

# TECHNICAL INSIGHT

A PUBLICATION OF NSK EUROPE

## NSK Seals and Shields Protect Bearing Investment

To create the best bearing for an application, NSK offers several options to protect the bearing from contaminants and maintain grease levels.

### V Shields for High Performance Without Friction

The non-contact V seal (Fig. 1) is designed for the higher speed, higher temperature requirements of applications such as electric motors. The patented V seal gives excellent sealing performance without friction for increased bearing life and reduced load on the motor. The V seal has better sealing capability than a shield. The non-contact lip reduces the drag in the bearing. This is important where power loss is critical as in small electric motors. The speed capability is comparable to the shielded bearing.

### Light Contact DW Seal

The light contact DW seal is designed for excellent contamination protection when torque levels are a consideration. Lower friction levels than the full contact seal but designed for use in high contaminant environments.

### DU Seals for Maximum Contaminant Protection

The DU seal (Fig. 2) is a contact seal designed for maximum protection against all contaminants. The patent pending triple lip mechanism gives excellent dust and water protection. With lower speed and temperature limits, the DU seal is used in situations where maximum sealing is critical.

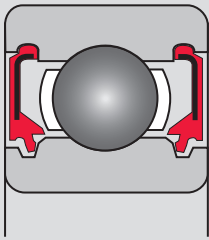
### Z Shields for High Temperature Applications

Z shields (Fig. 3) are metal with a special anti-corrosion zinc coating. The high performance bearings are suitable for diverse applications where low torque and low temperature rise are required. Engineered for high temperature applications, Z shields give superb performance through a wide temperature range. They protect bearings from large contaminants but do not prevent the entrance of small particles. Z shields are recommended when operating temperatures are high. Bearings outfitted with shields have the same speed capability as a non-sealed greased bearing.

NSK Sealed Bearing

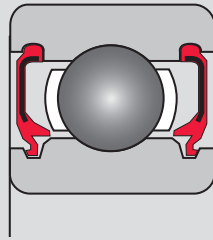


## NSK Seals and shields



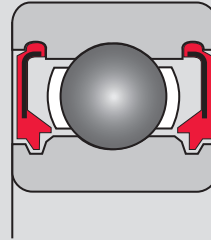
### DU Seal (Full Contact)

- › Maximum Sealing Protection



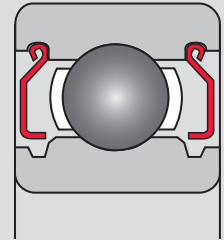
### DW Seal (Light Contact)

- › Excellent Contaminant Protection
- › 1/3 Less Drag than Full Contact Seal



### V Seal (Non-Contact)

- › Low Torque
- › High Speed Limit
- › Contaminant Protection



### Z Shield (Metal Shield)

- › Low Torque
- › High Temperature Limit
- › High Speed Limit

Seal Material		Nomenclature	Temperature Range	
			Non-Contact Seal	Contact Seal
Nitrile Butyle Rubber		Standard Seal	-50°C to 130°C	-30°C to 110°C
Polyacrylic Rubber (ACM)	Standard Polyacrylic	VV8, DDU8	-30°C to 170°C	-15°C to 150°C
Silicone		VV9, DDU9	-100°C to 250°C	-70°C to 200°C
<b>Fluoroelastomer (FKM)</b> <ul style="list-style-type: none"> <li>› Dupont Trade Name is Viton™</li> <li>› Most common high temp material</li> </ul>		VV7, DDU7	-50°C to 220°C	-30°C to 200°C

For more information, please visit [www.nskeurope.com](http://www.nskeurope.com)