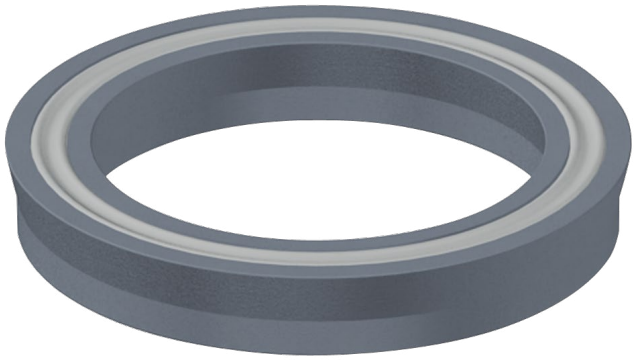
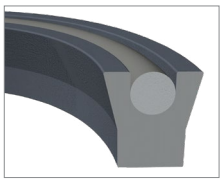
# Loaded U-Cups

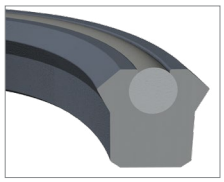


| Seal Materials | Temp. Range | | |
|---|---|---|---|
| Urethane (PU) | -54°C | to | 105°C |
| Viton™/Fluorocarbon (FKM) | -26°C | to | 204°C |
| Hytrel® /Fluorotrel™ (TPC-ET) | -54°C | to | 149°C |
| Hydrogenated Nitrile (HNBR) | -40°C | to | 160°C |
| **Loader Materials** | | | |
| Nitrile (NBR) | -40°C | to | 120°C |
| Low Temp. Nitrile (LTN) | -54°C | to | 116°C |
| Viton™/Fluorocarbon (FKM) | -26°C | to | 204°C |

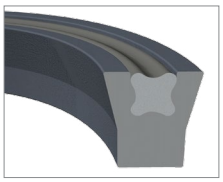




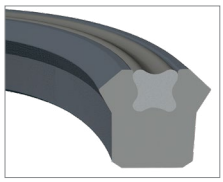
*O-Ring Loaded w/ Straight Lip*



*O-Ring Loaded w/ Beveled Lip*



*Quad Loaded w/ Straight Lip*

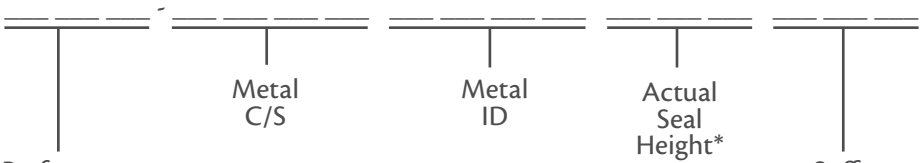


*Quad Loaded w/ Beveled Lip*

## Product Description

U-cups are one of the most popular lip seals used today. Loaded U-cups are primarily intended for dynamic reciprocating applications. They are an excellent seal in low pressure rod or piston applications. As the system pressure increases, the loading lip force also increases, automatically compensating for the higher pressure while maintaining a positive seal. A variety of styles, materials, and sizes are available to suit specific requirements.

## Part Numbers:



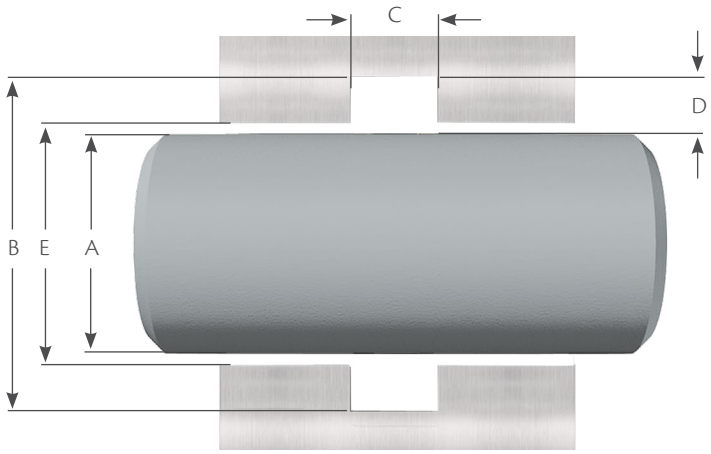

Prefix:

| | | |
|---|---|---|
| LUC | - | PU U-Cup + NBR Loader |
| HSN | - | HNBR U-Cup + HNBR Loader |
| VUC | - | Viton™/FKM U-Cup + Viton™/FKM Loader |
| HTL | - | Hytrel® U-Cup + NBR Loader |

Suffix:

| | | |
|---|---|---|
| Blank | - | O-Ring Loaded, Straight Lip |
| B | - | O-Ring Loaded, Beveled Lip |
| Q | - | Quad Loaded, Straight Lip |
| BQ | - | Quad Loaded, Beveled Lip |
| Material | - | if other than described by the prefix |

