



## 7 QUESTIONS TO OPTIMIZE CENTRIFUGE PERFORMANCE



# Centrifuges Play a Major Role in Laboratories

Centrifuges are application-driven products. Laboratory professionals should be well-informed before determining which is the correct centrifuge to meet their application. **In order to help identify the correct product for an application, there are seven questions to consider.** These questions will help identify which product category and which model within that category is appropriate. In addition to the correct category and model, it is important to identify the accessories that are available to expand the capabilities of a centrifuge, or allow it to perform a function critical to a needed application.



NuWind NU-C200R Bench Top Centrifuge



NU-MLX-106 Mini Centrifuge

There are many types of centrifuges on the market. These types include microcentrifuges, bench top centrifuges, floor-standing centrifuges, high speed centrifuges, ultra centrifuges, and blood bank centrifuges. For each type of centrifuge, a large number of accessories are available.



NU-B500 Swing Out Buckets

Accessories, such as rotors, expand the capabilities of a centrifuge, and allow it to be configured for a particular application. Rotors of different structures allow buckets containing sample tubes of many capacities to be spun at different speeds. Carefully consider the accessories which are available for a centrifuge before making a decision.

**This white paper will discuss seven questions** which can be used to select a centrifuge which is correct for your application. These questions include: the maximum speed necessary, what materials and what quantity of those materials will be spun, how much bench space is available, how versatile is the system, how easy is operation, reliability and serviceability, and availability and reliability of power in the facility where the centrifuge will be used.

NuAire offers a full line of centrifuges and accessories plus an extensive range of laboratory equipment to meet any need. Visit [nuaire.com](http://nuaire.com) for more information.



NU-RX500 Swing Out Rotor



## Question 1:

### What is the Maximum Speed You Need to Achieve?

Knowing the speed in revolutions per minute (RPM) or Relative Centrifugal Force (RCF) determines the category of centrifuge. All centrifuges have motors to generate force, rotors that mount on the motor shaft, and/or buckets and inserts where tubes are placed.

NuAire, the leading laboratory products manufacturer in the United States for more than 40 years, supplies and manufactures high performance centrifuges. The majority of NuAire's centrifuge sales are standard blood processing or cell culture applications in research lab, university, clinical, or small pharmacy settings using 4500-5000rpm.

## Question 2:

### What and How Much will be Spun?

Knowing the type, size and quantity of tubes to be spun in one cycle will determine the volume and guide the laboratory professional to a specific centrifuge model.

Micro-centrifuges spin microtubes of 1.5/2.0 ml volume. Large centrifuges can spin up to 9 liters of volume - almost 1000 times more, spinning 6 bottles of 1.5l for bio-processing uses such as blood bags in a bucket. 5, 7, or 10 ml or 12x75 blood collection tubes require centrifuges that spin at low speeds



### Question 3:

## A Key Point: How Much Space Is Available?

How much space is available helps determine the specific model centrifuge within a category, whether it is a floor or bench-top model. Most labs don't have as much space as they would like, and managers are looking for the smallest footprint centrifuge with the largest capacity.

For the past 2 years, NuAire developed a new line of centrifuges to specifically increase capacity in the same or smaller footprint. Engineers increased the bowl size so more volume can be spun on the Nu-Wind line. By incorporating both the internal safety barrier and external panel into a single one-piece system, NuWind centrifuges provide added safety and maximize the size of the bowl within the centrifuge's footprint providing more capacity in a smaller space.



Increased Capacity Bowl

### Question 4:

## How Versatile Is the System? Will it Handle Current and Future Needs?

In the past, centrifuges were built only for specific applications. Users were required to buy separate tools for high and low speed operations. As the industry matured, multi-application or "all-in-one" centrifuges combined several functions into a single product capable of operating at many speeds, with several rotors to fulfill several different protocols.

Until about 5 years ago, removing the rotors was difficult, requiring specialized tools to manually remove and install each rotor. Special procedures were required to confirm the rotor was locked securely, and properly balanced to prevent damage due to vibration during high speed operations.

NuAire introduced "ClickSpin", a simple hand-operated method to change rotors without the use of tools. Users press and spin a wheel with their thumbs to remove a rotor. During installation, users press the rotor downward until an audible "CLICK" is initiated signaling that the rotor has been locked into the centrifuge.



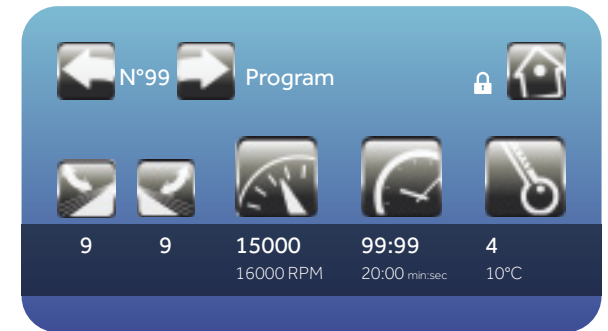
CLICK & SPIN



## Question 5:

### How Easy Is Operation?

NuAire has incorporated touch screens into its centrifuges providing users with an easy interface to control parameters. NuAire's centrifuge software is very user-friendly, offering the ability to create multiple levels of users with varying levels of permissions and improved software controls. NuAire systems can save up to 100 programs, and it is easy to lock a program with a password combination of buttons to avoid losing information from accidental change or deletion.



## Question 6:

### How Important is Reliability and Serviceability?



Centrifuges are reliable, but do occasionally need service. To aid in servicing centrifuges quickly, NuAire located all mechanical and key electrical components in the Control Center. If a problem occurs with any part other than the motor, a new control center can be installed. The control center contains a wireless RFID chip which stores the tool's history and all saved users and programs. This information can be restored to a newly installed control center. This simplicity of design speeds repair, isolating most problems to either the control center, or motor. Both of which are quickly replaceable.

## Question 7:

### How is the Power in My Facility?

NuAire's unique Power Factor Control (PFC) technology corrects power variances in order to deliver constant power to centrifuge components. The quality and reliability of electrical power can cause performance fluctuations in internal components of a centrifuge. A performance fluctuation may result in a minor disturbance such as variation in speed. A more serious fluctuation might result in a tripped breaker and a sudden loss of power. In either case, reliability and repeatability of work can be compromised.





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For more information please visit  
[www.nuaire.com](http://www.nuaire.com) or call **1.800.328.3352**



NuAire, Inc. | 2100 Fernbrook Lane | Plymouth, MN 55447 | U.S.A. | 763.553.1270 | [WWW.NUAIRE.COM](http://WWW.NUAIRE.COM)