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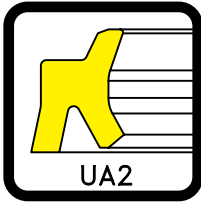
# Hydraulic and Pneumatic Seals





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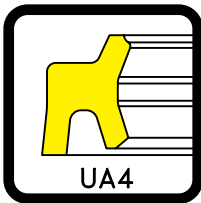


## Double Lip Rod Wiper Seal

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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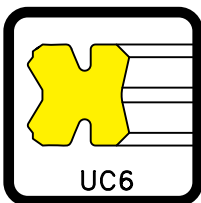


## TPU Double Lip Rod Wiper Seal

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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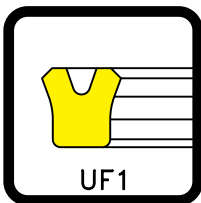


## Packing for Piston

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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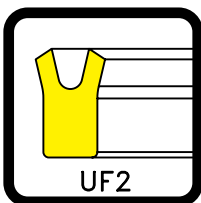


## Symmetrical Piston & Rod U-Cup Seal

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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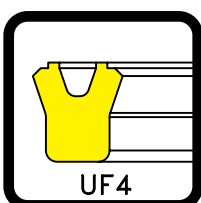


## TPU Symmetrical Piston & Rod U-Cup Seal

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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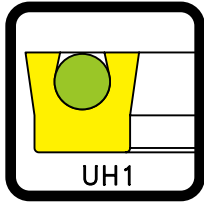


## TPU Symmetrical Piston & Rod U-Cup Seal

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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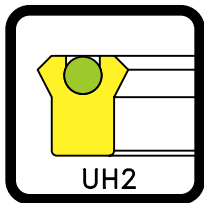
UH1

## 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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UH2

## 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.

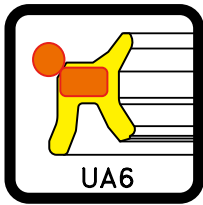
Material : ESTER TPU  
Working Pressure :  $\leq 35$  Mpa  
Working Temperature :  $-35^{\circ}\text{C} \sim +80^{\circ}\text{C}$   
Surface Speed :  $\leq 0.8$  m/s  
Application : Hydraulic

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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

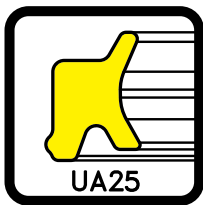
Working Pressure :  $\leq 1.6$  Mpa

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

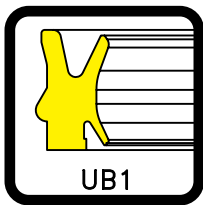
Working Temperature :  $-25^{\circ}\text{C} \sim +100^{\circ}\text{C}$

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

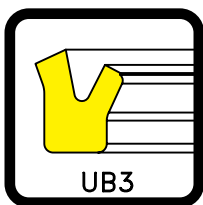
Working Pressure :  $\leq 1.6$  Mpa

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

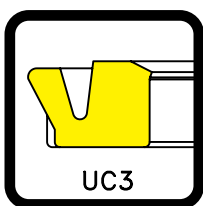
Working Temperature :  $-20^{\circ}\text{C} \sim +225^{\circ}\text{C}$

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

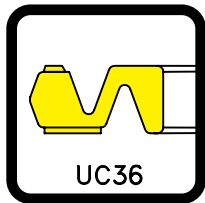
Working Temperature :  $-20^{\circ}\text{C} \sim +225^{\circ}\text{C}$

Working Pressure :  $\leq 1.6$  Mpa

Surface Speed :  $\leq 1.0$  m/s

Application : Pneumatic

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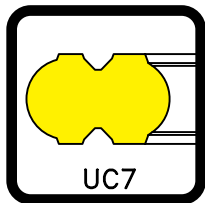


## Low Friction Compact Piston Seal

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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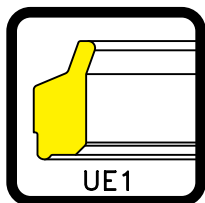


## Low Friction Pneumatic Piston Seal

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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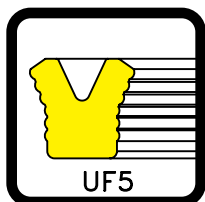


## Pneumatic Damper Seal

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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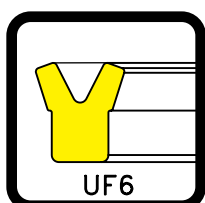


