

Solenoid Valve Seal Materials

The **material selection for a solenoid valve** is an important decision to make in order to ensure longevity with your solenoid valve. A number of factors will contribute to the effectiveness of the solenoid valve, including the chemical properties of the media, solenoid valve application and the pressure that needs to be used. [MGA Controls](#) have listed the most common **solenoid valve seal materials** below.

Polytrafluorethylene or PTFE

50% of PTFE production is taken up by use in aerospace and computer applications as it has excellent dielectric properties. PTFE is a common **solenoid valve material** as it is virtually non-reactive, meaning it is most often used in severe chemical resistance applications. PTFE is usually used in industrial solenoid valve production for pipe lines or applications where acids, alkalis or other chemicals must be used. PTFE also has a high temperature resistance, and is therefore commonly used as a **solenoid valve seal material** for printed circuit boards used at microwave frequencies.

Fluorinated Elastomer/Perfluoro Elastomer or FKM/FFKM

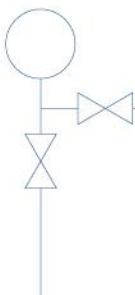
Unlike elastomer products, which lose their crosslinking structure when high temperatures are applied to them, FKM and FFKM are suited to these temperatures and maintain their compression properties. The materials can perform continuously at temperatures of about 200°C and are often used in high pressure [solenoid valves](#) for aircraft and automobile manufacture which require maximum resistance to high temperatures. FFKM is very similar to FKM, however it contains higher quantities of fluoride, improving its resistance to high temperatures, chemicals and environments where oxygen-plasma is present.

Nitrile Rubber or NBR

Nitrile Rubber, also known as Buna-N is the most typically used seal for most valves in general purpose applications and is mostly used as an oil solenoid valve, in products such as fuel hoses, gaskets and rollers due to its high oil resistance. The NBR **solenoid valve seal material** is cost efficient and is used for most o-ring seals. NBR can withstand temperatures up to 90°C on a continuous basis, without losing its original properties. NBR is also found in solenoid valves for water pumps, carburettor, transmissions and hydraulic solenoid valves such as pumps and actuator seals. Nitrile Rubber is weak in terms of oxidising media such as acids.

Ethylene Propylene Terpolymer or EPDM

Most commonly, the **solenoid valve material**, EPDM is used in vehicle manufacture for door, window and trunk seals however can also be used as part of the solenoid valve for air conditioning. EPDM also has a good resistance to acids, alkalis and salts and is the most standard seal material for many valves, due to it being the most economical choice. After being mixed with polyurethane binders, EPDM can also be used as a non-slip safety surface for wet decks. However, if you require a product with a good resistance to oils, petrochemicals and concentrated acids, EPDM will not be suitable.



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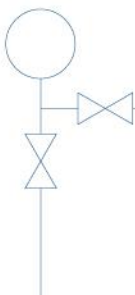
Hydrogenated Nitrile Butadiene Rubber or HNBR

Also known as HSN, HNBR is a widely known Buna Rubber, famous for its strength and ability to retain properties after being exposed to heat (+150°C), oils and chemicals. **The solenoid valve seal material** is commonly used with mineral, motor, amine and lubricating oils and can be used in a high pressure [solenoid valve](#). HNBR contains a high saturation of Butadiene Carbon Polymer which improves its chemical, abrasion and dynamic loading resistance compared to the standard NBR.

Silicone

Silicone is a common **material selection for solenoid valves**, often used in general purpose applications and are used at a consumer level for common household products. Silicone is a versatile product, which allows it to be used on a number of levels, including liquid silicone rubber which is manufactured for syringe pistols, dispensing systems and gaskets for IV flow regulators. Silicone rubber tape is also manufactured to be used for aviation purposes. Silicone seals have a good resistance to weathering, cold temperatures, chemicals, electrics, oils and acids, hence their ability to adapt.

MGA Controls Ltd works in partnership with the leading solenoid valve manufacturers. We have 30 years' experience working with high quality brands, offering you the best products on the market and guaranteed quick delivery. To obtain an immediate quote call the [MGA Controls](#) technical team on 01704 898980 or email sales@mgacontrols.co.uk.



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