Nothing Guards Like Fleetguard.

QSK High Horsepower
FF255 & FF256 Fuel Filters
Clean, uncontaminated fuel is the key to maximum fuel system performance and longevity for modern diesel engines. Modern diesel engines use High Pressure Common Rail Fuel (HPCR) Systems that require unprecedented fuel cleanliness levels. HPCR fuel systems have tighter clearances that deliver injection pressure greater than 30,000 psi (2000 bar).

According to the World Wide Fuel Charter (WWFC), approximately 50% of the world diesel fuel supply does not meet ISO 18/16/13 at the retail pump. Reports indicate diesel fuel is getting dirtier. FF255 & FF256 performance leads to greater protection of the Fuel Injection Equipment (FIE). Greater protection leads to longer fuel injector life and lower Total Cost of Ownership (TCO).

The new FF255 & FF256 featuring NanoNet media are focused on reducing failure by removing harmful particles and delivering fuel that meets FIE manufacturers’ suggested ISO 12/9/6 cleanliness level.

### The Unfiltered Truth

Dirty fuel is a common and increasing problem across the world, and a very big problem for engines. Global fuel analyses demonstrate that fuel contamination levels have doubled over the past several years. In a single gallon (3.8 liters) of fuel, the average contamination level is over 18 million particles greater than 4 microns.

### The Fleetguard® Solution

#### Why Use Beta?

As a fuel filtration leader, Fleetguard recognizes the importance of providing superior filtration for HPCR fuel systems to operate as designed. Fleetguard’s new NanoNet media has a consistent pore size throughout the media unlike conventional synthetic and cellulose medias. Current testing for measuring efficiency uses a single pass process that is less precise for indicating performance. The consistent pore size in Fleetguard’s new NanoNet media requires a more rigorous and precise reporting method known as Beta.

#### How is Beta Calculated?

The Beta Ratio, from lab testing, is the current state-of-the-art method used to express a filter’s ability to remove contaminants.

The Beta Ratio is calculated as follows:

\[
\text{Beta Ratio} = \frac{\text{# of Upstream Particles}}{\text{# of Downstream Particles}}
\]

Efficiency is a derivative and is calculated as follows:

\[
\text{Efficiency \%} = \frac{\text{Beta Ratio} - 1}{\text{Beta Ratio}} \times 100\%
\]

#### Beta Explained

Beta measures the relationship between upstream particles and downstream particles of a given size. Beta also provides a ratio which relates to an efficiency and particle size.

### Diesel Metering Valve (DMV) Seat

Field Failure
- After teardown observation

Dust in Fuel
- Testing with competitor media (After 50 hours)
- Testing with NanoNet media (No failure after 190 hours)

### Current Media Performance Specification (Absolute Value)

<table>
<thead>
<tr>
<th>Beta Ratio</th>
<th>Efficiency %</th>
<th># Upstream</th>
<th># Downstream</th>
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<tbody>
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<td>2</td>
<td>50.00</td>
<td>100,000</td>
<td>50,000</td>
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<tr>
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### FF255 & FF256 Performance

Provides 13x better protection of the engine fuel system.

Beta Ratio
- \( \beta_4(c) = 75 \)
- Micron Size [c]
- This ratio of 75 states that this filter is 98.7% efficient at 4 micron [c]
- Current Media Performance Specification (Absolute Value)
Real world testing that simulates engine vibration shows how previously captured particles are released into the downstream fuel supply. The FF255 & FF256 featuring NanoNet media retain captured particles during engine vibration better than any competitive product.

FF255 & FF256 have higher dust holding capacity compared to its competitors which leads to greater protection of the FIE. FF255 & FF256 meets extended service life of 500 hrs for the Cummins T4 final engines.

For more information regarding the above testing, please contact your local Cummins Filtration representative.

Fleetguard Genuine fuel filters offer sustained performance and longer service interval for your HPCR fuel system. Fleetguard Genuine Filtration fuel system products are manufactured to meet and exceed OE standards for optimum protection, extended service intervals and reduced operating costs. With extensive experience in integrated system solutions for modern diesel engines, Cummins Filtration offers products to support the rigorous requirements of modern high pressure fuel systems.

* All are 2-element filters