## Low Friction Pneumatic Symmetrical Piston & Rod U-Cup Seal

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

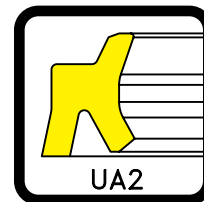
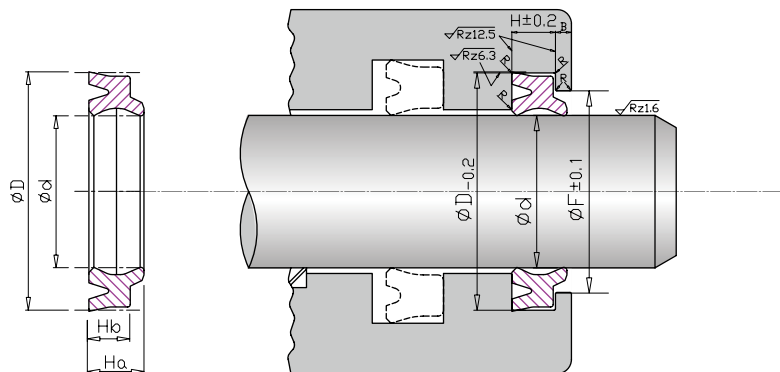
| HNBR  |   | FKM   |   |   |  |   | TPU<br>Thermoplastic Urethane   |  | Material                       |
|---|---|---|---|---|--|---|---|--|--------------------------------|
| H8032AA                                     | H9018AA   | V7559AA   | V7029AA   | V7514AA   | V8031AE  | V9059AA   | KC9010AC  | KC9502AA<br>(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<br>100°C<br>0°C<br>-50°C |
| 4703<br>(32.43)                             | 3513<br>(24.23)   | 2428<br>(16.6)  | 2044<br>(14.1)  | 2214<br>(15.3)  | 2282<br>(15.74)  | 2422<br>(16.7)  | 6625<br>(45)  | 7252<br>(50)   | Tensile Strength, psi<br>(Mpa) |
| 291   | 148   | 185   | 231   | 241   | 154  | 139   | 460   | 515  | Elongation, %                  |
| 1217<br>(8.39)                              | 2688<br>(18.54)   | 1310<br>(9.0)   | 939<br>(6.48)   | 740<br>(5.1)  | 1540<br>(10.62)  | 1812<br>(12.5)  | 1036<br>(7.1)   | 2216<br>(15.2)   | 100% Modulus, psi<br>(Mpa)     |
| ●   | ●   | ●   | ●   | ●   | ●  | ●   | ●   | ●  | Comon Hydraulic oil            |
| ●   | ●   | ●   | ●   | ●   | ●  | ●   | ●   | ●  | Low-Temp Hydraulic Oil         |
| ▲   | ▲   | ▲   | ▲   | ▲   | ▲  | ▲   | X   | X  | Coolant<br>(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 |

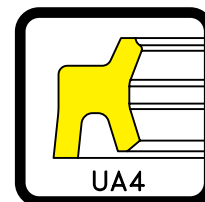
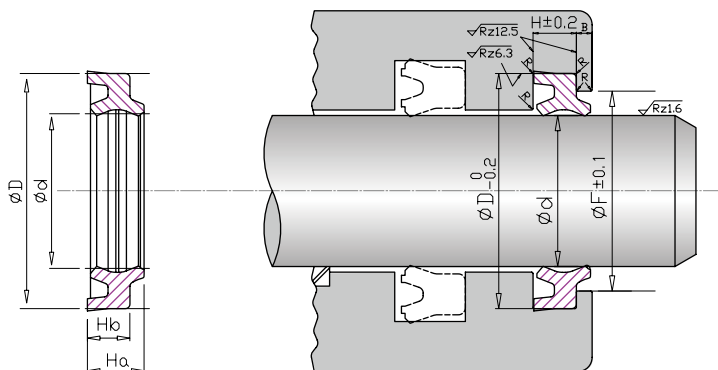
# UA2 Series

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

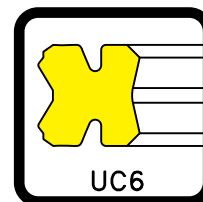
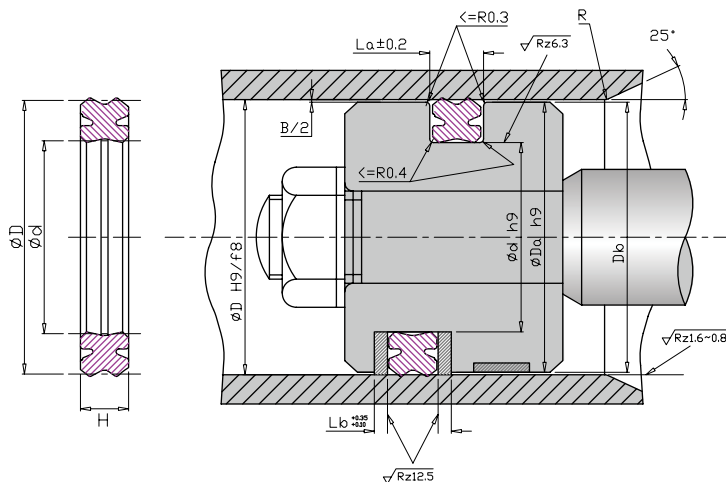
|   |                   |                      |            |
|---|-------------------|----------------------|------------|
| Working Temperature: -35°C ~ +80°C      | Hardness          | 95 Shore A           | DIN53505   |
| Surface Speed: ≤ 1.0 m/s                |                   | 95 Shore A           | 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> ASTM D-972       | 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  |

# UC6 Series

Packing for Piston



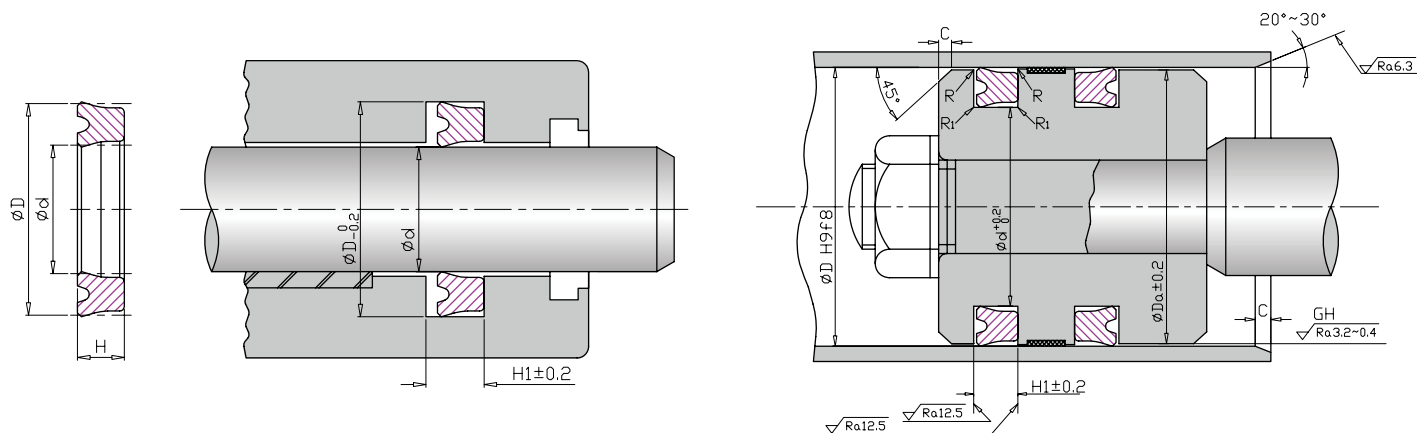
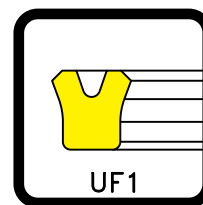
| FKM/ FPM 90 PHYSICAL PROPERTIES                                  |            |            |  |
|--|------------|------------|--|
| Working Pressure: $\leq 14$ Mpa                                  |            |            |  |
| Working Temperature: $-20^\circ\text{C} \sim +225^\circ\text{C}$ |            |            |  |
| 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 |

