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**A word from Scotts Performance regarding the world's finest motorcycle oil filters:**

"Thanks for your interest in our filters. We think it's great that people are calling attention to the importance of oil and it's filtration. The more information we can get to people like you the more our product will stand above the competition. Remember, oil is the lifeblood of your machine.... keep it clean!"

## Q&A

### **Has this technology been proven yet?**

This technology has been in use for many years and has proven itself in NASCAR, Formula One and the Aerospace industry. These filters have been in use in the off road motorcycle world for over 5 years. Manufacturers like Yamaha have supplied their own version of it. The KTM factory guys have even been buying them for their own bikes (even though they can't legally endorse the product). In other words this is not a new idea, just a new application of proven technology. And of course, we run these filters on our personal bikes, street and dirt.

### **What kind of materials are used in this filter?**

The filter housing and filter element end caps are carved out of a solid chunk of 6061T6 billet aluminum, which not only looks trick but aids in dissipating heat. The filter element is made from laser cut, medical grade, type 304 stainless steel micronic filter cloth to provide unmatched protection against oil contamination and resultant engine damage. A super strength nickel-plated neodymium rare earth magnet is installed in the top of the element for magnetic pre-filtering of the oil. The adhesive used in the filter assembly process is good to 600 degrees Fahrenheit, far above the normal operating temperature of 180 to 230 degrees. The quad-ring gasket doubles the seal between the filter housing and the engine.

### **How does the actual filtering process work?**

Our spin on units feature Magnetic Prefiltering as the oil passes by the magnet prior to flowing into the filter. The stainless steel filter cloth then filters the oil to an "absolute" 35 microns.

### **How does this type of filtration compare to paper filters?**

We sent three common brands of paper filter material off to have them tested for the smallest and largest sized particles that would pass through the material. We sent the material off with no names, just numbers for identification so the lab wouldn't have any idea who's filter they were testing. The results we got back showed that the smallest particle the three would catch ranged between 9 and 20 microns. The LARGEST particle the three would allow to pass through the material ranged from 56 to 300+ microns. Paper filters are rated on an average of what they will let pass, so each of these three would each be rated at numbers that are somewhere between their individual extremes. The medical grade stainless steel cloth that we use is rated at an absolute 35 microns, meaning nothing larger than 35 microns should pass through the material. This "absolute" rating is important because this type of filter material is also used in medical applications like blood filtration. Bottom line is paper is rated differently than the stainless cloth (average vs. absolute), and either one works to filter stuff out of your oil. Personally I like the idea of keeping the big stuff out of the engine.

### **What Are Microns?**

A micron is one thousandth of a millimeter. That's approx. .00003937 inches.

35 microns is about .00138", (just over one-thousandth of an inch).

The lower limit of visibility to the human eye is about 40 microns.

Pollens range from about 30 to 50 microns

A white blood cell is about 25 microns

### **How much oil will this filter flow?**

A very important dimension of oil filters to keep in mind is the flow rate. A one inch square of our filter material flows 1.9 gallons of oil per minute at only 1 PSI pump pressure (70 degrees F). This means our S1 filter is rated at 57 gallons per minute!

### **How does the flow rate compare to paper filters?**

We have run static pressure tests between our filters and paper filters (for an identical application). The stainless steel micronic filter flowed a consistent 7.8 times more oil for the same time period than did the paper filter (tests were run at 68 degree ambient temperature). Think about your bike during cold startup... nice thick cold oil, trying to get through that oil filter. We have read tests that reported multiple instances of oil going through the bypass valve during cold startup because of the resistance of the paper oil filter to passing the cold oil. Now think about all the crud that has had a chance to settle to the bottom of the oil pan right where the oil pickup is... just waiting to go through the bypass valve directly to the engine components! If the oil doesn't get to go through the filter material it doesn't matter what the micron rating is.

Another thing that could affect the paper filter is moisture. When paper gets wet it swells and may pass even less oil. Not everyone is aware that engines get condensation in them.

### **Why the "take apart" design?**

Racers and motor-heads have been taking their oil filters apart for ages. Our filter makes it much easier than cutting apart messy paper filters. It is a great way to get early signs of what is happening in the engine. By checking the particles that get caught in the filter you can identify abnormal wear and prevent catastrophic engine failure. It's a lot less aggravating to replace a rod bearing that's starting to go, than to be standing next to your machine staring at that same rod sticking out the side of the engine!