** Height is only listed if the axial height is greater than the cross-section.*



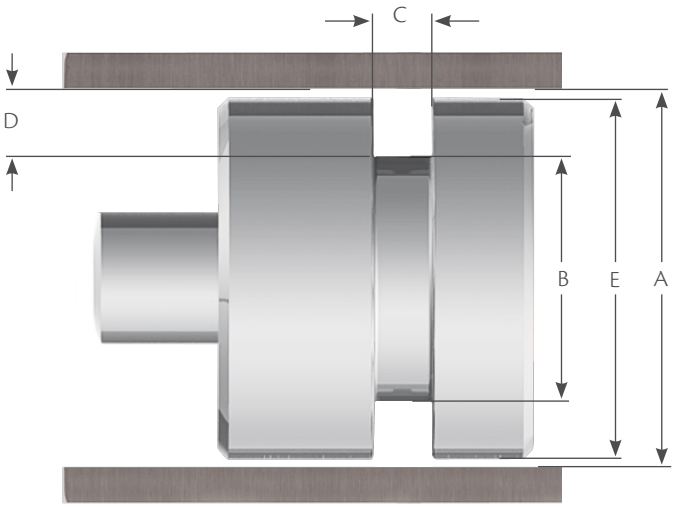

## Rod Gland Application

| C/S Series | Metal C/S | A Rod Diameter | | B Groove Diameter | | E Throat Diameter | | Seal Width | C Groove Width +0.010/ -0.000 |
|---|---|---|---|---|---|---|---|---|---|
| | | Reccomended Range | Tolerance | Calculation | Tolerance | Calculation | Tolerance | | |
| 1250 | 0.125 (1/8) | 0.062 – 0.999 | +0.000/ -0.001 | Dia. A + 0.250 | +0.002/ -0.000 | Dia. A + 0.001 | +0.002/ -0.000 | 0.125 | 0.138 |
| | | | | | | | | 0.187 | 0.206 |
| | | | | | | | | 0.250 | 0.275 |
| 1870 | 0.1875 (3/16) | 1.000 – 1.999 | +0.000/ -0.002 | Dia. A + 0.375 | +0.002/ -0.000 | Dia. A + 0.001 | +0.002/ -0.000 | 0.187 | 0.206 |
| | | | | | | | | 0.250 | 0.275 |
| | | | | | | | | 0.312 | 0.343 |
| | | | | | | | | 0.375 | 0.413 |
| 2500 | 0.250 (1/4) | 2.000 – 3.499 | +0.000/ -0.002 | Dia. A + 0.500 | +0.003/ -0.000 | Dia. A + 0.001 | +0.003/ -0.000 | 0.250 | 0.275 |
| | | | | | | | | 0.312 | 0.343 |
| | | | | | | | | 0.375 | 0.413 |
| | | | | | | | | 0.500 | 0.550 |
| | | | | | | | | 0.562 | 0.618 |
| 3120 | 0.3125 (5/16) | 3.500 – 4.999 | +0.000/ -0.002 | Dia. A + 0.625 | +0.004/ -0.000 | Dia. A + 0.002 | +0.003/ -0.000 | 0.312 | 0.343 |
| | | | | | | | | 0.375 | 0.413 |
| | | | | | | | | 0.500 | 0.550 |
| | | | | | | | | 0.562 | 0.618 |
| | | | | | | | | 0.625 | 0.688 |
| 3750 | 0.375 (3/8) | 5.000 – 9.999 | +0.000/ -0.002 | Dia. A + 0.750 | +0.005/ -0.000 | Dia. A + 0.002 | +0.004/ -0.000 | 0.375 | 0.413 |
| | | | | | | | | 0.500 | 0.550 |
| | | | | | | | | 0.562 | 0.618 |
| | | | | | | | | 0.625 | 0.688 |

# Loaded U-Cups



| C/S Series | Metal C/S | A Rod Diameter | | B Groove Diameter | | E Throat Diameter | | Seal Width | C Groove Width +0.010/ -0.000 |
|---|---|---|---|---|---|---|---|---|---|
| | | Reccomended Range | Tolerance | Calculation | Tolerance | Calculation | Tolerance | | |
| 5000 | 0.500 (1/2) | 10.000 – 19.999 | +0.000/ -0.003 | Dia. A + 1.000 | +0.007/ -0.000 | Dia. A + 0.002 | +0.005/ -0.000 | 0.500 | 0.550 |
| | | | | | | | | 0.562 | 0.618 |
| | | | | | | | | 0.625 | 0.688 |
| | | | | | | | | 0.750 | 0.825 |
| 6250 | 0.625 (5/8) | 20.000 – 29.999 | +0.000/ -0.003 | Dia. A + 1.250 | +0.009/ -0.000 | Dia. A + 0.002 | +0.006/ -0.000 | 0.625 | 0.688 |
| | | | | | | | | 0.750 | 0.825 |
| | | | | | | | | 1.000 | 1.100 |
| 7500 | 0.750 (3/4) | 30.000 – 39.999 | +0.000/ -0.004 | Dia. A + 1.500 | +0.011/ -0.000 | Dia. A + 0.002 | +0.007/ -0.000 | 0.750 | 0.825 |
| | | | | | | | | 1.000 | 1.100 |
| | | | | | | | | 1.250 | 1.375 |
| 1000 | 1.000 (1) | 40.000+ | +0.000/ -0.005 | Dia. A + 2.000 | +0.015/ -0.000 | Dia. A + 0.002 | +0.009/ -0.000 | 1.000 | 1.100 |
| | | | | | | | | 1.250 | 1.375 |
| | | | | | | | | 1.500 | 1.650 |




