

# Hydraulic and Pneumatic Seals

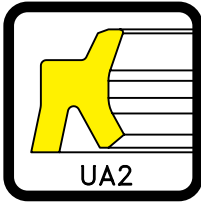




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X-Ring for Radial Dynamic Application	35

\* 1 Mpa = 10 Bar    1 Bar = 14.5 psi    1 Mpa = 145 psi

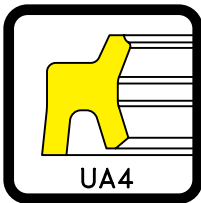


## Double Lip Rod Wiper Seal

This seal prevents entry of dust, and protects equipment by maintaining sealing performance of the packing. It can be fitted into an integrated groove. It's a double-lip all rubber wiper seal that prevents oil scraping off.

Material : NBR  
 Working Temperature : -25°C ~ +100°C  
 Material : FKM  
 Working Temperature : -20°C ~ +225°C  
 Surface Speed : ≤ 1.0 m/s  
 Application : Hydraulic

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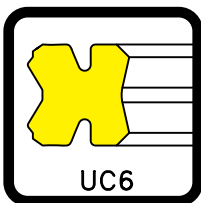


## TPU Double Lip Rod Wiper Seal

This seal prevents entry of dust, and protects equipment by maintaining sealing performance of the packing. It can be fitted into an integrated groove. It's a double-lip all rubber wiper seal that prevents oil scraping off.

Material : ESTER TPU  
 Working Temperature : -35°C ~ +80°C  
 Surface Speed : ≤ 1.0 m/s  
 Application : Hydraulic

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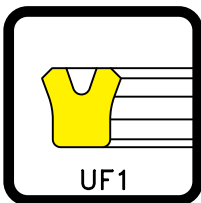


## Packing for Piston

Special one ring shaped packing for both sides pressure with seal lip. With the same sealing performance as U-packing. Possible to make a piston compact. PWL-Bearings for bearings combined with back-up rings are being prepared.

Material : NBR  
 Working Temperature : -25°C ~ +100°C  
 Material : FKM  
 Working Temperature : -20°C ~ +225°C  
 Working Pressure : ≤ 14 Mpa  
 Surface Speed : ≤ 1.0 m/s  
 Application : Hydraulic

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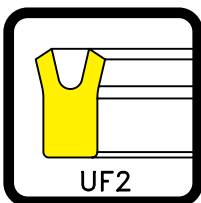


## Symmetrical Piston & Rod U-Cup Seal

This can be used for both piston and rod seals, and has a small section that can be fitted into an integrated groove.

Material : NBR  
 Working Temperature : -25°C ~ +100°C  
 Material : FKM  
 Working Temperature : -20°C ~ +225°C  
 Working Pressure : ≤ 14 Mpa  
 Surface Speed : ≤ 1.0 m/s  
 Application : Hydraulic

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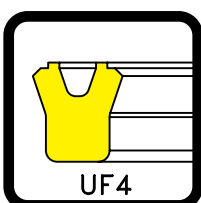


## TPU Symmetrical Piston & Rod U-Cup Seal

This can be used for both piston and rod seals. It has a large section and can be used for a wide range of operations, with excellent wear resistance and sealing ability.

Material : ESTER TPU  
 Working Pressure : ≤ 35 Mpa  
 Working Temperature : -35°C ~ +80°C  
 Surface Speed : ≤ 0.8 m/s  
 Application : Hydraulic

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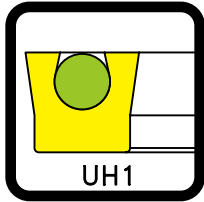


## TPU Symmetrical Piston & Rod U-Cup Seal

Used for both piston and rod seals, this packing has a small section and can be fitted in an integrated groove. Improved design prevents damages caused by back pressure.

Material : ESTER TPU  
 Working Pressure : ≤ 21 Mpa  
 Working Temperature : -35°C ~ +80°C  
 Surface Speed : ≤ 0.8 m/s  
 Application : Hydraulic

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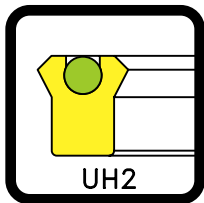


## Symmetrical Piston & Rod U-Cup Seal

The O-Ring energized lips assure a uniform, positive lip contact plus excellent low pressure sealing. Seal depth is equal to radial width. UH1 is used to interchange an existing hydraulic packing and/or O-Rings.

Material : ESTER TPU  
Working Pressure :  $\leq 35$  Mpa  
Working Temperature :  $-35^{\circ}\text{C} \sim +80^{\circ}\text{C}$   
Surface Speed :  $\leq 0.8$  m/s  
Application : Hydraulic

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## Symmetrical Piston & Rod U-Cup Seal

The back beveled sealing lip provides greater film breaking and increased until loading at the sealing surface. Seal depth is generally 1.5 times the cross section of radial width to insure seal stability in most rugged applications. ROD SEAL use is preferred.

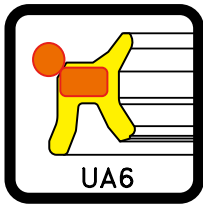
Material : ESTER TPU  
Working Pressure :  $\leq 35$  Mpa  
Working Temperature :  $-35^{\circ}\text{C} \sim +80^{\circ}\text{C}$   
Surface Speed :  $\leq 0.8$  m/s  
Application : Hydraulic

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\* 1 Mpa = 10 Bar

1 Bar = 14.5 psi

1 Mpa = 145 psi



## Rod Wiper Seal

This pneumatic rod seal/wiper set profile is fitted into housings with a circlip recess according DIN 7993 (type B). The seal/wiper element is mounted and retained by the circlip. Care should be taken that neither scraper nor sealing lips are damaged by sharp edges. Exchanging the rod seal/wiper Set profile without removing the piston rod is possible if a recess is provide.

Material : FKM

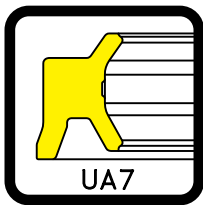
Working Pressure :  $\leq 1.6$  Mpa

Working Temperature :  $-20^{\circ}\text{C} \sim +225^{\circ}\text{C}$

Surface Speed :  $\leq 1.0$  m/s

Application : Pneumatic

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## Rod Wiper Seal

This seal is used for preventing entry of dust, and protecting the whole equipment. The double-lip design of TPU material could provide the double-sealing function, and keep the lubrication film under stable. The proportion is small, and easily to be dis/assemble.

Material : ESTER TPU

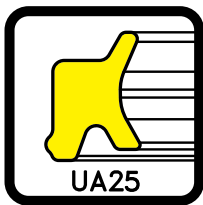
Working Pressure :  $\leq 1.6$  Mpa

Working Temperature :  $-40^{\circ}\text{C} \sim +80^{\circ}\text{C}$

Surface Speed :  $\leq 1.0$  m/s

Application : Pneumatic

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## Double Lip Rod Wiper Seal

This seal is used for preventing the entry of dust and contaminants, and protecting the whole cylinder. It's double-sealing function regulates the lubricating film.

Material : NBR

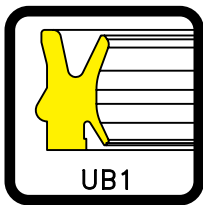
Working Temperature :  $-25^{\circ}\text{C} \sim +100^{\circ}\text{C}$

Working Pressure :  $\leq 1.6$  Mpa

Surface Speed :  $\leq 1.0$  m/s

Application : Pneumatic

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## Rod Wiper Seal

The profile is assembled into a housing designed with a circlip groove as DIN 7993 (type B). It is retained by the rounded outside diameter which makes it easy to snap into the groove. Remove all sharp corners to avoid damaging the lips of the scraper and the seal during assembly.

Material : ESTER TPU

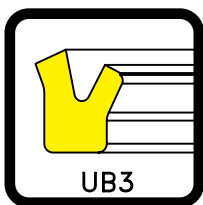
Working Pressure :  $\leq 1.6$  Mpa

Working Temperature :  $-35^{\circ}\text{C} \sim +80^{\circ}\text{C}$

Surface Speed :  $\leq 1.0$  m/s

Application : Pneumatic

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## Asymmetrical Pneumatic Rod Seal

Laying stress on wear proof. Exclusively for small diameter cylinders. Compared with O-Rings, superior durability and characteristics of friction.

Material : NBR

Working Temperature :  $-25^{\circ}\text{C} \sim +100^{\circ}\text{C}$

Material : FKM

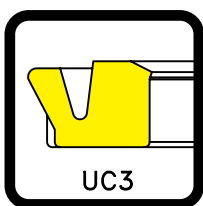
Working Temperature :  $-20^{\circ}\text{C} \sim +225^{\circ}\text{C}$

Working Pressure :  $\leq 1.0$  Mpa

Surface Speed :  $\leq 1.0$  m/s

Application : Pneumatic

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## Pneumatic U-Cup Piston Seal

The seal is a compact u-cup with asymmetrical profile and special pneumatic sealing edge on the dynamic sealing lip. The asymmetric profile with the longer and thicker static sealing lip guarantees a secure seat in the groove base. The special pneumatic sealing edge provides a very good seal with low friction and maintains an effective lubrication film.

Material : NBR

Working Temperature :  $-25^{\circ}\text{C} \sim +100^{\circ}\text{C}$

Material : FKM

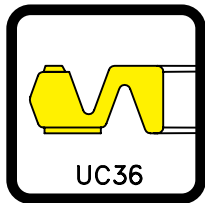
Working Temperature :  $-20^{\circ}\text{C} \sim +225^{\circ}\text{C}$

Working Pressure :  $\leq 1.6$  Mpa

Surface Speed :  $\leq 1.0$  m/s

Application : Pneumatic

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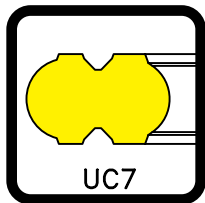


## Low Friction Compact Piston Seal

Compact type of both sides pressure. Exclusively for pistons used in pneumatic cylinders and in valves. The double-acting compact design provides the low dynamic friction and maintains an effective lubrication film.

Material : NBR  
Working Temperature : -25°C ~ +100°C  
Material : FKM  
Working Temperature : -20°C ~ +225°C  
Working Pressure : ≤ 1.2 Mpa  
Surface Speed : ≤ 1.0 m/s  
Application : Pneumatic

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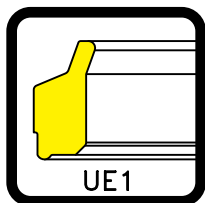


## Low Friction Pneumatic Piston Seal

Compact type of both sides pressure. Exclusively for pistons. Compared with O-Rings, superior characteristics of friction and cross section design so that they can restrain from causing rolling and twisting.

Material : NBR  
Working Temperature : -25°C ~ +100°C  
Material : FKM  
Working Temperature : -20°C ~ +225°C  
Working Pressure : ≤ 1.0 Mpa  
Surface Speed : ≤ 1.0 m/s  
Application : Pneumatic

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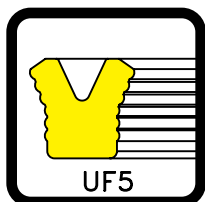


## Pneumatic Damper Seal

These pneumatic cushioning seals profile PP are easily snapped into the groove, which should be free of all contaminants before installation. Care should be taken that the sealing lips are not damaged by sharp edges during installation. Initial lubrication is essential for a long service life.

Material : NBR  
Working Temperature : -25°C ~ +100°C  
Material : FKM  
Working Temperature : -20°C ~ +225°C  
Working Pressure : ≤ 1.0 Mpa  
Surface Speed : ≤ 1.0 m/s  
Application : Pneumatic

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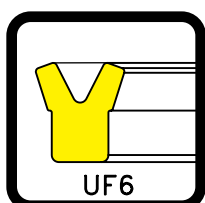


## Low Friction Pneumatic Symmetrical Piston & Rod U-Cup Seal

Packings for both pistons and rods of pneumatic cylinders. Avoid using this packing for lubricative cylinder because it is used exclusively for non-lubrication.

Material : NBR  
Working Temperature : -25°C ~ +100°C  
Material : FKM  
Working Temperature : -20°C ~ +225°C  
Working Pressure : ≤ 1.0 Mpa  
Surface Speed : ≤ 1.0 m/s  
Application : Pneumatic

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## Low Friction Pneumatic Symmetrical Piston & Rod U-Cup Seal

Packings for both pistons and rods of pneumatic cylinders. Avoid using this packing for lubricative cylinder because it is used exclusively for non-lubrication.

Material : NBR  
Working Temperature : -25°C ~ +100°C  
Material : FKM  
Working Temperature : -20°C ~ +225°C  
Working Pressure : ≤ 0.8 Mpa  
Surface Speed : ≤ 1.0 m/s  
Application : Pneumatic

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# Material Application List

Material	NBR							HNBR	
	N7026AA	N7028AA	N7539AA	N7626AA	N8039AA	N8594AA	N9076AA	H7000AA	H8018AE
Shore A	70	70	75	75	80	85	90	70	80
Environment Temp. °C	-60~100	-25~100	-25~100	-55~100	-25~100	-25~100	-55~100	-40~150	-30~150
200°C									
100°C									
0°C									
-50°C									
Tensile Strength, psi (Mpa)	2453 (16.92)	3066 (21.1)	3306 (22.8)	2563 (17.68)	2934 (20.23)	3008 (20.7)	2480 (17.1)	3729 (25.7)	2805 (19.34)
Elongation, %	327	363	320	246	285	130	151	274	280
100% Modulus, psi (Mpa)	619 (4.27)	487 (3.4)	834 (5.8)	998 (6.88)	801 (5.52)	2584 (17.8)	1664 (11.5)	780 (5.4)	1228 (8.47)
Comon Hydraulic oil	▲	●	●	▲	●	●	●	●	●
Low-Temp Hydraulic Oil	●	●	●	●	●	▲	●	●	●
Coolant (Water + GLYCOL)	▲	▲	▲	▲	▲	▲	▲	●	▲
Engine oil	●	●	●	●	●	●	●	●	●
Lubricant	●	●	●	●	●	●	●	●	●
Silicone Lubricant	●	●	●	●	●	●	●	●	●
Silicone oil	●	●	●	●	●	●	●	●	●
Chlorine Cutting Fluid	X	X	X	X	X	X	X	X	X
Sulfurized Cutting Fluid	●	●	●	●	●	●	●	●	●
Water Soluble Cutting Fluid	●	●	●	●	●	●	●	●	●
Fuel	▲	●	▲	▲	▲	●	●	●	●
Water	▲	▲	▲	▲	▲	▲	▲	●	●
O <sub>3</sub>	X	X	X	X	X	X	X	●	●
Function	Good Resistance of Extreme-Low-Temp, Oil and Abrasion	Good Compression Set, Good Resistance of Abrasion and oil , Suit to X-Ring	Special Compound, Self-Lubrication, low friction, Good Resistance of Oil, Suit to Dynamic Parts UB3,UB5	Good Resistance of Extreme-Low-Temp, Oil and Abrasion	Special Compound, Self-Lubrication, low friction, Good Resistance of Oil, Suit to Dynamic Parts UB3,UB5	High-Tempt, Good Resistance of Oil and Abrasion	Good Compression Set, High Hardness, Good Resistance of Abrasion. Good Resistance of Low-Temp	Good Resistance of High-Temp, Oil and Water	Self-Lubrication, low friction, Good Resistance of High-Temp, Oil and Water

●:Best ▲:Suitable X:Not Recommended -:No Data

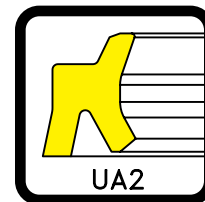
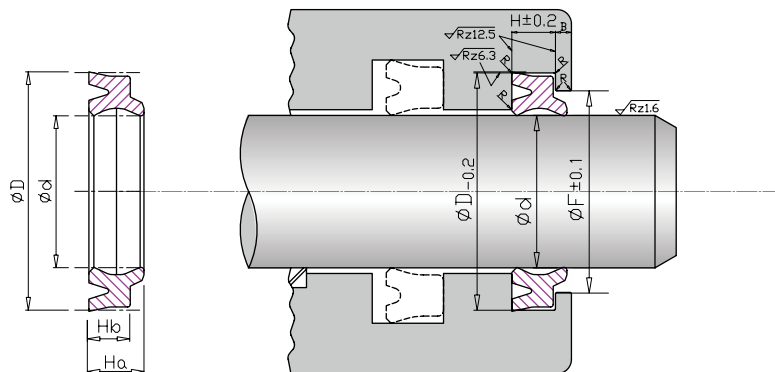
HNBR		FKM					TPU Thermoplastic Urethane		Material
H8032AA	H9018AA	V7559AA	V7029AA	V7514AA	V8031AE	V9059AA	KC9010AC	KC9502AA (AG/AW/BL)	
80	90	75	70	75	80	90	90	95	Shore A
-35~150	-30~150	-20~225	-20~225	-20~225	-20~225	-20~225	-40~80	-35~80	Environment Temp. °C
									200°C 100°C 0°C -50°C
4703 (32.43)	3513 (24.23)	2428 (16.6)	2044 (14.1)	2214 (15.3)	2282 (15.74)	2422 (16.7)	6625 (45)	7252 (50)	Tensile Strength, psi (Mpa)
291	148	185	231	241	154	139	460	515	Elongation, %
1217 (8.39)	2688 (18.54)	1310 (9.0)	939 (6.48)	740 (5.1)	1540 (10.62)	1812 (12.5)	1036 (7.1)	2216 (15.2)	100% Modulus, psi (Mpa)
●	●	●	●	●	●	●	●	●	Comon Hydraulic oil
●	●	●	●	●	●	●	●	●	Low-Temp Hydraulic Oil
▲	▲	▲	▲	▲	▲	▲	X	X	Coolant (Water + GLYCOL)
●	●	●	●	●	●	●	●	●	Engine oil
●	●	●	●	●	●	●	-	-	Lubricant
●	●	●	●	●	●	●	●	●	Silicone Lubricant
●	●	●	●	●	●	●	●	●	Silicone oil
X	X	●	●	●	●	●	X	X	Chlorine Cutting Fluid
●	●	●	●	●	●	●	-	-	Sulfurized Cutting Fluid
●	●	▲	▲	▲	▲	▲	-	-	Water Soluble Cutting Fluid
●	●	●	●	●	●	●	●	●	Fuel
●	●	●	●	●	●	●	▲	▲	Water
●	●	●	●	●	●	●	-	-	O <sub>3</sub>
Good Resistance of High-Temp, Oil and Water	Self-Lubrication, low friction, Good Resistance of High-Temp, Oil and Water	Good Resistance of Extreme-High-Temp and Oil, Good Resistance of Abrasion	Good Resistance of Extreme-High-Temp, Tearing and Oil, Suit to X-Ring	Good Resistance of Extreme-High-Temp and Oil, Good Resistance of Abrasion	Good Resistance of Extreme-High-Temp and Oil, UA6 Only	Good Resistance of Extreme-High-Temp, Oil and Abrasion. Suit to Dynamic Parts	Extremely High Elongation, Excellent Resistance of Abrasion. Good Resistance of Water	Extremely High Elongation, Excellent Resistance of Abrasion. Good Resistance of Water, Extremely High Hardness	Function