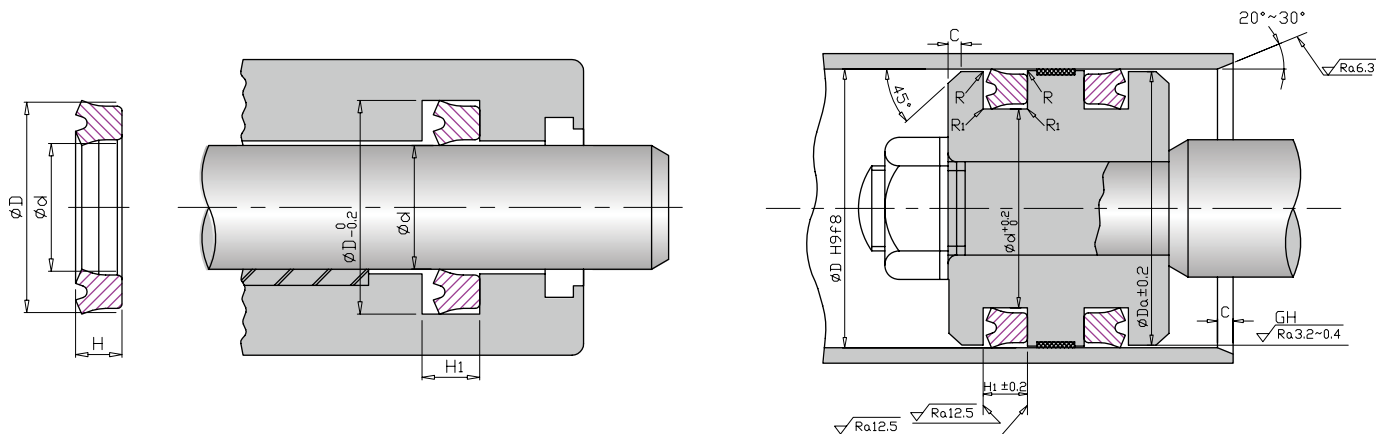
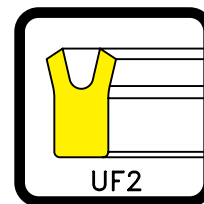
# UF1 Series

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

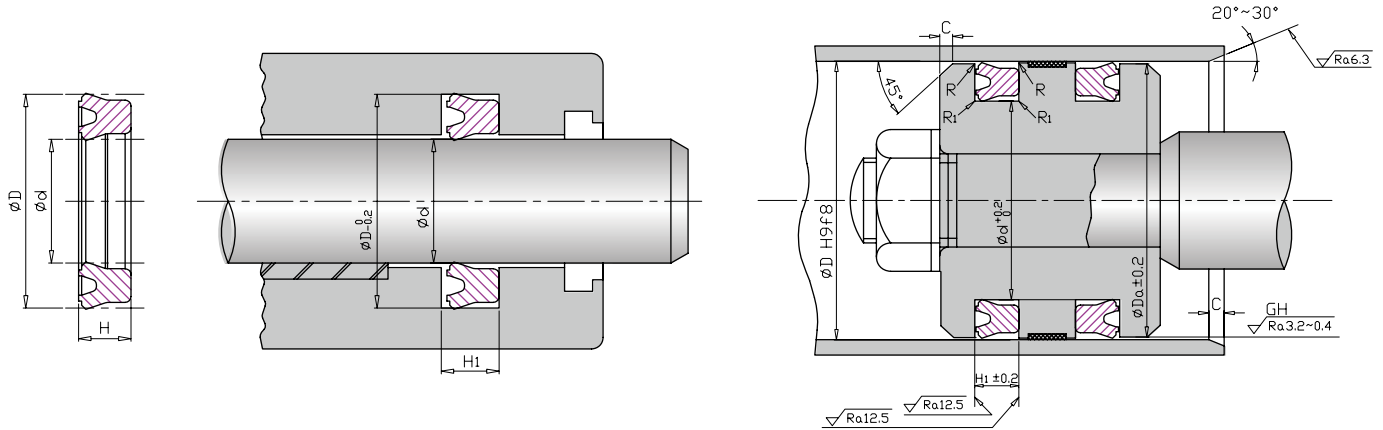
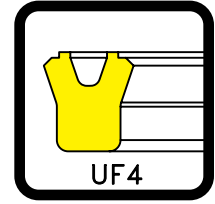
| CODE    | d (mm) | D (mm) | H    | H1   | Da    |
|---------|--------|--------|------|------|-------|
| UF20033 | 31.5   | 46.5   | 10.0 | 11.0 | 45.5  |
| UF20034 | 32.0   | 46.0   | 10.0 | 11.0 | 45.0  |
| UF20035 | 35.0   | 50.0   | 10.0 | 11.0 | 49.0  |
| UF20036 | 35.5   | 45.0   | 6.0  | 7.0  | 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             |            |
| 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             | DIN53515   |
|   |                        | 799 pli              | ASTM D-624 |
|   | 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 |