### **I have a high pressure oil pump. How much pressure will the aluminum filter take?**

An S1 filter was pressure tested to 1500 psi with only slight deforming of the spirol lock and housing. Let us know if you need more than that.

### **Is this filter environmentally friendly?**

With the cleanable reusable design you no longer will be sending oily paper filters to the landfills (some states don't even allow oil filters to go to the landfills... they must be go to through special, expensive disposal processes). What does come out of the reusable filter can be sent to the recycling center with the rest of your old oil.

### **What are Bypass Valves?**

We have disassembled/dissected several of each of the more popular steel cased paper filters (Honda, HiFlo, Harley, Ducati, Fram). Each oil filter we have dissected has had a bypass valve, as does ours. The bypass valve allows oil to bypass the filter material if the engine needs more oil than the filter can pass (in case the filter material gets plugged or can't flow the oil fast enough). See "Flow Rates" above for related discussion.

### **Why don't you have an Anti Drainback Valve?**

Many filters have a rubber flap over the intake holes that is an attempt to keep oil in the filter and minimize the time it takes to fill the filter when you start the engine (they call it an anti-drainback valve). A test you can perform to see how well this "valve" works is to fill a filter with oil, plug the large center spin on hole with a bolt, lay it on it's side and then see how long it takes for the oil to drain past the rubber flap. We have found (and have read other published tests) that the filter eventually ends up with the same amount of oil in it as if it didn't have the flap, it just takes longer to drain out. If the flap worked as planned it would be beneficial to have the extra oil in the filter at startup. On the other hand, that flap covering the intake holes is one more obstacle the oil has to get by to get through the filter and back to the motor.... something to think about.

## **Where is the filter made?**

Proudly made in the USA

## **My old filter wrench won't fit the aluminum filter. How do I remove the filter?**

We've included a trick Strap Wrench with each spin on filter. The wrench is also great for a variety of other uses. For example, try using it to hold a fork leg when removing it from the triple clamp.

## **How do I clean the filter?**

Wash the stainless steel filter element in clean solvent, kerosene, aerosol carburetor cleaner or any other degreasing agent; even common dish soap and water. Clean any remaining metal particles from the magnet on the top of the filter element. If inspection of trapped debris is desired, flush the particles into a clean container. Once clean, lightly blow air through the filter from the inside out to remove any small particles or cleaning agent from the screen. Clean the inside of the filter housing using the same type of cleaner as used on the filter element.

## **How often should I clean the filter?**

We recommend the filter be cleaned frequently when first purchased or when engine work has been performed. This will give you a feel for how much debris is being filtered out of your machines oil and help you decide how often you want to clean the filter for your application. At minimum, clean the filter with every oil change due the additional debris this superior filter will be keeping out of your motor. Remember, oil is the lifeblood of your motor, keep it clean!

## **Will this filter affect my warranty?**

No. Under the Magnuson-Moss Warranty Act, 15 U.S.C. SS 2301-2312 (1982), and the general principles of the Federal Trade Commission Act, a manufacturer may not require the use of any brand of filter unless the manufacturer provides that item free of charge under terms of the warranty. So, if you are told by a dealer that anything other than a specific brand of filter will void your warranty, ask for the statement in writing (you won't get one), and request that filter be supplied free of charge. If you are charged for the filter, the dealer will be violating the Magnuson-Moss Warranty Act and other applicable law. This is a federal law and the Federal Trade Commission has authority to enforce it, including obtaining injunctions and orders containing affirmative relief. For more info do an internet search on "Magnuson-Moss Warranty Act".

## **What bikes do these filters fit?**

We currently have applications for Honda, Suzuki, Yamaha, Kawasaki, Ducati, Triumph and Harley. Contact your dealer for the most current application list and to check on your specific bike. Some dealers have the applications on their web sites.

## **STATEMENT OF LIABILITY**

This product is sold for competition use only, and is sold as - is, without warranty, expressed or implied. K&P Engineering may, at their discretion, replace any parts which they judge to be defective in materials or workmanship, provided they are returned to K&P Engineering within six months of the original retail purchase. The User shall determine the suitability of this product for his or her use, and shall assume all risk of liability in connection with that use. Owner accepts liability for cleaning and inspection of this filter before use. Neither K&P Engineering, it's suppliers, subcontractors, dealers or agents are liable for any loss, injury, or damage whatsoever arising from the use of this product.