●:Best ▲:Suitable X:Not Recommended -:No Data



# UA2 Series

Double Lip Rod Wiper Seal



FKM/ FPM 90 PHYSICAL PROPERTIES		
Working Temperature: -20°C ~ +225°C		
Surface Speed: ≤ 1.0 m/s		
Hardness	90 Shore A	DIN53505
Tensile Strength	16.7 Mpa	DIN53504
	2422 psi	ASTM D-412
Elongation	139 %	DIN53504
Compression Set	16.7 %	DIN53517
	70hrs @ 175°C	16.7 %
Standard Compound	V9059AA	
Color	Black ●	

NBR 85 PHYSICAL PROPERTIES		
Working Temperature: -25°C ~ +100°C		
Surface Speed: ≤ 1.0 m/s		
Hardness	85 Shore A	DIN53505
Tensile Strength	20.7 Mpa	DIN53504
	3008 psi	ASTM D-412
Elongation	130 %	DIN53504
Compression Set	4.9 %	DIN53517
	24hrs @ 100°C	4.9 %
Standard Compound	N8594AA	
Color	Black ●	

CODE	d (mm)	D (mm)	Ha	Hb	F	H
UA20001	12.0	20.0	6.0	4.5	16.3	5.0
UA20002	12.5	20.5	6.0	4.5	16.8	5.0
UA20003	14.0	22.0	6.0	4.5	18.3	5.0
UA20004	16.0	24.0	6.0	4.5	20.3	5.0
UA20005	18.0	26.0	6.0	4.5	22.3	5.0
UA20006	20.0	28.0	6.0	4.5	24.3	5.0
UA20007	22.0	30.0	6.0	4.5	26.3	5.0
UA20008	22.4	30.4	6.0	4.5	26.7	5.0
UA20009	25.0	33.0	6.0	4.5	29.3	5.0
UA20010	28.0	36.0	6.0	4.5	32.3	5.0
UA20011	30.0	38.0	6.5	5.0	34.0	6.0
UA20012	31.5	39.5	6.5	5.0	35.5	6.0
UA20013	32.0	40.0	6.5	5.0	36.0	6.0
UA20014	35.0	43.0	6.5	5.0	39.0	6.0
UA20015	35.5	43.5	6.5	5.0	39.5	6.0
UA20016	36.0	44.0	6.5	5.0	40.0	6.0
UA20017	40.0	48.0	6.5	5.0	44.0	6.0
UA20018	45.0	53.0	6.5	5.0	49.0	6.0
UA20019	50.0	58.0	6.5	5.0	54.0	6.0
UA20020	53.0	61.0	6.5	5.0	57.0	6.0
UA20021	55.0	63.0	6.5	5.0	59.0	6.0
UA20022	56.0	64.0	6.5	5.0	60.0	6.0

CODE	d (mm)	D (mm)	Ha	Hb	F	H
UA20023	60.0	68.0	6.5	5.0	64.0	6.0
UA20024	63.0	71.0	6.5	5.0	67.0	6.0
UA20025	65.0	73.0	6.5	5.0	69.0	6.0
UA20026	67.0	75.0	6.5	5.0	71.0	6.0
UA20027	70.0	80.0	8.0	6.0	75.0	7.0
UA20028	71.0	81.0	8.0	6.0	76.0	7.0
UA20029	75.0	85.0	8.0	6.0	80.0	7.0
UA20030	80.0	90.0	8.0	6.0	85.0	7.0
UA20031	85.0	95.0	8.0	6.0	90.0	7.0
UA20032	90.0	100.0	8.0	6.0	95.0	7.0
UA20033	95.0	105.0	8.0	6.0	100.0	7.0
UA20034	100.0	110.0	8.0	6.0	105.0	7.0
UA20035	105.0	115.0	8.0	6.0	110.0	7.0
UA20036	106.0	115.0	8.0	6.0	111.0	7.0
UA20037	110.0	120.0	8.0	6.0	115.0	7.0
UA20038	112.0	122.0	8.0	6.0	117.0	7.0
UA20039	115.0	125.0	8.0	6.0	120.0	7.0
UA20040	118.0	128.0	8.0	6.0	123.0	7.0
UA20041	120.0	133.0	9.5	7.0	127.0	8.0
UA20042	125.0	138.0	9.5	7.0	132.0	8.0
UA20043	132.0	145.0	9.5	7.0	139.0	8.0
UA20044	140.0	153.0	9.5	7.0	147.0	8.0

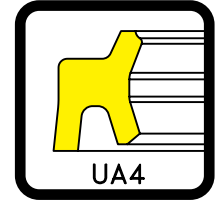
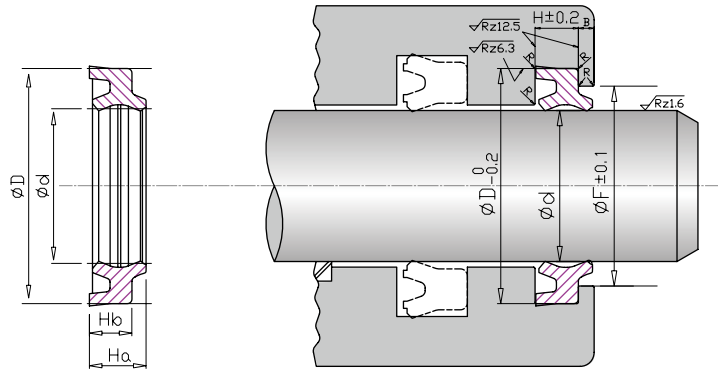
# UA2 Series

Double Lip Rod Wiper Seal

CODE	d (mm)	D (mm)	Ha	Hb	F	H
UA20045	145.0	158.0	9.5	7.0	152.0	8.0
UA20046	150.0	163.0	9.5	7.0	157.0	8.0
UA20047	155.0	168.0	9.5	7.0	162.0	8.0
UA20048	160.0	173.0	9.5	7.0	167.0	8.0
UA20049	160.0	174.0	9.5	7.0	167.0	8.0
UA20050	165.0	178.0	9.5	7.0	172.0	8.0
UA20051	170.0	183.0	9.5	7.0	177.0	8.0
UA20053	175.0	188.0	9.5	7.0	182.0	8.0
UA20054	180.0	193.0	9.5	7.0	187.0	8.0
UA20055	180.0	194.0	9.5	7.0	187.0	8.0
UA20056	190.0	203.0	9.5	7.0	197.0	8.0
UA20057	200.0	213.0	9.5	7.0	207.0	8.0
UA20058	205.0	218.0	9.5	7.0	212.0	8.0
UA20059	210.0	223.0	9.5	7.0	217.0	8.0
UA20060	224.0	237.0	9.5	7.0	231.0	8.0

# UA4 Series

TPU Double Lip Rod Wiper Seal

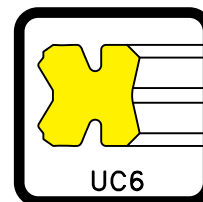
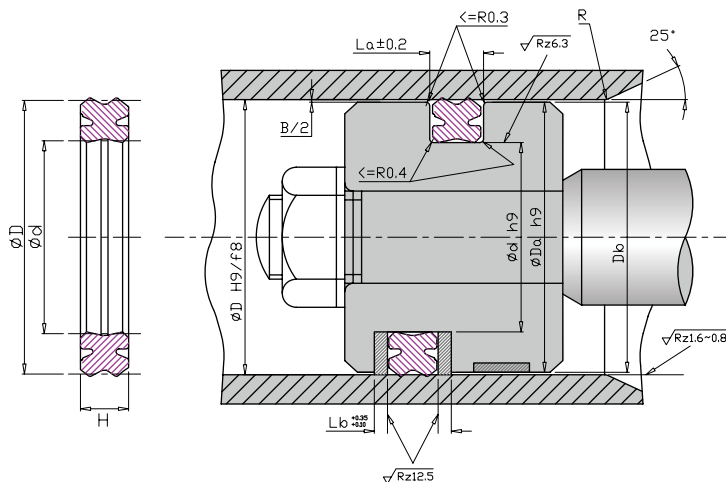


### ESTER TPU 95 PHYSICAL PROPERTIES

Working Temperature: -35°C ~ +80°C	Hardness	95 Shore A	DIN53505
Surface Speed: ≤ 1.0 m/s		95 Shore A	ASTM D2240
Media: Mineral Oil	Tensile Strength	50 Mpa	DIN53504
		7252 psi	ASTM D-412
Abrasion Resistance 35mm <sup>3</sup>	Elongation	515 %	DIN53504
Compression Set 30%		515 %	ASTM D-412
24 hrs @ 100 °C 30%	Tear Strength	140 N/mm	DIN53515
Specific gravity 1.18 g/cm <sup>3</sup>		799 pli	ASTM D-624
1.18 g/cm <sup>3</sup>	Standard Compound	KC9502AN / KC9502BL	
	Color	Gray ● / Dark Blue ●	

CODE	d (mm)	D (mm)	Ha	Hb	F
UA40001	18.0	26.0	6.0	4.5	22.3
UA40002	20.0	28.0	6.0	4.5	24.3
UA40003	22.0	30.0	6.0	4.5	26.3
UA40004	22.4	30.4	6.0	4.5	26.7
UA40005	25.0	33.0	6.0	4.5	29.3
UA40006	26.0	34.0	6.0	4.5	30.3
UA40007	28.0	36.0	6.0	4.5	32.3
UA40008	30.0	38.0	6.5	5.0	34.0
UA40009	31.5	39.5	6.5	5.0	35.5
UA40010	32.0	40.0	6.5	5.0	36.0
UA40011	34.0	42.0	6.5	5.0	38.0
UA40012	35.0	43.0	6.5	5.0	39.0
UA40013	35.5	43.5	6.5	5.0	39.5
UA40014	38.0	46.0	6.5	5.0	42.0
UA40015	40.0	48.0	6.5	5.0	44.0
UA40016	45.0	53.0	6.5	5.0	49.0
UA40017	48.0	56.0	6.5	5.0	52.0
UA40018	50.0	58.0	6.5	5.0	54.0
UA40019	55.0	63.0	6.5	5.0	59.0
UA40020	56.0	64.0	6.5	5.0	60.0
UA40021	58.0	66.0	6.5	5.0	62.0
UA40022	60.0	68.0	6.5	5.0	64.0
UA40023	63.0	71.0	6.5	5.0	67.0

CODE	d (mm)	D (mm)	Ha	Hb	F
UA40024	65.0	73.0	6.5	5.0	69.0
UA40025	70.0	80.0	8.0	6.0	75.0
UA40026	71.0	81.0	8.0	6.0	76.0
UA40027	75.0	85.0	8.0	6.0	80.0
UA40028	80.0	90.0	8.0	6.0	85.0
UA40029	85.0	95.0	8.0	6.0	90.0
UA40030	90.0	100.0	8.0	6.0	95.0
UA40031	95.0	105.0	8.0	6.0	100.0
UA40032	100.0	110.0	8.0	6.0	105.0
UA40033	105.0	115.0	8.0	6.0	110.0
UA40034	112.0	122.0	8.0	6.0	117.0
UA40035	125.0	138.0	9.5	7.0	132.0
UA40036	140.0	153.0	9.5	7.0	147.0
UA40037	150.0	163.0	9.5	7.0	157.0
UA40038	180.0	193.0	9.5	7.0	187.0
UA40039	185.0	198.0	9.5	7.0	192.0
UA40040	200.0	213.0	9.5	7.0	207.0
UA40041	210.0	223.0	9.5	7.0	217.0
UA40042	250.0	265.0	11.5	9.0	258.0
UA40043	36.0	44.0	6.5	5.0	40.0
UA40046	16.0	24.0	6.0	4.5	20.3



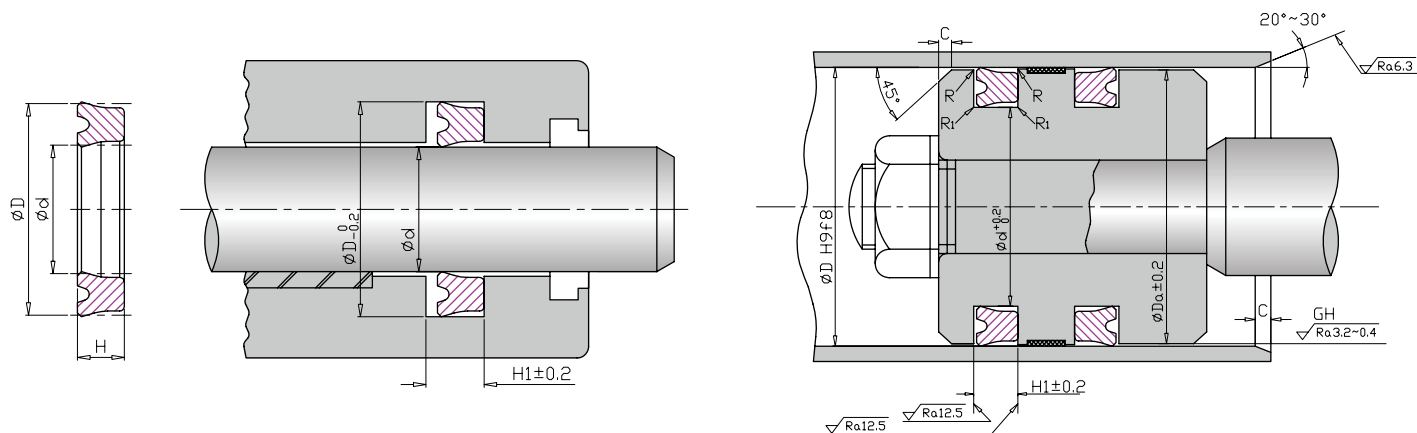
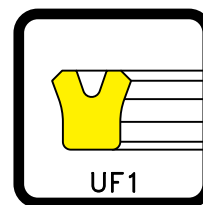
FKM/ FPM 90 PHYSICAL PROPERTIES			
Working Pressure: $\leq 14$ Mpa			
Working Temperature: $-20^\circ\text{C} \sim +225^\circ\text{C}$			
Surface Speed: $\leq 1.0$ m/s			
Hardness	90 Shore A	DIN53505	
Tensile Strength	16.7 Mpa	DIN53504	
	2422 psi	ASTM D-412	
Elongation	139 %	DIN53504	
Compression Set	16.7 %	DIN53517	
70hrs @ $175^\circ\text{C}$	16.7 %	ASTM D-395	
Standard Compound	V9059AA		
Color	Black ●		

NBR 85 PHYSICAL PROPERTIES			
Working Pressure: $\leq 14$ Mpa			
Working Temperature: $-25^\circ\text{C} \sim +100^\circ\text{C}$			
Surface Speed: $\leq 1.0$ m/s			
Hardness	88 Shore A	DIN53505	
Tensile Strength	20.7 Mpa	DIN53504	
	3008 psi	ASTM D-412	
Elongation	130 %	DIN53504	
Compression Set	4.9 %	DIN53517	
24hrs @ $100^\circ\text{C}$	4.9 %	ASTM D-395	
Standard Compound	N8594AA		
Color	Black ●		

CODE	D (mm)	d (mm)	H (mm)	La	Lb	Da	Db
UC60001	40	30	6.5	7.0	11.0	39.5	38.5
UC60002	45	35	6.5	7.0	11.0	44.5	43.5
UC60003	50	40	6.5	7.0	11.0	49.5	48.5
UC60004	55	45	6.5	7.0	11.0	54.4	53.0
UC60005	60	50	6.5	7.0	11.0	59.4	58.0
UC60006	63	53	6.5	7.0	11.0	62.4	61.0
UC60007	65	55	6.5	7.0	12.0	64.4	63.0
UC60008	70	60	6.5	7.0	12.0	69.4	68.0
UC60009	75	65	6.5	7.0	12.0	74.4	73.0
UC60010	80	67	8.0	8.5	13.5	79.4	78.0
UC60011	85	72	8.0	8.5	13.5	84.4	83.0
UC60012	90	77	8.0	8.5	13.5	89.4	88.0
UC60013	100	85	9.0	10.0	16.0	99.4	98.0

# UF1 Series

Symmetrical Piston & Rod U-Cup Seal



FKM/ FPM 90 PHYSICAL PROPERTIES			
Working Pressure: $\leq 14$ Mpa			
Working Temperature: $-20^\circ\text{C} \sim +225^\circ\text{C}$			
Surface Speed: $\leq 1.0$ m/s			
Hardness	90 Shore A	DIN53505	
Tensile Strength	16.7 Mpa	DIN53504	
	2422 psi	ASTM D-412	
Elongation	139 %	DIN53504	
Compression Set	16.7 %	DIN53517	
70hrs @ $175^\circ\text{C}$	16.7 %	ASTM D-395	
Standard Compound	V9059AA		
Color	Black ●		

NBR 85 PHYSICAL PROPERTIES			
Working Pressure: $\leq 14$ Mpa			
Working Temperature: $-25^\circ\text{C} \sim +100^\circ\text{C}$			
Surface Speed: $\leq 1.0$ m/s			
Hardness	85 Shore A	DIN53505	
Tensile Strength	20.7 Mpa	DIN53504	
	3008 psi	ASTM D-412	
Elongation	130 %	DIN53504	
Compression Set	4.9 %	DIN53517	
24hrs @ $100^\circ\text{C}$	4.9 %	ASTM D-395	
Standard Compound	N8594AA		
Color	Black ●		

CODE	d (mm)	D (mm)	H	H1	Da
UF10012	12.0	20.0	5.0	5.7	19.0
UF10014	14.0	22.0	5.0	5.7	21.0
UF10016	16.0	24.0	5.0	5.7	23.0
UF10018	18.0	26.0	5.0	5.7	25.0
UF10020	20.0	28.0	5.0	5.7	27.0
UF10022	22.0	30.0	5.0	5.7	29.0
UF122.4	22.4	30.0	5.0	5.7	29.0
UF123.5	23.5	31.5	5.0	5.7	30.5
UF10024	24.0	32.0	5.0	5.7	31.0
UF10025	25.0	33.0	5.0	5.7	32.0
UF10027	27.0	35.0	5.0	5.7	34.0
UF10A28	28.0	35.5	5.0	5.7	34.5
UF10B28	28.0	36.0	5.0	5.7	35.0
UF10030	30.0	40.0	6.0	7.0	39.0
UF131.5	31.5	41.5	6.0	7.0	40.5
UF10032	32.0	42.0	6.0	7.0	41.0