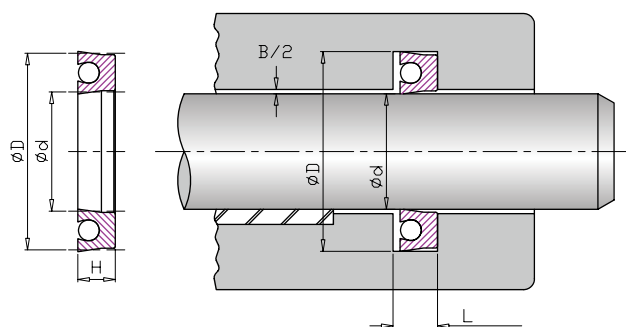
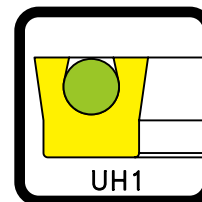
# UF4 Series

TPU Symmetrical Piston &amp; Rod U-Cup Seal

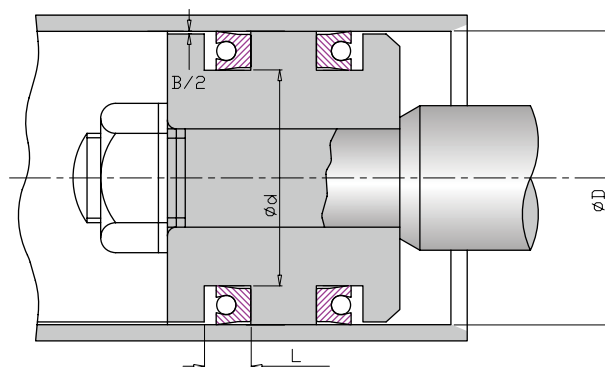
| CODE    | d (mm) | D (mm) | H   | H1   | Da    |
|---------|--------|--------|-----|------|-------|
| UF40033 | 45.0   | 56.0   | 7.0 | 8.0  | 55.0  |
| UF40034 | 46.0   | 56.0   | 6.0 | 7.0  | 55.0  |
| UF40035 | 50.0   | 60.0   | 6.0 | 7.0  | 59.0  |
| UF40036 | 53.0   | 63.0   | 6.0 | 7.0  | 62.0  |
| 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: ≤ 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 ●    |            |
|   |                   | DIN53479   |            |
|   |                   | ASTM D-972 |            |

| 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

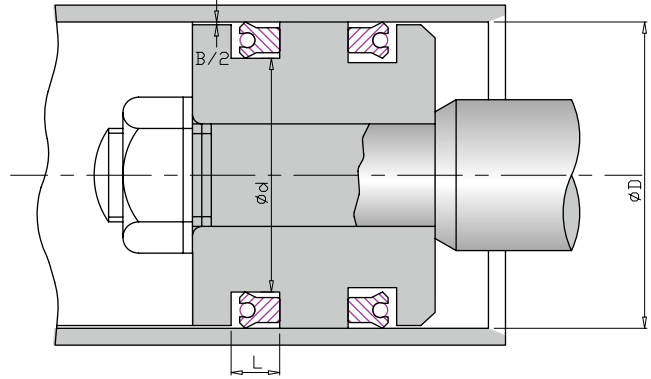
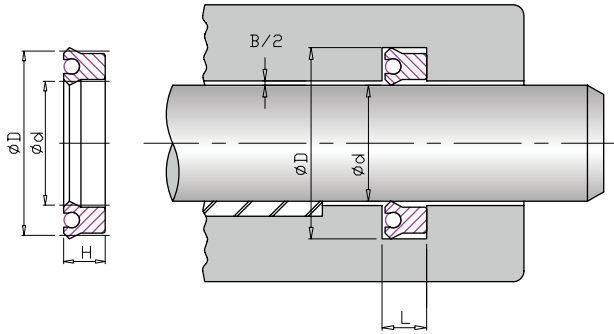
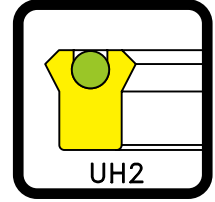
Symmetrical Piston & Rod U-Cup Seal  
(U-Cup Seal with NBR70 Shore A O-Ring)

| 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   |
| Compression Set 30%                     |                   | 515 %      | ASTM D-412 |
| 24 hrs @ 100 °C 30%                     | Tear Strength     | 140 N/mm   | DIN53504   |
| Specific gravity 1.18 g/cm <sup>3</sup> |                   | 799 pli    | ASTM D-624 |
| 1.18 g/cm <sup>3</sup> ASTM D-972       | Standard Compound | KC9502AA   |            |
|   | Color             | Black ●    |            |

| 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)

