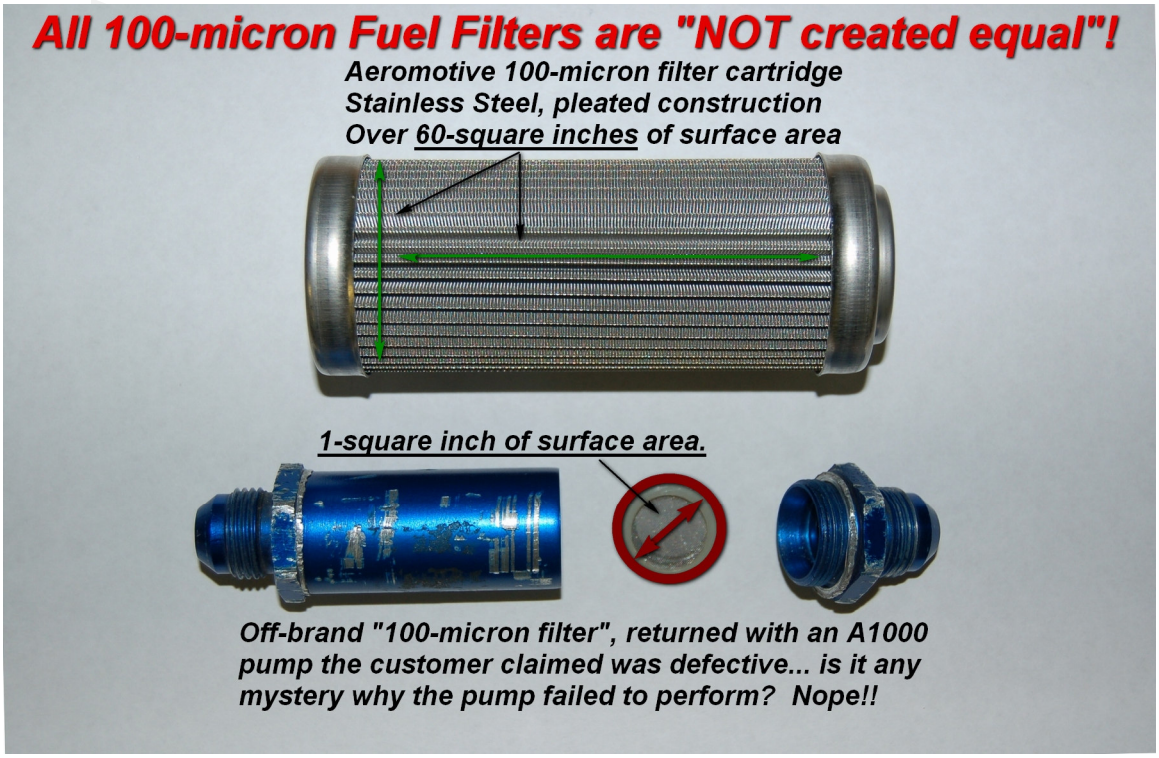
Aeromotive, Inc. Technical Bulletin #101

