



# Purchasing New Versus Used Laboratory Equipment

The purchase decision should not be taken lightly, or solely driven by price. Careful consideration is necessary before venturing into the used resale market for biological safety cabinets, or other laboratory equipment.

Used laboratory equipment comes with the inherent risk of per-existing performance issues. Not only could these issues prove costly due to repairs and downtime, there is also the risk of compromised safety for laboratory personnel. Older equipment is also more likely to lack current technology which improves safety and functionality.

In addition to performance and safety, lower upfront costs do not guarantee a lower total cost of ownership. A new purchase offers improved technology and greater energy efficiency not available on even a very well maintained used unit.

This white paper will provide insight into key considerations during the process of purchasing new or used equipment.

## Assessing the Need

**Develop a pros and cons list for purchasing a used piece of equipment.** Ask questions of your environmental health and safety department as well as laboratory staff about the performance and condition of existing equipment.

### Among the key questions to ask:

- Have there been any reportable malfunctions of equipment? If so, when did the problems occur and what was the remedy? Have the problems reoccurred?
- Does the equipment have any 'quirks' or characteristics that frequently get in the way of routine procedures or require a work-around?
- Does the equipment in any way limit or hamper your ability to perform tasks and functions that are necessary or beneficial to your work?
- Are you aware of features on new equipment that would enhance safety, performance, efficiency, capabilities, or lead to measurable cost savings over time?

Gathering this feedback on a regular basis, bi-yearly or annually, can allow for development of a purchasing schedule, help avoid emergency purchases, and provide valuable information to help develop short and long-range budgets.

This approach also demonstrates to laboratory staff that their input is valued, and that their organization is committed to maintaining a safe environment by ensuring equipment is functioning at the highest level of safety and efficiency.

Beyond this "front-line" feedback, when a certification, repair or installation is being conducted, the service professional should provide a final report about the equipment. It's good practice to ask a trained technician if older equipment is showing any telltale signs of wear-and-tear or may be reaching the end of expected effective lifespan.

For example, a technician maintaining an ultra-low temperature freezer might note a condition known as "oil logging". According to Buckner Richerson, Vice President of International Sales with NuAire, oil logging occurs as capillary tubing becomes clogged, compromising the essential cascade system within the freezer, eventually causing a higher average temperature.

## Know the Service Life of Equipment

Having a good knowledge of the life span of your equipment can help predict when to monitor a certain piece of equipment for age-related performance issues.

For instance, a new biological safety cabinet has a life span of 15 years or more. When the cabinet nears that age - or other equipment reaches anticipated life expectancy - it is time to begin making an informed buying decision to assure continued performance for the next decade and beyond.



## The Challenges of Used Equipment

When preparing to upgrade equipment, a quick Internet search will reveal a wide range of options for new and used equipment. Of course, from a pure pricing perspective, it may be tempting to consider purchasing used equipment.

However, similar to the potential challenges that exist with buying a pre-owned car, there are a range of issues that work against buying used, particularly considering the need for safety, security, and accuracy with laboratory equipment. Even the slightest flaw that may have developed over the course of usage can escalate into a major problem after purchase.

Even if the equipment functions properly, it will not offer the benefits of newer technology, which can cost more over the life of the equipment.

**TOTAL COST OF OWNERSHIP**

<b>Routine Maintenance</b>	<b>VS.</b>	New components and warranty coverage mean more predictable maintenance time and cost.
<b>NEW</b>		A new unit performs within exact specifications, which can provide less uncertainty in results, and fewer repetitions of procedures.
<b>Reliable Productivity</b>	<b>VS.</b>	New equipment can be installed and certified on a predictable time line. Used equipment may require costly and time-consuming repairs, parts, and decontamination.
<b>Efficient Installation &amp; Start-Up</b>	<b>VS.</b>	
		
<b>NEW: Initial Purchase Price</b>	<b>VS.</b>	New equipment is often more costly than used alternatives.

