

### Features:

Heavy duty wiping performance

Abrasion resistant material

Double acting inner lip, which removes oil film from the rod as it cycles

Easily retrofitted into existing wiper grooves



### MATERIAL

The 311 Series Double-Acting Wiper features high-grade polyurethane. Standard materials are MP03 machined H-PU, available up to 2100 mm in diameter and MP50 injection-molded TPU. To suit a variety of applications the series is also available in NBR, H-NBR, EPDM and high temperature-resistant FPM.

| Material                     | Code |
|------------------------------|------|
| Polyurethane H-PU            | MP03 |
| Nitrile NBR (shown in photo) | MN01 |
| Fluoroelastomer FPM          | MF01 |
| Polyurethane TPU             | MP50 |

### OPERATING PARAMETERS

| Temperature               | MP03               |            |
|---------------------------|--------------------|------------|
|                           | °C                 | °F         |
| hydraulic oil             | -20...+115         | -5...+240  |
| water oil emulsions (HFA) | +5...+55           | +40...+130 |
| water-glycol fluids (HFC) | -20...+55          | -5...+130  |
| polyol esters (HFD)       | -                  | -          |
| water                     | +5...+55           | +40...+130 |
| speed                     | 2 m/s (6.5 ft/sec) |            |
| pressure                  | -                  |            |

**Note:** For other materials or fluids please contact our engineering department.

### DESCRIPTION

The 311 Series Double-Acting Wiper is a popular upgrade to the traditional single-lip wiper designs. It offers enhanced performance and can be easily retrofitted into existing wiper grooves. The double acting design ensures maximum resistance to contamination, while working in tandem with the rod seal to maximize performance. The internal wiping lip is notched to prevent pressure trapping between the wiper and the rod seal. The wiper is designed to exclude and protect the hydraulic cylinder in the harshest conditions.

### PRODUCT BENEFITS

- Internal notches prevent pressure trapping
- Designed to fit securely in the groove
- Long service life
- Easy snap-in installation
- Available in large diameter up to 2100 mm

### APPLICATIONS

The 311 Series Wiper is particularly suited for operating in contaminated or outside environments.

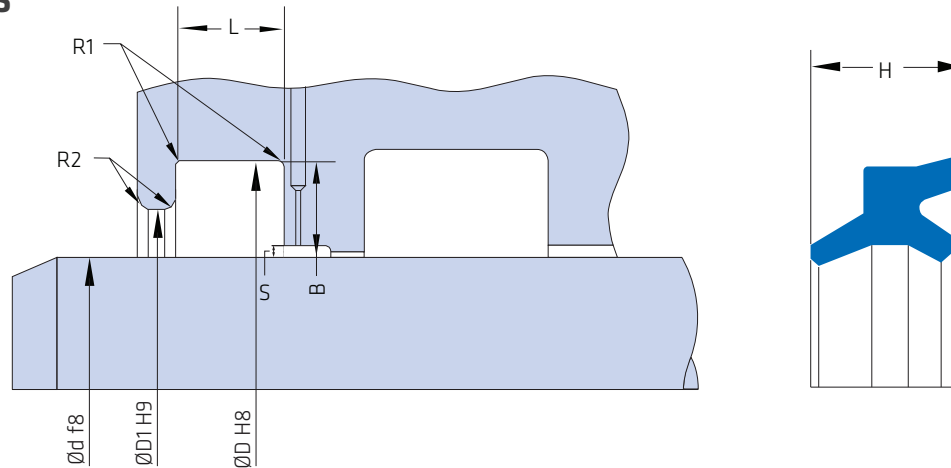
Typical applications include:

- Steel and Aluminum Processing
- Mobile Hydraulics
- Agricultural
- Standard Hydraulic Cylinders



**Above:** Installation Drawing

## DESIGN GUIDELINES



## METRIC SERIES

|          | Rod Diameter Ød   | B     | ØD        | ØD1       | L <sup>+0.20</sup> | H     | R1   | R2   | S    |
|----------|-------------------|-------|-----------|-----------|--------------------|-------|------|------|------|
| Series 1 | Up to 40.00 mm    | 4.30  | d + 8.60  | d + 3.00  | 5.30               | 7.00  | 0.30 | 0.50 | 2.50 |
| Series 2 | Up to 70.00 mm    | 5.30  | d + 10.60 | d + 3.00  | 5.30               | 7.00  | 0.30 | 0.50 | 2.50 |
| Series 3 | Up to 175.00 mm   | 7.50  | d + 15.00 | d + 7.60  | 10.20              | 16.00 | 0.30 | 0.50 | 2.50 |
| Series 4 | Up to 250.00 mm   | 10.00 | d + 20.00 | d + 10.00 | 10.20              | 18.00 | 0.30 | 0.50 | 2.50 |
| Series 5 | Up to 350.00 mm   | 12.50 | d + 25.00 | d + 12.60 | 12.70              | 20.00 | 0.30 | 0.50 | 2.50 |
| Series 6 | Up to 1,000.00 mm | 15.00 | d + 30.00 | d + 15.00 | 15.20              | 25.00 | 0.30 | 0.50 | 2.50 |

## INCH SERIES

|          | Rod Diameter Ød | B     | ØD        | ØD1       | L <sup>+0.008</sup> | H     | R1    | R2    | S     |
|----------|-----------------|-------|-----------|-----------|---------------------|-------|-------|-------|-------|
| Series 1 | Up to 1.625 in  | 0.169 | d + 0.339 | d + 0.118 | 0.209               | 0.276 | 0.012 | 0.020 | 0.100 |
| Series 2 | Up to 2.750 in  | 0.209 | d + 0.417 | d + 0.118 | 0.209               | 0.276 | 0.012 | 0.020 | 0.100 |
| Series 3 | Up to 6.750 in  | 0.295 | d + 0.591 | d + 0.299 | 0.402               | 0.630 | 0.012 | 0.020 | 0.100 |
| Series 4 | Up to 10.000 in | 0.394 | d + 0.787 | d + 0.394 | 0.402               | 0.709 | 0.012 | 0.020 | 0.100 |
| Series 5 | Up to 13.750 in | 0.492 | d + 0.984 | d + 0.496 | 0.500               | 0.787 | 0.012 | 0.020 | 0.100 |
| Series 6 | Up to 40.000 in | 0.591 | d + 1.181 | d + 0.591 | 0.598               | 0.984 | 0.012 | 0.020 | 0.100 |

**Note:** For a complete list of available sizes please refer to the System Seals online product catalogue at [www.systemseals.com](http://www.systemseals.com).

## SURFACE FINISH

| Surface roughness      | Ra      | Rt     | RMS      |
|------------------------|---------|--------|----------|
| Sliding surface        | ≤0.3 µm | ≤3 µm  | 6-12 RMS |
| Surface of groove I.D. | ≤1.8 µm | ≤10 µm | 64 RMS   |
| Sides of groove        | ≤3 µm   | ≤16 µm | 125 RMS  |