

ENERGY EFFICIENT BIOSAFETY CABINETS

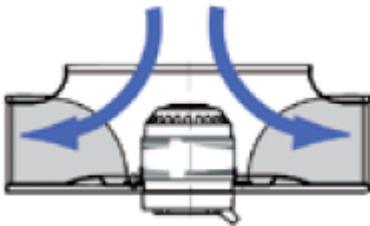
Currently we are facing three major global issues, which are:

1. Global recession, pointing the need to save cost while maximizing productivity
2. Volatile energy price, with the crude oil price soared to USD 147/barrel in mid 2008,
3. Environmental pollution and global warming, that threatens the survival of future generations

When selecting potentially power-consuming equipment, such as a biosafety cabinet, the key to face those problems is energy saving. Esco's solution to the abovementioned problems is to provide energy efficient product lines, such as the Airstream Class II and Labculture Plus Class II biological safety cabinets.

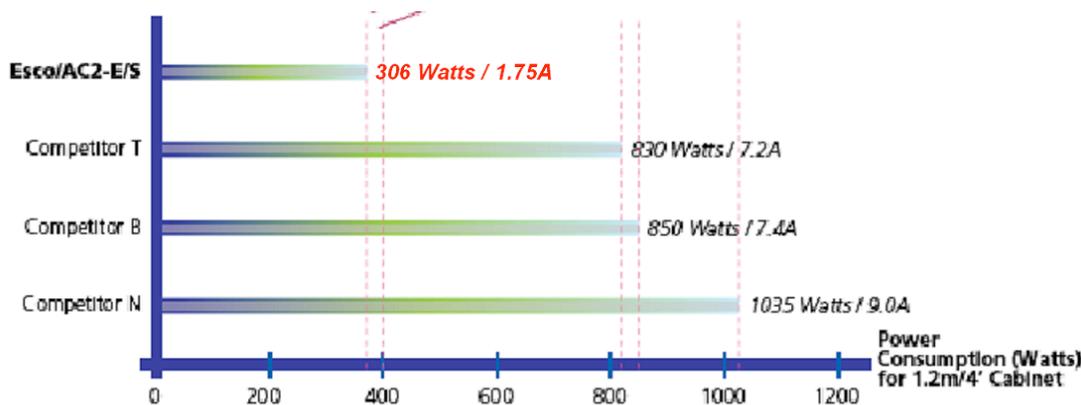
Airstream Class II Biosafety Cabinets

Airstream Class II is a competitively priced biosafety cabinet that utilizes the INNOVA backward curved, motorized impeller AC fan technology that replaces the conventional fans. At 306 Watts / 1.75 Ampere total cabinet power requirement, the INNOVA system improves energy efficiency dramatically and lowers operating costs.



Additionally, the lower heat output due to low energy consumption fan system further improves building energy efficiency, by reducing the heat load of the room where this cabinet is operated, compared to a cabinet that uses conventional fan technology.

Below is the energy consumption of an Airstream Class II (AC2-E/S) – 4ft / 1.2 m biosafety cabinet, in comparison to three leading brands of biosafety cabinets in the market:



If we compare the AC2-4E or -4S cabinet with the middle competitor above for same 4ft / 1.2 m cabinet, the cost of energy savings of an Airstream Class II cabinets is projected to be US\$500 per cabinet per year, based on average 500W savings shown above cabinet, with continuous operation, and electricity cost of US\$0.10/kWH, plus additional savings from reduced building cooling load.

The competitively priced AC2 cabinets will reduce the initial capital investment, while the low operating cost of these cabinets would help to lower the energy expenditure and environmental pollution.

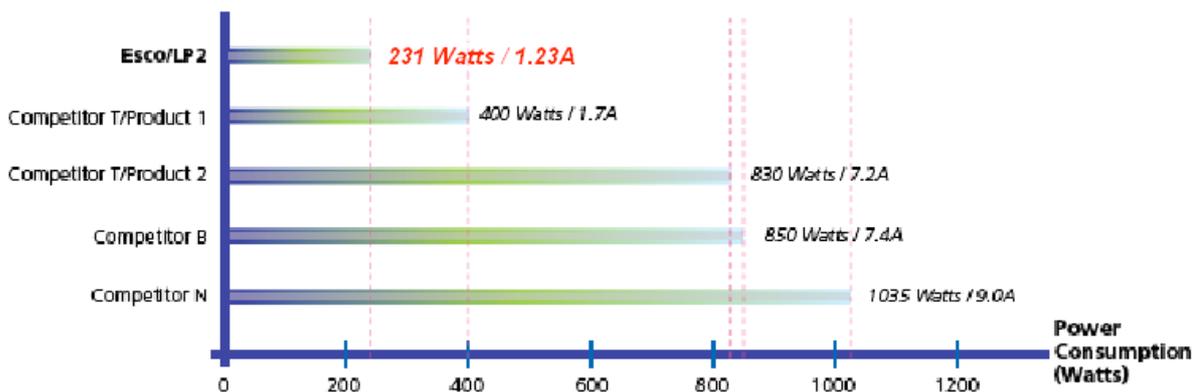
Labculture Plus Class II Biosafety Cabinets

Labculture Plus Class II is a premium biosafety cabinet product line that takes the energy efficiency to the next level. Instead of conventional AC fans, these cabinets use German made EBM-Papst® state-of-the-art centrifugal fans with EC motors. With EC technology, AC from the mains is converted into DC via proprietary electronics which enables up to 90% efficiency to be reached across a very wide speed and load range, or as little as 1/3 the energy of industry standard fans.



EC systems generate less heat than conventional motors for cooler working conditions and higher bearing life expectancy, therefore delivering superior reliability, and lowering the lab heating load. Because there is no electrical phase-cutting that is typically occurred in AC fans, the EC fans are quieter and improve working conditions in the laboratory. Moreover, the EC Fan maintains constant, stable airflow despite building supply voltage fluctuations, thus further improving the personnel and product protection function of the biosafety cabinet.

Below is the energy consumption of an Labculture Plus Class II (LP2) – 4ft / 1.2 m biosafety cabinet, in comparison to three leading brands of biosafety cabinets in the market:



Esco Labculture Plus Cabinets offer the best energy efficiency of any microbiological safety cabinet on the world market for lowest total lifecycle costs. Its dual EC Fan system operates at 231 Watts (1.2m cabinet, dual exhaust filter) and saves up to US\$150 per year per cabinet compared with competing models. Lower operating watts also reduces building heating load.



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Conclusion

Below is the energy savings offered by AC2-E/S and LP2 cabinets compared to the nearest conventional 4ft / 1.2 meter cabinet in the market (Competitor T) basing on the US\$0.10/kWH rate:

Cabinet	Continuous Operation: 24-hr/day, 7 days/week operation	8-hr/day, 5 days/week operation
AC2-4E/S	US\$441.42	US\$96.42
LP2-4D	US\$142.37	US\$31.1

By selecting the AC2-E/S or LP2-D cabinets, the customer would secure the investment in terms of low energy consumption, reliable fan system, and help to protect our environment.

Alexander Atmadi

Esco Micro Pte Ltd.