



## Thermo Scientific Centrifuge Solutions for Biocontainment

# Your Leader in Centrifuge Biocontainment

Trust in us for our proven leadership in centrifuge biosafety. We offer a complete turnkey solution for all of your biocontainment needs – from our comprehensive centrifuge products and accessories to our exceptional support and services.

## Why Biocontainment?

In today's biomedical and microbiological laboratories, biosafety has never been more critical. From new infectious disease studies to international biosecurity concerns, these facilities require the utmost in protection to reduce the risk of biocontamination and laboratory-acquired infections (LAIs).

## Centrifuge Solutions for Biocontainment

Whatever the safety level you require, we deliver multiple layers of protection for you and your lab environment.

**Thermo Scientific Centrifuges:** from microcentrifuges to superspeed and ultra-speed centrifuges

**Thermo Scientific Rotors:** the most comprehensive range of rotors, including Fiberlite carbon fiber rotors, with available Thermo Scientific Bioseal and ClickSeal® technologies

**Thermo Scientific Consumables:** our line of trusted Thermo Scientific Nunc and Nalgene consumables are unmatched



## Biosafety Lab Requirements

### BSL-1

Well-characterized agents with minimal potential hazard to lab environments, including:

*Aspergillus niger*

*Escherichia coli*

*Pseudomonas fluorescens*

*Micrococcus luteus*

### BSL-2

Agents with moderate hazards to lab environments, including:

Polio Virus

H1N1 Virus

Herpes Virus

*Neisseria gonorrhoeae*

A standard laboratory operates at a BSL-2 level of safety.

### BSL-3\*

Indigenous or exotic agents with serious or potentially lethal disease if exposed or inhaled, including:

*Yersinia pestis*

*Neisseria meningitidis*

*Mycobacterium tuberculosis*

*Bacillus anthracis*

1918 Influenza strain

### BSL-4

Exotic agents with high risk of aerosol-transmitted infections, including:

Hemorrhagic Fever Virus  
(ie, Ebola, Marburg, Crimean Congo Fever, Lassa)

\*Organisms should be handled with BSL-3 practices when handling concentrated amounts or cultures of infectious materials or when there is a high potential for droplet or aerosol productions.

# Thermo Scientific Centrifuges

## Simplicity, Flexibility and Exceptional Biosafety

Thermo Scientific centrifuges are fully equipped with industry-leading biosafety features. Regardless of your application – whether it's standard processing or superspeed applications with pathogens, we have a centrifuge complete with the optimal biosafety features for your application requirements.

**No Bolt-Down Design:** Innovation in energy management and instrument stability result in a no bolt-down design to meet CE and CSA safety standards without the need to damage the floor with restraint bolts

**HEPA Filter (for centrifuges with a vacuum):** Protects release of small particles and removes particles from air that could contaminate samples

**User Lock-Out Software:** Ensures access control for GMP-compliant facilities, including unauthorized access restrictions, usage tracking and run terminations

**Easy Clean Surfaces:** Simplifies post-run cleaning and allows quick clean-up from any accidental spillage that may occur



# Thermo Scientific Rotors

**Rotor security is central to the overall safety of your work. We offer the most complete line of rotors from alternative materials to advanced carbon fiber design with a range of safety features that have been independently tested for microbiological containment.**

## Bioseal technology

Containment of samples provided by a combination of physical seals and a design that helps to prevent any sample release within the rotor from breaching the seal. Rotors are tested to EN 61010-2-020, Annex AA standards. ✦

## ClickSeal® technology

Audible “click” signals the rotor is properly sealed for certified assurance that samples are contained and easy one-hand opening prevents glove tears. ✦

## Auto-Lock® technology

Enables three-second rotor installation and removal for fast switching between applications and easy access to chamber for cleaning convenience.

## Enhanced Liquid Containment

In case of tube or bottle failure, contain a volume of fluid equal to one bottle in a special curved annulus at the top of rotors.

## Top-loading swinging bucket rotor

Provides a level of safety so the sample does not spill within the sealed bucket during bucket loading/unloading.

## Sealed safety cups

Keeps bio-hazardous samples contained.

## Lightweight and ergonomic

Provides a safer work environment and minimizes the risk of damage to equipment. Results in faster acceleration/deceleration rates and decreases wear to critical centrifuge drive components..

## Cleaning convenience

Carbon fiber offers corrosion-resistant material that is easy to clean and disinfect for optimum safety.

## Compatible with Thermo Scientific Nalgene bottles and tubes

Our rotors are seamlessly integrated with Nalgene® and Nunc™ consumables, offering the utmost in sample protection from sealed Oak Ridge style tubes to the true 1-liter Nalgene wide-mouth centrifuge bottles.



ClickSeal technology

## Thermo Scientific Rotor Safety Program

*Ensures the longevity of your investment and the safety of your workplace by preventing premature rotor failure with our on-site rotor inspection and safety clinics.*

Thermo Scientific product representatives will evaluate the safety of your rotors and provide a comprehensive report for each rotor examined. As part of the inspection, our representatives will present information on proper rotor care and offer recommendations based upon the current rotor condition to maximize the performance of your centrifuge.

Please contact your sales representative to schedule a clinic.



## Thermo Scientific Consumables

For an extra layer of protection inside of your rotor, we offer a full range of sealed tubes as well as bottles and consumables that deliver outstanding safety, including:

**Full 1- Liter Nalgene Bottle:** Holds a full liter with a sealed O-Ring

**Sealed Nalgene Oak Ridge Tube:** Prevents sample loss and contamination

**UltraCrimp (tube) System:** (for ultra and micro-ultracentrifuges) Provides a strong permanent seal without the use of heat which could damage samples and salt gradient materials

**Re-Seal (tube) System:** Prevents sealed tubes from leakage



### Biological Safety Cabinets: Additional Level of Safety

For an added level of protection, our non-refrigerated microcentrifuges can be used in one of our Thermo Scientific Class II, Type A2 biological safety cabinets.

Our full line of biological safety cabinets offer independent safety systems for unmatched security:

- **SmartFlow™** maintains a safe working environment. Independent supply and exhaust blowers automate balancing of downflow and inflow/exhaust velocities to ensure continuous safe working conditions, even as the filters load.
- **Digital Airflow Verification (DAVe)** validates product and personnel protection. Independent pressure sensors detect changes in pressure across the exhaust and downflow plenums. An alarm signals when changes in inflow/exhaust or downflow occur to alert the user if safety is compromised.

# Your Single Source Provider

Our entire sales and customer service staff are educated in centrifuge biosafety needs and can offer you a one-stop solution – even after you've purchased your equipment. Our factory-trained service personnel and field service engineers have specialty training in servicing BSL-3 facilities. Furthermore, our laboratory equipment line is used throughout the world, including BSL-3 and BSL-4 facilities.

Features, such as **Bioseal technology**, **ClickSeal technology**, and **HEPA filtration**, are designed to meet or exceed standard biosafety guidelines. Standard biosafety guidelines for centrifugation include the use of a sealed centrifuge bucket and/or rotor as well as suggesting opening buckets inside of a biological safety cabinet to prevent spills and aerosol contamination.

General laboratory safety guidelines can be found in the Centers for Disease Control/National Institute of Health publication *Biosafety in Microbiological and Biomedical Laboratories (BMBL)*, 5th Edition, 2007 and the WHO *Laboratory Biosafety Manual*, 3rd edition, 2004. Specific biosafety requirements may vary among institutions, please contact your facilities safety office for specific requirements.



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