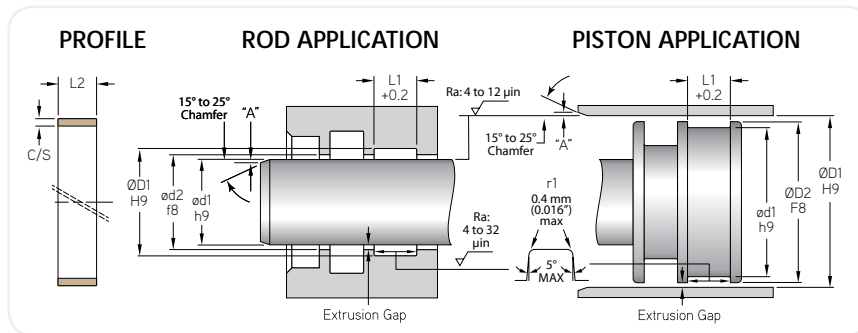
METRIC WEAR RINGS



# MWRP - Tight Tolerance Metric Guide Ring - C1000

A product of MFP Seals.

**MFPSEALS**

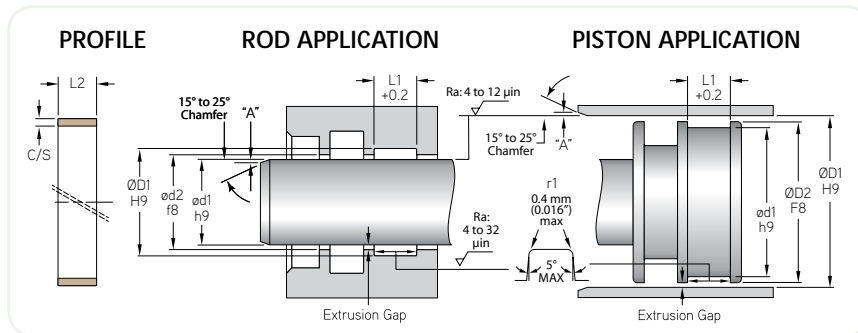


## ROD OR PISTON APPLICATION

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-165X45.0X4.0	165	157	45	4
MWRP-165X50.0X4.0	165	157	50	4
MWRP-165X19.5X6.0	165	153	19.5	6
MWRP-170X7.9X2.5	170	165	7.9	2.5
MWRP-170X8.0X2.5	170	165	8	2.5
MWRP-170X9.5X2.5	170	165	9.5	2.5
MWRP-170X9.7X2.5	170	165	9.7	2.5
MWRP-170X10.0X2.5	170	165	10	2.5
MWRP-170X15.0X2.5	170	165	15	2.5
MWRP-170X20.0X2.5	170	165	20	2.5
MWRP-170X25.0X2.5	170	165	25	2.5
MWRP-170X30.0X2.5	170	165	30	2.5
MWRP-170X35.0X2.5	170	165	35	2.5
MWRP-170X50.0X2.5	170	165	50	2.5
MWRP-170X9.5X3.0	170	164	9.5	3
MWRP-170X9.6X3.0	170	164	9.6	3
MWRP-170X20.0X3.0	170	164	20	3
MWRP-170X25.0X3.0	170	164	25	3
MWRP-170X35.0X3.0	170	164	35	3
MWRP-170X50.0X3.0	170	164	50	3
MWRP-170X14.8X3.5	170	163	14.8	3.5
MWRP-170X40.0X3.5	170	163	40	3.5
MWRP-170X45.0X3.5	170	163	45	3.5
MWRP-170X4.5X4.0	170	162	4.5	4
MWRP-170X9.6X4.0	170	162	9.6	4
MWRP-170X10.0X4.0	170	162	10	4
MWRP-170X15.0X4.0	170	162	15	4
MWRP-170X20.0X4.0	170	162	20	4
MWRP-170X25.0X4.0	170	162	25	4
MWRP-170X25.0X4.0	170	162	25	4
MWRP-170X30.0X4.0	170	162	30	4
MWRP-170X35.0X4.0	170	162	35	4
MWRP-170X40.0X4.0	170	162	40	4
MWRP-170X45.0X4.0	170	162	45	4
MWRP-170X50.0X4.0	170	162	50	4
MWRP-170X20.0X6.0	170	158	20	6
MWRP-175X9.5X2.5	175	170	9.5	2.5