CODE	d (mm)	D (mm)	H	H1	Da
UF10035	35.0	45.0	6.0	7.0	44.0
UF135A5	35.5	45.0	6.0	7.0	44.0
UF135B5	35.5	45.5	6.0	7.0	44.5
UF10036	36.0	46.0	6.0	7.0	45.0
UF10040	40.0	50.0	6.0	7.0	49.0
UF10A45	45.0	55.0	6.0	7.0	54.0
UF10B45	45.0	56.0	7.0	8.0	55.0
UF10050	50.0	60.0	6.0	7.0	59.0
UF10053	53.0	63.0	6.0	7.0	62.0
UF10055	55.0	65.0	6.0	7.0	64.0
UF10056	56.0	66.0	6.0	7.0	65.0
UF10058	58.0	68.0	6.0	7.0	67.0
UF10A60	60.0	70.0	6.0	7.0	69.0
UF10B60	60.0	71.0	7.0	8.0	70.0
UF10061	61.0	71.0	6.0	7.0	70.0
UF10063	63.0	73.0	6.0	7.0	72.0

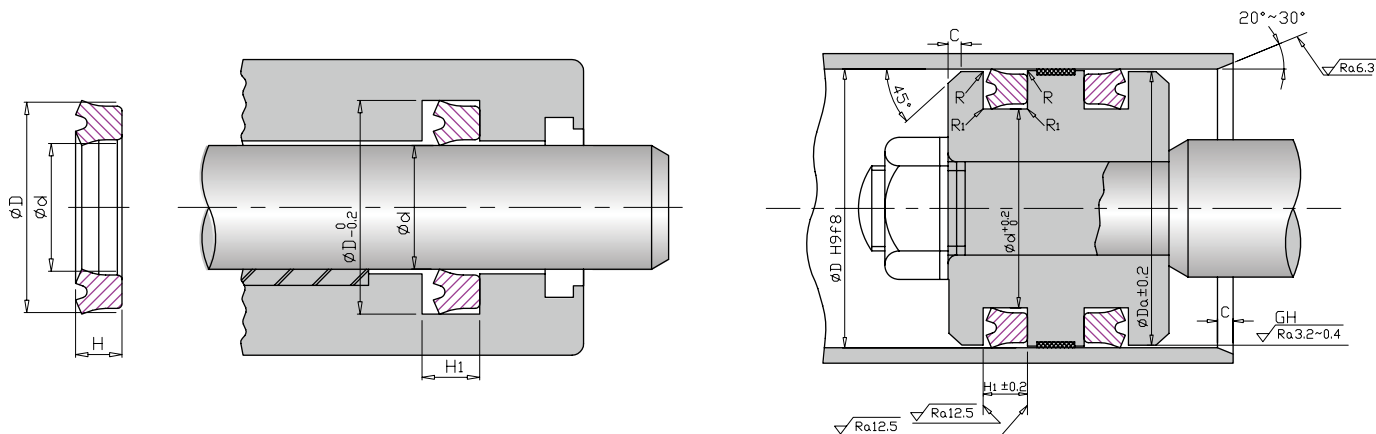
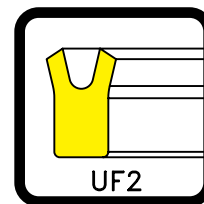
# UF1 Series

Symmetrical Piston &amp; Rod U-Cup Seal

CODE	d (mm)	D (mm)	H	H1	Da
UF10065	65.0	75.0	6.0	7.0	74.0
UF10067	67.0	77.0	6.0	7.0	76.0
UF10070	70.0	80.0	6.0	7.0	79.0
UF10071	71.0	80.0	6.0	7.0	79.0
UF10075	75.0	85.0	6.0	7.0	84.0
UF10080	80.0	90.0	6.0	7.0	89.0
UF10A85	85.0	95.0	6.0	7.0	94.0
UF10B85	85.0	100.0	9.0	10.0	98.0
UF10090	90.0	105.0	9.0	10.0	103.0
UF10095	95.0	110.0	9.0	10.0	108.0
UF10100	100.0	115.0	9.0	10.0	113.0
UF10106	106.0	120.0	8.5	9.5	118.0
UF10110	110.0	125.0	9.0	10.0	123.0
UF1B112	112.0	125.0	9.0	10.0	123.0
UF10125	125.0	140.0	9.0	10.0	138.0
UF10130	130.0	145.0	9.0	10.0	143.0
UF10136	136.0	150.0	8.5	9.5	148.0
UF10140	140.0	155.00	9.00	10.0	153.0
UF10145	145.0	160.0	9.0	10.0	158.0
UF10150	150.0	165.0	9.0	10.0	163.0
UF10160	160.0	175.0	9.0	10.0	173.0
UF10165	165.0	180.0	9.0	10.0	178.0
UF10180	180.0	200.0	12.0	13.0	198.0
UF10204	204.0	224.00	12.00	13.0	222.0
UF10230	230.0	250.0	12.0	13.0	248.0
UF10250	250.0	270.0	12.0	13.0	268.0
UF10295	295.0	315.0	14.0	15.0	313.0
UF10335	335.0	355.0	14.0	15.0	353.0
UF10400	400.0	420.0	14.0	15.0	418.0

# UF2 Series

TPU Symmetrical Piston & Rod U-Cup Seal



### ESTER TPU 95 PHYSICAL PROPERTIES

Working Pressure: $\leq 35$ Mpa			Hardness	95 Shore A	DIN53505
Working Temperature: $-35^\circ\text{C} \sim +80^\circ\text{C}$				95 Shore A	ASTM D2240
Surface Speed: $\leq 0.8$ m/s			Tensile Strength	50 Mpa	DIN53504
Media: Mineral Oil				7252 psi	ASTM D-412
Abrasion Resistance	35mm <sup>3</sup>	DIN53516	Elongation	515 %	DIN53504
Compression Set	30%	DIN53517		515 %	ASTM D-412
24 hrs @ 100 °C	30%	ASTM D-395	Tear Strength	140 N/mm	DIN53515
Specific gravity	1.18 g/cm <sup>3</sup>	DIN53479		799 pli	ASTM D-624
	1.18 g/cm <sup>3</sup>	ASTM D-972	Standard Compound	KC9502AN / KC9502BL	
			Color	Gray ● / Dark Blue ●	

CODE	d (mm)	D (mm)	H	H1	Da
UF20001	6.3	16.3	8.0	9.0	15.3
UF20002	7.1	17.1	8.0	9.0	16.1
UF20003	8.0	18.0	8.0	9.0	17.0
UF20004	9.0	19.0	8.0	9.0	18.0
UF20005	10.0	20.0	8.0	9.0	19.0
UF20006	11.2	21.2	8.0	9.0	20.2
UF20007	12.0	25.0	8.0	9.0	24.0
UF20008	12.5	22.5	8.0	9.0	21.5
UF20009	14.0	24.0	8.0	9.0	23.0
UF20010	15.0	25.0	8.0	9.0	24.0
UF20011	16.0	26.0	8.0	9.0	25.0
UF20012	16.0	32.0	10.0	11.0	31.0
UF20013	18.0	28.0	8.0	9.0	27.0
UF20014	18.0	31.0	10.0	11.0	30.0
UF20015	20.0	30.0	8.0	9.0	29.0
UF20016	20.0	33.0	10.0	11.0	32.0

CODE	d (mm)	D (mm)	H	H1	Da
UF20017	20.0	35.0	10.0	11.0	34.0
UF20018	21.5	31.5	8.0	9.0	30.5
UF20019	22.0	32.0	8.0	9.0	31.0
UF20020	22.0	35.0	10.0	11.0	34.0
UF20021	22.4	30.0	5.0	5.7	29.0
UF20022	22.4	32.4	8.0	9.0	31.4
UF20023	25.0	35.0	8.0	9.0	34.0
UF20024	25.0	38.0	8.0	9.0	37.0
UF20025	25.0	40.0	10.0	11.0	39.0
UF20026	25.0	45.0	12.0	13.0	44.0
UF20027	25.5	35.5	8.0	9.0	34.5
UF20028	28.0	35.5	5.0	5.7	34.5
UF20029	28.0	40.0	10.0	11.0	39.0
UF20030	28.0	43.0	10.0	11.0	42.0
UF20031	30.0	45.0	10.0	11.0	44.0
UF20032	30.0	46.0	10.0	11.0	45.0

# UF2 Series

TPU Symmetrical Piston & Rod U-Cup Seal

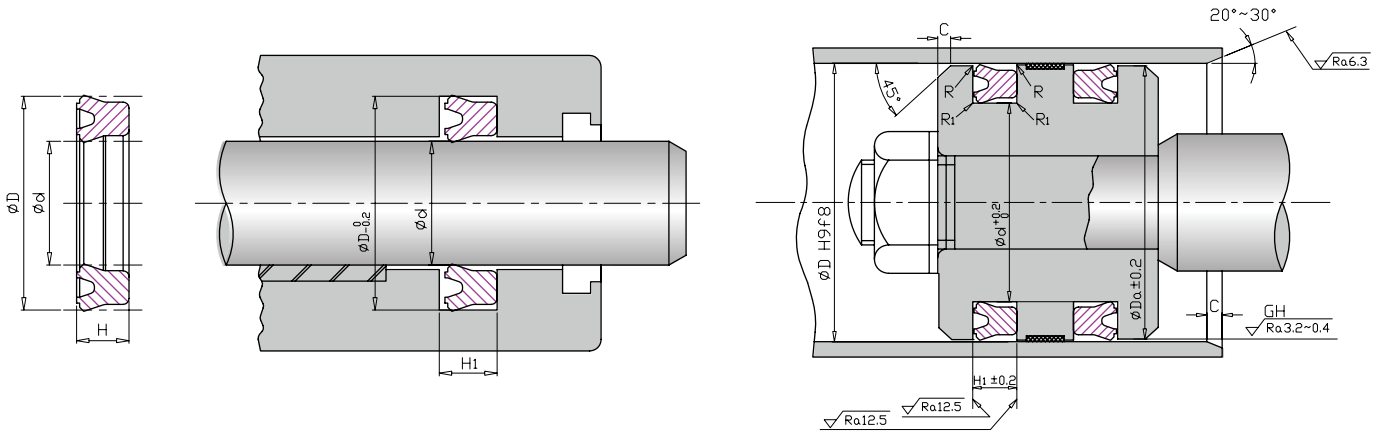
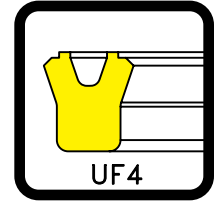
CODE	d (mm)	D (mm)	H	H1	Da
UF20033	31.5	46.5	10.0	11.0	45.5
UF20034	32.0	46.0	10.0	11.0	45.0
UF20035	35.0	50.0	10.0	11.0	49.0
UF20036	35.5	45.0	6.0	7.0	44.0
UF20037	35.5	50.5	10.0	11.0	49.5
UF20038	38.0	52.0	10.0	11.0	51.0
UF20039	40.0	55.0	10.0	11.0	54.0
UF20040	40.0	56.0	10.0	11.0	55.0
UF20041	40.0	60.0	12.0	13.0	59.0
UF20042	41.0	56.0	10.0	11.0	55.0
UF20043	45.0	56.0	7.0	8.0	55.0
UF20044	45.0	60.0	10.0	11.0	59.0
UF20045	45.0	61.0	10.0	11.0	60.0
UF20046	46.0	60.0	10.0	11.0	59.0
UF20047	48.0	63.0	10.0	11.0	62.0
UF20048	50.0	65.0	10.0	11.0	64.0
UF20049	50.0	66.0	12.0	13.0	65.0
UF20050	50.0	70.0	12.0	13.0	69.0
UF20051	51.0	71.0	12.0	13.0	70.0
UF20052	53.0	73.0	12.0	13.0	72.0
UF20053	55.0	71.0	12.0	13.0	70.0
UF20054	55.0	75.0	12.0	13.0	74.0
UF20055	55.0	80.0	15.0	16.0	79.0
UF20056	56.0	72.0	12.0	13.0	71.0
UF20057	56.0	76.0	12.0	13.0	75.0
UF20058	58.0	78.0	12.0	13.0	77.0
UF20059	60.0	71.0	7.0	8.0	70.0
UF20060	60.0	80.0	12.0	13.0	79.0
UF20061	62.0	82.0	12.0	13.0	81.0
UF20062	63.0	83.0	12.0	13.0	82.0
UF20063	65.0	85.0	12.0	13.0	84.0
UF20064	67.0	87.0	12.0	13.0	86.0
UF20065	70.0	90.0	12.0	13.0	89.0
UF20066	71.0	80.0	6.0	7.0	79.0
UF20067	71.0	91.0	12.0	13.0	90.0
UF20068	75.0	95.0	12.0	13.0	94.0
UF20069	80.0	100.0	12.0	13.0	99.0
UF20070	80.0	100.0	15.0	16.0	98.0
UF20071	85.0	100.0	9.0	10.0	99.0
UF20072	85.0	105.0	12.0	13.0	103.0
UF20073	90.0	110.0	12.0	13.0	108.0
UF20074	92.0	112.0	12.0	13.0	110.0
UF20075	95.0	115.0	12.0	13.0	113.0
UF20076	95.0	120.0	15.0	16.0	118.0
UF20077	98.0	112.0	9.0	10.0	110.0
UF20078	100.0	120.0	12.0	13.0	118.0
UF20079	100.0	125.0	15.0	17.0	123.0
UF20080	102.0	114.0	11.0	12.0	112.0

CODE	d (mm)	D (mm)	H	H1	Da
UF20081	105.0	125.0	15.0	17.0	123.0
UF20082	106.0	120.0	8.5	9.5	118.0
UF20083	106.0	126.0	15.0	17.0	124.0
UF20084	110.0	130.0	15.0	17.0	128.0
UF20085	112.0	132.0	15.0	17.0	130.0
UF20086	115.0	135.0	15.0	17.0	133.0
UF20087	118.0	132.0	9.0	10.0	130.0
UF20088	118.0	138.0	15.0	17.0	136.0
UF20089	120.0	140.0	15.0	17.0	138.0
UF20090	125.0	145.0	15.0	17.0	143.0
UF20091	130.0	150.0	15.0	17.0	148.0
UF20092	132.0	152.0	15.0	17.0	150.0
UF20093	135.0	155.0	15.0	17.0	153.0
UF20094	136.0	150.0	9.0	10.0	148.0
UF20095	140.0	160.0	15.0	17.0	158.0
UF20096	140.0	165.0	15.0	17.0	163.0
UF20097	145.0	165.0	15.0	17.0	158.0
UF20098	150.0	170.0	15.0	17.0	168.0
UF20099	150.0	175.0	15.0	17.0	173.0
UF20100	155.0	180.0	15.0	17.0	178.0
UF20101	160.0	185.0	15.0	17.0	183.0
UF20102	165.0	190.0	15.0	17.0	188.0
UF20103	170.0	195.0	15.0	17.0	193.0
UF20104	175.0	200.0	15.0	17.0	198.0
UF20105	180.0	205.0	15.0	17.0	203.0
UF20106	185.0	210.0	15.0	17.0	208.0
UF20107	190.0	215.0	15.0	17.0	213.0
UF20108	199.0	224.0	15.0	17.0	222.0
UF20109	200.0	225.0	15.0	17.0	223.0
UF20110	200.0	225.0	18.0	20.0	223.0



# UF4 Series

TPU Symmetrical Piston & Rod U-Cup Seal



### ESTER TPU 95 PHYSICAL PROPERTIES

Working Pressure: $\leq 21$ Mpa	Hardness	95 Shore A	DIN53505
Working Temperature: $-35^{\circ}\text{C} \sim +80^{\circ}\text{C}$		95 Shore A	ASTM D2240
Surface Speed: $\leq 0.8$ m/s	Tensile Strength	50 Mpa	DIN53504
Media: Mineral Oil		7252 psi	ASTM D-412
Abrasion Resistance	35mm <sup>3</sup>	DIN53516	Elongation
Compression Set	30%	DIN53517	515 %
24 hrs @ 100 °C	30%	ASTM D-395	515 %
Specific gravity	1.18 g/cm <sup>3</sup>	DIN53479	Tear Strength
	1.18 g/cm <sup>3</sup>	ASTM D-972	140 N/mm
			799 pli
			Standard Compound
			KC9502AN / KC9502BL
			Color
			Gray ● / Dark Blue ●

CODE	d (mm)	D (mm)	H	H1	Da
UF40001	10.0	18.0	5.0	5.7	17.0
UF40002	12.0	20.0	5.0	5.7	19.0
UF40003	12.5	20.0	5.0	5.7	19.0
UF40004	14.0	22.0	5.0	5.7	21.0
UF40005	16.0	24.0	5.0	5.7	23.0
UF40006	17.0	25.0	5.0	5.7	24.0
UF40007	18.0	26.0	5.0	5.7	25.0
UF40008	20.0	28.0	5.0	5.7	27.0
UF40009	20.0	30.0	6.0	7.0	29.0
UF40010	22.0	30.0	5.0	5.7	29.0
UF40011	22.4	30.0	5.0	5.7	29.0
UF40012	23.5	31.5	5.0	5.7	30.5
UF40013	24.0	32.0	5.0	5.7	31.0
UF40014	25.0	33.0	5.0	5.7	32.0
UF40015	25.0	35.0	5.0	7.0	34.0
UF40016	26.0	34.0	5.0	5.7	33.0

CODE	d (mm)	D (mm)	H	H1	Da
UF40017	27.0	35.0	5.0	5.7	34.0
UF40018	28.0	35.5	5.0	5.7	34.5
UF40019	28.0	36.0	5.0	5.7	35.0
UF40020	30.0	38.0	5.0	5.7	37.0
UF40021	30.0	40.0	6.0	7.0	39.0
UF40022	31.5	41.5	6.0	7.0	40.5
UF40023	32.0	42.0	6.0	7.0	41.0
UF40024	33.0	43.0	6.0	7.0	42.0
UF40025	34.0	44.0	6.0	7.0	43.0
UF40026	35.0	45.0	6.0	7.0	44.0
UF40027	35.5	45.0	6.0	7.0	44.0
UF40028	35.5	45.5	6.0	7.0	44.5
UF40029	36.0	46.0	6.0	7.0	45.0
UF40030	38.0	48.0	6.0	7.0	47.0
UF40031	40.0	50.0	6.0	7.0	49.0
UF40032	45.0	55.0	6.0	7.0	54.0

