

### Features:

*O-Ring energizer that maintains seal force throughout service life*

*Double-acting design*

*Side notches ensure pressure exposure to the energizer during rapid pressure changes*

*Easy to install*



### MATERIAL

The 415 series rotary seal features custom blended PTFE-filled compounds providing ultra-low friction and high-speed performance with minimal wear. The standard compounds are PTFE with Bronze filler, or PTFE filled with Glass-Moly + NBR. The temperature range of the seal can be increased by selecting an FPM energizer in place of the standard NBR energizer.

Material	Code
PTFE-Bronze compound + NBR O-Ring (shown in photo)	MT23
PTFE-Bronze compound + FPM O-Ring	MT26
PTFE-Glass/MoS <sub>2</sub> compound + NBR O-Ring	MT83
PTFE-Glass/MoS <sub>2</sub> compound + FPM O-Ring	MT86
PTFE/Carbon/Graphite + NBR	MT62
PTFE/Carbon/Graphite + FKM	MT67
PTFE/Carbon + FKM	MT77
PTFE/Carbon + NBR	MT160
UHMW + NBR	ML11

### OPERATING PARAMETERS

Temperature	MT23		MT83	
	°C	°F	°C	°F
hydraulic oil	-30... +100	-22... +212	-30... +100	-22... +212
water oil emulsions (HFA)	+5... +60	+40... +140	+5... +60	+40... +140
water-glycol fluids (HFC)	-30... +60	-22... +140	-30... +60	-22... +140
polyol esters (HFD)	-	-	-	-
water	+5... +100	+40... +212	+5... +100	+40... +212
speed	0.5 m/s (1.65 ft/sec)			
pressure	400 bar (6,000 psi)			

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

### DESCRIPTION

The 415 series PTFE rotary swivel seal is a low-friction design, consisting of a PTFE-filled seal and an O-Ring energizer. It is designed for rotary swivel applications, where low friction, low torque and high wear resistance are needed.

### PRODUCT BENEFITS

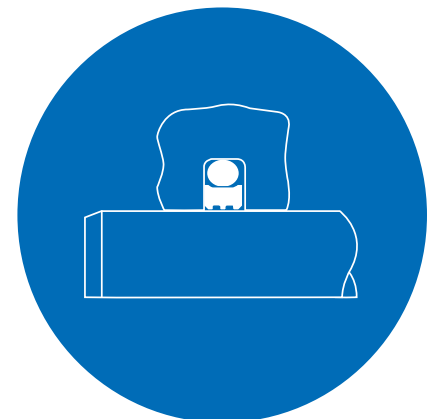
- Low friction
- Rotary swivel applications
- High-temperature resistance
- Low wear
- Low torque
- Extrusion resistant
- Compatible with a wide range of media
- Available in diameters up to 2100 mm
- High abrasion resistance

### APPLICATIONS

The 415 series rotary seal is ideal for high-pressure sealing applications, offering low-friction performance and rotary swivel operation.

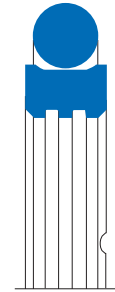
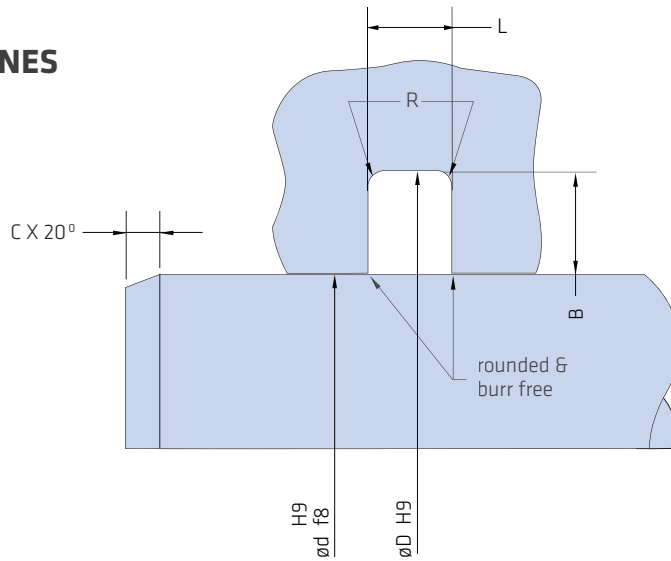
Typical applications include:

- Rolling Mills
- Hydraulic Motors
- Agricultural Hydraulics
- Mobile Hydraulics
- Rotary Actuators
- Rotary Swivels
- Pivoting Motors
- Steel Mill Coilers



**Above:** Installation Drawing

## DESIGN GUIDELINES



## METRIC SERIES

	B	ØD	L <sup>+0.20</sup>	R
Series 1	3.75 mm	d + 7.50	3.20	0.50
Series 2	5.50 mm	d + 11.00	4.20	0.80
Series 3	7.75 mm	d + 15.50	6.30	1.20
Series 4	10.50 mm	d + 21.00	8.10	2.00
Series 5	14.00 mm	d + 28.00	8.10	2.00

## INCH SERIES

	B	ØD	L <sup>+0.008</sup>	R
Series 1	0.148 in	d + 0.295	0.126	0.020
Series 2	0.217 in	d + 0.433	0.165	0.030
Series 3	0.305 in	d + 0.610	0.248	0.050
Series 4	0.413 in	d + 0.827	0.319	0.080
Series 5	0.551 in	d + 1.102	0.374	0.080

**Note:** the extrusion gap "E" is suitable for pressure up to 400bar (6,000 psi) and temperatures up to 80° C (176° F). For higher pressures or temperatures, please consult our engineering department for guidance.

## SURFACE FINISH

Surface roughness	Ra	Rt	RMS
Sliding surface	005 - 0.30 µm	≤3.0 µm	8 RMS
Surface of groove I.D.	≤1.8 µm	≤10.0 µm	64 RMS
Sides of groove	≤3.0 µm	≤16.0 µm	125 RMS

## LEAD-IN CHAMFERS

ØD	C
≤50 mm	3.00
50 mm < 120 mm	4.00
120 mm < 200 mm	6.00
200 mm < 650 mm	8.00
650 mm < 950 mm	11.00

ØD	C
≤2.0 in	0.120
2.0 in < 4.7 in	0.160
4.7 in < 7.9 in	0.240
7.9 in < 25.6 in	0.320
25.6 in < 37.5 in	0.450