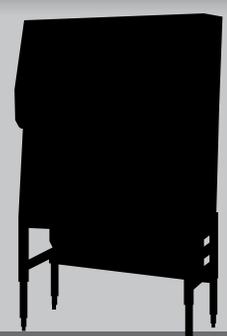
**UNPREDICTABLE TOTAL COST OF OWNERSHIP**

**USED**

**Intermittent Parts Failure, Repair Costs**

**Productivity Reduced by Downtime and Less Efficient Components**

**Unreliable Service Records, Decontamination & Repairs**



**USED: Initial Purchase Price**



It is essential to carefully assess several critical considerations when evaluating the purchase of a biological safety cabinet to assure the most effective and safe laboratory practices.

## Key Considerations Before You Buy

### Cost:

A new biological safety cabinet is likely to be more expensive than a used model. But, there are hidden costs to consider when determining the true total cost of ownership.

NuAire utilizes a state-of-the-art ultra high efficiency blower motor. This provides lower energy costs, longer filter life, and reduced noise and vibration. **Annual energy costs are estimated to be only 53%** of that associated with NuAire's previous models, which were already highly efficient. Older units from other manufacturers are likely to be even more costly.

### Product history:

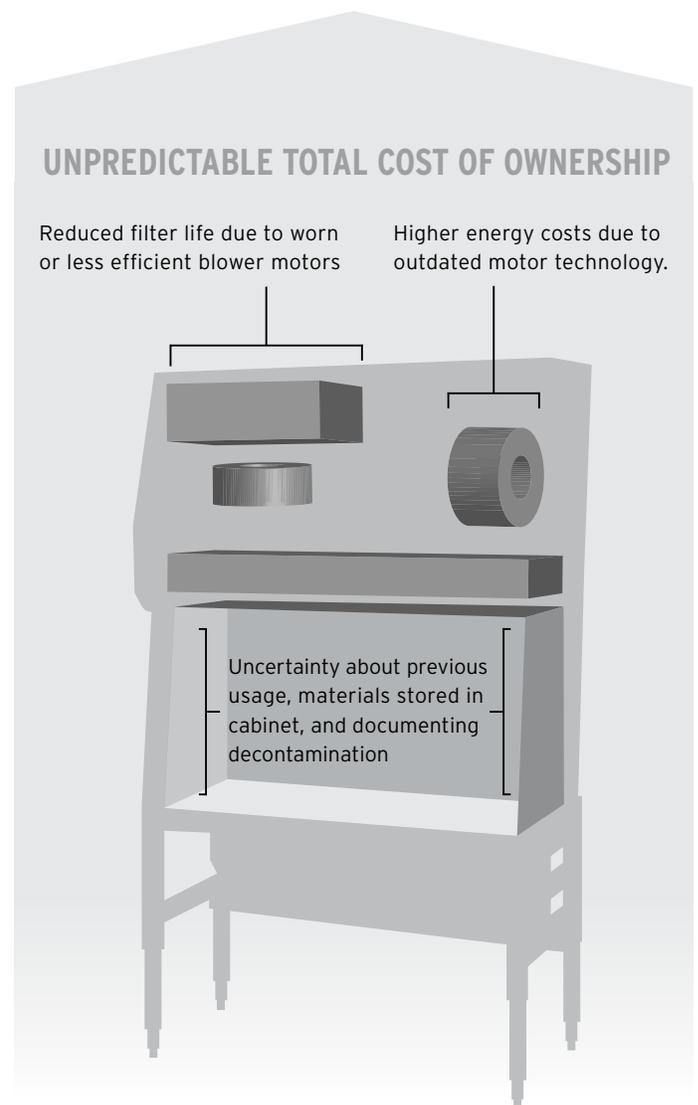
It is certainly possible to find a biological safety cabinet on the used market that meets your needs at a favorable price point. However, there is considerable uncertainty and a challenge in securing accurate data about the equipment's history and performance record.

