

COMPARING FUEL FILTERS AND MICRON RATINGS

The technologies being used in fuel systems on vehicles are advancing at an unprecedented rate with modern systems providing new levels of operational efficiency and reliability. The higher pressures used, with reduced tolerances, require exceptionally clean fuel.

We are frequently asked by customers concerned about their fuel cleanliness “what micron rating is my current filter” and “do you have a finer micron filter I can use”?

The published micron rating, (or particle size that a filter captures), does not provide an understanding of the performance of the filter unless you also know the efficiency at which it is measured. The efficiency of a liquid filter on a given particle size is frequently described as either a Beta ratio (β), or as a percentage (%).

Two filters that both claim to capture the same size particles or have the same micron rating may provide vastly different performance results.

For example, when comparing two filters that are both rated at 5 micron, if filter A has an efficiency of 99% it will remove 99% of contaminant 5 micron and larger from the fluid. If filter B has an efficiency of 50% it will only remove 50%, or half, of the same contaminant from your fuel. Filter B may allow up to 50 times more contamination to pass than filter A, a very different level of performance!

The higher levels of contamination in your fluid may result in accelerated wear, and ultimately, the premature failures of components.

Commonly used fuel filters may have multiple efficiency ratings describing their performance.

For example, a filter may be described as being 50% efficient on 2 micron particles, 75% efficient on 12 micron particles and 98% on 23 micron particles.

You cannot guess the efficiency of a liquid filter.

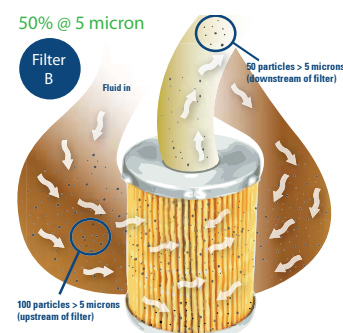
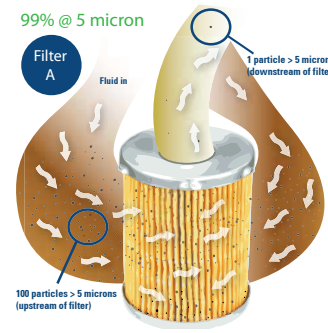
Particle or micron sizing means little without a measure of efficiency. Efficiency does not describe a filter without a micron size.

Both the Beta ratio and percentages of efficiency compare the amount of contamination before and after the filter.

The table below provides the efficiency percentages of the commonly used Beta Ratios.

Generally efficiencies are not provided for micron ratings or particle sizes

Beta Ratio (β)	How Many Particles of a Given Size Will Pass Through the Filter?	Actual Filter Efficiency
2	1 out of every 2 particles	50%
10	1 out of every 10 particles	90%
20	1 out of every 20 particles	95%
75	1 out of every 75 particles	98.67%
100	1 out of every 100 particles	99%
200	1 out of every 200 particles	99.5%
1000	1 out of every 1000 particles	99.9%
2000	1 out of every 2000 particles	99.95%



smaller than 3 micron.

When looking at the different fuel filters, it is important to compare apples with apples when considering filtration performance.

DID YOU KNOW

A finer micron filter can collect more contamination from the fuel and reach its dirt holding capacity more quickly. It may need replacing more often than a larger micron filter. A good filter is low cost protection for expensive engine components.

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