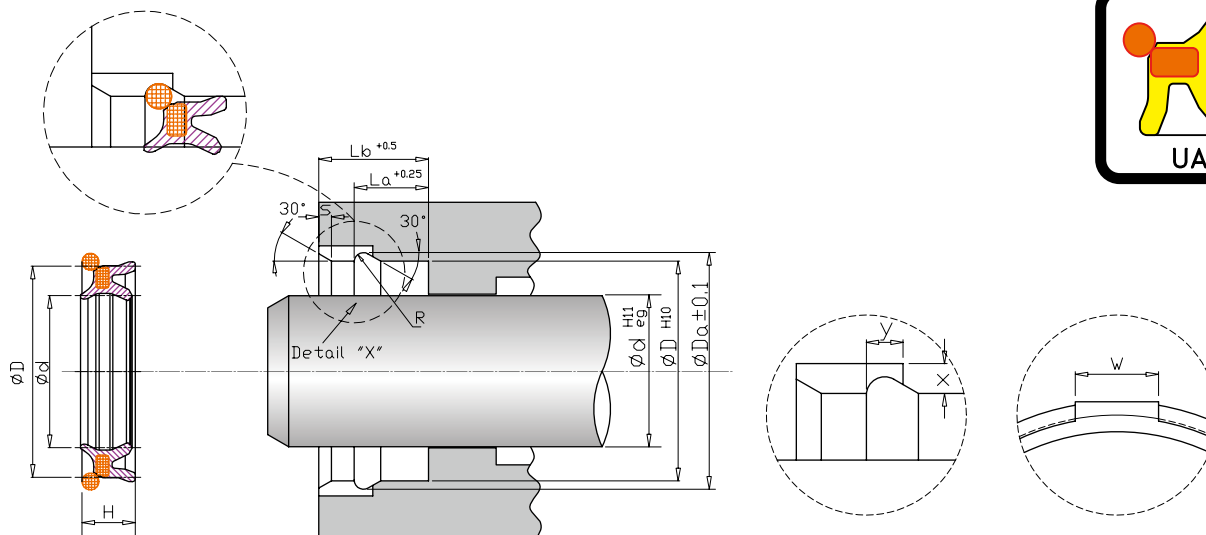
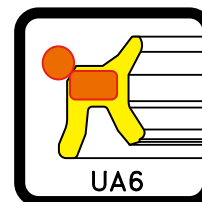
| CODE    | d (inch) | D (inch) | H (inch) | d (mm) | D (mm) | H (mm) |
|---------|----------|----------|----------|--------|--------|--------|
| UH20187 | 5 1/2    | 6        | 3/8      | 139.70 | 152.40 | 9.53   |
| UH20188 | 5 1/2    | 6        | 9/16     | 139.70 | 152.40 | 14.29  |
| UH20189 | 5 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

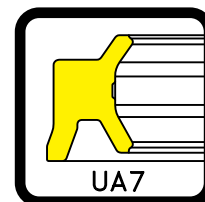
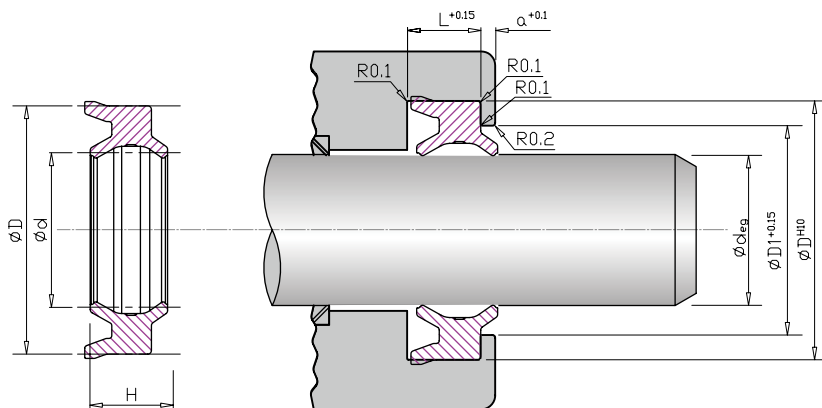
|  |                   |            |            |
|--|-------------------|------------|------------|
| Working Pressure: $\leq 1.6$ Mpa                                     | Hardness          | 80 Shore A | DIN53505   |
| Working Temperature: $-20^{\circ}\text{C} \sim +225^{\circ}\text{C}$ |                   | 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<br>24 hrs @ $175^{\circ}\text{C}$                    | 8.1%              | DIN53517   | ASTM D-395 |
|  |                   | 8.1%       | 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

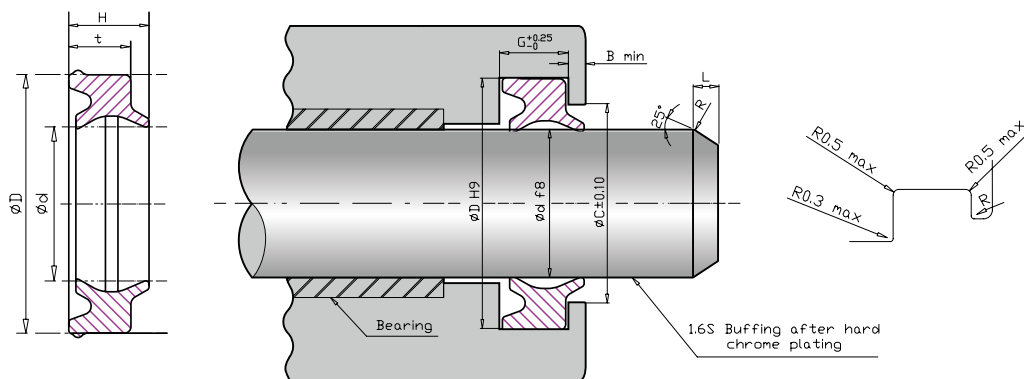


| POLYCAPROLACTONE TPU 90 PHYSICAL PROPERTIES |                        |            |                   |  |
|---|------------------------|------------|-------------------|--|
| Working Pressure: ≤ 1.6 Mpa                 |                        |            | Hardness          | 90 Shore A DIN53505                    |
| Working Temperature: -40°C ~ +80°C          |                        |            |                   | 90 Shore A ASTM D2240                  |
| Surface Speed: ≤ 1.0 m/s                    |                        |            | Tensile Strength  | 45 Mpa DIN53504<br>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



