



Filter Knowledge, Unfiltered

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### Spin-On Engine Oil Filter Applications

Spin-on filters are still the most popular design for liquid filtration on internal combustion engines. The spin-on design offers an efficient, quick and clean method for servicing liquid filters. The spin-on is by far the preferred method of filter design on automobile and mobile heavy duty equipment.

Over the years, a proliferation of filter sizes has evolved. These include length, diameter, sealing gasket diameter and thread size variation. The internal design of spin-on filters also vary. Some designs utilize internal by-pass valves and/or anti-drain back valves. Filtration media used in different models also vary depending on different service and engine requirements. Operating pressure requirements can also differ from model to model.

With all the different spin-on filter models available in the market today, the user must use extreme caution not to use a wrong filter for their particular application. There are filters that look alike and may even fit different engine mounting bases with the same thread size. However, this does not constitute and guarantee that the correct filter is being used. Mis-application problems could be very serious. Wrong thread size is one of the common mistakes. Failure to use the recommended filter with the correct thread size could result in improper mating of the filter to mounting base. A loose thread fit may cause a leak, back-off, fatigue failure or loss of filter. Any of these cases can cause engine damage or fire. A "tight" thread fit can cause leakage, thread seizure or cross threading, resulting in damage to the engine mounting base and filter. A multitude of thread sizes are used in spin-on filters. Both metric and United National threads are widely used. Some of the metric and United National threads are close in size to the U.S. threads and a spin-on filter may "fit" a mounting base and yet have a different thread than the base. The Society of Automotive Engineers (SAE) has published a Recommended Practice that identifies dimensional characteristics and mounting configurations of filter base mountings. This Recommended Practice, SAE J-363 lists the thread sizes of the more commonly used spin-on filters and their recommended application.

Other considerations of mis-application include getting the wrong combination of by-pass settings, anti-drain back valves, filterability characteristics, operating pressure, sealing gasket diameter, interference and by-pass valve elimination. Failure to use the filter recommended by the filter manufacturer could interfere with proper engine protection.

Filter design and application is a complex process requiring the proper order of components. Don't take the chance of altering this order which could result in equipment damage or hazardous operation. The key to eliminating these problems is application. Be sure that the source of recommended application is a correct one. Filter manufacturers' application recommendations should be followed.

When it comes to choosing the correct filter, one cannot solely rely on cross-reference, "fit" or "feel". Verify application information according to the filter manufacturer's catalog.

For additional information, contact:

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