## Piston Gland Application

| C/S Series | Metal C/S | A Bore Diameter | | B Groove Diameter | | E Piston Diameter | | Seal Width | C Groove Width +0.010/ -0.000 |
|---|---|---|---|---|---|---|---|---|---|
| | | Reccomended Range | Tolerance | Calculation | Tolerance | Calculation | Tolerance | | |
| 1250 | 0.125 (1/8) | 0.312 - 1.499 | +0.002/ -0.000 | Dia. A - 0.250 | +0.000/ -0.002 | Dia. A - 0.001 | +0.000/ -0.001 | 0.125 | 0.138 |
| | | | | | | | | 0.187 | 0.206 |
| | | | | | | | | 0.250 | 0.275 |
| 1870 | 0.1875 (3/16) | 1.500 - 2.999 | +0.002/ -0.000 | Dia. A - 0.375 | +0.000/ -0.002 | Dia. A - 0.001 | +0.000/ -0.002 | 0.187 | 0.206 |
| | | | | | | | | 0.250 | 0.275 |
| | | | | | | | | 0.312 | 0.343 |
| | | | | | | | | 0.375 | 0.413 |
| 2500 | 0.250 (1/4) | 3.000 - 5.999 | +0.003/- 0.000 | Dia. A - 0.500 | +0.000/ -0.003 | Dia. A - 0.001 | +0.000/ -0.002 | 0.250 | 0.275 |
| | | | | | | | | 0.312 | 0.343 |
| | | | | | | | | 0.375 | 0.413 |
| | | | | | | | | 0.500 | 0.550 |
| | | | | | | | | 0.562 | 0.618 |
| 3120 | 0.3125 (5/16) | 6.000 - 9.999 | +0.003/ -0.000 | Dia. A - 0.625 | +0.000/ -0.004 | Dia. A - 0.002 | +0.000/ -0.002 | 0.312 | 0.343 |
| | | | | | | | | 0.375 | 0.413 |
| | | | | | | | | 0.500 | 0.550 |
| | | | | | | | | 0.562 | 0.618 |
| | | | | | | | | 0.625 | 0.688 |
| 3750 | 0.375 (3/8) | 10.000 - 19.999 | +0.004/ -0.000 | Dia. A - 0.750 | +0.000/ -0.005 | Dia. A - 0.002 | +0.000/ -0.002 | 0.375 | 0.413 |
| | | | | | | | | 0.500 | 0.550 |
| | | | | | | | | 0.562 | 0.618 |
| | | | | | | | | 0.625 | 0.688 |

# Loaded U-Cups



| C/S Series | Metal C/S | A Bore Diameter | | B Groove Diameter | | E Piston Diameter | | Seal Width | C Groove Width +0.010/ -0.000 |
|---|---|---|---|---|---|---|---|---|---|
| | | Reccomended Range | Tolerance | Calculation | Tolerance | Calculation | Tolerance | | |
| 5000 | 0.500 (1/2) | 20.000 - 29.999 | +0.005/ -0.000 | Dia. A - 1.000 | +0.000/ -0.007 | Dia. A - 0.002 | +0.000/ -0.003 | 0.500 | 0.550 |
| | | | | | | | | 0.562 | 0.618 |
| | | | | | | | | 0.625 | 0.688 |
| | | | | | | | | 0.750 | 0.825 |
| 6250 | 0.625 (5/8) | 30.000 - 39.999 | +0.006/ -0.000 | Dia. A - 1.250 | +0.000/ -0.009 | Dia. A - 0.002 | +0.000/ -0.003 | 0.625 | 0.688 |
| | | | | | | | | 0.750 | 0.825 |
| | | | | | | | | 1.000 | 1.100 |
| 7500 | 0.750 (3/4) | 40.000 - 49.999 | +0.007/ -0.000 | Dia. A - 1.500 | +0.000/ -0.010 | Dia. A - 0.002 | +0.000/ -0.004 | 0.750 | 0.825 |
| | | | | | | | | 1.000 | 1.100 |
| | | | | | | | | 1.250 | 1.375 |
| 1000 | 1.000 (1) | 50.000+ | +0.009/ -0.000 | Dia. A - 2.000 | +0.000/ -0.012 | Dia. A - 0.002 | +0.000/ -0.005 | 1.000 | 1.100 |
| | | | | | | | | 1.250 | 1.375 |
| | | | | | | | | 1.500 | 1.650 |