MWRP

METRIC WEAR RINGS



**ROD OR PISTON APPLICATION**

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-175X19.8X2.5	175	170	19.8	2.5
MWRP-175X20.0X2.5	175	170	20	2.5
MWRP-175X25.0X2.5	175	170	25	2.5
MWRP-175X50.0X3.0	175	169	50	3
MWRP-175X40.0X4.0	175	167	40	4
MWRP-180X7.9X2.5	180	175	7.9	2.5
MWRP-180X8.0X2.5	180	175	8	2.5
MWRP-180X9.5X2.5	180	175	9.5	2.5
MWRP-180X10.0X2.5	180	175	10	2.5
MWRP-180X12.0X2.5	180	175	12	2.5
MWRP-180X12.5X2.5	180	175	12.5	2.5
MWRP-180X15.0X2.5	180	175	15	2.5
MWRP-180X20.0X2.5	180	175	20	2.5
MWRP-180X25.0X2.5	180	175	25	2.5
MWRP-180X30.0X2.5	180	175	30	2.5
MWRP-180X35.0X2.5	180	175	35	2.5
MWRP-180X40.0X2.5	180	175	40	2.5
MWRP-180X45.0X2.5	180	175	45	2.5
MWRP-180X50.0X2.5	180	175	50	2.5
MWRP-180X14.8X3.0	180	174	14.8	3
MWRP-180X20.0X3.0	180	174	20	3
MWRP-180X35.0X3.0	180	174	35	3
MWRP-180X50.0X3.0	180	174	50	3
MWRP-180X14.8X3.5	180	173	14.8	3.5
MWRP-180X20.0X3.5	180	173	20	3.5
MWRP-180X50.0X3.5	180	173	50	3.5
MWRP-180X9.5X4.0	180	172	9.5	4
MWRP-180X9.6X4.0	180	172	9.6	4
MWRP-180X10.0X4.0	180	172	10	4
MWRP-180X12.0X4.0	180	172	12	4
MWRP-180X15.0X4.0	180	172	15	4
MWRP-180X20.0X4.0	180	172	20	4
MWRP-180X22.0X4.0	180	172	22	4
MWRP-180X22.5X4.0	180	172	22.5	4
MWRP-180X25.0X4.0	180	172	25	4
MWRP-180X30.0X4.0	180	172	30	4
MWRP-180X35.0X4.0	180	172	35	4

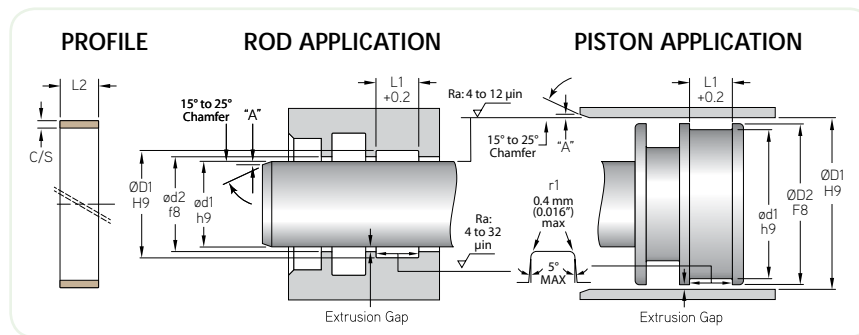
MWRP

METRIC WEAR RINGS

# MWRP - Tight Tolerance Metric Guide Ring - C1000

A product of MFP Seals.