From: Aeromotive Technical Department

Date: **5/14/2009**

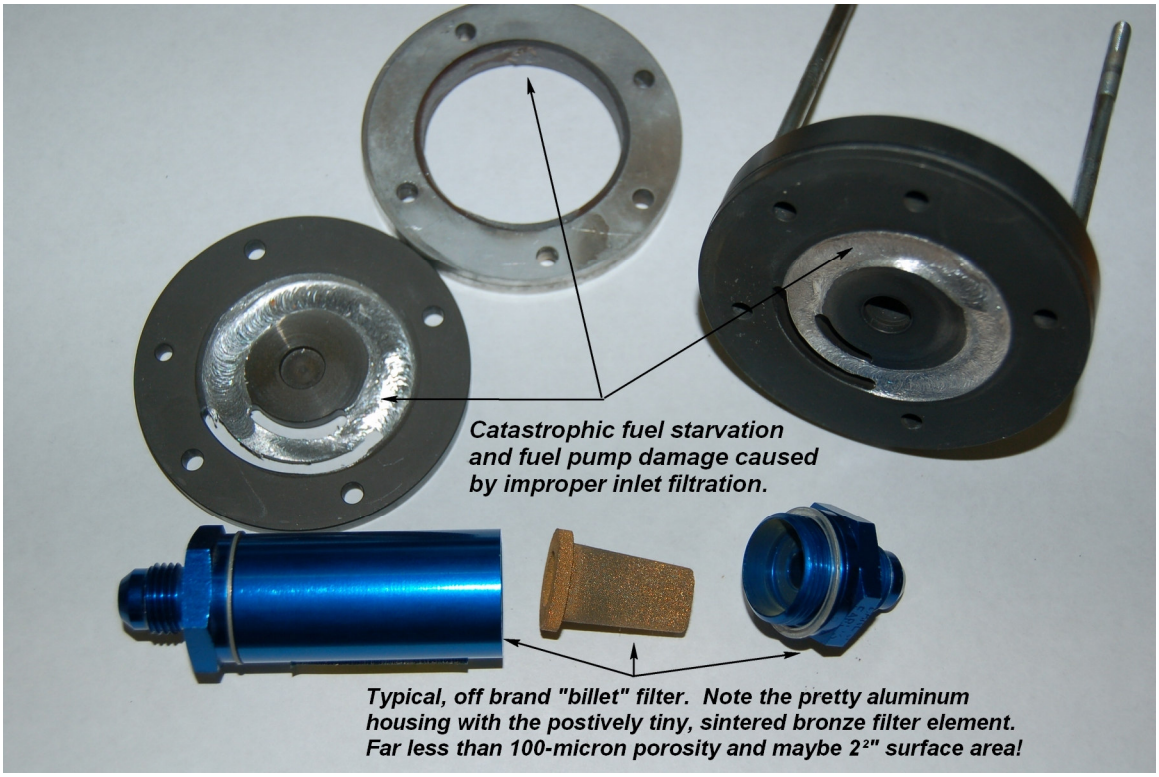
Re: **Fuel Filtration: Selecting the correct filter to prevent lean-out and pump failure.**

STOP!! If you are selling or installing a fuel filter *on the inlet* of an Aeromotive fuel pump, be certain you do not use a filter that causes more problems than it solves. For pump inlet filtration, use *only* Aeromotive 100-micron P/N #12304, #12302 or an acceptable equivalent (see specifications below). Do not install the Aeromotive P/N #12301 or 12310 filter with 10-micron fabric element *on the inlet* of any Aeromotive fuel pump, they are however perfect for use on the outlet of the pump, and this is the only location for which they are recommended.



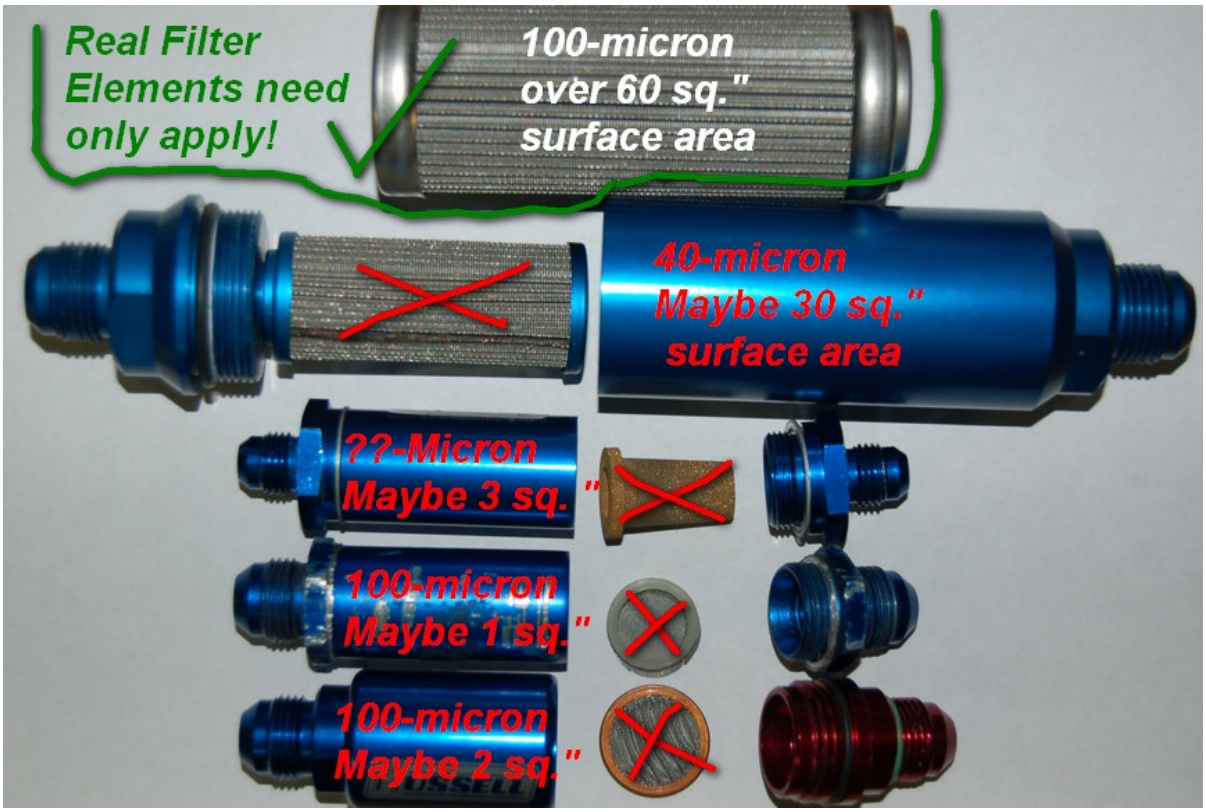
You may run any brand of filter you choose on your car, just be certain that it meets the following requirements: ***The filter element used on the inlet side of any Aeromotive fuel pump may be no finer than 100-micron (no number smaller than 100), with a surface area of 60 square inches or more.***

