

OIL FILTERS 101:

CHOOSING THE RIGHT FILTER... JUST FACTS, NO CONTAMINATION



100% Synthetic Glass Filter Media - 1000X Zoom



Simple Solutions When Choosing the Right Oil Filter For Your Vehicle

Text and photography courtesy of the manufacturer

In today's economy, it's more important than ever to take care of your vehicle. Engine maintenance is a critical part of extending the life of your engine/vehicle. There's a lot of information out there about the differences in oils and other maintenance components but what no one explains is what to look for in an oil filter. The oil filter is an important component because it cleans the oil, which is the lifeblood of your engine. The filter is capable of flowing high volumes with relatively low restriction. How do you know which filter to choose and what are the differences? Royal Purple has provided the following information that will allow you to decide for yourself.

Basic Components of an Oil Filter

Shell:

The shell of the oil filter is the outside casing that you actually see when the filter is installed. The shell is responsible for keeping your filter safe during all of the wear and tear your vehicle goes through, as well as protecting it from puncture wounds. The spin on oil filter external shell is typically constructed of steel.

Media:

The media is the actual filtering component of the filter. Depending on the level of filter you have chosen, media can be described as a maze of cellulose (wood pulp with a small percentage coming from cotton linters pulp and grasses), synthetics and or microfibers that forms the medium which removes the harmful debris from your engine oil.

Anti-Drainback Valve:

Not all filters have anti-drain back valve but for the ones that do it provides a crucial function. The anti-drainback valve prevents oil drainage from the filter during the engine shutdown. It is important to keep oil inside the filter even during engine shut down. This prevents "dry engine start-up" which reduces engine wear.

Core:

The core is the part of the filter that helps the filter to keep its shape and prevent collapsing under extreme pressure. It is inserted inside of the filter media and can be made of a variety of materials.

Shell - Thicker shell material for extra strength. The heavier shell provides extra security against puncture from road debris.

Metal End-Caps - Provides positive seal for filter element assembly.

Center Tube - Prevents filter element collapse.

Filter Element - 100% screen-backed synthetic media provides superior filtration while keeping flow restriction low.

Bypass Valve - The by-pass valve is designed to insure oil flow in situations of excessive filter element flow restriction.

Steel Backplate - Heavy gauge steel for higher burst strength.

Gasket - Premium nitrile rubber with special lubricity compound to reduce torque during installation and removal.

Silicone Anti-Drainback Valve - Prevents dry starts by eliminating oil drain back during shutdown through the use of a silicone anti-drain back valve. Silicone outperforms and outlasts standard nitrile rubber in both extreme cold and hot oil temperatures.



Baseplate:

The baseplate is the threaded component of the oil filter. Besides providing the threaded attachment for the filter, it directs the inlet and outlet oil flow of the filter. The steel thickness and plate geometry (its shape) is one of the main factors in the structural strength of the filter.

Gasket:

The gasket is the rubber ring that seals the filter to the engine's oil filter base. This gasket is typically made of flexible rubber. However, the components can vary in materials, and can affect not only sealing capability of the filter, but also, the ease of the filter's installation and removal.

Now that you understand the components that make up an oil filter, you are beginning to realize that contrary to popular belief, all oil filters are not the same. Let's look at the different levels of filters, so that when you go to purchase one, you'll know exactly what you are getting.