**MFPSEALS**

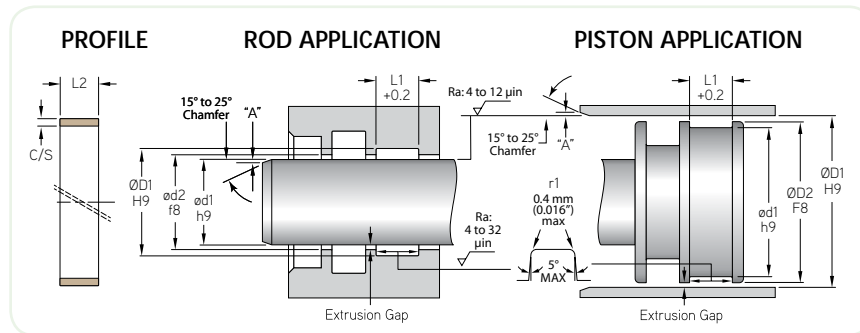


## ROD OR PISTON APPLICATION

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-180X40.0X4.0	180	172	40	4
MWRP-180X45.0X4.0	180	172	45	4
MWRP-180X50.0X4.0	180	172	50	4
MWRP-180X55.0X4.0	180	172	55	4
MWRP-180X8.0X5.0	180	170	8	5
MWRP-180X19.0X5.0	180	170	19	5
MWRP-180X25.0X5.0	180	170	25	5
MWRP-180X22.5X6.0	180	168	22.5	6
MWRP-185X15.0X2.5	185	180	15	2.5
MWRP-185X25.0X2.5	185	180	25	2.5
MWRP-185X50.0X2.5	185	180	50	2.5
MWRP-185X15.0X4.0	185	177	15	4
MWRP-185X22.5X6.0	185	173	22.5	6
MWRP-190X8.0X2.5	190	185	8	2.5
MWRP-190X9.5X2.5	190	185	9.5	2.5
MWRP-190X10.0X2.5	190	185	10	2.5
MWRP-190X15.0X2.5	190	185	15	2.5
MWRP-190X25.0X2.5	190	185	25	2.5
MWRP-190X30.0X2.5	190	185	30	2.5
MWRP-190X14.8X3.0	190	184	14.8	3
MWRP-190X50.0X3.0	190	184	50	3
MWRP-190X30.0X3.5	190	183	30	3.5
MWRP-190X35.0X3.5	190	183	35	3.5
MWRP-190X9.6X4.0	190	182	9.6	4
MWRP-190X10.0X4.0	190	182	10	4
MWRP-190X15.0X4.0	190	182	15	4
MWRP-190X20.0X4.0	190	182	20	4
MWRP-190X22.0X4.0	190	182	22	4
MWRP-190X22.5X4.0	190	182	22.5	4
MWRP-190X25.0X4.0	190	182	25	4
MWRP-190X30.0X4.0	190	182	30	4
MWRP-190X35.0X4.0	190	182	35	4
MWRP-190X45.0X4.0	190	182	45	4
MWRP-190X50.0X4.0	190	182	50	4
MWRP-190X19.0X5.0	190	180	19	5
MWRP-190X38.0X6.5	190	177	38	6.5
MWRP-195X10.0X2.5	195	190	10	2.5

