RYCO FILTERS

TECHNICAL BULLETIN

Tech Bulletin: 22/03/2018 Product: Ryco O-rings
Topic: O-Ring correct installation in cartridge type applications

Incorrect fitment can lead to oil/fuel leaks

O-Rings are something mechanics come across every day. Most of us would assume it is just as simple as removing and replacing with a new one and expect to have no issues afterwards. In reality, O-rings are elements that require attention to guarantee no leaks and the correct operation of an engine.

1. When fitting a new filter replace every Gasket and O-ring with the new one provided.
2. Clean both the housing and cap and inspect for any damage such as cracks, breaks or damaged threads. Check the O-ring seat is clean and not damaged.
3. Apply a film of compatible clean oil to the gasket/O-ring prior to installation.
Note: grease should not be used as this could lead to leaks between the O-ring and housing.
4. Ensure the O-ring seats nicely into the correct groove of the filter housing or housing cap.
5. Tighten the housing cap to the specified torque listed in the vehicle's manual.
6. Failure to follow these steps may result in oil leakage or incorrect operation of the engine.

Why are they made from different compounds?

Each compound has slightly different properties and are used for specific applications, so no matter which material, it has been designed to provide the best possible option to seal the filter in the housing. Sealing Gaskets and O-rings can be manufactured from a number of different types of compounds. The most common ones used for automotive applications are NBR, HNBR and AEM, all of which are currently used by Ryco, with NBR being the most popular.

- ✓ Ryco uses the same compounds as specified by the OE manufacturer
- ✓ Gaskets tested and approved in Ryco laboratory

Gasket Material Acronyms

NBR	Acrylonitrile butadiene rubber
HNBR	Hydrogenated Acrylonitrile butadiene rubber
AEM	Ethylene acrylic rubber

O-Ring Dimensions

The dimensions of O-rings are critical especially for automotive applications where the O-ring fits into a groove on the housing cap which means both the inside diameter and the sectional thickness of the O-ring are the most critical to ensure a leak free seal.

Pre-Fitting Check

Before fitting an O-ring into the groove in the housing cap it is important that the housing is clean and free from any contamination. At this stage, it's important to confirm that the supplied O-ring is the correct size for the location groove. This is easily checked by measuring the O-ring and location groove diameter which should be within 5% of each other.

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O-Ring Lubrication

Lubricate the O-ring with compatible oil then install the O-ring. Care should be taken at this stage to ensure the O-ring is not damaged.Once in the groove it must be checked to make sure it is not twisted or pinched and is properly seated in the groove. If I.D expansion of the O-ring is needed to reach the groove then this must not exceed 25-50% of its original size and once installed should not exceed 5%.

The fact that O-rings are made of rubber means they will not spin freely in the housing groove and when screwing down the housing cap you can potentially deform/pinch or roll them over causing all sorts of issues like oil/fuel leaks or engines not starting due to air being sucked into the fuel delivery lines if they are fitted dry.

TIP: Applying a clean film of oil suitable to your system will reduce the rubber friction and keep the gasket or O-ring in place when assembling the housing.

O-Ring Positioning

A common issue we see is incorrect positioning of the O-ring onto the cartridge housing cap. Most housing caps have a thread that connects the cap to the housing and care should be taken to carefully note the position of the O-ring location groove prior to removing the used O-ring.

It is very easy to locate the O-ring into the last section of the thread if this does happen you will damage the O-ring. Damage could be as small as crimping of the O-ring or a complete split, all of which will lead to leaks from the housing. If you do discover a split O-ring this is the most common cause.

Torque

Once you have successfully located the O-ring in the groove fit the filter into the housing or housing cap (depending on housing) then tighten the filter cap to the manufacturers torque specification, start engine and check for leaks.