Good

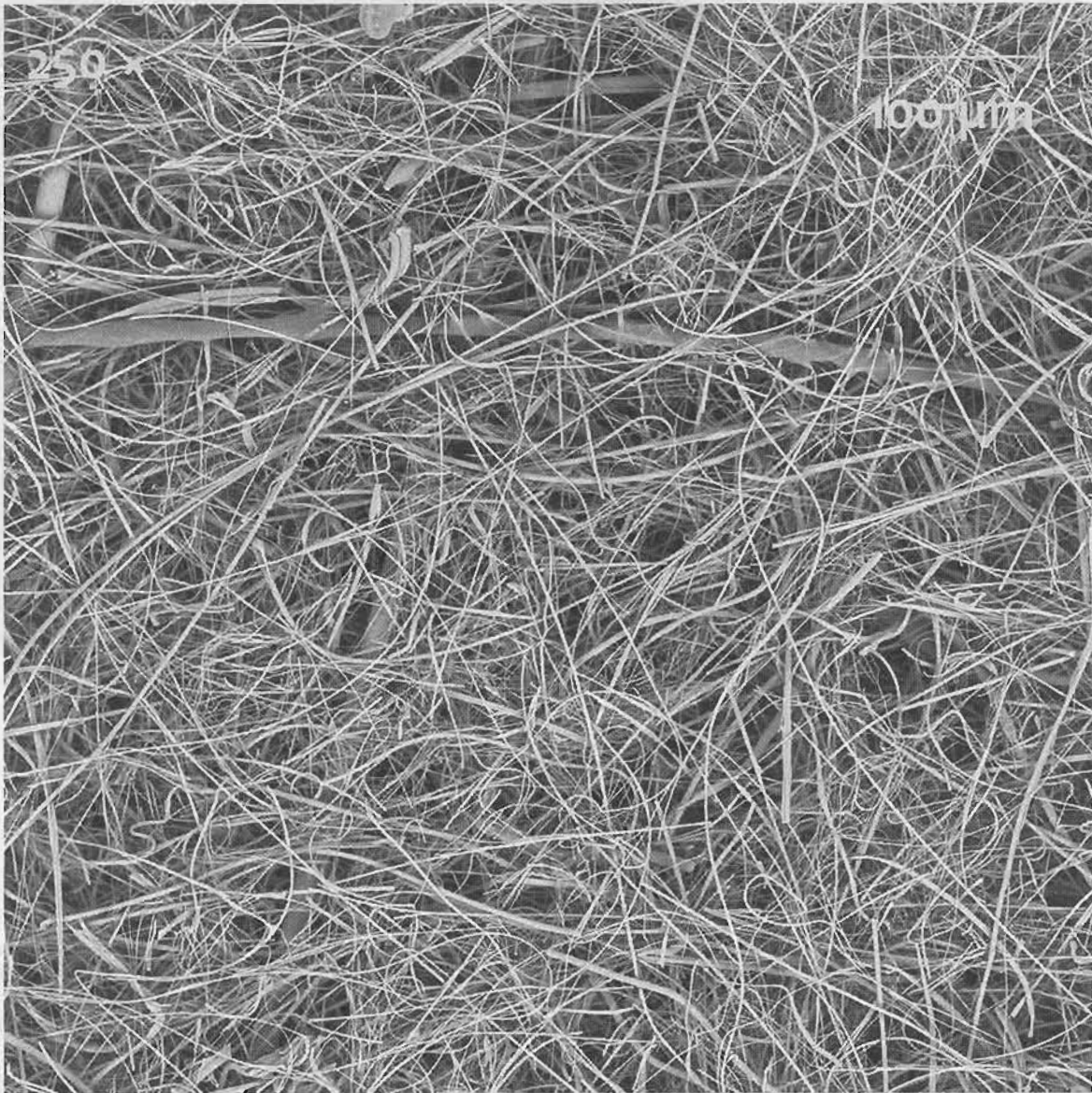
Most entry-level "economy" filters are very basic in nature, lasting for a more limited time than your higher end filters.

These filters use media typically compiled of natural wood fibers (called Cellulosic Fibers) used to sort out the debris in your oil. Natural wood fibers are irregular in size and shape. This can effect the filters performance at high flow rates and generally this type of filter has a poor resistance to high oil temperatures. In addition to the media being different, the structural components (the baseplate and shell) are of minimal thickness. Since most filters look about the same from the outside, the easiest way to tell if you are looking at this type of filter is by price and how easy the shell flexes when you squeeze it. These filters likely do not utilize an anti-drain back valve.

Better

The "better" filter usually contains media that is a blend of fibers. The majority of the fibers are cellulose with a minimal blend of synthetic fibers that enhance the media strength and efficiency performance. The anti-drain back valve is sometimes made from a silicone material which performs well under hot oil conditions. The structural components are usually a little stronger and won't crush or flex as easy when they are squeezed. In addition these types of filters are designed to extend service intervals.

100% Synthetic Glass Filter Media - 250X Zoom



Best

The "best" or premium level of filters uses Micro-glass filter technology. These high tech oil filters use special synthetic glass microfibers that are about 10 times smaller than conventional cellulose filter fibers to provide superior filtration without compromising oil flow. Advanced micro-glass oil filters are designed to extend the life of vehicle and equipment. In addition to superior filtration media, the other internal and structural components are of higher quality materials and construction is better, making for easier installation and removal as they are much less prone to crush while installing or removing.

In addition, premium filters like Royal Purple are designed to far exceed OEM structural requirements and have high internal capacity with optimized flow characteristics for maximum performance and filter life. Royal Purple oil filters allow change intervals to be extended up to 12,000 miles.

Vehicles still under warranty should follow the vehicle manufacturer's recommended filter change intervals. While Royal Purple filters are fully compatible with all synthetic and conventional oils, Royal Purple recommends using their high performance motor oil, which also has a 12,000-mile life.

About Royal Purple

Royal Purple manufactures high performance synthetic lubricants for consumer and industrial needs.

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