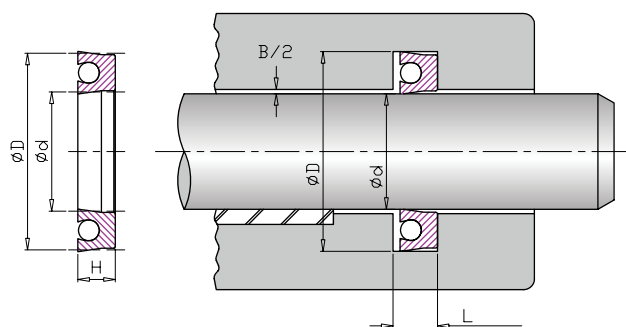
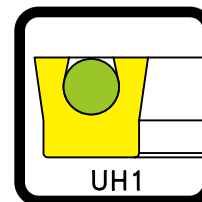
# UF4 Series

TPU Symmetrical Piston &amp; Rod U-Cup Seal

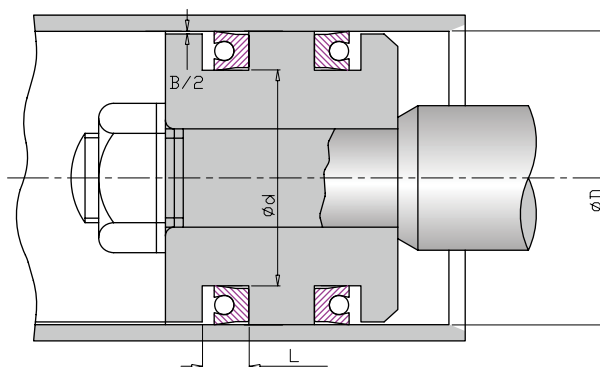
CODE	d (mm)	D (mm)	H	H1	Da
UF40033	45.0	56.0	7.0	8.0	55.0
UF40034	46.0	56.0	6.0	7.0	55.0
UF40035	50.0	60.0	6.0	7.0	59.0
UF40036	53.0	63.0	6.0	7.0	62.0
UF40037	55.0	65.0	6.0	7.0	64.0
UF40038	56.0	66.0	6.0	7.0	65.0
UF40039	58.0	68.0	6.0	7.0	67.0
UF40040	60.0	70.0	6.0	7.0	69.0
UF40041	60.0	71.0	7.0	8.0	70.0
UF40042	61.0	71.0	6.0	7.0	70.0
UF40043	63.0	73.0	6.0	7.0	72.0
UF40044	65.0	75.0	6.0	7.0	74.0
UF40045	67.0	77.0	6.0	7.0	76.0
UF40046	70.0	80.0	6.0	7.0	79.0
UF40047	71.0	80.0	6.0	7.0	79.0
UF40048	75.0	85.0	6.0	7.0	84.0
UF40049	80.0	90.0	6.0	7.0	89.0
UF40050	80.0	95.0	9.0	10.0	94.0
UF40051	85.0	95.0	6.0	7.0	94.0
UF40052	85.0	100.0	9.0	10.0	99.0
UF40053	86.0	100.0	8.5	9.5	99.0
UF40054	89.0	104.0	9.0	10.0	103.0
UF40055	90.0	100.0	6.0	7.0	99.0
UF40056	90.0	105.0	9.0	10.0	104.0
UF40057	95.0	110.0	9.0	10.0	109.0
UF40058	96.0	111.0	9.0	10.0	110.0
UF40059	98.0	112.0	8.5	9.5	111.0
UF40060	100.0	115.0	9.0	10.0	113.0
UF40061	105.0	120.0	9.0	10.0	118.0
UF40062	106.0	120.0	8.5	9.5	118.0
UF40063	110.0	125.0	9.0	10.0	123.0
UF40064	112.0	125.0	9.0	10.0	123.0
UF40065	115.0	130.0	9.0	10.0	128.0
UF40066	118.0	132.0	8.5	9.5	130.0
UF40067	125.0	140.0	9.0	10.0	138.0
UF40068	132.0	145.0	8.5	9.5	143.0
UF40069	136.0	150.0	8.5	9.5	148.0
UF40070	145.0	160.0	9.0	10.0	158.0

# UH1 Series

Symmetrical Piston & Rod U-Cup Seal  
(U-Cup Seal with NBR70 Shore A O-Ring)



\*L=H+10%



### ESTER TPU 95 PHYSICAL PROPERTIES

Working Pressure: $\leq 35$ Mpa	Hardness	95 Shore A	DIN53515
Working Temperature: $-35^{\circ}\text{C} \sim +80^{\circ}\text{C}$		95 Shore A	ASTM D2240
Surface Speed: $\leq 0.8$ m/s	Tensile Strength	50 Mpa	DIN53504
Media: Mineral Oil		7252 psi	ASTM D-412
Abrasion Resistance	35mm <sup>3</sup>	DIN53516	
Compression Set	30%	DIN53517	
24 hrs @ 100 °C	30%	ASTM D-395	
Specific gravity	1.18 g/cm <sup>3</sup>	DIN53479	
	1.18 g/cm <sup>3</sup>	ASTM D-972	
	Elongation	515 %	DIN53504
		515 %	ASTM D-412
	Tear Strength	140 N/mm	DIN53504
		799 pli	ASTM D-624
	Standard Compound	KC9502AA	
	Color	Black ●	

CODE	d (inch)	D (inch)	H (inch)	d (mm)	D (mm)	H (mm)
UH10001	1/16	5/16	1/8	1.59	7.94	3.18
UH10002	3/32	11/32	1/8	2.38	8.73	3.18
UH10003	1/8	3/8	1/8	3.18	9.53	3.18
UH10004	3/16	7/16	1/8	4.76	11.11	3.18
UH10005	1/4	1/2	1/8	6.35	12.70	3.18
UH10006	5/16	9/16	1/8	7.94	14.29	3.18
UH10007	23/64	39/64	1/8	9.13	15.48	3.18
UH10008	3/8	5/8	1/8	9.53	15.88	3.18
UH10009	7/16	11/16	1/8	11.11	17.46	3.18
UH10010	1/2	3/4	1/8	12.70	19.05	3.18
UH10011	17/32	25/32	1/8	13.49	19.84	3.18
UH10012	9/16	13/16	1/8	14.29	20.64	3.18
UH10013	5/8	7/8	1/8	15.88	22.23	3.18
UH10014	11/16	15/16	1/8	17.46	23.81	3.18
UH10015	3/4	1	1/8	19.05	25.40	3.18
UH10016	13/16	1 1/16	1/8	20.64	26.99	3.18

CODE	d (inch)	D (inch)	H (inch)	d (mm)	D (mm)	H (mm)
UH10017	7/8	1 1/8	1/8	22.23	28.58	3.18
UH10018	29/32	1 5/32	1/8	23.02	29.37	3.18
UH10019	15/16	1 3/16	1/8	23.81	30.16	3.18
UH10020	1	1 1/4	1/8	25.40	31.75	3.18
UH10021	1 1/16	1 5/16	1/8	26.99	33.34	3.18
UH10022	1 1/8	1 3/8	1/8	28.58	34.93	3.18
UH10023	1 3/16	1 7/16	1/8	30.16	36.51	3.18
UH10024	1 1/4	1 1/2	1/8	31.75	38.10	3.18
UH10025	1 5/16	1 9/16	1/8	33.34	39.69	3.18
UH10026	1 3/8	1 5/8	1/8	34.93	41.28	3.18
UH10027	1 7/16	1 11/16	1/8	36.51	42.86	3.18
UH10028	1 1/2	1 3/4	1/8	38.10	44.45	3.18
UH10029	1 9/16	1 13/16	1/8	39.69	46.04	3.18
UH10030	1 5/8	1 7/8	1/8	41.28	47.63	3.18
UH10031	1 11/16	1 15/16	1/8	42.86	49.21	3.18
UH10032	1 3/4	2	1/8	44.45	50.80	3.18

## UH1 Series

Symmetrical Piston & Rod U-Cup Seal  
(U-Cup Seal with NBR70 Shore A O-Ring)

CODE	d (inch)	D (inch)	H (inch)	d (mm)	D (mm)	H (mm)
UH10033	1 7/8	2 1/8	1/8	47.63	53.98	3.18
UH10034	2	2 1/4	1/8	50.80	57.15	3.18
UH10035	2 1/8	2 3/8	1/8	53.98	60.33	3.18
UH10036	2 1/4	2 1/2	1/8	57.15	63.50	3.18
UH10037	2 3/8	2 5/8	1/8	60.33	66.68	3.18
UH10038	2 1/2	2 3/4	1/8	63.50	69.85	3.18
UH10039	2 5/8	2 7/8	1/8	66.68	73.03	3.18
UH10040	2 3/4	3	1/8	69.85	76.20	3.18
UH10041	2 7/8	3 1/8	1/8	73.03	79.38	3.18
UH10042	3	3 1/4	1/8	76.20	82.55	3.18
UH10043	3 1/4	3 1/2	1/8	82.55	88.90	3.18
UH10044	3 3/8	3 5/8	1/8	85.73	92.08	3.18
UH10045	3 1/2	3 3/4	1/8	88.90	95.25	3.18
UH10046	4	4 1/4	1/8	101.60	107.95	3.18
UH10047	4 1/4	4 1/2	1/8	107.95	114.30	3.18
UH10048	4 3/8	4 5/8	1/8	111.13	117.48	3.18
UH10049	4 1/2	4 3/4	1/8	114.30	120.65	3.18
UH10050	4 3/4	5	1/8	120.65	127.00	3.18
UH10051	5	5 1/4	1/8	127.00	133.35	3.18
UH10052	5 3/4	6	1/8	146.05	152.40	3.18
UH10053	7/16	3/4	5/32	11.11	19.05	3.97
UH10054	3/4	1 1/16	5/32	19.05	26.99	3.97
UH10055	15/16	1 1/4	5/32	23.81	31.75	3.97
UH10056	1	1 5/16	5/32	25.40	33.34	3.97
UH10057	1 1/16	1 3/8	5/32	26.99	34.93	3.97
UH10058	1 3/16	1 1/2	5/32	30.16	38.10	3.97
UH10059	1 1/4	1 9/16	5/32	31.75	39.69	3.97
UH10060	1 3/8	1 11/16	5/32	34.93	42.86	3.97
UH10061	2 1/16	2 3/8	5/32	52.39	60.33	3.97
UH10062	9/16	29/32	11/64	14.29	23.02	4.37
UH10063	3/16	9/16	3/16	4.76	14.29	4.76
UH10064	1/4	5/8	3/16	6.35	15.88	4.76
UH10065	5/16	11/16	3/16	7.94	17.46	4.76
UH10066	3/8	3/4	3/16	9.53	19.05	4.76
UH10067	7/16	13/16	3/16	11.11	20.64	4.76
UH10068	1/2	7/8	3/16	12.70	22.23	4.76
UH10069	9/16	15/16	3/16	14.29	23.81	4.76
UH10070	5/8	1	3/16	15.88	25.40	4.76
UH10071	21/32	1 1/32	3/16	16.67	26.19	4.76
UH10072	11/16	1 1/16	3/16	17.46	26.99	4.76
UH10073	3/4	1 1/8	3/16	19.05	28.58	4.76
UH10074	13/16	1 3/16	3/16	20.64	30.16	4.76
UH10075	7/8	1 1/4	3/16	22.23	31.75	4.76
UH10076	15/16	1 5/16	3/16	23.81	33.34	4.76
UH10077	1	1 3/8	3/16	25.40	34.93	4.76
UH10078	1 1/16	1 7/16	3/16	26.99	36.51	4.76
UH10079	1 1/8	1 1/2	3/16	28.58	38.10	4.76
UH10080	1 3/16	1 9/16	3/16	30.16	39.69	4.76
UH10081	1 1/4	1 5/8	3/16	31.75	41.28	4.76

CODE	d (inch)	D (inch)	H (inch)	d (mm)	D (mm)	H (mm)
UH10082	1 5/16	1 11/16	3/16	33.34	42.86	4.76
UH10083	1 3/8	1 3/4	3/16	34.93	44.45	4.76
UH10084	1 7/16	1 13/16	3/16	36.51	46.04	4.76
UH10085	1 1/2	1 7/8	3/16	38.10	47.63	4.76
UH10086	1 9/16	1 15/16	3/16	39.69	49.21	4.76
UH10087	1 5/8	2	3/16	41.28	50.80	4.76
UH10088	1 11/16	2 1/16	3/16	42.86	52.39	4.76
UH10089	1 3/4	2 1/8	3/16	44.45	53.98	4.76
UH10090	1 13/16	2 3/16	3/16	46.04	55.56	4.76
UH10091	1 7/8	2 1/4	3/16	47.63	57.15	4.76
UH10092	1 15/16	2 5/16	3/16	49.21	58.74	4.76
UH10093	2	2 3/8	3/16	50.80	60.33	4.76
UH10094	2 1/16	2 7/16	3/16	52.39	61.91	4.76
UH10095	2 1/8	2 1/2	3/16	53.98	63.50	4.76
UH10096	2 1/4	2 5/8	3/16	57.15	66.68	4.76
UH10097	2 3/8	2 3/4	3/16	60.33	69.85	4.76
UH10098	2 1/2	2 7/8	3/16	63.50	73.03	4.76
UH10099	2 5/8	3	3/16	66.68	76.20	4.76
UH10100	2 3/4	3 1/8	3/16	69.85	79.38	4.76
UH10101	2 7/8	3 1/4	3/16	73.03	82.55	4.76
UH10102	3	3 3/8	3/16	76.20	85.73	4.76
UH10103	3 1/8	3 1/2	3/16	79.38	88.90	4.76
UH10104	3 1/4	3 5/8	3/16	82.55	92.08	4.76
UH10105	3 3/8	3 3/4	3/16	85.73	95.25	4.76
UH10106	3 1/2	3 7/8	3/16	88.90	98.43	4.76
UH10107	3 5/8	4	3/16	92.08	101.60	4.76
UH10108	3 3/4	4 1/8	3/16	95.25	104.78	4.76
UH10109	3 7/8	4 1/4	3/16	98.43	107.95	4.76
UH10110	4	4 3/8	3/16	101.60	111.13	4.76
UH10111	4 1/8	4 1/2	3/16	104.78	114.30	4.76
UH10112	4 1/4	4 5/8	3/16	107.95	117.48	4.76
UH10113	4 3/8	4 3/4	3/16	111.13	120.65	4.76
UH10114	4 1/2	4 7/8	3/16	114.30	123.83	4.76
UH10115	4 3/4	5 1/8	3/16	120.65	130.18	4.76
UH10116	4 7/8	5 1/4	3/16	123.83	133.35	4.76
UH10117	5 11/16	6 1/16	3/16	144.46	153.99	4.76
UH10118	5 7/8	6 1/4	3/16	149.23	158.75	4.76
UH10119	6	6 3/8	3/16	152.40	161.93	4.76
UH10120	6 5/16	6 11/16	3/16	160.34	169.86	4.76
UH10121	5/16	3/4	7/32	7.94	19.05	5.56
UH10122	7/16	7/8	7/32	11.11	22.23	5.56
UH10123	9/16	1	7/32	14.29	25.40	5.56
UH10124	3/4	1 3/16	7/32	19.05	30.16	5.56
UH10125	15/16	1 3/8	7/32	23.81	34.93	5.56
UH10126	1 3/4	2 3/16	7/32	44.45	55.56	5.56
UH10127	2 1/16	2 1/2	7/32	52.39	63.50	5.56
UH10128	2 1/2	2 5/16	7/32	63.50	58.74	5.56
UH10129	2 9/16	3	7/32	65.09	76.20	5.56
UH10130	2 13/16	3 1/4	7/32	71.44	82.55	5.56

## UH1 Series

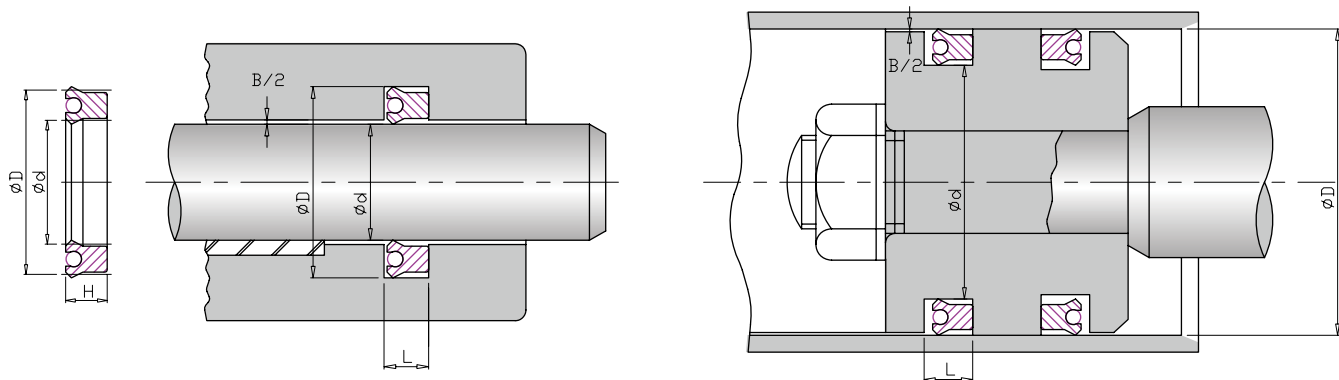
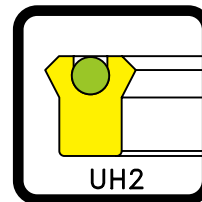
Symmetrical Piston & Rod U-Cup Seal  
(U-Cup Seal with NBR70 Shore A O-Ring)