MWRP

METRIC WEAR RINGS



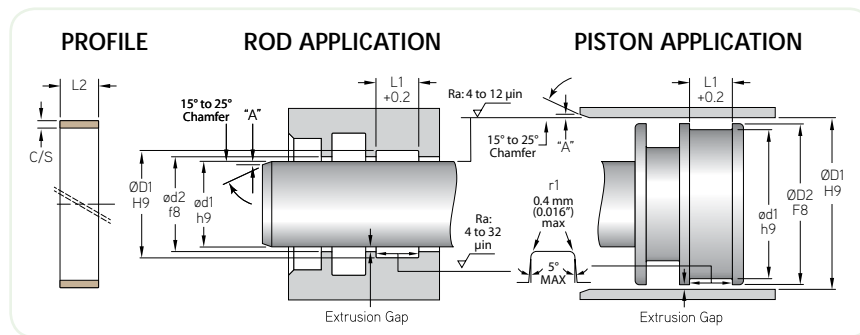
**ROD OR PISTON APPLICATION**

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-195X15.0X2.5	195	190	15	2.5
MWRP-195X20.0X2.5	195	190	20	2.5
MWRP-195X25.0X2.5	195	190	25	2.5
MWRP-195X30.0X2.5	195	190	30	2.5
MWRP-200X9.7X2.5	200	195	9.7	2.5
MWRP-200X14.8X2.5	200	195	14.8	2.5
MWRP-200X14.8X3.0	200	194	14.8	3
MWRP-200X19.5X3.0	200	194	19.5	3
MWRP-200X19.8X3.0	200	194	19.8	3
MWRP-200X9.6X4.0	200	192	9.6	4
MWRP-200X10.0X4.0	200	192	10	4
MWRP-200X15.0X4.0	200	192	15	4
MWRP-200X20.0X4.0	200	192	20	4
MWRP-200X22.0X4.0	200	192	22	4
MWRP-200X22.5X4.0	200	192	22.5	4
MWRP-200X25.0X4.0	200	192	25	4
MWRP-200X28.0X4.0	200	192	28	4
MWRP-200X30.0X4.0	200	192	30	4
MWRP-200X40.0X4.0	200	192	40	4
MWRP-200X44.8X4.0	200	192	44.8	4
MWRP-200X45.0X4.0	200	192	45	4
MWRP-200X50.0X4.0	200	192	50	4
MWRP-200X90.0X4.0	200	192	90	4
MWRP-200X22.5X6.0	200	188	22.5	6
MWRP-200X90.0X6.0	200	188	90	6
MWRP-205X120.0X2.5	205	200	120	2.5
MWRP-210X9.7X2.5	210	205	9.7	2.5
MWRP-210X15.0X2.5	210	205	15	2.5
MWRP-215X19.8X3.0	215	209	19.8	3
MWRP-215X9.6X4.0	215	207	9.6	4
MWRP-220X120.0X6.0	220	208	120	6
MWRP-225X25.0X4.0	225	217	25	4
MWRP-225X50.0X4.0	225	217	50	4
MWRP-225X25.0X6.0	225	213	25	6
MWRP-225X25.0X6.5	225	212	25	6.5
MWRP-230X24.8X2.5	230	225	24.8	2.5
MWRP-230X24.8X3.0	230	224	24.8	3

# MWRP - Tight Tolerance Metric Guide Ring - C1000

A product of MFP Seals.

**MFPSEALS**



## ROD OR PISTON APPLICATION

MFP PART NUMBER	ØD1	ød1	L1	C/S
<b>TOLERANCE: PISTON (ROD)</b>	H9	h9	+0.2	
MWRP-230X14.8X4.0	230	222	14.8	4
MWRP-230X40.0X4.5	230	221	40	4.5
MWRP-240X25.0X2.5	240	235	25	2.5
MWRP-240X24.8X3.0	240	234	24.8	3
MWRP-240X24.8X3.5	240	233	24.8	3.5
MWRP-240X28.4X3.5	240	233	28.4	3.5
MWRP-240X15.0X4.0	240	232	15	4
MWRP-240X24.8X6.3	240	227.4	24.8	6.3
MWRP-250X14.8X2.5	250	245	14.8	2.5
MWRP-250X55.0X4.0	250	242	55	4
MWRP-250X27.0X6.0	250	238	27	6
MWRP-250X129.5X6.0	250	238	129.5	6
MWRP-255X38.0X6.5	255	242	38	6.5
MWRP-260X9.6X2.5	260	255	9.6	2.5
MWRP-260X14.8X3.0	260	254	14.8	3
MWRP-260X29.8X3.0	260	254	29.8	3
MWRP-260X14.8X4.0	260	252	14.8	4
MWRP-260X27.5X6.0	260	248	27.5	6
MWRP-280X25.0X2.5	280	275	25	2.5
MWRP-280X29.5X3.0	280	274	29.5	3
MWRP-280X30.0X4.0	280	272	30	4
MWRP-280X30.0X6.0	280	268	30	6
MWRP-285X25.0X2.5	285	280	25	2.5
MWRP-300X60.0X4.0	300	292	60	4
MWRP-300X29.6X6.0	300	288	29.6	6
MWRP-310X34.2X3.0	310	304	34.2	3
MWRP-310X19.8X3.5	310	303	19.8	3.5
MWRP-320X14.0X3.5	320	313	14	3.5
MWRP-320X70.0X4.0	320	312	70	4