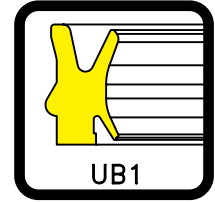
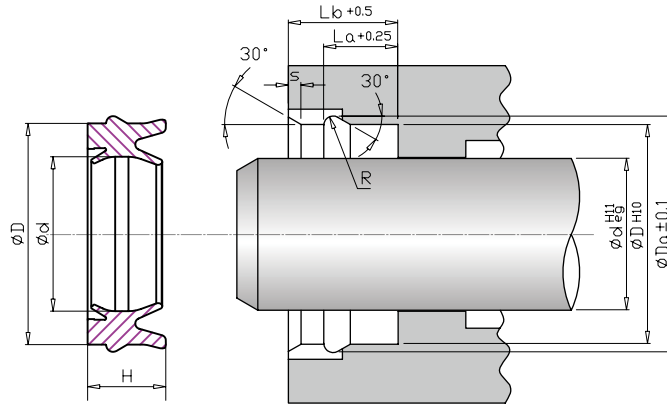
### NBR 80 PHYSICAL PROPERTIES

|  |    |            |                   |            |            |
|--|----|------------|-------------------|------------|------------|
| 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



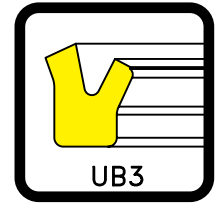
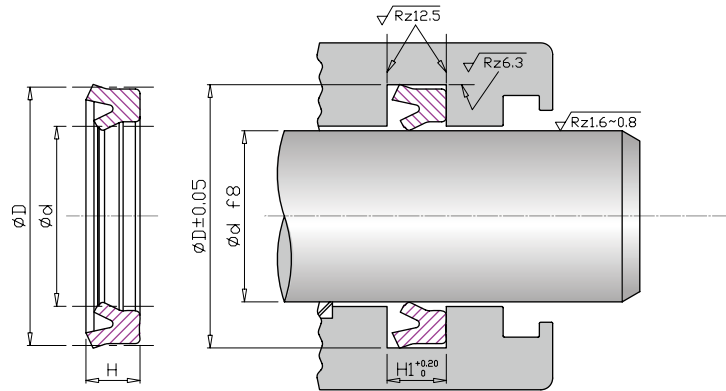
### ESTER TPU 95 PHYSICAL PROPERTIES

|   |                        |            |                   |                     |            |
|---|------------------------|------------|-------------------|---------------------|------------|
| 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   |
| 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 / KC9502AG |            |
|   |                        |            | 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



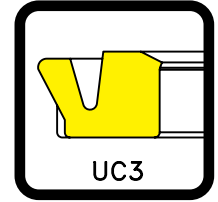
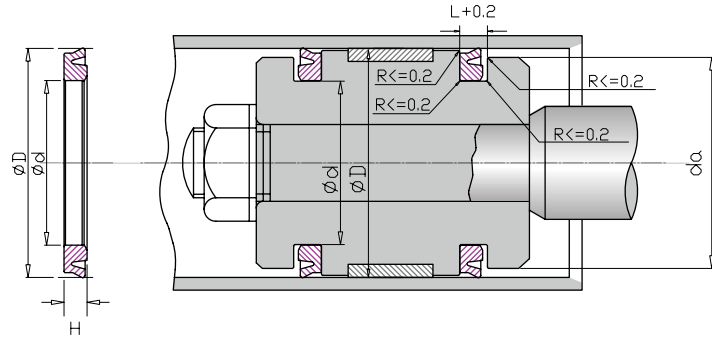
| FKM/FPM 75 PHYSICAL PROPERTIES                                       |            |            |  |
|--|------------|------------|--|
| Working Pressure: $\leq 1.0$ Mpa                                     |            |            |  |
| Working Temperature: $-20^{\circ}\text{C} \sim +225^{\circ}\text{C}$ |            |            |  |
| 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 ●    |            |  |

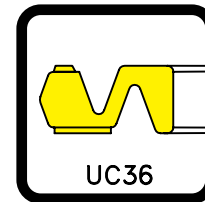
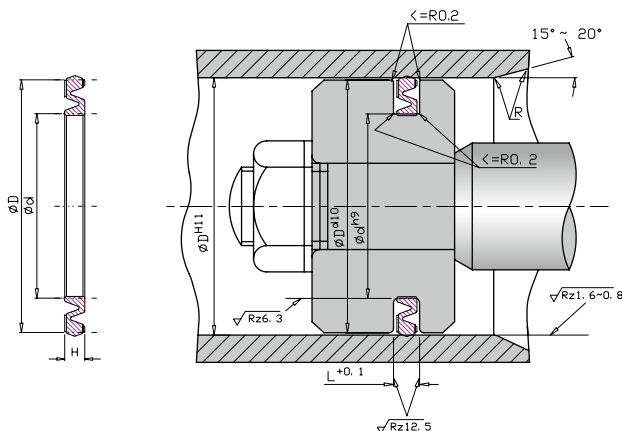
| NBR 75 / 85 PHYSICAL PROPERTIES         |                   |            |  |
|---|-------------------|------------|--|
| Working Pressure: ≤ 1.0 Mpa / ≤ 1.6 Mpa |                   |            |  |
| Working Temperature: -25°C ~ +100°C     |                   |            |  |
| Surface Speed: ≤ 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



