

Highlighting innovative design features
and useful application information for
Thermo Scientific Biological Safety Cabinets

Thermo
S C I E N T I F I C

smart notes

► design and innovation



LAMINAR AIRFLOW PRODUCTS

SMART NOTE

Q A

How do I extend the filter life of my biological safety cabinet (BSC)?

To maximize your filter life, you should optimize air volume, laboratory air quality, size of BSC HEPA filters, BSC motor reserve capacity, and usage.

Traditionally, HEPA filter life for a BSC has been estimated at 5-7 years. However, recent studies and surveys of real-life usage show filter life to be significantly longer due to improved laboratory air quality and revised usage assumptions. The filter life of a Thermo Scientific BSC is equal to or exceeds that of a traditional Class II BSC because of its unique design advantages, which ultimately saves the lab significant time and money from decontamination, filter change, and re-certification.



design advantages

Longer HEPA filter life with optimized design

Yesterday's Approach

Many manufacturers increase only the BSC motor reserve capacity to achieve longer filter life. Using larger motors to achieve longer filter life can have a negative cost and environmental impact because larger motors consume up to 2 to 3 times more energy than optimized motors. This approach also ignores other equally important variables such as size of HEPA filter, air volume, and usage. In addition, because supply and exhaust HEPA filters are replaced at the same time, the benefits of greater motor reserve capacity could be diminished if one filter loads faster than the other due to an imbalance of airflow, as is often seen in BSCs with single motor design.

Why Thermo Scientific?

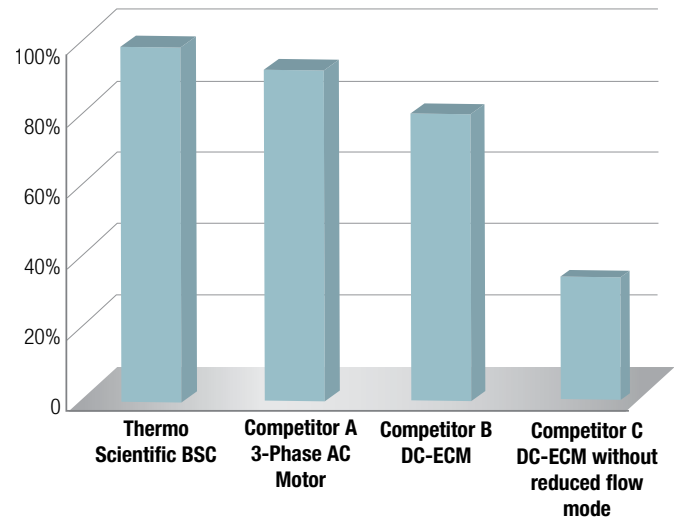
Thermo Scientific BSC design considers all parameters to increase filter life without sacrificing BSC performance or energy efficiency.

Instead of using higher energy-consuming motors, Thermo Scientific BSCs employ larger HEPA filters with a mini-pleat design that doubles the HEPA media to capture more particles. The supply and exhaust filters are sized for **balanced** loading to avoid premature replacement. Through these design advantages, Thermo Scientific BSCs are able to achieve 10% longer filter life than some traditional Class II BSCs.

Our BSCs also offer features that reduce the volume of air pushed through the HEPA filters. An 8-inch high work aperture draws 20% less air through the HEPA filters than 10-inch apertures. Our Night Set-Back reduced airflow mode (when front sash is closed) further extends filter life by minimizing airflow while maintaining containment when the BSC is operating but not in use.

► **Thermo Scientific BSCs are equal to or exceed other competitive models in filter life because of their unique design advantages.**

Comparative BSC Filter Life Estimates



Assuming a worst-case scenario when a BSC is running 24 hours per day, 7 days per week, Thermo Scientific BSCs outperform the competition in filter life due to energy efficient DC motors, balanced mini-pleat filters, and our unique Night Set-Back mode. Comparison above assumes cabinets are operational for 2000 hours annually (8 hours per day, 5 days a week) and operating in reduced flow mode the remainder of the time where available. Under these assumptions, the Thermo Scientific BSC offers nearly 3 times the filter life of competing BSCs (Competitor C) without these features (based on mathematical and statistical analysis of published data).

Learn more about extending your BSC's filter life at www.thermoscientific.com/bsc

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