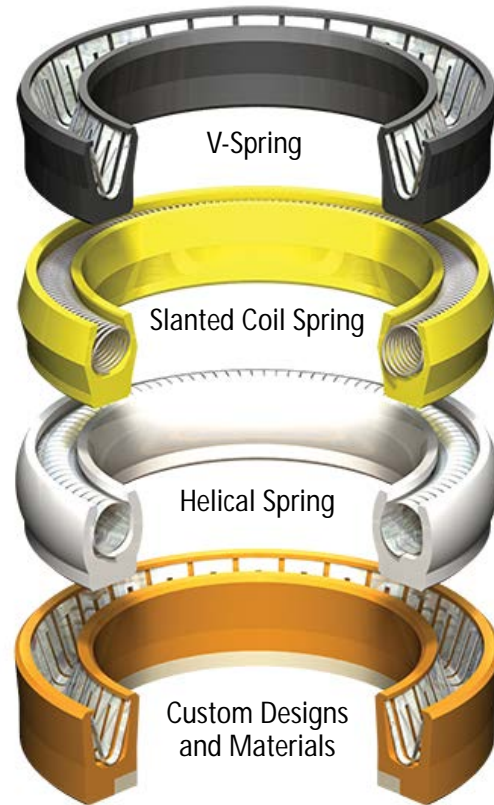
MWRP

METRIC WEAR RINGS



**MXS - Metric XS Seal®  
Spring Energized Seals**

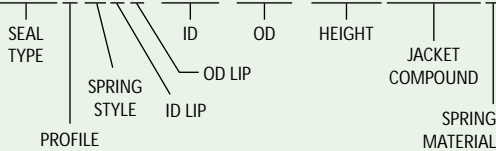
MFP Seals produces a full range of spring energized seals for applications that present challenges to conventional seal designs, no matter what media will be encountered. Common uses for Spring Energized Seals range from explosive decompression resistant applications or AED seals, to extreme temperature, high surface speeds, non-lubricated systems, extreme pressure, vacuum, and more. Based on the intended use, various spring configurations such as Helical, Slanted Coil, U & V are readily available or can be custom made. MFP Seals can produce Spring Energized Seals made from Stainless Steel, Hastelloy, Elgiloy and other Alloys. Contact your MFP Seals sales representative to get your Spring Energized Seal design started today.



Custom Designs and Materials are available. Please contact your MFP Seals sales representative for more details.

**MFP PART NUMBERS**

**MXSDA20-050-075-20.0T5100E**



**V Spring  
Energized Seals**

MFP Seals V-Spring Loaded Seals are a cantilever beam design that is applied as a radial or axial compression energizer for a U-Cup style seal. The V-Spring provides a moderate load over a wide deflection range and is used in dynamic and static seal applications.

**Slanted Coil Spring  
Energized Seals**

MFP Seals Slanted Coil Spring Loaded Seals produce a very flat load curve when compressed. The Slanted Coil Spring is designed for use in U-Cup seals, as well as other configurations, when a constant predictable load over a wide deflection range is desired. These Slanted Coil Spring Seals are available in light, medium and heavy load designs as well as being offered with gold, silver and nickel plating for use in Electronic and Semiconductor applications.

**Helical Spring  
Energized Seals**

MFP Seals Helical Spring Loaded Seals are made from a flat ribbon and wound into a round cross section helix geometry. The Helical Spring is designed for use in U-Cup style seals, as well as other configurations, for radial or axial compression energized seals and produces a very high unit load over a small deflection range. The Helical Spring Loaded Seal is usually used in static or slow dynamic applications and often for extremely low temperatures.

METRIC SPRING ENERGIZED SEALS

METRIC XS SEAL®





# MXS - Metric XS Seal® - Spring Energized Seals



A product of MFP Seals.

## XS SEAL® SPRING ENERGIZED SEAL PART NUMBER NOMENCLATURE - METRIC SIZES

### MXS D A 2 0 - 050 x 075 x 20.0 T5100E

SEAL TYPE

**ød1 (ID)**  
Examples:  
005 = 5 mm  
050 = 50 mm  
075 = 75 mm  
100 = 100 mm

**L2 (HEIGHT)**  
Examples:  
10.0 = 10.0 mm  
20.0 = 20.0 mm  
25.5 = 25.5 mm  
40.0 = 40.0 mm

**OD Lip**  
0 - Same as ID  
1 - Radius  
2 - Scraper  
3 - Double Bump  
4 - Chamfered  
5 - Multi Lip  
6 - N/A

**ØD1 (OD)**  
Examples:  
015 = 15 mm  
075 = 75 mm  
100 = 100 mm  
125 = 125 mm

**Jacket Compound**  
For compound descriptions and temperature ranges, please refer to page 26. Not available in all compounds.

