

RD Type (Light Contact) Sealed Ball Bearings

Superior Performance Through These Advanced Engineering Features

Mandrel

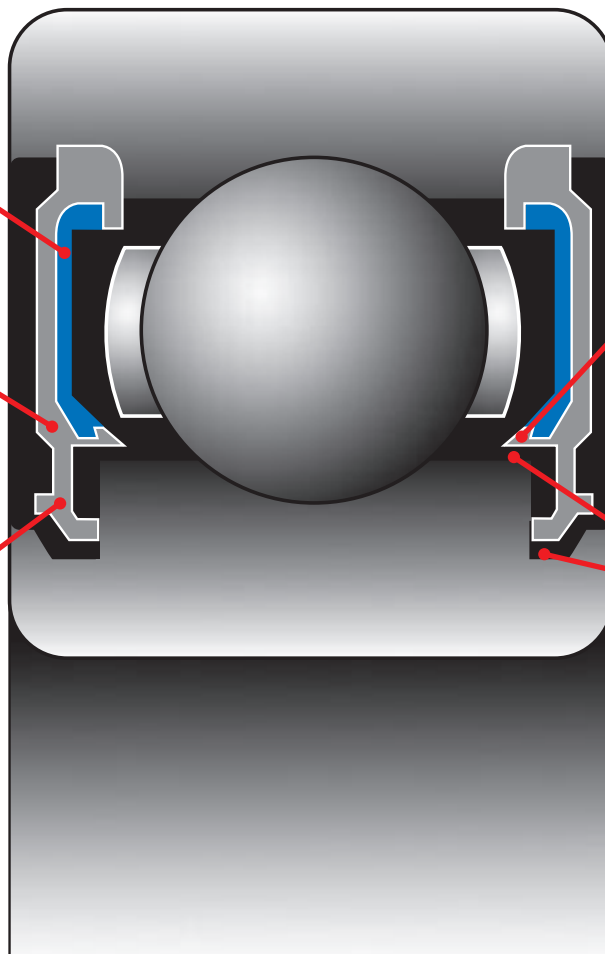
Reinforces
Seal

Reduced Friction Torque

Excellent
Outer Lip
Flexibility
Reduces Friction
Torque

Improved Seal Performance

Protuberance at
the Tip of the
Outer Lip
Improves Seal
Performance



Unique Lubrication System

Inner Lip Seal
Prevents Grease
Leakage By
Directing it
Toward Bearing
Interior

Contamination Barrier

Seal Lips Form
a Labyrinth
for Optimum
Sealing Efficiency



In general, non-contact type products are used in applications requiring low torque, and contact type products in applications requiring a tight seal.

Koyo's RD type sealed ball bearing was developed to meet the demand for bearings that provide both low torque and a tight seal.

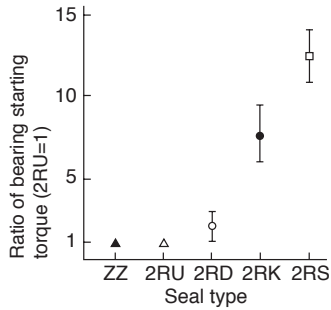
Koyo's efforts in R&D resulted in our newly developed RD type sealed ball bearings to satisfy these demands. With torque as low as that of non-contact sealed ball bearings, yet a seal nearly as tight as contact type product, superior protection from water and dust has been achieved.

Koyo®

Koyo® RD Type (Light Contact) Sealed Ball Bearing

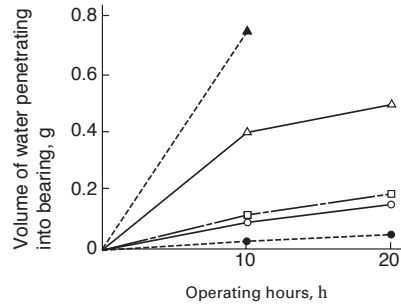
Performance of RD Seal Design

Low Starting Torque



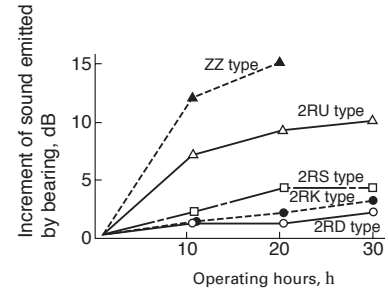
Friction torque is significantly less than full contact type seals and nearly equal to non-contact seals and shields

Superior Protection Against Water

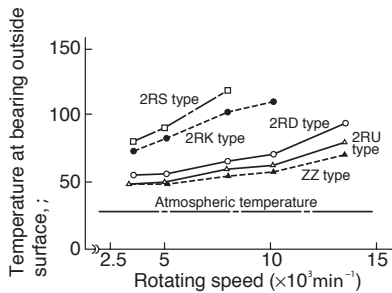


RD Seal design is superior to full contact type seal design for maximum protection from dust and water.

Superior Protection Against Dust



Slight Temperature Rise



(Test Conditions)
Bearing:
6303

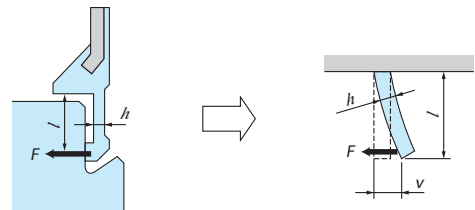
Grease:
Synthetic and Mineral Base Oil
Consistency No. 2
(Volume: 40% of Space)

Radial Load:
50N

Dustproof Test:
Conducted in Aluminum
Power Atmosphere

Waterproof Test:
Mist Atmosphere







Reduction of Friction Torque



$$F = \frac{E\nu}{4} \left(\frac{h}{l} \right)^3 b$$

F : Force resulting from rubber elasticity (N)
 E : Young's modulus for rubber (N/mm²)
 ν : Interference (mm)
 l : Seal outer lip length (mm)
 h : Seal outer lip thickness (mm)
 b : Microwidth in circumferential direction (mm)

(Reference) Comparison of Various Sealed and Shielded Ball Bearings

Type	Sealed ball bearings				Shielded ball bearings	
	Light-contact type	Contact type		Non-contact type	Non-contact type	
	2RD	2RS	2RK	2RU	ZZ	
Characteristics	 (a)	 (b) ¹⁾	 (c)	 (d)	 (e)	 (f) ²⁾ (g)
Friction torque	Low	High	High	Low	Low	
Grease retention	Very good	Very good	Very good	Better than ZZ type	Good	
Protection against dust	Very good	Better than 2RU type	Very good	Better than ZZ type	Good	
Protection against water	Good	Good	Very good	Better than ZZ type	Not very good	
Limiting speed ³⁾ (maximum)	$d_m n = 450\,000$	$d_m n = 300\,000$	$d_m n = 300\,000$	$d_m n = 500\,000$	$d_m n = 500\,000$	
Operating temperature range ⁴⁾	-30~110;	-30~100;	-30~100;	-30~110;	-30~110;	