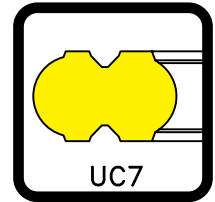
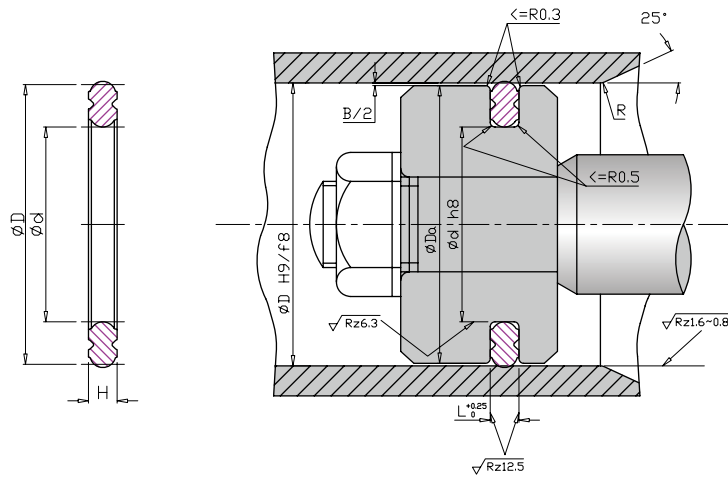
| FKM/FPM 75 PHYSICAL PROPERTIES                                   |            |            |  |
|--|------------|------------|--|
| Working Pressure: $\leq 1.2$ Mpa                                 |            |            |  |
| Working Temperature: $-20^\circ\text{C} \sim +225^\circ\text{C}$ |            |            |  |
| 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) | 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



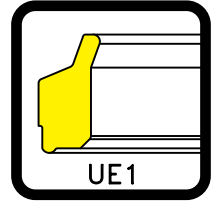
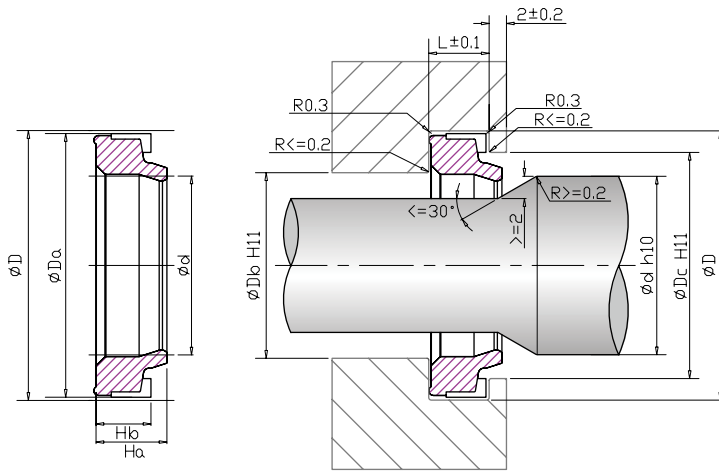
| FKM/FPM 75 PHYSICAL PROPERTIES                                       |                               |            |            |
|--|-------------------------------|------------|------------|
| Working Pressure: $\leq 1.0$ Mpa                                     |                               |            |            |
| 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 |

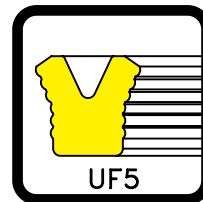
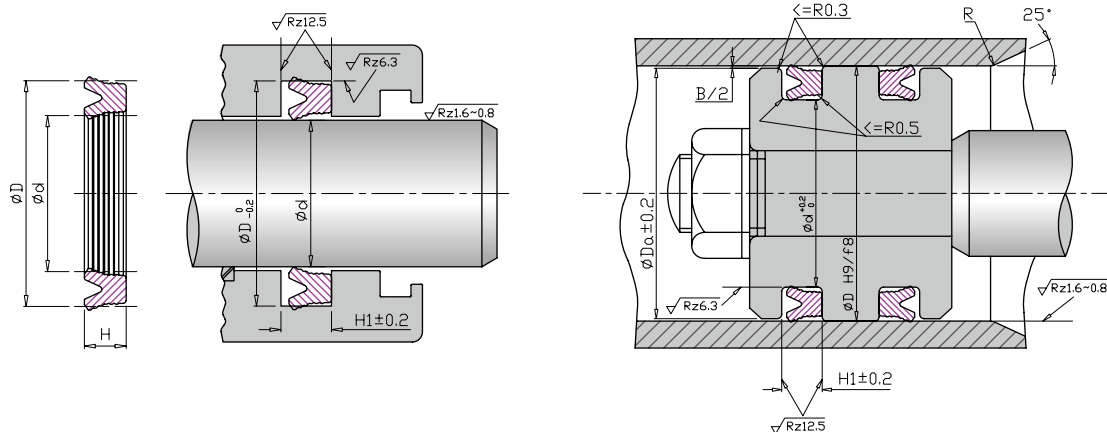
# UE1 Series

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 ●    |            |  |

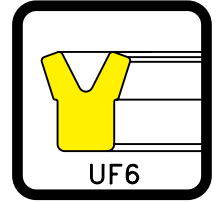
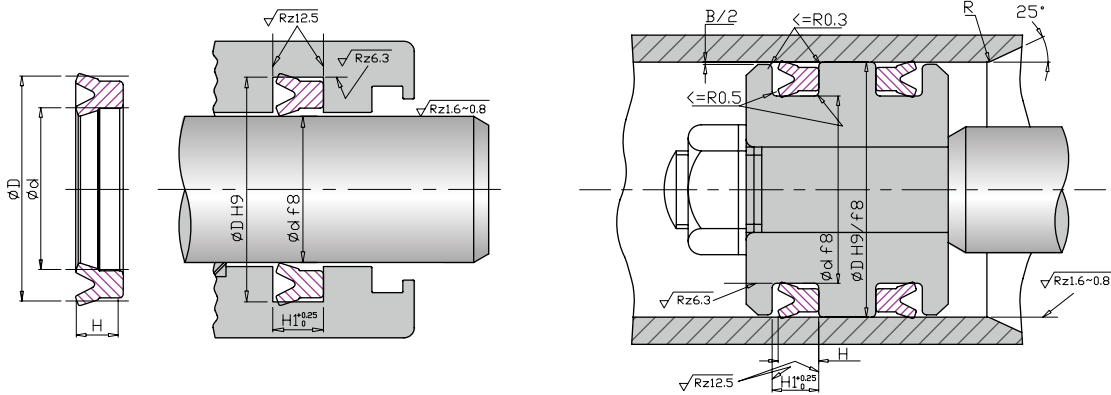
| NBR 75 PHYSICAL PROPERTIES   |            |            |  |
|--|------------|------------|--|
| Working Pressure: $\leq 1.0$ Mpa                                     |            |            |  |
| Working Temperature: $-25^{\circ}\text{C} \sim +100^{\circ}\text{C}$ |            |            |  |
| 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