CODE	d (inch)	D (inch)	H (inch)	d (mm)	D (mm)	H (mm)
UH10131	3	3 7/16	7/32	76.20	87.31	5.56
UH10132	1/4	3/4	1/4	6.35	19.05	6.35
UH10133	5/16	13/16	1/4	7.94	20.64	6.35
UH10136	1/2	1	1/4	12.70	25.40	6.35
UH10138	5/8	1 1/8	1/4	15.88	28.58	6.35
UH10139	11/16	1 3/16	1/4	17.45	30.16	6.35
UH10140	3/4	1 1/4	1/4	19.05	31.75	6.35
UH10142	7/8	1 3/8	1/4	22.23	34.93	6.35
UH10144	1	1 1/2	1/4	25.40	38.10	6.35
UH10147	1 1/8	1 5/8	1/4	28.58	41.28	6.35
UH10149	1 1/4	1 3/4	1/4	31.75	44.45	6.35
UH10151	1 3/8	1 7/8	1/4	34.93	47.63	6.35
UH10153	1 1/2	2	1/4	38.10	50.80	6.35
UH10155	1 3/4	2 1/4	1/4	44.45	57.15	6.35
UH10156	1 7/8	2 3/8	1/4	47.63	60.33	6.35
UH10157	2	2 1/2	1/4	50.80	63.50	6.35
UH10159	2 1/4	2 3/4	1/4	57.15	69.85	6.35
UH10160	2 3/8	2 7/8	1/4	60.33	73.03	6.35
UH10161	2 1/2	3	1/4	63.50	76.20	6.35
UH10163	2 3/4	3 1/4	1/4	69.85	82.55	6.35
UH10165	3	3 1/2	1/4	76.20	88.90	6.35
UH10166	3 1/8	3 5/8	1/4	79.38	92.08	6.35
UH10167	3 1/4	3 3/4	1/4	82.55	95.25	6.35
UH10169	3 1/2	4	1/4	88.90	101.60	6.35
UH10171	3 3/4	4 1/4	1/4	95.25	107.95	6.35
UH10174	4	4 1/2	1/4	101.60	114.30	6.35
UH10176	4 1/4	4 3/4	1/4	107.95	120.65	6.35
UH10178	4 1/2	5	1/4	114.30	127.00	6.35
UH10180	4 3/4	5 1/4	1/4	120.65	133.35	6.35
UH10181	4 7/8	5 3/8	1/4	123.83	136.53	6.35
UH10182	5	5 1/2	1/4	127.00	139.70	6.35
UH10186	5 1/2	6	1/4	139.70	152.40	6.35
UH10188	5 3/4	6 1/4	1/4	146.05	158.75	6.35
UH10189	5 7/8	6 3/8	1/4	149.23	161.93	6.35
UH10190	6	6 1/2	1/4	152.40	165.10	6.35
UH10192	6 1/2	7	1/4	165.10	177.80	6.35
UH10193	6 3/4	7 1/4	1/4	171.45	184.15	6.35
UH10196	7 1/4	7 3/4	1/4	184.15	196.85	6.35
UH10197	7 1/2	8	1/4	190.50	203.20	6.35
UH10198	7 3/4	8 1/4	1/4	196.85	209.55	6.35
UH10200	8	8 1/2	1/4	203.20	215.90	6.35
UH10201	8 1/2	9	1/4	215.90	228.60	6.35
UH10203	9	9 1/2	1/4	228.60	241.30	6.35
UH10204	9 1/4	9 3/4	1/4	234.95	247.65	6.35
UH10205	9 1/2	10	1/4	241.30	254.00	6.35
UH10206	9 3/4	10 1/4	1/4	247.65	260.35	6.35
UH10214	12	12 1/2	1/4	304.80	317.50	6.35
UH10215	12 1/2	13	1/4	317.50	330.20	6.35

CODE	d (inch)	D (inch)	H (inch)	d (mm)	D (mm)	H (mm)
UH10236	1	1 5/8	5/16	25.40	41.28	7.94
UH10238	1 1/8	1 3/4	5/16	28.58	44.45	7.94
UH10240	1 1/4	1 7/8	5/16	31.75	47.63	7.94
UH10243	1 1/2	2 1/8	5/16	38.10	53.98	7.94
UH10251	2 1/4	2 7/8	5/16	57.15	73.03	7.94
UH10253	2 3/8	3	5/16	60.33	76.20	7.94
UH10254	2 1/2	3 1/8	5/16	63.50	79.38	7.94
UH10258	2 7/8	3 1/2	5/16	73.03	88.90	7.92
UH10263	3 1/2	4 1/8	5/16	88.90	104.78	7.94
UH10265	3 3/4	4 3/8	5/16	95.25	111.13	7.94
UH10268	4 1/8	4 3/4	5/16	104.78	120.65	7.94
UH10271	4 1/2	5 1/8	5/16	114.30	130.18	7.94
UH10283	6 3/8	7	5/16	161.93	177.80	7.94
UH10289	7 3/8	8	5/16	187.33	203.20	7.94
UH10314	1	1 3/4	3/8	25.40	44.45	9.53
UH10316	1 1/4	2	3/8	31.75	50.80	9.53
UH10320	1 1/2	2 1/4	3/8	38.10	57.15	9.53
UH10322	1 5/8	2 3/8	3/8	41.28	60.33	9.53
UH10327	2 1/8	2 7/8	3/8	53.98	73.03	9.53
UH10334	2 3/4	3 1/2	3/8	69.85	88.90	9.53
UH10339	3 1/4	4	3/8	82.55	101.60	9.53
UH10342	3 5/8	4 3/8	3/8	92.08	111.13	9.53
UH10343	3 3/4	4 1/2	3/8	95.25	114.30	9.53
UH10348	4 1/4	5	3/8	107.95	127.00	9.53
UH10350	4 1/2	5 1/4	3/8	114.30	133.35	9.53
UH10353	4 7/8	5 5/8	3/8	123.83	142.88	9.53
UH10360	5 3/4	6 1/2	3/8	146.05	165.10	9.53
UH10367	7 1/4	8	3/8	184.15	203.20	9.53
UH10368	7 1/2	8 1/4	3/8	190.50	209.55	9.53
UH10377	9 1/4	10	3/8	234.95	254.00	9.53
UH10382	10 1/4	11	3/8	260.35	279.40	9.53
UH10385	11 1/4	12	3/8	285.75	304.80	9.53
UH10393	13 1/4	14	3/8	336.55	355.60	9.53
UH10438	2	3	1/2	50.80	76.20	12.70
UH10444	3	4	1/2	76.20	101.60	12.70
UH10463	6	7	1/2	152.40	177.80	12.70
UH10477	9	10	1/2	228.60	254.00	12.70
UH10481	10 1/2	11 1/2	1/2	266.70	292.10	12.70
UH10534	5 3/4	7	5/8	146.05	177.80	15.88
UH10539	6 3/4	8	5/8	171.45	203.20	15.88
UH10584	10 1/2	12	3/4	266.70	304.80	19.05
UH10622	10	12	1	254.00	304.80	25.40

# UH2 Series

Symmetrical Piston & Rod U-Cup Seal  
(U-Cup Seal with NBR70 Shore A O-Ring)



\*L=H+10%

ESTER TPU 95 PHYSICAL PROPERTIES			
Working Pressure: ≤ 35 Mpa	Hardness	95 Shore A	DIN53515
Working Temperature: -35°C ~ +80°C		95 Shore A	ASTM D2240
Surface Speed: ≤ 0.8 m/s	Tensile Strength	50 Mpa	DIN53504
Media: Mineral Oil		7252 psi	ASTM D-412
Abrasion Resistance 35mm <sup>3</sup>	Elongation	515 %	DIN53504
		515 %	ASTM D-412
Compression Set 30%	Tear Strength	140 N/mm	DIN53504
24 hrs @ 100 °C 30%		799 pli	ASTM D-624
Specific gravity 1.18 g/cm <sup>3</sup>	Standard Compound	KC9502AA	
	Color	Black ●	
		1.18 g/cm <sup>3</sup>	ASTM D-972

CODE	d (inch)	D (inch)	H (inch)	d (mm)	D (mm)	H (mm)
UH20001	1/8	3/8	1/4	3.18	9.53	6.35
UH20002	3/16	7/16	1/4	4.76	11.11	6.35
UH20003	1/4	1/2	1/4	6.35	12.70	6.35
UH20004	5/16	9/16	1/4	7.94	14.29	6.35
UH20005	3/8	5/8	1/4	9.53	15.88	6.35
UH20006	7/16	11/16	1/4	11.11	17.46	6.35
UH20007	1/2	3/4	1/8	12.70	19.05	3.18
UH20008	1/2	3/4	1/4	12.70	19.05	6.35
UH20009	9/16	13/16	1/4	14.29	20.64	6.35
UH20010	5/8	7/8	3/16	15.88	22.23	4.76
UH20011	5/8	7/8	1/4	15.88	22.23	6.35
UH20012	11/16	15/16	1/4	17.46	23.81	6.35
UH20013	3/4	1	1/8	19.05	25.40	3.18
UH20014	3/4	1	3/16	19.05	25.40	4.76
UH20015	3/4	1	1/4	19.05	25.40	6.35
UH20016	13/16	1 1/16	1/8	20.64	26.99	3.18
UH20017	13/16	1 1/16	1/4	20.64	26.99	6.35

CODE	d (inch)	D (inch)	H (inch)	d (mm)	D (mm)	H (mm)
UH20018	7/8	1 1/8	1/4	22.23	28.58	6.35
UH20019	15/16	1 3/16	1/4	23.81	30.16	6.35
UH20020	1	1 1/4	1/8	25.40	31.75	3.18
UH20021	1	1 1/4	3/16	25.40	31.75	4.76
UH20022	1	1 1/4	1/4	25.40	31.75	6.35
UH20023	1 1/16	1 5/16	1/4	26.99	33.34	6.35
UH20024	1 1/8	1 3/8	1/4	28.58	34.93	6.35
UH20025	1 3/16	1 7/16	1/4	30.16	36.51	6.35
UH20026	1 1/4	1 1/2	3/16	31.75	38.10	4.76
UH20027	1 1/4	1 1/2	1/4	31.75	38.10	6.35
UH20028	1 5/16	1 9/16	3/16	33.34	39.69	4.76
UH20029	1 3/8	1 5/8	1/4	34.93	41.28	6.35
UH20030	1 3/8	1 5/8	5/16	34.93	41.28	7.94
UH20031	1 7/16	1 11/16	1/4	36.51	42.86	6.35
UH20032	1 1/2	1 3/4	1/4	38.10	44.45	6.35
UH20033	1 3/4	2	1/4	44.45	50.80	6.35
UH20034	1 7/8	2 1/8	1/8	47.63	53.98	3.18

# UH2 Series

Symmetrical Piston & Rod U-Cup Seal  
(U-Cup Seal with NBR70 Shore A O-Ring)

CODE	d (inch)	D (inch)	H (inch)	d (mm)	D (mm)	H (mm)
UH20035	1 7/8	2 1/8	1/4	47.63	53.98	6.35
UH20036	2	2 1/4	1/4	50.80	57.15	6.35
UH20037	2 1/8	2 3/8	1/4	53.98	60.33	6.35
UH20038	2 1/4	2 1/2	1/4	57.15	63.50	6.35
UH20039	2 1/2	2 3/4	1/4	63.50	69.85	6.35
UH20040	2 3/4	3	1/4	69.85	76.20	6.35
UH20041	1/4	5/8	5/16	6.35	15.88	7.94
UH20042	5/16	11/16	5/16	7.94	17.46	7.94
UH20043	3/8	3/4	5/16	9.53	19.05	7.94
UH20044	7/16	13/16	5/16	11.11	20.64	7.94
UH20045	1/2	7/8	5/16	12.70	22.23	7.94
UH20046	9/16	15/16	5/16	14.29	23.81	7.94
UH20047	5/8	1	5/16	15.88	25.40	7.94
UH20048	11/16	1 1/16	5/16	17.46	26.99	7.94
UH20049	3/4	1 1/8	5/16	19.05	28.58	7.94
UH20051	13/16	1 3/16	5/16	20.64	30.16	7.94
UH20052	7/8	1 1/4	5/16	22.23	31.75	7.94
UH20053	15/16	1 5/16	5/16	23.81	33.34	7.94
UH20054	1	1 3/8	5/16	25.40	34.93	7.94
UH20055	1 1/16	1 7/16	5/16	26.99	36.51	7.94
UH20056	1 1/8	1 1/2	3/16	28.58	38.10	4.76
UH20057	1 1/8	1 1/2	5/16	28.58	38.10	7.94
UH20058	1 1/8	1 1/2	3/8	28.58	38.10	9.53
UH20059	1 3/16	1 9/16	5/16	30.16	39.69	7.94
UH20060	1 1/4	1 5/8	1/4	31.75	41.28	6.35
UH20061	1 1/4	1 5/8	5/16	31.75	41.28	7.94
UH20062	1 1/4	1 5/8	3/8	31.75	41.28	9.53
UH20063	1 5/16	1 11/16	5/16	33.34	42.86	7.94
UH20064	1 3/8	1 3/4	1/4	34.93	44.45	6.35
UH20065	1 3/8	1 3/4	5/16	34.93	44.45	7.94
UH20066	1 3/8	1 3/4	3/8	34.93	44.45	9.53
UH20067	1 7/16	1 13/16	5/16	36.51	46.04	7.94
UH20068	1 1/2	1 7/8	3/16	38.10	47.63	4.76
UH20069	1 1/2	1 7/8	1/4	38.10	47.63	6.35
UH20071	1 1/2	1 7/8	5/16	38.10	47.63	7.94
UH20072	1 1/2	1 7/8	3/8	38.10	47.63	9.53
UH20073	1 5/8	2	5/16	41.28	50.80	7.94
UH20074	1 5/8	2	3/8	41.28	50.80	9.53
UH20075	1 3/4	2 1/8	5/16	44.45	53.98	7.94
UH20076	1 3/4	2 1/8	3/8	44.45	53.98	9.53
UH20077	1 7/8	2 1/4	3/8	47.63	57.15	9.53
UH20078	2	2 3/8	5/16	50.80	60.33	7.94
UH20079	2	2 3/8	3/8	50.80	60.33	9.53
UH20080	2 1/8	2 1/2	3/16	53.98	63.50	4.76
UH20081	2 1/8	2 1/2	1/4	53.98	63.50	6.35
UH20082	2 1/8	2 1/2	3/8	53.98	63.50	9.53
UH20083	2 1/4	2 5/8	5/16	57.15	66.68	7.94
UH20084	2 1/4	2 5/8	3/8	57.15	66.68	9.53
UH20085	2 3/8	2 3/4	3/8	60.33	69.85	9.53

CODE	d (inch)	D (inch)	H (inch)	d (mm)	D (mm)	H (mm)
UH20087	2 1/2	2 7/8	1/4	63.50	73.03	6.35
UH20088	2 1/2	2 7/8	3/8	63.50	73.03	9.53
UH20089	2 5/8	3	9/32	66.68	76.20	7.14
UH20090	2 5/8	3	3/8	66.68	76.20	9.53
UH20091	2 3/4	3 1/8	3/16	69.85	79.38	4.76
UH20093	2 7/8	3 1/4	9/32	73.03	82.55	7.14
UH20095	3	3 3/8	1/4	76.20	85.73	6.35
UH20096	3	3 3/8	3/8	76.20	85.73	9.53
UH20097	3 1/8	3 1/2	3/8	79.38	88.90	9.53
UH20099	3 3/8	3 3/4	3/16	85.73	95.25	4.76
UH20101	3 1/2	3 7/8	3/8	88.90	98.43	9.53
UH20102	3 5/8	4	3/8	92.08	101.60	9.53
UH20105	4	4 3/8	3/16	101.60	111.13	4.76
UH20106	4	4 3/8	3/8	101.60	111.13	9.53
UH20109	4 3/8	4 3/4	3/8	111.13	120.65	9.53
UH20114	5 1/2	5 7/8	3/8	139.70	149.23	9.53
UH20118	7/16	15/16	3/8	11.13	23.83	9.53
UH20120	1/2	1	3/8	12.70	25.40	9.53
UH20124	3/4	1 1/4	3/8	19.05	31.75	9.53
UH20127	1	1 1/2	3/8	25.40	38.10	9.53
UH20129	1 1/4	1 3/4	3/8	31.75	44.45	9.53
UH20131	1 3/8	1 7/8	3/8	34.93	47.63	9.53
UH20135	1 1/2	2	3/8	38.10	50.80	9.53
UH20138	1 3/4	2 1/4	3/8	44.45	57.15	9.53
UH20141	2	2 1/2	1/4	50.80	63.50	6.35
UH20142	2	2 1/2	3/8	50.80	63.50	9.53
UH20144	2 1/8	2 5/8	3/8	53.98	66.68	9.53
UH20145	2 1/4	2 3/4	3/8	57.15	69.85	9.53
UH20146	2 3/8	2 7/8	3/8	60.33	73.03	9.53
UH20148	2 1/2	3	3/8	63.50	76.20	9.53
UH20150	2 5/8	3 1/8	3/8	66.68	79.38	9.53
UH20151	2 3/4	3 1/4	3/8	69.85	82.55	9.53
UH20152	2 7/8	3 3/8	3/8	73.03	85.73	9.53
UH20154	3	3 1/2	3/8	76.20	88.90	9.53
UH20156	3 1/4	3 3/4	3/8	82.55	95.25	9.53
UH20158	3 1/2	4	3/8	88.90	101.60	9.53
UH20160	3 3/4	4 1/4	3/8	95.25	107.95	9.53
UH20163	4	4 1/2	3/8	101.60	114.30	9.53
UH20164	4	4 1/2	1/2	101.60	114.30	12.70
UH20165	4	4 1/2	9/16	101.60	114.30	14.29
UH20166	4 1/16	4 9/16	3/8	103.17	115.87	9.53
UH20174	4 1/2	5	3/8	114.30	127.00	9.53
UH20175	4 1/2	5	9/16	114.30	127.00	14.29
UH20177	4 5/8	5 1/8	9/16	117.48	130.18	14.29
UH20178	4 3/4	5 1/4	3/8	120.65	133.35	9.53
UH20179	4 3/4	5 1/4	9/16	120.65	133.35	14.29
UH20181	4 7/8	5 3/8	9/16	123.83	136.53	14.29
UH20182	5	5 1/2	3/8	127.00	139.70	9.53
UH20183	5	5 1/2	9/16	127.00	139.70	14.29

# UH2 Series

Symmetrical Piston & Rod U-Cup Seal  
(U-Cup Seal with NBR70 Shore A O-Ring)

