Typical Material used in Seals

Seal Faces

The Stationary and the Rotary seal faces are rubbing against each other at high surface speeds in

To control the heat and wear, it is necessary to choose material having very low coefficient of friction, v

Carbons come in many grades; based on the level of durability, they are priced from the cheap/mass-p

The choice of carbon and ceramics is based on considerations of their low coefficients of friction. Also

Metals exhibit significantly higher frictional coefficients, but are less brittle than ceramics. Also Metals in

Common Seal Face Materials

1. Aluminium Oxide;
2. Chromium Oxide
3. Zirconium Oxide
4. Silicon Carbides
5. Stellites
6. Tungsten Carbides - ALL HARD METALS
7. Resin Impregnated Carbons
8. Metal Powder Impregnated Carbons - ALL CARBONS
9. Plasma Sprayed Ceramics on Metal Sub-strates
10. Plasma Sprayed Tungsten Carbides on Metal Sub-strates
11. Plain metals (mainly, castings)
12. PTFE ('Teflon') material with carbon or glass fillings.

Material of Construction

Elastomers

Elastomer means elastic-like material. In seals, Rubber O-rings are the sealing elements, but at tir

Because of their excellant flexibility, rubber o-rings are the near-universal choice for elastomer in seals

"Rubber" is a very loose term; it encompasses a wide variety of elastic material that exhibit varying deg

Inside the seal, the O-ring is subject to static deformation due to the "squeeze" imposed on it as well as

A seal with a compression-set O-ring will leak.

As in other cases, the choice of a particular grade of material for O-ring influences the seal perform

Other proprietory grades of rubber elastomers include Du Pont's Kalrez and 3M Corp.'s Aflas. These gr

Most expensive doesn't necessarily mean compatible with ALL chemicals and high temperature toleran

PTFE's (Poly Tetra Fluoro Ethylene) are not elastic in nature, but in seal application they are classified

For very high temperature applications (say, over 200 °C.), general practice is to eliminate usage of an

Other Body Material

The commonest material for seal body parts is Stainless Steels (Grades 304 or 316). Cheaper tha

Springs, Grub Screws, Drive Pins, Drive Screws, etc., are all in St.Steels.

For very corrosive applications use seal body parts is made of superior grades of metal alloys such as Alloy-20 or the even more special grades like Hastalloy-B and Hastalloy-C (all of which are proprietory trade marks of their inventors).

For many corrossive applications, PTFE is used as Body material in contact with the fluid medium.