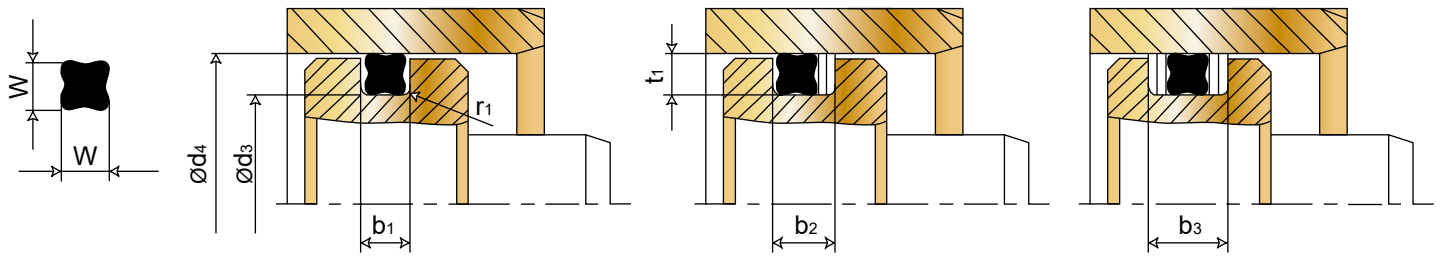
| FKM/FPM 70 PHYSICAL PROPERTIES                                   |            |            |  |
|--|------------|------------|--|
| Working Pressure: $\leq 0.8$ Mpa                                 |            |            |  |
| Working Temperature: $-20^\circ\text{C} \sim +225^\circ\text{C}$ |            |            |  |
| 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                   | 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 |        |
| 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  |      |      |      | 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  |      |      |      | 35.00                  | 28.60             |                      |                     |                     |                     |        |
| X0219            | 32.92  | 0.30 |      |      | 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 |      |      | 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  |      |      |      | 60.00                  | 50.20             |                      |                     |                     |                     |        |
| X0330            | 53.34  | 0.46 |      |      | 63.00                  | 53.20             |                      |                     |                     |                     |        |
| X0330            | 53.34  |      |      |      | 65.00                  | 55.20             |                      |                     |                     |                     |        |
| X0332            | 59.69  |      |      |      | 70.00                  | 60.20             |                      |                     |                     |                     |        |
| X0333            | 62.87  | 0.51 |      |      | 75.00                  | 65.20             |                      |                     |                     |                     |        |
| X0335            | 69.22  |      |      |      | 80.00                  | 70.20             |                      |                     |                     |                     |        |
| X0337            | 75.57  | 0.61 | 5.33 | 0.13 | 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 |      |      |      | 115.00                 | 105.20            |                      |                     |                     |                     |        |
| X0348            | 110.49 |      |      |      | 120.00                 | 110.20            |                      |                     |                     |                     |        |
| X0349            | 113.67 | 0.76 |      |      | 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.

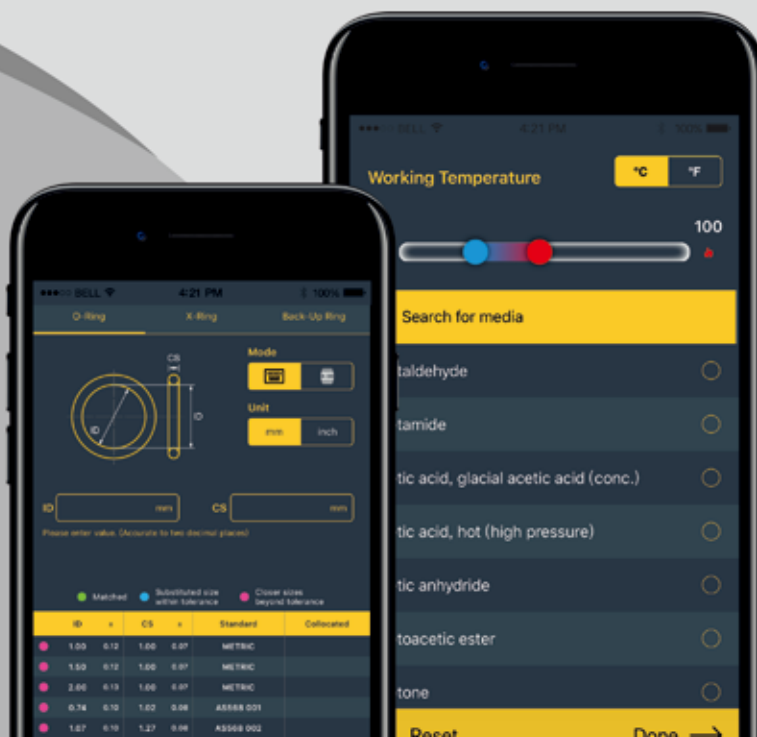
In addition, GMORS provide certified rubber compounds for various international standards, such as NSF61, WRAS, ACS, KTW, W-270, Din EN549, UL157, API 6A, NORSOK M-710, TOTAL EP PVV 142 and NACE TM0297. Please email us for further information.



Android



iOS



Android



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