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# TECHNICAL REPORT

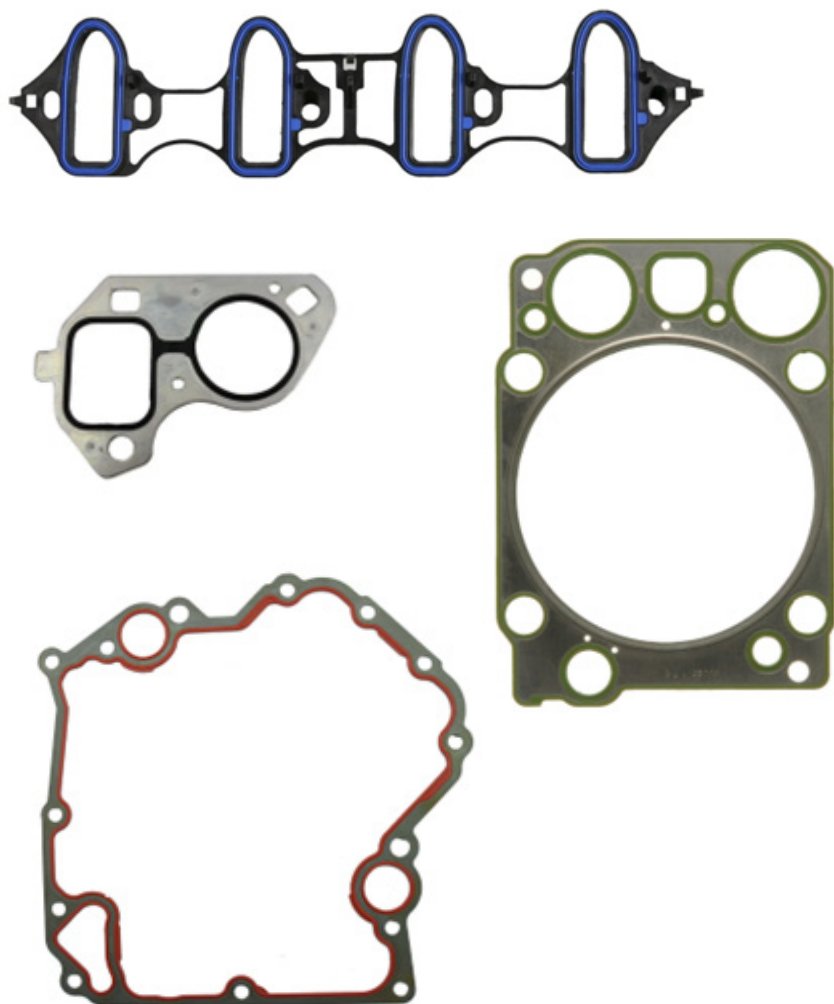
Molded rubber and metal  
rubber gaskets for automotive  
applications



## 01

### introduction

From valve cover gaskets, oil pan gaskets, to manifold gaskets or cylinder head gaskets. **Metal elastomer gaskets** have been used in the automotive industry for a long time, but it was not until the 1990s that they became widely used in production cars with the development of materials science applied to elastomers.



## What type of rubber is used to manufacture the seals?

**Metal elastomer gaskets** consist of a rigid core that provides the mechanical strength and can be made of a metallic or thermoplastic material. Rubber parts are added to this material by molding or injection and are the ones that perform the sealing between the surfaces.

The rubber material can vary depending on the area of the engine we want to seal, in Ajusa we have two main types of rubber for the manufacture of metal elastomer gaskets, silicones and **Fluoroelastomer or also known as FKM**.

### Silicones

There are many different types of silicones, and the choice will depend on the conditions and stresses to which the gasket is subjected. **The advantages of silicone rubber** are its long service life, resistance to high temperature and oil, and its ability to be used in injection and molding processes on a rigid support.

Silicone's ability to withstand extreme temperatures and maintain sealing pressure over time makes it ideal for sealing a wide variety of oil applications, such as valve covers, timing cover gaskets and oil pan gaskets.

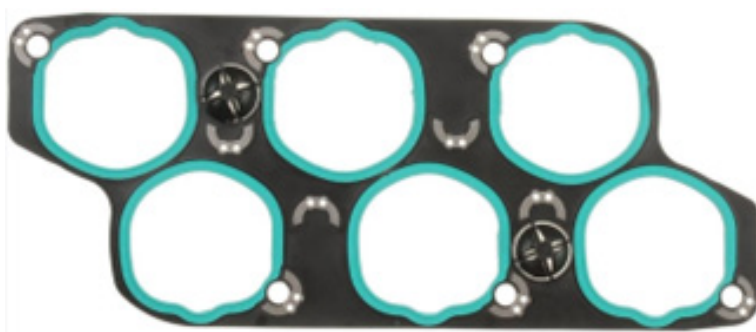


## Fluoroelastomer/FKM

**Fluoroelastomer**, also known as FKM, is a synthetic rubber compound that has resistance to a wide variety of chemical compounds. FKM can be used for molded rubber gaskets and as a gasket liner, as it is impervious to all types of oils and fluids. It can be injected into rigid substrates, and its properties make it ideal for sealing intake manifold gaskets, water pumps, where exposure to the corrosive properties of some coolants can cause premature gasket failure. FKM is also ideal for use as an MLS head gasket liner, as it is conformable enough to seal minor surface imperfections, while being dense enough to retain torque and, at the same time, resist high engine operating temperatures.

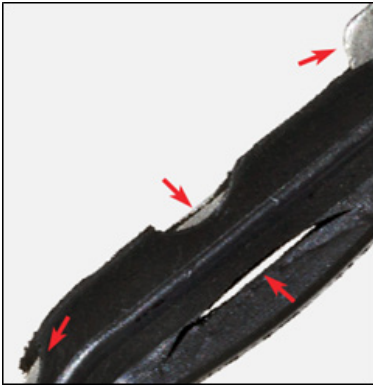


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## Sealing problems with metal elastomer gaskets.

The **most common problems** associated with this type of joint are usually due to the detachment of the rubber from the rigid web or the **improper use of sealants**.



Excessive torque applied to this type of joint can cause the rubber to come loose. This will result in possible leakage in that area.



**Excessive use of sealant** can have the opposite effect on this type of joint. Sealant should only be applied where indicated in the manual or at transitions in the surface to be sealed. Otherwise, excessive use will cause the rubber not to seal properly, resulting in a new loss of sealant.