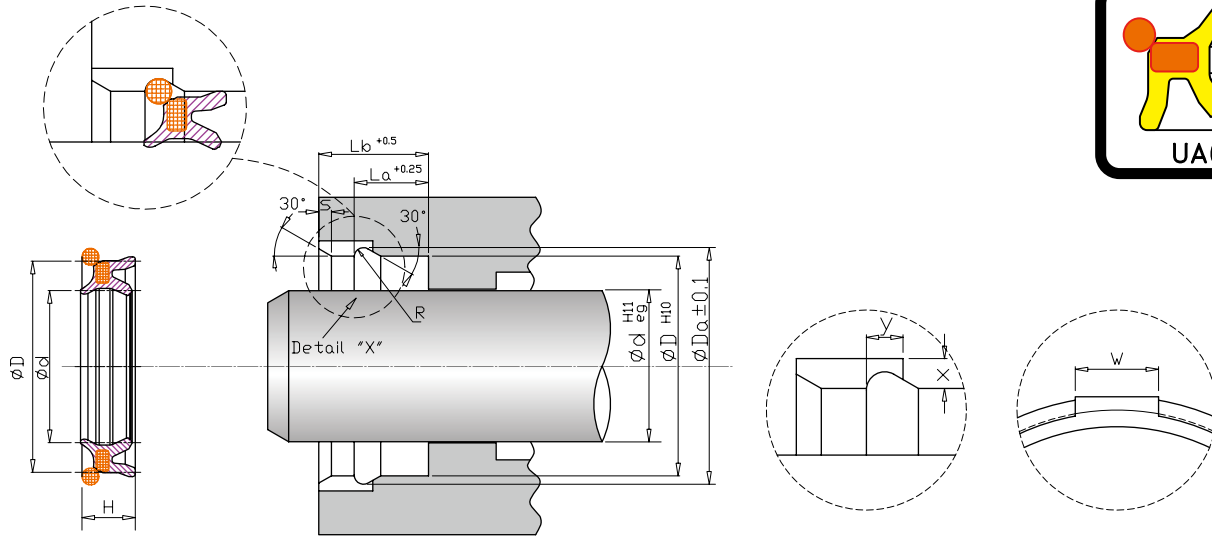
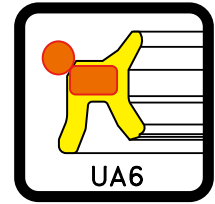
CODE	d (inch)	D (inch)	H (inch)	d (mm)	D (mm)	H (mm)
UH20187	5 1/2	6	3/8	139.70	152.40	9.53
UH20188	5 1/2	6	9/16	139.70	152.40	14.29
UH20189	5 5/8	6 1/8	9/16	142.88	155.58	14.27
UH20190	5 3/4	6 1/4	9/16	146.05	158.75	14.29
UH20191	6	6 1/2	3/8	152.40	165.10	9.53
UH20195	6 1/2	7	3/8	165.10	177.80	9.53
UH20197	6 3/4	7 1/4	3/8	171.45	184.15	9.53
UH20198	6 3/4	7 1/4	9/16	171.45	184.15	14.29
UH20201	7 1/4	7 3/4	9/16	184.15	196.85	14.27
UH20205	8	8 1/2	9/16	203.20	215.90	14.27
UH20210	8 1/2	9	9/16	215.90	228.60	14.27
UH20232	1	1 5/8	1/2	25.40	41.28	12.70
UH20240	1 1/2	2 1/8	1/2	38.10	53.98	12.70
UH20244	1 3/4	2 3/8	1/2	44.45	60.33	12.70
UH20247	2	2 5/8	1/2	50.80	66.68	12.70
UH20250	2 1/4	2 7/8	1/2	57.15	73.03	12.70
UH20251	2 3/8	3	1/2	60.33	76.20	12.70
UH20252	2 1/2	3 1/8	1/2	63.50	79.38	12.70
UH20253	2 5/8	3 1/4	1/2	66.68	82.55	12.70
UH20256	3	3 5/8	1/2	76.20	92.08	12.70
UH20258	3 3/8	4	1/2	85.73	101.60	12.70
UH20259	3 1/2	4 1/8	1/2	88.90	104.78	12.70
UH20266	4 1/4	4 7/8	9/16	107.95	123.83	14.29
UH20271	4 3/4	5 3/8	5/8	120.65	136.53	15.88
UH20272	5	5 5/8	5/8	127.00	142.88	15.88
UH20273	5 1/8	5 3/4	5/8	130.18	146.05	15.88
UH20274	5 1/4	5 7/8	5/8	133.35	149.23	15.88
UH20298	2 1/4	3	5/8	57.15	76.20	15.88
UH20300	2 1/2	3 1/4	1/2	63.50	82.55	12.70
UH20301	2 1/2	3 1/4	5/8	63.50	82.55	15.88
UH20303	2 3/4	3 1/2	5/8	69.85	88.90	15.88
UH20304	2 7/8	3 5/8	5/8	73.03	92.08	15.88
UH20306	3	3 3/4	5/8	76.20	95.25	15.88
UH20309	3 1/4	4	5/8	82.55	101.60	15.88
UH20311	3 1/2	4 1/4	5/8	88.90	107.95	15.88
UH20313	3 3/4	4 1/2	5/8	95.25	114.30	15.88
UH20315	4	4 3/4	1/2	101.60	120.65	12.70
UH20316	4	4 3/4	5/8	101.60	120.65	15.88
UH20318	4 1/4	5	5/8	107.95	127.00	15.88
UH20322	4 3/4	5 1/2	5/8	120.65	139.70	15.88
UH20323	4 7/8	5 5/8	5/8	123.83	142.88	15.88
UH20325	5	5 3/4	5/8	127.00	146.05	15.88
UH20327	5 1/4	6	5/8	133.35	152.40	15.88
UH20329	5 1/2	6 1/4	5/8	139.70	158.75	15.88
UH20331	5 3/4	6 1/2	5/8	146.05	165.10	15.88
UH20342	7	7 3/4	5/8	177.80	196.85	15.88
UH20343	7 1/4	8	5/8	184.15	203.20	15.88
UH20355	9	9 3/4	5/8	228.60	247.65	15.88
UH20357	9 1/2	10 1/4	5/8	241.30	260.35	15.88

CODE	d (inch)	D (inch)	H (inch)	d (mm)	D (mm)	H (mm)
UH20359	10 1/4	11	1/2	260.35	279.40	12.70
UH20361	10 1/2	11 1/4	5/8	266.70	285.75	15.88
UH20401	5 1/2	6 1/2	3/4	139.70	165.10	19.05
UH20407	7	8	3/4	177.80	203.20	19.05
UH20418	10 1/2	11 1/2	3/4	266.70	292.10	19.05



# UA6 Series

Rod Wiper Seal



### FKM/ FPM 80 PHYSICAL PROPERTIES

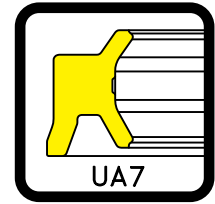
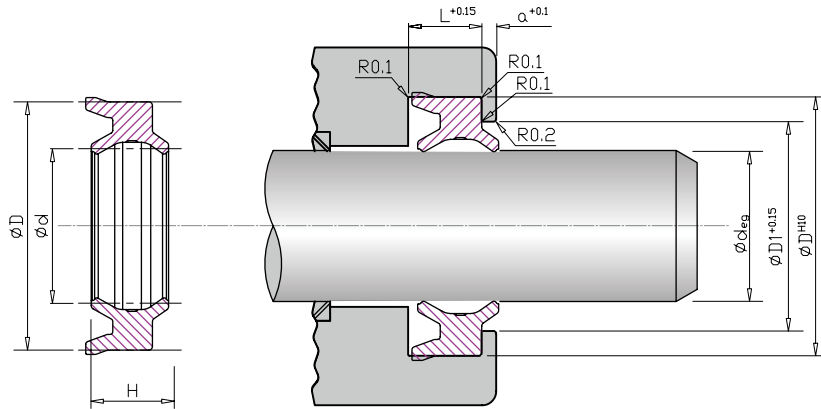
Working Pressure: $\leq 1.6$ Mpa	Hardness	80 Shore A	DIN53505
Working Temperature: $-20^\circ\text{C} \sim +225^\circ\text{C}$		80 Shore A	ASTM D2240
Surface Speed: $\leq 1.0$ m/s	Tensile Strength	15.74 Mpa	DIN53504
		2282 psi	ASTM D-412
Compression Set 8.1% 24 hrs @ $175^\circ\text{C}$	Elongation	154 %	DIN53504
		154 %	ASTM D-412
	Standard Compound	V8031AE	
	Color	Green ●	

CODE	d (mm)	D (mm)	H (mm)	Da	La	Lb	R	x	y	w	s
UA61220	12	20	8.5	22.0	8.8	13.0	1.1	1.8	2.2	4.0	1.5
UA61222	12	22	8.5	24.0	8.8	13.0	1.1	1.8	2.2	4.0	1.5
UA61626	16	26	8.5	28.0	8.8	13.0	1.1	1.8	2.2	5.0	1.5
UA61826	18	26	8.5	28.0	8.8	13.0	1.1	1.8	2.2	5.0	1.5
UA61828	18	28	8.5	30.0	8.8	13.0	1.1	1.8	2.2	5.0	1.5
UA62030	20	30	8.5	32.0	8.8	13.0	1.1	1.8	2.2	5.0	1.5
UA62232	22	32	8.5	34.5	9.4	14.0	1.4	2.0	2.8	7.5	2.0
UA62535	25	35	8.5	37.5	9.4	14.0	1.4	2.0	2.8	7.5	2.0
UA63242	32	42	8.5	44.5	9.4	14.0	1.4	2.0	2.8	7.5	2.0
UA64050	40	50	8.5	52.5	9.4	14.0	1.4	2.0	2.8	7.5	2.0
UA65060	50	60	8.5	63.2	10.4	15.0	1.8	2.5	3.6	10.0	2.0
UA66375	63	75	10.0	78.2	11.4	16.0	1.8	2.5	3.6	10.0	2.0

\*Includes the Retaining Ring  
Material: SUS 304

# UA7 Series

Rod Wiper Seal

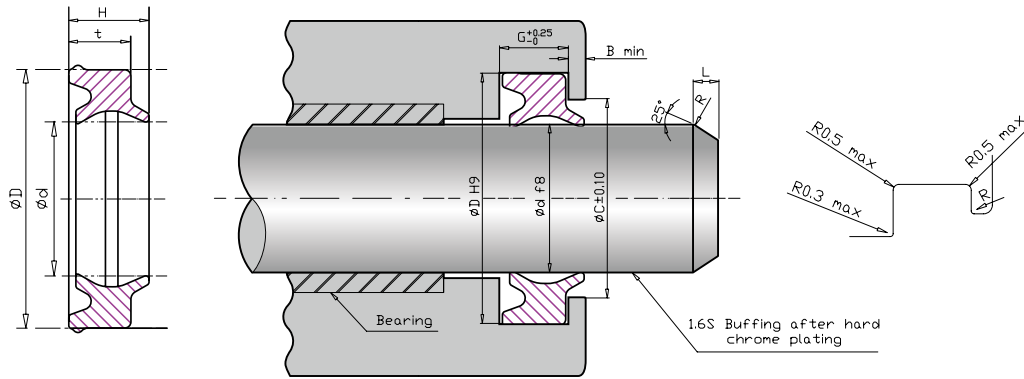


POLYCAPROLACTONE TPU 90 PHYSICAL PROPERTIES				
Working Pressure: ≤ 1.6 Mpa			Hardness	90 Shore A DIN53505
Working Temperature: -40°C ~ +80°C				90 Shore A ASTM D2240
Surface Speed: ≤ 1.0 m/s			Tensile Strength	45 Mpa DIN53504 6625 psi ASTM D-412
Compression Set	19%	DIN53517	Elongation	460 % DIN53504
24 hrs @ 70 °C	19%	ASTM D-395		460 % ASTM D-412
Specific gravity	1.15 g/cm <sup>3</sup>	DIN53479	Tear Strength	156 N/mm DIN53515
	1.15 g/cm <sup>3</sup>	ASTM D-972		850 pli ASTM D-624
			Standard Compound	KC9010AC
			Color	Brown ●

CODE	d (mm)	D (mm)	H (mm)	a	D1	L
UA70003	3	5.6	2.8	0.6	4.6	2.7
UA70004	4	7.0	2.8	0.8	5.6	2.7
UA70005	5	8.0	2.8	0.8	7.1	2.7
UA70006	6	9.0	2.8	1.0	8.1	2.7
UA70008	8	11.5	3.2	1.0	10.1	3.0
UA70010	10	14.0	3.7	1.0	12.1	3.4
UA70012	12	16.5	4.0	1.2	14.1	3.7
UA70014	14	18.5	4.0	1.2	16.1	3.7
UA70016	16	20.5	4.0	1.2	18.1	3.7
UA70018	18	22.5	4.0	1.2	20.1	3.7
UA70020	20	25.0	4.6	1.2	23.1	4.15
UA70022	22	27.0	4.6	1.2	23.9	4.15
UA70025	25	30.0	4.6	1.2	26.9	4.15
UA70030	30	35.5	5.0	1.2	32.1	4.55
UA70032	32	37.5	5.0	1.2	34.1	4.55
UA70035	35	40.5	5.0	1.2	37.1	4.55
UA70040	40	46.0	5.5	1.4	42.2	4.9
UA70045	45	51.0	5.5	1.4	47.2	4.9
UA70050	50	56.0	5.5	1.4	52.2	4.9
UA70063	63	69.5	6.0	1.4	65.4	5.4

# UA25 Series

Double Lip Rod Wiper Seal



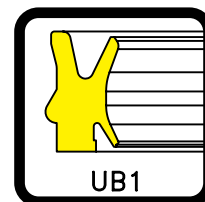
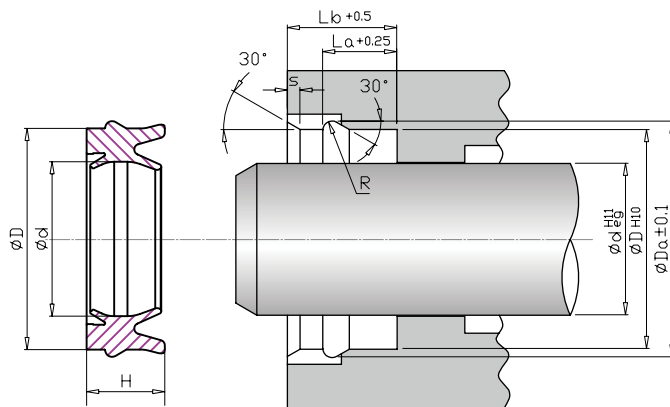
### NBR 80 PHYSICAL PROPERTIES

Working Pressure: $\leq 1.6$ Mpa			Hardness	80 Shore A	DIN53505
Working Temperature: $-25^{\circ}\text{C} \sim +100^{\circ}\text{C}$				80 Shore A	ASTM D2240
Surface Speed: $\leq 1.0$ m/s			Tensile Strength	20.23 Mpa	DIN53504
				2934 psi	ASTM D-412
Compression Set	8%	DIN53517	Elongation	285 %	DIN53504
24 hrs @ 100 °C	8%	ASTM D-395		285 %	ASTM D-412
			Standard Compound	N8039AA	
			Color	Black ●	

CODE	d (mm)	D (mm)	H	t
UA25001	6.00	10.00	4.40	3.00
UA25002	8.00	12.00	4.90	3.50
UA25003	10.00	14.00	4.90	3.50
UA25004	12.00	16.00	4.90	3.50
UA25005	14.00	18.00	4.90	3.50
UA25006	16.00	24.00	7.50	5.50
UA25007	20.00	28.00	7.50	5.50
UA25008	25.00	33.00	7.50	5.50
UA25009	30.00	40.00	8.50	6.50
UA25010	32.00	42.00	8.50	6.50
UA25011	35.00	45.00	8.50	6.50
UA25012	36.00	46.00	8.50	6.50
UA25013	40.00	50.00	8.50	6.50
UA25014	45.00	55.00	8.50	6.50

# UB1 Series

Rod Wiper Seal

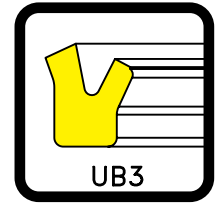
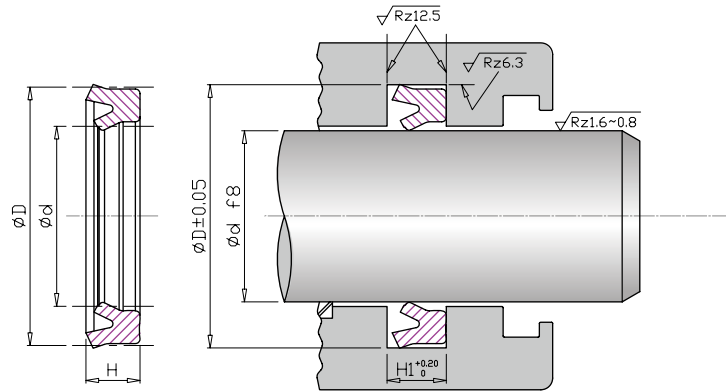


ESTER TPU 95 PHYSICAL PROPERTIES				
Working Pressure: $\leq 1.6$ Mpa			Hardness	95 Shore A DIN53505
Working Temperature: $-35^{\circ}\text{C} \sim +80^{\circ}\text{C}$				95 Shore A ASTM D2240
Surface Speed: $\leq 1.0$ m/s			Tensile Strength	50 Mpa DIN53504 7252 psi ASTM D-412
Abrasion Resistance	35mm <sup>3</sup>	DIN53516	Elongation	515 % DIN53504
Compression Set	27.5%	DIN53517		515 % ASTM D-412
24 hrs @ 70 °C	27.5%	ASTM D-395	Tear Strength	140 N/mm DIN53515 799 pli ASTM D-624
Specific gravity	1.18 g/cm <sup>3</sup>	DIN53479	Standard Compound	KC9502AN / KC9502AG
	1.18 g/cm <sup>3</sup>	ASTM D-972	Color	Gray ● / Green ●

CODE	d (mm)	D (mm)	H (mm)	Da	La	Lb	R	s
UB11219	12	19	10.0	21.0	7.7	12	1.0	1.5
UB11220	12	20	10.7	22.0	8.8	13	1.1	1.5
UB11222	12	22	10.7	24.0	8.8	13	1.1	1.5
UB11424	14	24	10.7	26.0	8.8	13	1.1	1.5
UB11626	16	26	10.7	28.0	8.8	13	1.1	1.5
UB11826	18	26	10.7	28.0	8.8	13	1.1	1.5
UB11828	18	28	10.7	30.0	8.8	13	1.1	1.5
UB12030	20	30	10.7	32.0	8.8	13	1.1	1.5
UB12232	22	32	11.2	34.5	9.4	14	1.4	2.0
UB12535	25	35	11.2	37.5	9.4	14	1.4	2.0
UB13040	30	40	11.2	42.5	9.4	14	1.4	2.0
UB13242	32	42	11.2	44.5	9.4	14	1.4	2.0
UB14050	40	50	11.2	52.5	9.4	14	1.4	2.0
UB14555	45	55	12.2	58.2	10.4	15	1.8	2.0
UB15060	50	60	12.2	63.2	10.4	15	1.8	2.0
UB16375	63	75	13.0	78.2	11.4	16	1.8	2.0