Any filter element not meeting these criteria may fail to flow the full volume of the pump, resulting in both vehicle drivability and pump reliability problems. Aeromotive fuel pumps are engineered to be efficient, and can create both high outlet pressure *and* high inlet vacuum. The boiling temperature of any liquid varies with pressure. For example, the engine' cooling system is purposely designed to pressurize the coolant in order to raise the boiling point. So how does this apply to fuel delivery? When a fuel pump has to pull through a restriction to get fuel from the tank a vacuum develops which lowers the fuel's boiling temperature, cavitating the fuel and turning it from liquid into vapor. ***Bottom line: Inlet restrictions create vacuum, which causes cavitation, which in turn causes vapor-lock and fuel pump damage. Of course, drivability problems and even engine damage can result! Lesson: Don't combine high flow, efficient fuel pumps with poor flowing inlet filters. Don't use fuel lines smaller than the pump ports. Don't use fuel tank pick-ups or tank outlets smaller than the line.***



What about a fine filter? They are also necessary, but <u>*must be installed on the outlet*</u> side of your Aeromotive fuel pump, <u>*never on the inlet*</u>. Options include the Aeromotive 10-micron (replaceable element) fabric filter assemblies P/N #12301 and P/N #12310, and the new, high-flow 40-micron (cleanable element) stainless steel filter assembly P/N #12335. Given the alcohol content found in today's pump gas, it is now necessary to frequently monitor and service any downstream fuel filters in use. Because they cannot be cleaned, keep a spare 10-micron element on hand for immediate service to eliminate engine fuel starvation and drivability problems when they become heavy clogged.

All Aeromotive pumps except the Pro Series EFI pump may use the Aeromotive filter #12304 with –10 inlet and outlet fittings and 100-micron stainless steel element. The Pro Series EFI pump #11102 *requires* filter #12302 with larger stainless steel element and –12 inlet and outlet fittings. The #12302 is also *recommended* for the #11104 EFI Eliminator pump and our new #11105 belt drive pump (try 400gph or 2700lb/hr of fuel delivery at 100psi!!). Though Genuine Aeromotive Filters may be somewhat more expensive than the off-brand options, you simply must "compare apples to apples". They say "a picture is worth a thousand words…"



Above are various versions of "100-micron" fuel filters/elements. Note: the top element is the Aeromotive 100-micron element P/N #12604, as found the fuel filter assembly P/N #12304. Note the various filters all have "billet" housing, with AN connections, and can be disassembled for inspection and cleaning. Also, note that all are sold and recommended as appropriate pre-filters.

Of course, it's obvious by this comparison image that there's more to a filter than the micron rating, a billet housing or even AN Connections. It should be equally clear that surface area, the amount of filter material available for fuel flow, is not at all related to micron rating, but a major key to a filters flow capacity. All these filters may be fine, well made assemblies, and perhaps they are suitable for use with various fuel pumps on various engines; **However, excepting the very top element which is there for comparison, none of the above belong in any system featuring an Aeromotive fuel pump and certainly not any car, boat, truck, etc. that features an engine worthy of such a pump.**