**ID Lip**  
1 - Radius  
2 - Scraper  
3 - Double Bump  
4 - Chamfered  
5 - Multi Lip  
6 - N/A

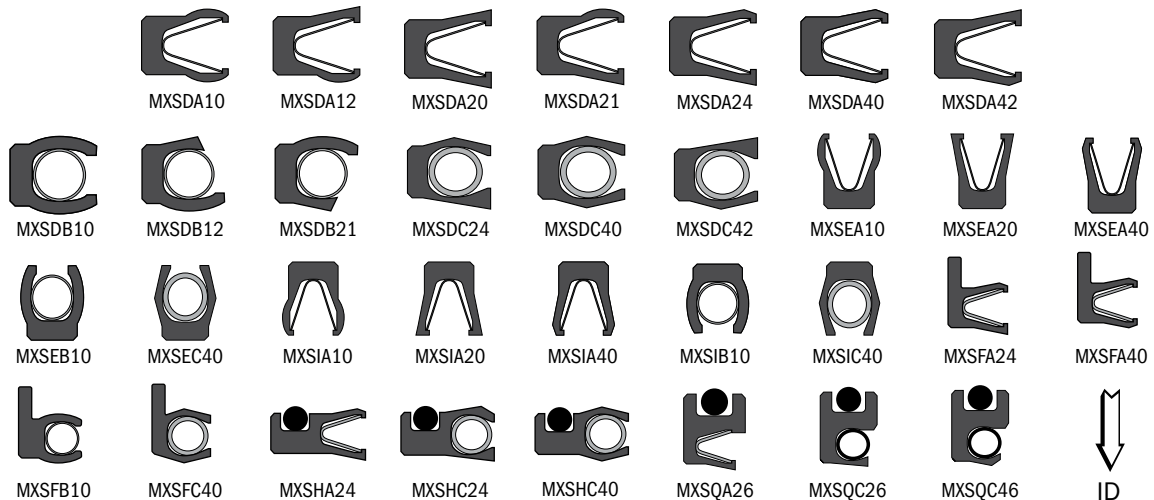
**Spring Material**  
E - Elgiloy  
H - Hastelloy  
S - Stainless Steel

**Spring Style**  
A - V                      C - Slanted Coil - Light Duty  
B - Helical              D - Slanted Coil - Med. Duty  
E - Slanted Coil - Heavy Duty

Other materials available.

**Profile**  
D - Standard      F - Flanged      I - Internal  
E - External      H - O-Ring in Heel      Q - O-Ring Center