### Questions that may prove difficult to answer:

- Has there been replacement or repair of parts, motor, or technology? If so when did they occur, were the upgrades made by a trained technician and are the parts under warranty?
- Will there have to be technology, parts or motor upgrades or modification to the unit prior to installation at your facility or a short time after installation?
- If upgrades are needed do they have to be conducted by the original manufacturer, and are there up-to-date parts and expertise available to assure that work is done to standard?
- What was the previous use of the cabinet, and what was stored and used in the cabinet? Is there full decontamination documentation that comes with the cabinet that provides clear and detailed records of any issues?

- Is there a service contract with the older unit? If so, what are the associated costs and specifics regarding what are covered from a service perspective?
- What is the anticipated performance of the cabinet? Will the cabinet meet certification requirements as well as current performance standards?

If you can't find well-documented and accurate answers to all of these questions, then a used purchase could end up costing more in money, performance, aggravation, and safety.



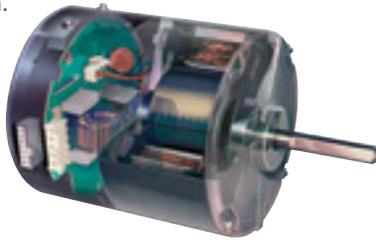


**Technology:**

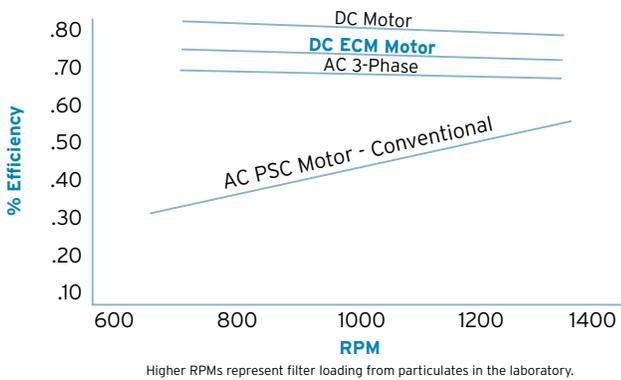
We are in an era of unprecedented technology advancements occurring at an increasingly rapid pace. This new technology in laboratory equipment is not only more energy efficient, but also allows for enhanced performance.

**DC ECM Blower Motor**

NuAire biological safety cabinets offer DC ECM blower motor technology which provides longer filter life and the lowest possible noise and vibration.



**Blower Motor Efficiency**



**Filter Loading Capacity**

DC ECM technology increases filter life from the NSF minimum requirement of 50% or an approximate 3 year equivalent life to 10 years or more. Percent increase in total load capacity\*:

- 85% - DC (4 Years)
- 180% - AC PSC (7 Years)
- 250% - DC ECM (10 Years)
- 250% - AC 3-Phase (10 Years)

\*Percent increase testing based on NSF/ANSI 49, ANNEX A.12 motor/blower performance test methods.

**Warranty:**

Another key cost consideration is warranties. NuAire warrants up to five years domestic parts and labor, including filters; and six years parts including filters internationally. In certain instances, extended warranties can be purchased to lengthen warranty coverage as far as 10 years or more.

**Buying New - Greater Value, Peace of Mind**

Ultimately, a full range of considerations needs to go into the purchasing decisions for laboratory equipment. Carefully assessing needs, long-term costs, expected performance of the product, and technological capabilities, a buying decision can be made which makes economic sense and allows personnel to perform at the highest level.

Purchasing a used biological safety cabinet or other essential laboratory equipment may seem like a cost-effective option. Yet, in reality, equipment that has already functioned in other medical or laboratory environments might end up being a costly mistake. Purchasing a newly-manufactured product, assures the newest technology, the highest level of cost efficiency, and peace of mind. A multi-year warranty and experienced service adds further value. That's the best use of your organization's resources and money.