

# 51K

## Mill Rotary Seals

### *Split Radial Seals for Bearing and Gearbox Protection*

Chesterton® 51K seals are high-performance radial seals for heavy duty, dynamic rotary seal applications. These seals provide long-lasting sealing and superior protection against ingress of solid particles, dust and fluids, protecting bearing houses and gearboxes across the heavy industries, even in the most hostile working environments.

High-performance elastomers create resistance to compression setting, wear, and aging. A broad range of engineered elastomers allow use in high and low temperature conditions and provide excellent fluid compatibility.

The 51K is manufactured by compression molding technology that provides accurate dimensional, geometrical tolerances, and improved fitting. The seal body is equipped with a strong, flexible fabric back for tight fitting within the seal cavity. A helical garter spring maintains the seal lip contact and sealing force on the shaft.

According to industrial standards sizing, the 51K is a direct retrofit, which eliminates the need of equipment modification. The 51K is offered in different designs based on application requirements.



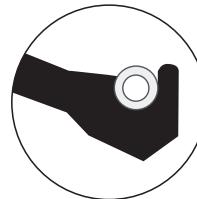
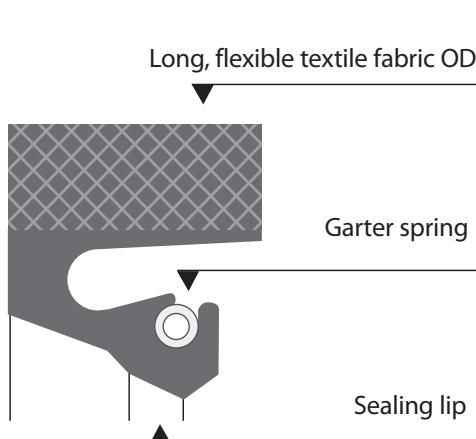
- Long lasting sealing and superior protection against ingress of foreign materials
- High performance elastomers ensure plant-wide usage and long service life
- Unique lip design combined with autolubricated elastomer offer low friction
- Direct retrofit eliminates equipment modification
- Split versions are available for easy assembly

AVAILABLE DESIGNS	
Series	Usage
51K	 with standard style in solid and split form
51KW	 with additional dust lip
51KHP	 with special lip profile to withstand high pressures up to 0,4 MPa ( 4 bar ) – solid only
51KL	 with additional circumferential groove for lubrication

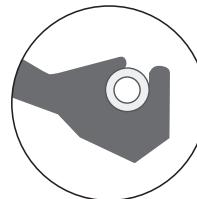
### Typical Applications

- Gear drives
- Back-up rolls in hot and cold mills
- Work rolls in hot and cold mills
- Pulp and paper industry
- Pumps
- Propeller shafts
- Wind turbine main bearings
- Rotary applications in cement plants

## Seal Construction



Traditional open garter spring groove design



Improved garter spring groove design from Chesterton for safe installation

### INSTALLATION INFORMATION

Parameters	Recommended values
Shaft hardness	40 - 50 HRC
Shaft surface finish	R <sub>a</sub> = 0.3 to 0.5 µm (12-20 µin) and R <sub>max</sub> 1 to 2 µm (40 to 80 µin) plunge ground
Shaft tolerance	h11
Housing tolerances	H8
Shaft misalignment	Depending on the surface speed 1.5 mm (0.06 in) should not be exceeded

### Mounting

- The Chesterton 51K Series is always used with a retaining plate
- The retaining plate creates an axial preload that adds to the static sealability of the seal
- The plate should be sufficiently dimensioned to avoid distortion when bolting up
- To ease mounting of the seal ring make sure the housing has a lead-in chamfer

### SPECIFICATIONS

Elastomers	NBR80+PTFE	HNBR 70	FKM70+PTFE
OD Fabric	Textile +NBR	Textile + HNBR	Textile + FKM
Mate rials of garter spring	AISI 302-316	AISI 302-316	AISI 302-316
Lubricating greases	-20°C to 100°C (-4°F to 212°F)	-30°C to 150°C (-22°F to 302°F)	-20°C to 200°C (-4°F to 392°F)
Mineral oils	-20°C to 100°C (-4°F to 212°F)	-30°C to 150°C (-22°F to 302°F)	-20°C to 200°C (-4°F to 392°F)
Water	5°C to 100°C (41°F to 212°F)	5°C to 150°C (41°F to 302°F)	5°C to 100°C (41°F to 212°F)
Surface speed m/s (ft/min)	15 (2952 ft/min)	20 (3937 ft/min)	25 (4921 ft/min)
Technical pressure MPa (psi) 51K, 51KW, 51KL Solid	0.05 (7.25)	0.05 (7.25)	0.05 (7.25)
Technical pressure MPa (psi) 51K, 51KW, 51KL Split	No pressure can be applied	No pressure can be applied	No pressure can be applied
Technical pressure MPa (psi) 51HP Solid	0.4 (58)	0.4 (58)	0.4 (58)
Size range mm (inch)** Seal OD	300 to 1200 (12 to 47)	300 to 1200 (12 to 47)	300 to 1200 (12 to 47)

\*\*Please contact your Chesterton representative for other sizes.

Chesterton ISO certificates available on  
[www.chesterton.com/corporate/iso](http://www.chesterton.com/corporate/iso)

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