# UB3 Series

Asymmetrical Pneumatic Rod Seal



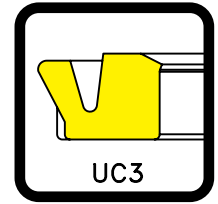
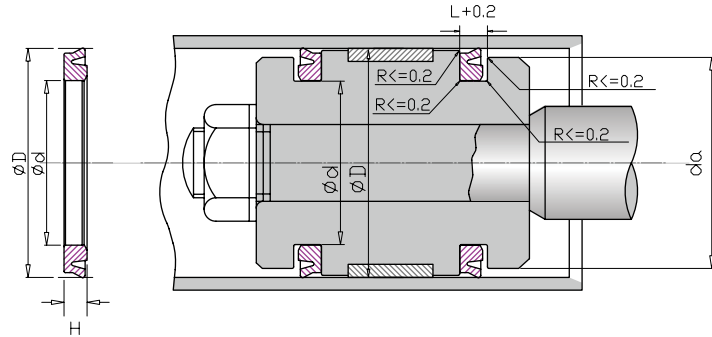
FKM/FPM 75 PHYSICAL PROPERTIES			
Working Pressure: $\leq 1.0$ Mpa			
Working Temperature: $-20^{\circ}\text{C} \sim +225^{\circ}\text{C}$			
Surface Speed: $\leq 1.0$ m/s			
Hardness	75 Shore A	DIN53505	
Tensile Strength	15.3 Mpa	DIN53504	
	2217 psi	ASTM D-412	
Elongation	214 %	DIN53504	
Compression Set	8.6 %	DIN53517	
	24hrs @ $175^{\circ}\text{C}$	8.6 %	ASTM D-395

NBR 75 PHYSICAL PROPERTIES			
Working Pressure: $\leq 1.0$ Mpa			
Working Temperature: $-25^{\circ}\text{C} \sim +100^{\circ}\text{C}$			
Surface Speed: $\leq 1.0$ m/s			
Hardness	75 Shore A	DIN53505	
Tensile Strength	22.8 Mpa	DIN53504	
	3306 psi	ASTM D-412	
Elongation	320 %	DIN53504	
Compression Set	10.9 %	DIN53517	
	24hrs @ $100^{\circ}\text{C}$	10.9 %	ASTM D-395
Standard Compound	N7539AA		
Color	Black ●		

CODE	d (mm)	D (mm)	H	H1
UB30307	3	7	2.9	3.2
UB30408	4	8	2.9	3.2
UB30509	5	9	2.9	3.2
UB30610	6	10	3.5	4.0
UB30812	8	12	3.5	4.0
UB31014	10	14	3.5	4.0
UB31217	12	17	4.0	4.5
UB31419	14	19	4.0	4.5
UB31622	16	22	5.0	5.7

# UC3 Series

Pneumatic U-Cup Piston Seal



FKM/FPM 75 PHYSICAL PROPERTIES			
Working Pressure: ≤ 1.6 Mpa			
Working Temperature: -20°C ~ +225°C			
Surface Speed: ≤ 1.0 m/s			
Hardness	75 Shore A	DIN53505	
Tensile Strength	15.3 Mpa	DIN53504	
	2214 psi	ASTM D-412	
Elongation	241 %	DIN53504	
Compression Set	9 %	DIN53517	
22hrs @ 200°C	9 %	ASTM D-395	
Standard Compound	V7514AA		
Color	Black ●		

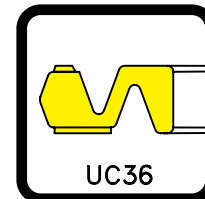
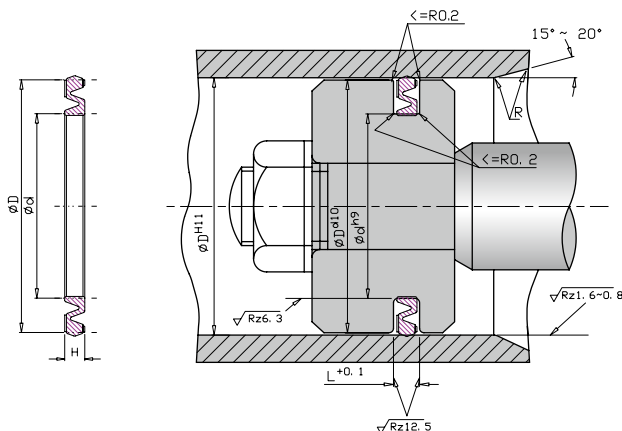
NBR 75 / 85 PHYSICAL PROPERTIES			
Working Pressure: ≤ 1.0 Mpa / ≤ 1.6 Mpa			
Working Temperature: -25°C ~ +100°C			
Surface Speed: ≤ 1.0 m/s			
Hardness	75 / 85 Shore A	DIN53505	
Tensile Strength	22.8 / 20.7 Mpa	DIN53504	
	3306 / 3008 psi	ASTM D-412	
Elongation	320 / 130 %	DIN53504	
Compression Set	10.9 / 4.9 %	DIN53517	
24hrs @ 100°C	10.9 / 4.9 %	ASTM D-395	
Standard Compound	N7539AA / N8594AA		
Color	Black ●		

CODE	D (mm)	d (mm)	H (mm)	L	da
UC30001	4	1.50	1.50	2.00	3.6
UC30002	5	2.50	1.50	2.00	4.6
UC30003	6	3.00	2.00	2.50	5.6
UC30004	8	4.00	2.55	3.00	7.6
UC30005	8	4.80	2.30	2.70	7.6
UC30006	8	5.45	2.30	2.80	7.6
UC30007	10	3.00	3.50	4.00	9.6
UC30008	10	6.00	2.55	3.00	9.6
UC30009	10	6.45	2.55	3.00	9.6
UC30010	12	7.00	2.55	3.00	11.6
UC30011	13	8.00	2.55	3.00	12.6
UC30012	14	8.00	2.55	3.00	13.6
UC30013	15	9.00	2.55	3.00	14.6
UC30014	16	10.00	2.55	3.00	15.6
UC30015	16	11.00	2.55	3.00	15.6
UC30016	18	12.00	2.55	3.00	17.6
UC30017	20	14.00	2.55	3.00	19.6
UC30018	21	15.00	2.55	3.00	20.4
UC30019	22	16.00	2.55	3.00	21.4
UC30020	24	18.00	3.25	3.50	23.4
UC30021	25	19.00	3.25	3.50	24.4
UC30022	28	22.00	3.25	3.50	27.4
UC30023	30	22.00	3.25	3.50	29.4

CODE	D (mm)	d (mm)	H (mm)	L	da
UC30025	32	24.00	3.25	3.50	31.4
UC30026	35	27.00	3.25	3.50	34.4
UC30027	36	28.00	3.25	3.50	35.4
UC30028	37	29.00	3.25	3.50	36.4
UC30029	38	30.00	3.25	3.50	37.4
UC30030	40	32.00	3.25	3.50	39.4
UC30031	42	34.00	3.25	3.50	41.4
UC30032	45	37.00	3.25	3.50	44.4
UC30033	50	42.00	3.25	3.50	49.4
UC30034	52	42.00	4.25	4.50	51.4
UC30036	58	48.00	4.25	4.50	57.4
UC30037	63	53.00	4.25	4.50	62.4
UC30038	80	70.00	4.25	4.50	79.4
UC30039	90	80.00	4.25	4.50	89.4
UC30040	100	90.00	4.25	4.50	99.4
UC30041	125	105.00	8.25	8.50	123.8
UC30042	150	130.00	8.25	8.50	148.8
UC30043	160	140.00	8.25	8.50	158.8
UC30044	200	180.00	8.25	8.50	198.8

# UC36 Series

Low Friction Compact Piston Seal



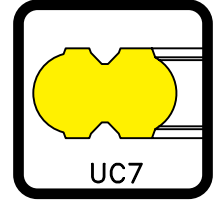
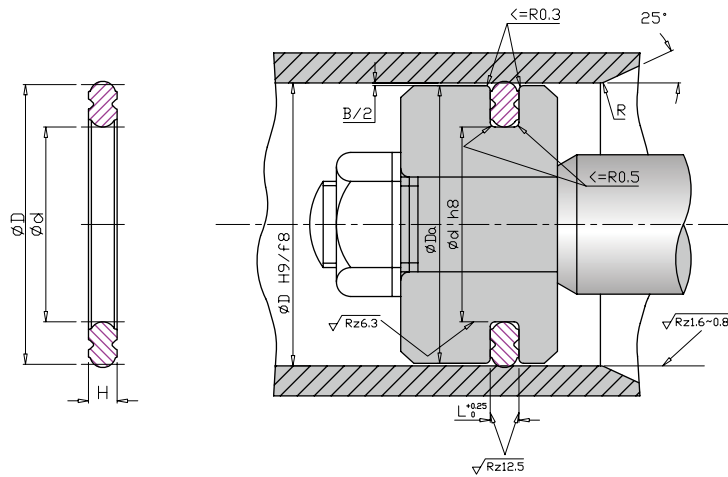
FKM/FPM 75 PHYSICAL PROPERTIES			
Working Pressure: ≤ 1.2 Mpa			
Working Temperature: -20°C ~ +225°C			
Surface Speed: ≤ 1.0 m/s			
Hardness	75 Shore A	DIN53505	
Tensile Strength	15.3 Mpa	DIN53504	
	2214 psi	ASTM D-412	
Elongation	241 %	DIN53504	
Compression Set	9 %	DIN53517	
22hrs @ 200°C	9 %	ASTM D-395	
Standard Compound	V7514AA		
Color	Black ●		

NBR 75 PHYSICAL PROPERTIES			
Working Pressure: ≤ 1.0 Mpa			
Working Temperature: -25°C ~ +100°C			
Surface Speed: ≤ 1.0 m/s			
Hardness	75 Shore A	DIN53505	
Tensile Strength	22.8 Mpa	DIN53504	
	3306 psi	ASTM D-412	
Elongation	320 %	DIN53504	
Compression Set	10.9 %	DIN53517	
24hrs @ 100°C	10.9 %	ASTM D-395	
Standard Compound	N7539AA		
Color	Black ●		

CODE	D (mm)	d (mm)	L	H
UC36001	12.0	7.0	2.5	2.2
UC36002	16.0	9.0	2.5	2.4
UC36003	20.0	13.0	2.5	2.3
UC36004	25.0	18.0	2.5	2.4
UC36005	30.0	21.0	3.0	2.9
UC36006	32.0	23.0	3.0	2.9
UC36007	35.0	26.0	3.0	2.9
UC36008	40.0	31.0	3.0	2.9
UC36009	42.0	35.0	2.5	2.4
UC36010	45.0	36.0	3.0	2.8
UC36011	50.0	41.0	3.0	2.9
UC36012	60.0	48.0	4.0	3.9
UC36013	63.0	51.0	4.0	3.9
UC36014	70.0	58.0	4.0	3.9
UC36015	80.0	68.0	4.0	3.9
UC36016	100.0	88.0	4.0	3.9
UC36017	125.0	110.0	5.0	4.9
UC36018	90.0	78.0	3.9	3.8

# UC7 Series

Low Friction Pneumatic Piston Seal



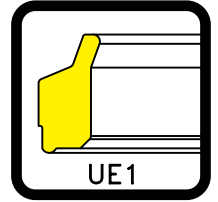
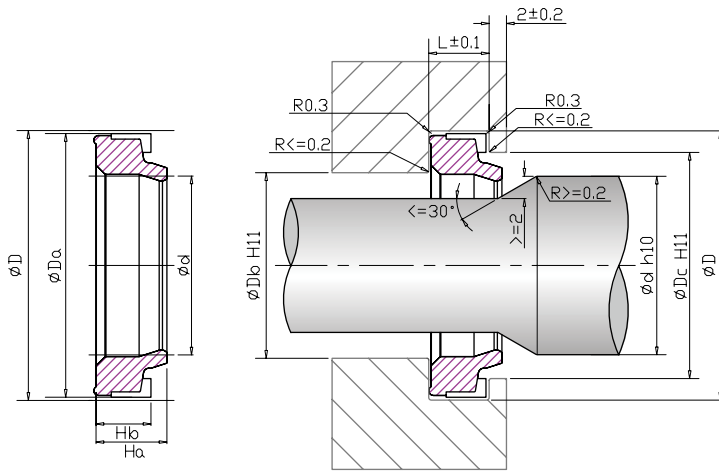
FKM/FPM 75 PHYSICAL PROPERTIES			
Working Pressure: $\leq 1.0$ Mpa			
Working Temperature: $-20^{\circ}\text{C} \sim +225^{\circ}\text{C}$			
Surface Speed: $\leq 1.0$ m/s			
Hardness	75 Shore A	DIN53505	
Tensile Strength	15.3 Mpa	DIN53504	
	2214 psi	ASTM D-412	
Elongation	241 %	DIN53504	
Compression Set	9 %	DIN53517	
	22hrs @ $200^{\circ}\text{C}$	9 %	ASTM D-395
Standard Compound	V7514AA		
Color	Black ●		

NBR 75 PHYSICAL PROPERTIES			
Working Pressure: $\leq 1.0$ Mpa			
Working Temperature: $-25^{\circ}\text{C} \sim +100^{\circ}\text{C}$			
Surface Speed: $\leq 1.0$ m/s			
Hardness	75 Shore A	DIN53505	
Tensile Strength	22.8 Mpa	DIN53504	
	3306 psi	ASTM D-412	
Elongation	320 %	DIN53504	
Compression Set	10.9 %	DIN53517	
	24hrs @ $100^{\circ}\text{C}$	10.9 %	ASTM D-395
Standard Compound	N7539AA		
Color	Black ●		

CODE	D (mm)	d (mm)	H (mm)	L	Da
UC70001	10	5.4	1.60	1.8	9.7
UC70002	12	7.4	1.60	1.8	11.7
UC70003	15	10.4	1.60	1.8	14.7
UC70004	16	11.4	1.60	1.8	15.7
UC70005	20	14.0	2.24	2.4	19.5
UC70006	25	17.0	3.00	3.2	24.5
UC70007	30	22.0	3.00	3.2	29.5
UC70008	32	24.0	3.00	3.2	31.5
UC70009	38	30.0	3.00	3.2	37.5
UC70010	40	32.0	3.00	3.2	39.5
UC70011	44	36.0	3.00	3.2	43.5
UC70012	50	40.0	3.80	4.0	49.5
UC70013	56	46.0	3.80	4.0	55.5
UC70014	60	50.0	3.80	4.0	59.5
UC70015	63	53.0	3.80	4.0	62.4
UC70016	70	55.0	5.60	6.0	69.4
UC70017	75	60.0	5.60	6.0	74.4
UC70018	80	65.0	5.60	6.0	79.4
UC70019	85	70.0	5.60	6.0	84.4
UC70020	90	75.0	5.60	6.0	89.4

CODE	D (mm)	d (mm)	H (mm)	L	Da
UC70021	95	80.0	5.60	6.0	94.4
UC70022	100	85.0	5.60	6.0	99.4
UC70023	110	95.0	5.60	6.0	109.3
UC70024	120	105.0	5.60	6.0	119.3
UC70025	125	110.0	5.60	6.0	124.3
UC70026	140	125.0	5.60	6.0	139.3
UC70027	150	135.0	5.60	6.0	149.3
UC70028	160	140.0	7.60	8.0	159.3
UC70029	175	155.0	7.60	8.0	174.4
UC70030	180	160.0	7.60	8.0	179.3
UC70031	200	180.0	7.60	8.0	199.0
UC70032	250	230.0	7.60	8.0	249.0
UC70033	300	280.0	7.60	8.0	299.0





FKM/FPM 90 PHYSICAL PROPERTIES			
Working Pressure: ≤ 1.0 Mpa			
Working Temperature: -20°C ~ +225°C			
Surface Speed: ≤ 1.0 m/s			
Hardness	90 Shore A	DIN53505	
Tensile Strength	16.7 Mpa	DIN53504	
	2422 psi	ASTM D-412	
Elongation	139 %	DIN53504	
Compression Set	16.7 %	DIN53517	
70hrs @ 175°C	16.7 %	ASTM D-395	
Standard Compound	V9059AA		
Color	Black ●		

NBR 85 PHYSICAL PROPERTIES			
Working Pressure: ≤ 1.0 Mpa			
Working Temperature: -25°C ~ +100°C			
Surface Speed: ≤ 1.0 m/s			
Hardness	85 Shore A	DIN53505	
Tensile Strength	20.7 Mpa	DIN53504	
	3008 psi	ASTM D-412	
Elongation	130 %	DIN53504	
Compression Set	4.9 %	DIN53517	
24hrs @ 100°C	4.9 %	ASTM D-395	
Standard Compound	N8594AA		
Color	Black ●		

CODE	d (mm)	D (mm)	Ha	Hb	Da	Db	Dc	L
UE10001	4.5	8.0	3.5	2.6	7.7	5.0	6.5	3.1
UE10002	5.0	9.0	4.1	3.2	8.7	5.5	7.0	3.7
UE10003	6.0	10.0	4.1	3.2	9.7	6.5	8.0	3.7
UE10004	8.0	11.6	3.5	2.8	11.3	8.5	10.0	3.3
UE10005	9.5	15.0	4.6	3.7	14.7	10.0	12.0	4.5
UE10006	10.0	18.0	7.8	6.3	17.0	10.5	13.0	7.0
UE10007	12.0	18.0	5.0	4.1	17.8	13.0	15.5	4.8
UE10008	12.0	20.0	7.8	6.3	19.1	13.0	17.0	7.0
UE10009	14.0	22.0	5.5	4.5	21.1	15.0	18.5	5.2
UE10010	14.0	22.0	7.8	6.3	21.5	15.0	19.0	7.0
UE10011	16.0	22.0	5.5	4.5	21.5	17.0	19.5	5.2
UE10012	16.0	24.0	7.8	6.3	23.1	17.0	21.0	7.0
UE10013	18.0	26.0	7.8	6.3	25.1	19.0	23.0	7.0
UE10014	20.0	28.0	7.8	6.3	27.1	21.0	24.0	7.0
UE10015	22.0	30.0	7.8	6.3	29.1	23.0	26.0	7.0
UE10016	25.0	33.0	7.9	6.3	32.1	26.0	29.0	7.0
UE10017	28.0	36.0	7.8	6.3	35.1	29.0	32.0	7.0

