

Sealing Element (Rubber)

An oil seal normally consists of three basic components: Sealing Element, Metal Case, and Spring. The function of an oil seal is to prevent leakage along the shaft. This is mainly achieved by the sealing element. Materials normally used are Nitrile, Acrylic, Silicone, and Fluorinated Rubber.

Nitrile Rubber (NBR)

NBR is most commonly used material. It has good heat resistance properties, good resistance to oils, salt solutions, hydraulic oils, and gasoline. Operation temperatures are recommended from -40 to 120° C. It also functions well in dry environments, but only for intermittent periods. The disadvantage is poor chemical resistance.

Polyacrylate Rubber (PA)

Acrylic rubber has better heat resistance than Nitrile. It is recommended for high surface speed environments. The operation temperatures are recommended from -20° C to 150° C. It should not be used with water or in temperatures below -20° C.

Silicone Rubber (SI)

Silicone compounds operate effectively in a broad temperature range of -50 to 180° C. It is unsurpassed in its resistance to heat and low temperatures. The high lubricant absorbency of silicone minimizes friction and wear. It is usually used for crank shaft seals. Silicone has poor hydrolysis resistance. It should not be used in oxidized or hypoid oils.

Fluorinated Rubber (VI)

Fluorinated rubber is widely known under the DuPont trade name of Viton®. It has the best resistance to chemicals, and superior performance to high temperatures. Though Viton® provides so many good prospects, it has the highest cost.