## MFP XS SEAL® SPRING ENERGIZED SEAL PROFILES



METRIC SPRING ENERGIZED SEALS

METRIC XS SEAL®



# Metric Conversion Tables

## Fractions, Decimals and Millimeters

FRACTIONS	DECIMALS	MILLIMETERS	FRACTIONS	DECIMALS	MILLIMETERS	MM	INCHES	MM	INCHES
$\frac{1}{64}$	0.015625	- 0.397	$\frac{33}{64}$	0.515625	-13.097	.1-	.0039	47-	1.8504
$\frac{1}{32}$	.03125	- 0.794	$\frac{17}{32}$	.53125	-13.494	.2-	.0079	48-	1.8898
$\frac{3}{64}$	.046875	- 1.191	$\frac{35}{64}$	.546875	-13.891	.3-	.0118	49-	1.9291
$\frac{1}{16}$	.0625	- 1.588	$\frac{9}{16}$	.5625	-14.288	.4-	.0157	50-	1.9685
$\frac{5}{64}$	.078125	- 1.984	$\frac{37}{64}$	.578125	-14.684	.5-	.0197	51-	2.0079
$\frac{3}{32}$	.09375	- 2.381	$\frac{19}{32}$	.59375	-15.081	.6-	.0236	52-	2.0472
$\frac{7}{64}$	.109375	- 2.778	$\frac{39}{64}$	.609375	-15.478	.7-	.0276	53-	2.0866
$\frac{1}{8}$	.1250	- 3.175	$\frac{41}{64}$	.6250	-15.875	.8-	.0315	54-	2.1260
$\frac{9}{64}$	.140625	- 3.572	$\frac{21}{32}$	.640625	-16.272	.9-	.0354	55-	2.1654
$\frac{5}{32}$	.15625	- 3.969	$\frac{43}{64}$	.65625	-16.669	1-	.0394	56-	2.2047
$\frac{11}{64}$	.171875	- 4.366	$\frac{11}{16}$	.671875	-17.066	2-	.0787	57-	2.2441
$\frac{3}{16}$	.1875	- 4.763	$\frac{45}{64}$	.6875	-17.463	3-	.1181	58-	2.2835
$\frac{13}{64}$	.203125	- 5.159	$\frac{23}{32}$	.703125	-17.859	4-	.1575	59-	2.3228
$\frac{7}{32}$	.21875	- 5.556	$\frac{47}{64}$	.71875	-18.256	5-	.1969	60-	2.3622
$\frac{15}{64}$	.234375	- 5.953	$\frac{3}{4}$	.734375	-18.653	6-	.2362	61-	2.4016
$\frac{1}{4}$	.2500	- 6.350	$\frac{49}{64}$	.7500	-19.050	7-	.2756	62-	2.4409
$\frac{17}{64}$	.265625	- 6.747	$\frac{25}{32}$	.765625	-19.447	8-	.3150	63-	2.4803
$\frac{9}{32}$	.28125	- 7.144	$\frac{51}{64}$	.78125	-19.844	9-	.3543	64-	2.5197
$\frac{19}{64}$	.296875	- 7.541	$\frac{13}{16}$	.796875	-20.241	10-	.3937	65-	2.5591
$\frac{5}{16}$	.3125	- 7.938	$\frac{53}{64}$	.8125	-20.638	11-	.4331	66-	2.5984
$\frac{21}{64}$	.328125	- 8.334	$\frac{27}{32}$	.828125	-21.034	12-	.4724	67-	2.6378
$\frac{11}{32}$	.34375	- 8.731	$\frac{41}{64}$	.84375	-21.431	13-	.5118	68-	2.6772
$\frac{23}{64}$	.359375	- 9.128	$\frac{55}{64}$	.859375	-21.828	14-	.5512	69-	2.7165
$\frac{3}{8}$	.3750	- 9.525	$\frac{7}{8}$	.8750	-22.225	15-	.5906	70-	2.7559
$\frac{25}{64}$	.390625	- 9.922	$\frac{57}{64}$	.890625	-22.622	16-	.6299	71-	2.7953
$\frac{13}{32}$	.40625	-10.319	$\frac{29}{32}$	.90625	-23.019	17-	.6693	72-	2.8346
$\frac{27}{64}$	.421875	-10.716	$\frac{59}{64}$	.921875	-23.416	18-	.7087	73-	2.8740
$\frac{7}{16}$	.4375	-11.113	$\frac{15}{16}$	.9375	-23.813	19-	.7480	74-	2.9134
$\frac{29}{64}$	.453125	-11.509	$\frac{61}{64}$	.953125	-24.209	20-	.7874	75-	2.9528
$\frac{15}{32}$	.46875	-11.906	$\frac{63}{64}$	.96875	-24.606	21-	.8268	76-	2.9921
$\frac{31}{64}$	.484375	-12.303	$\frac{1}{2}$	.984375	-25.003	22-	.8661	77-	3.0315
$\frac{1}{2}$	.5000	-12.700	$\frac{1}{1}$	1.000	-25.400	23-	.9055	78-	3.0709
						24-	.9449	79-	3.1102
						25-	.9843	80-	3.1496
						26-	1.0236	81-	3.1890
						27-	1.0630	82-	3.2283
						28-	1.1024	83-	3.2677
						29-	1.1417	84-	3.3071
						30-	1.1811	85-	3.3465
						31-	1.2205	86-	3.3858
						32-	1.2598	87-	3.4252
						33-	1.2992	88-	3.4646
						34-	1.3386	89-	3.5039
						35-	1.3780	90-	3.5433
						36-	1.4173	91-	3.5827
						37-	1.4567	92-	3.6220
						38-	1.4961	93-	3.6614
						39-	1.5354	94-	3.7008
						40-	1.5748	95-	3.7402
						41-	1.6142	96-	3.7795
						42-	1.6535	97-	3.8189
						43-	1.6929	98-	3.8583
						44-	1.7323	99-	3.8976
						45-	1.7717	100-	3.9370
						46-	1.8110		

1 mm = .03937"

.001" = .254 mm

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MARTIN FLUID POWER

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