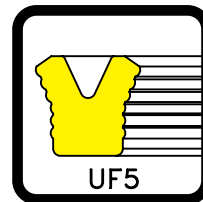
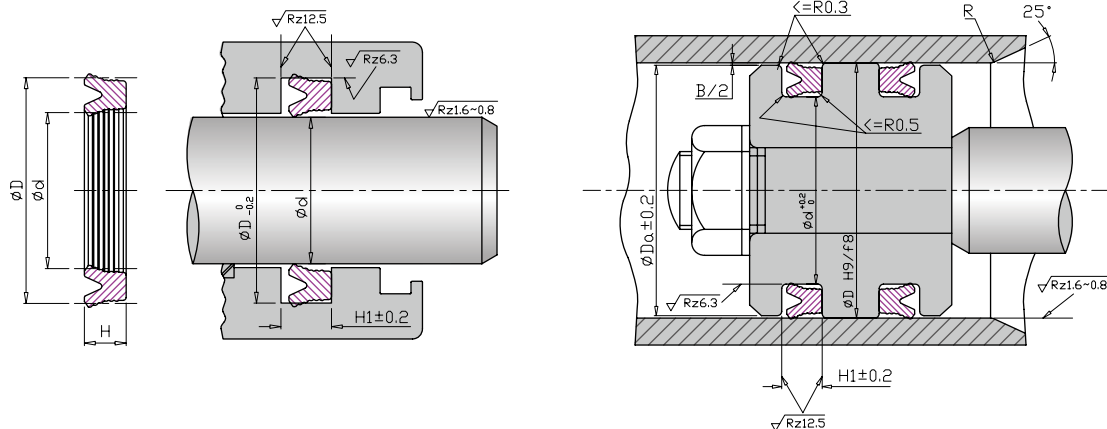
# UE1 Series

Pneumatic Damper Seal

CODE	d (mm)	D (mm)	Ha	Hb	Da	Db	Dc	L
UE10018	30.0	40.0	7.8	6.2	39.1	31.5	35.0	7.0
UE10019	32.0	42.0	7.8	6.2	41.1	33.5	37.0	7.0
UE10020	36.0	46.0	7.8	6.2	45.1	37.5	41.0	7.0
UE10021	40.0	50.0	7.8	6.2	49.1	41.5	45.0	7.0
UE10022	50.0	60.0	7.8	6.2	59.0	51.5	55.0	7.0
UE10023	50.0	67.0	11.0	11.0	66.2	53.0	58.0	12.5
UE10024	57.0	74.0	11.0	11.0	73.2	60.0	65.0	12.5
UE10025	70.0	87.0	11.0	11.0	86.3	73.0	78.0	12.5
UE10026	78.0	95.0	11.0	11.0	94.3	81.0	86.0	12.5

# UF5 Series

Low Friction Pneumatic Symmetrical Piston & Rod U-Cup Seal



FKM/FPM 75 PHYSICAL PROPERTIES			
Working Pressure: $\leq 1.0$ Mpa			
Working Temperature: $-20^{\circ}\text{C} \sim +225^{\circ}\text{C}$			
Surface Speed: $\leq 1.0$ m/s			
Hardness	75 Shore A	DIN53505	
Tensile Strength	16.6 Mpa	DIN53504	
	2428 psi	ASTM D-412	
Elongation	185 %	DIN53504	
Compression Set	9.5 %	DIN53517	
24hrs @ $200^{\circ}\text{C}$	9.5 %	ASTM D-395	
Standard Compound	V7559AA		
Color	Black ●		

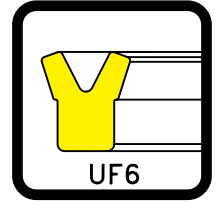
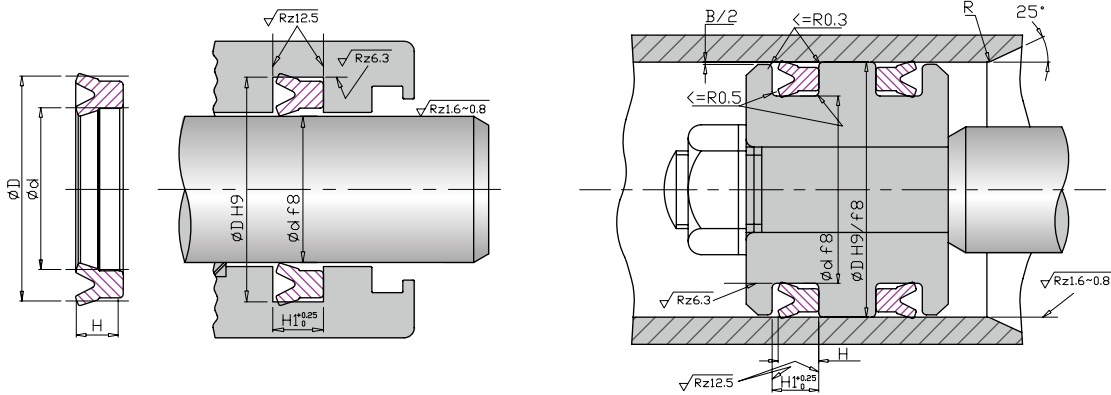
NBR 75 PHYSICAL PROPERTIES			
Working Pressure: $\leq 1.0$ Mpa			
Working Temperature: $-25^{\circ}\text{C} \sim +100^{\circ}\text{C}$			
Surface Speed: $\leq 1.0$ m/s			
Hardness	75 Shore A	DIN53505	
Tensile Strength	22.8 Mpa	DIN53504	
	3306 psi	ASTM D-412	
Elongation	320 %	DIN53504	
Compression Set	10.9 %	DIN53517	
24hrs @ $100^{\circ}\text{C}$	10.9 %	ASTM D-395	
Standard Compound	N7539AA		
Color	Black ●		

CODE	d (mm)	D (mm)	H (mm)	H1	da
UF50001	10.0	18.0	5.0	5.7	17.1
UF50002	12.0	20.0	5.0	5.7	19.0
UF50003	14.0	22.0	5.0	5.7	21.1
UF50004	16.0	24.0	5.0	5.7	23.1
UF50005	17.0	25.0	5.0	5.7	24.1
UF50006	18.0	26.0	5.0	5.7	25.1
UF50007	20.0	28.0	5.0	5.7	27.1
UF50008	22.4	30.0	5.0	5.7	29.1
UF50009	25.0	33.0	5.0	5.7	32.1
UF50010	27.0	35.0	5.0	5.7	34.1
UF50011	28.0	36.0	5.0	5.7	35.1
UF50012	30.0	40.0	6.0	7.0	39.0
UF50013	31.5	41.5	6.0	7.0	40.5
UF50014	32.0	42.0	6.0	7.0	41.0
UF50015	35.0	45.0	6.0	7.0	44.0
UF50016	35.5	45.5	6.0	7.0	44.5
UF50017	36.0	46.0	6.0	7.0	45.0
UF50018	40.0	50.0	6.0	7.0	49.0
UF50019	45.0	55.0	6.0	7.0	54.0
UF50020	50.0	60.0	6.0	7.0	59.0
UF50021	53.0	63.0	6.0	7.0	62.0
UF50022	55.0	65.0	6.0	7.0	64.0
UF50023	60.0	70.0	6.0	7.0	69.0
UF50024	63.0	73.0	6.0	7.0	72.0

CODE	d (mm)	D (mm)	H (mm)	H1	da
UF50025	65.0	75.0	6.0	7.0	74.0
UF50026	70.0	80.0	6.0	7.0	79.0
UF50027	75.0	85.0	6.0	7.0	84.0
UF50028	80.0	90.0	6.0	7.0	89.0
UF50029	85.0	100.0	9.0	10.0	98.5
UF50030	95.0	110.0	9.0	10.0	108.5
UF50031	100.0	115.0	9.0	10.0	113.5
UF50032	105.0	120.0	9.0	10.0	118.5
UF50033	110.0	125.0	9.0	10.0	123.5
UF50034	115.0	130.0	9.0	10.0	128.5
UF50035	125.0	140.0	9.0	10.0	138.5
UF50036	135.0	150.0	9.0	10.0	148.5
UF50037	145.0	160.0	9.0	10.0	158.5
UF50038	160.0	175.0	9.0	10.0	173.5
UF50039	165.0	180.0	9.0	10.0	178.5
UF50040	175.0	190.0	9.0	10.0	188.5
UF50041	180.0	200.0	12.0	13.0	198.0
UF50042	185.0	205.0	12.0	13.0	203.0
UF50043	200.0	220.0	12.0	13.0	218.0
UF50044	215.0	235.0	12.0	13.0	233.0
UF50045	230.0	250.0	12.0	13.0	248.0
UF50046	240.0	260.0	12.0	13.0	258.0
UF50047	24.0	32.0	5.0	5.7	31.1

# UF6 Series

Low Friction Pneumatic Symmetrical Piston & Rod U-Cup Seal



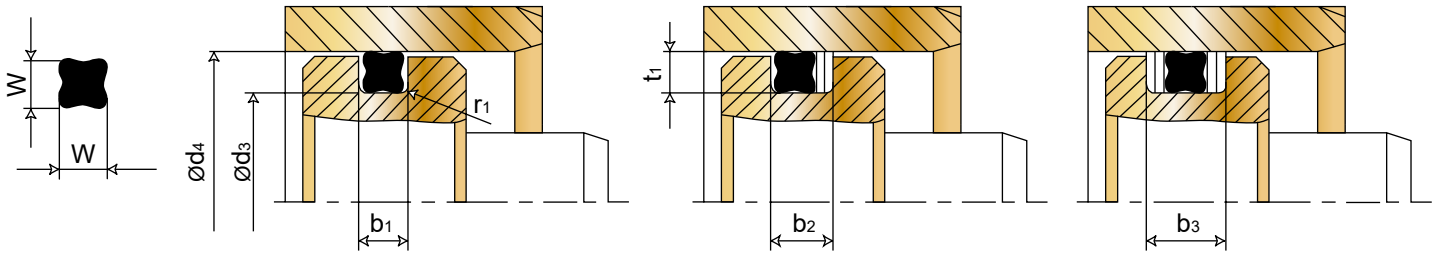
FKM/FPM 70 PHYSICAL PROPERTIES			
Working Pressure: $\leq 0.8$ Mpa			
Working Temperature: $-20^\circ\text{C} \sim +225^\circ\text{C}$			
Surface Speed: $\leq 1.0$ m/s			
Hardness	70 Shore A	DIN53505	
Tensile Strength	14.1 Mpa	DIN53504	
	2044 psi	ASTM D-412	
Elongation	231 %	DIN53504	
Compression Set	8.1 %	DIN53517	
24hrs @ $175^\circ\text{C}$	8.1 %	ASTM D-395	
Standard Compound	V7029AA		
Color	Black ●		

NBR 75 PHYSICAL PROPERTIES			
Working Pressure: $\leq 0.8$ Mpa			
Working Temperature: $-25^\circ\text{C} \sim +100^\circ\text{C}$			
Surface Speed: $\leq 1.0$ m/s			
Hardness	75 Shore A	DIN53505	
Tensile Strength	22.8 Mpa	DIN53504	
	3306 psi	ASTM D-412	
Elongation	320 %	DIN53504	
Compression Set	10.9 %	DIN53517	
24hrs @ $100^\circ\text{C}$	10.9 %	ASTM D-395	
Standard Compound	N7539AA		
Color	Black ●		

CODE	d (mm)	D (mm)	H	H1
UF60001	3.0	6.0	2.1	2.5
UF60002	4.0	7.0	2.1	2.5
UF60003	5.0	8.0	2.1	2.5
UF60004	6.0	9.0	2.1	2.5
UF60005	7.0	10.0	2.1	2.5
UF60006	8.0	11.0	2.1	2.5
UF60007	9.0	12.0	2.1	2.5
UF60008	10.0	13.0	2.1	2.5
UF60009	10.0	14.0	2.8	3.2
UF60010	11.0	15.0	2.8	3.2
UF60011	11.2	15.2	2.8	3.2
UF60012	12.0	16.0	2.8	3.2
UF60013	12.5	16.5	2.8	3.2
UF60014	14.0	18.0	2.8	3.2
UF60015	15.0	19.0	2.8	3.2
UF60016	16.0	20.0	2.8	3.2
UF60017	18.0	22.0	2.8	3.2
UF60018	20.0	24.0	2.8	3.2
UF60019	21.0	25.0	2.8	3.2
UF60020	22.0	26.0	2.8	3.2
UF60021	24.0	30.0	4.2	4.7
UF60022	34.0	40.0	4.2	4.7

# X-Ring for Radial Dynamic Application

Piston Seal



X-Ring Size (mm)					Groove Dimensions (mm)						Radius
CODE	ID	±	W	±	Bore d <sub>4</sub> H8	Groove Ø d <sub>3</sub> h9	Groove depth t <sub>1</sub> +0.05	Groove Width			
								b <sub>1</sub> +0.2	b <sub>2</sub> +0.2	b <sub>3</sub> +0.2	r <sub>1</sub>
X0005	2.57	0.13	1.78	0.08	6.00	3.00	1.50	2.0	3.4	4.8	0.2
X0008	4.47				8.00	5.00					
X0010	6.07				10.00	7.00					
X1021	8.20				12.00	9.00					
X0013	10.82				14.00	11.00					
X1065	10.20	0.13	2.62	0.08	15.00	10.40	2.30	3.0	4.4	5.8	0.3
X0111	10.77				16.00	11.40					
X0112	12.37				18.00	13.40					
X1067	14.70				20.00	15.40					
X1025	16.20	0.23			22.00	17.40					
X1061	18.20	0.25	3.53	0.10	25.00	18.60	3.20	4.0	5.4	6.8	0.4
X0212	21.82				28.00	21.60					
X0213	23.39				30.00	23.60					
X0214	24.99				32.00	25.60					
X0216	28.17	0.30			35.00	28.60					
X0219	32.92		40.00	33.60							
X0220	34.52		42.00	35.60							
X0222	37.69	0.38			45.00	38.60					
X0325	37.47	0.38	5.33	0.13	48.00	38.20	4.90	6.0	7.7	9.4	0.4
X1016	39.20				50.00	40.20					
X0326	40.64				52.00	42.20					
X0327	43.82				55.00	45.20					
X0329	50.17	0.46			60.00	50.20					
X0330	53.34		63.00	53.20							
X0330	53.34		65.00	55.20							
X0332	59.69	0.51			70.00	60.20					
X0333	62.87		75.00	65.20							
X0335	69.22		80.00	70.20							
X0337	75.57	0.61			85.00	75.20					
X0338	78.74		90.00	80.20							
X0340	85.09		95.00	85.20							
X0342	91.44	0.71			100.00	90.20					
X0343	94.62		105.00	95.20							
X0345	100.97		110.00	100.20							
X0346	104.14	0.76			115.00	105.20					
X0348	110.49		120.00	110.20							
X0349	113.67		125.00	115.20							
X0351	120.02				130.00	120.20					

# X-Ring for Radial Dynamic Application

Piston Seal

X-Ring Size (mm)					Groove Dimensions (mm)						Radius
CODE	ID	±	W	±	Bore	Groove Ø	Groove depth	Groove Width			
					d <sub>4</sub> H8	d <sub>3</sub> h9	t <sub>1</sub> +0.05	b <sub>1</sub> +0.2	b <sub>2</sub> +0.2	b <sub>3</sub> +0.2	
X0427	120.02	0.84	6.99	0.15	135.00	122.20	6.40	8.0	10.5	13.0	0.6
X0429	126.37	0.94			140.00	127.20					
X0432	135.89	0.94			150.00	137.20					
X0435	145.42	0.94			160.00	147.20					
X0438	158.12	1.02			170.00	157.20					
X0439	164.47	1.02			180.00	167.20					
X0441	177.17	1.02			190.00	177.20					
X0442	183.52	1.14			200.00	187.20					
X0444	196.22	1.14			210.00	197.20					
X0445	202.57	1.14			220.00	207.20					
X0446	215.27	1.40			230.00	217.20					
X0447	227.97	1.40			240.00	227.20					
X0447	227.97	1.40			250.00	237.20					
X0450	266.07	1.52			280.00	267.20					
X0451	278.77	1.52			300.00	287.20					
X0453	304.17	1.52			320.00	307.20					
X0455	329.57	1.52			350.00	337.20					
X0459	380.37	1.78			400.00	387.20					
X0461	405.26	1.91			420.00	407.20					
X0463	430.66	2.03			450.00	437.20					
X0465	456.06	2.16	480.00	467.20							
X0467	481.46	2.29	500.00	487.20							

# GMORS Offer EDI Services

## Electronic Data Interchange



In November 2019, GMORS established a B2B Electronic Data Interchange (EDI) platform in support of customer electronic data exchange. This will save transaction processing time for both parties and enable exchange process verification and data security.

We welcome customers who are interested in our EDI services to contact our customer support representatives.

## O-Ring Master

GMORS O-Ring Master is the completed tool for standard rubber seal sizes.

When you use this APP, you don't need to have internet and catalog.

Except O-Ring sizes, it also includes the search functions of X-Ring and Back-Up Ring. Otherwise, you can also use O-Ring Housing to choose suitable O-Ring in your application.

## Material Master

GMORS Material Master give you the materials recommendation for your O-Ring application, based on the working temperature and medium of working environment. We provide thousand kinds of environment condition for compatibility evaluation.

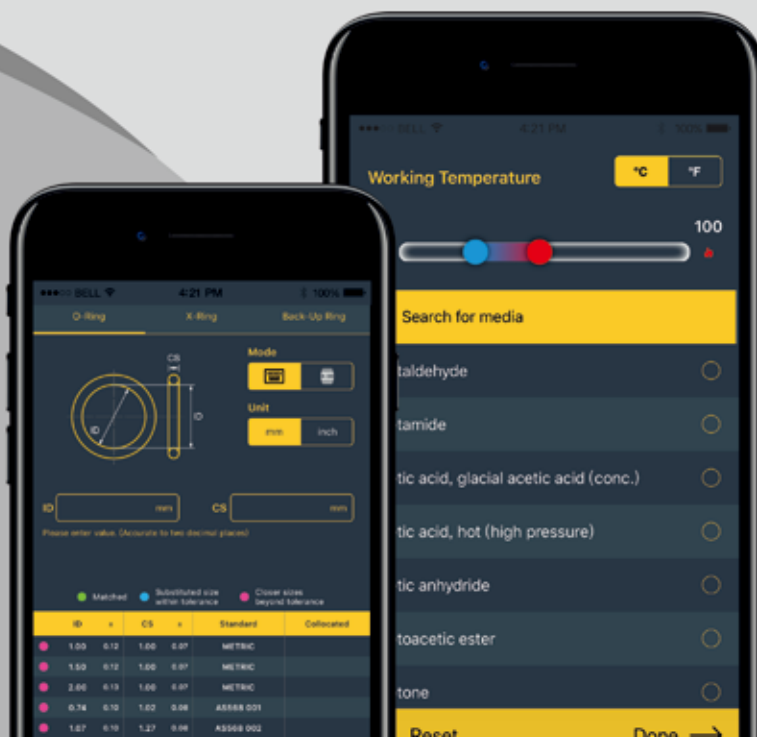
In addition, GMORS provide certified rubber compounds for various international standards, such as NSF61, WRAS, ACS, KTW, W-270, Din EN549, UL157, API 6A, NORSOK M-710, TOTAL EP PVV 142 and NACE TM0297. Please email us for further information.



Android



iOS



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*Seals to your heart*

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