



Seals or Shields - which is better?

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“Seals or shields, which is better?” is a common question. The answer often involves a tradeoff between the level of advantage or disadvantage each option offers.

Shields offer some protection against contamination but will not stop grease purging. Shields can resist some chemicals better than seals and endure temperature extremes. The fact that shields do not contact the inner ring means they do not generate frictional heat.

Seals generally offer better protection against contamination and purging than shields. Nitrile rubber seals have problems if exposed to certain chemicals or excessive temperatures. Changing the seal material from nitrile to poly acrylic or Viton material can increase chemical resistance and temperature capability. Seals generally contact the inner ring which can limit the rotational speed of the bearing due to heat generation. The drag from the seals contacting the inner ring generally requires more energy or torque to rotate the bearing. Seals can address some of their performance limitations with design modifications. Changing the lip design can change the torque or heat generated by modifying the seal from a non-contact to a light contact to a heavy contact seal. Often changing the seal material or lip design can increase the cost or availability of the seal.

The table below provides some relative comparison of seals and shields.

	SHIELD	NON-CONTACT SEAL	CONTACT SEAL
PREVENTION OF GREASE PURGING	POOR	OK	GOOD
CONTAMINATION PROTECTION	POOR	OK	GOOD
HEAT GENERATION	GOOD	GOOD	OK
LIMITING SPEED	GOOD	GOOD	OK
SEAL DRAG	GOOD	GOOD	OK
TEMPERATURE CAPABILITY	GOOD	OK	OK

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