



JP-5 Filter Separator Comparison of 4” Element Versus 6” Element

Aircraft Appliances (AAE) was approached by the U.S Navy to help identify areas of potential improvement for the Fuel System of future Aircraft Carriers. AAE suggested changing the size of the separation media currently used in the 2000 GPM Filter Separators installed on the Carriers. AAE’s proposal was to increase the size of the Coalescer and Separation elements from the standard 4 inch diameter element to a 6 inch diameter element. The benefits the Navy would realize from the change included a significant reduction in vessel size, weight and maintenance costs (fewer elements to replace).

The existing 2000 GPM Filter Separators used the 4 inch elements and a CuNi vessel with an overall dry weight of 10,600 lbs Compared to AAE’s Stainless Steel vessel using 6 inch elements and having an overall dry weight of 5220 Lbs. By using the 6 inch elements AAE was able to use a vessel diameter of 48 inches compared to the previous vessel using 4 inch elements and having a diameter of 78 inches giving a 40% reduction in diameter.

The 6 inch Coalescer and Separation Elements are approved by both MIL-F-15618F and API 4th Edition.

AAE has used the 6 Inch elements for Fuel Filter Separators in most ship platforms and now includes them in our Lube Oil Filter Separators for many various U.S. Navy ships.

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Below is a chart showing Characteristics and performace of the 4 inch elements and the6 inch elements.

Description	4 Inch Element	6 Inch Element
Diameter (Maximum)	3.75 Inches	6.12 Inches
Element (Length)	24 Inches	20 Inches
Weight	2 Lbs	3 Lbs
Post Diameter	1.315 Inches	3.5 Inches
JP-5 Fuel Rating	21 GPM	50 GPM
Minimum Solids Retention	300 Grams	700 Grams
Capacity Comparison for Same Size	750 GPM	750 GPM
Separator Elements	24	6
Coalescer Elements	38	16
Weightof Unit for ISO PSI Vessel	1800 Lbs	1625 Lbs
Element Replacement Cost over 3 Years	One Unit worth of Elements	One Half Unit of Elements