Pressure Seals

Pressure Seals

Dichtomatik's standard shaft seals are designed to function in applications where the operating pressure is 0 to 7 psi. For applications where the operating pressure is above 7 psi, a pressure seal will need to be used. If a standard shaft seal were to be used in a pressure application, the seal would be deformed due to the pressure being applied to the flex section of the seal. This deformation would lead to an increase in the contact between the seal and the shaft causing an increase in temperature and shaft wear. For this reason, pressure seals are standard shaft seals with a specially modified flex section design. The design of the flex section is dependant upon the amount of pressure that is present in the application. The standard pressure seals that Dichtomatik offers are the E style and N style seals.

E Style Pressure Seals

Dichtomatik's E style pressure seals are designed to function in applications where the operating pressure is 10 to 30 psi. E style pressure seals are designed so that the I.D. of the metal case is bent into the flex section of the primary sealing lip. By having the metal case in the flex section of the sealing lip, the seal can operate in higher pressure applications without the lip deforming.

N Style Pressure Seals

Dichtomatik's N style pressure seals are designed to function in applications where the operating pressure is above 30 psi. N style pressure seals are designed so that the flex section of the primary sealing lip gets progressively shorter as the applications operating pressure increases. Dichtomatik offers several different N style seals.

- N1 style seals are designed to operate in applications where the pressure is 30 to 50 psi.
- N2 style seals are designed to operate in applications where the pressure is 50 to 90 psi.
- N style seals are designed to operate in applications where the pressure is above 90 psi.

Because a pressure seal is designed with a shorter and stiffer flex section than a standard shaft seal, there are two application criteria that become increasingly important to control. These two criteria are the shaft hardness and the shaft eccentricity. The primary sealing lip of a pressure seal is going to have a higher radial load on the shaft which will tend to cause additional grooving in the shaft. To protect against excessive grooving in the shaft it is recommended that the shaft hardness be a minimum of 55 HRc for all pressure applications. The shaft eccentricity needs to be minimized because the primary sealing lip of a pressure seal is so stiff. If the runout or shaft-to-bore misalignment is high the sealing lip will lose contact with the shaft and there will be a leakage.

Dichtomatik stocks some pressure seals for standard applications. Prior to using a pressure seal in a new application it is recommended that you contact Dichtomatik Engineering to ensure that the proper seal is being used as the above pressure ratings for the seals may change as the operating speeds and temperatures vary.

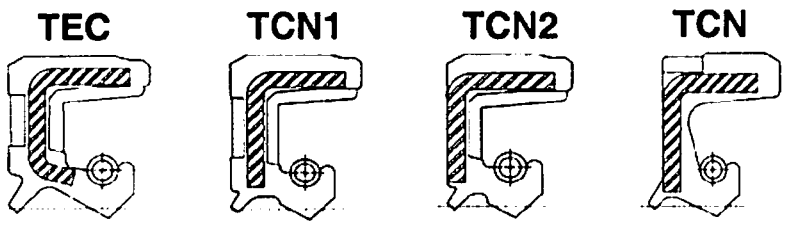

Figure 18: Pressure Seal Designs