

ULTRACENTRIFUGE | ULTRA-HIGH SPEED REFRIGERATED CENTRIFUGE TT- ULTRAC30



UltraCentrifuge TT-UltraC30 is an advanced floor-standing, ultra-high speed refrigerated centrifuge, widely used for the high-speed and high-capacity separation and purification of biological samples such as molecular biology specimens, proteins, cells, and DNA. UltraCentrifuge TT-UltraC30 is also ideal for the ultra-high speed centrifugal separation of nanoscale samples, meeting the diverse separation needs of our customers.

UltraCentrifuge - Ultra-High Speed Refrigerated Centrifuge TT-UltraC30

APPLICATIONS

The Torontech TT-UltraC30 is designed for the most demanding high-speed separation and purification tasks where maximum g-force is required. By applying centrifugal forces exceeding 100,000 x g, it enables the isolation, concentration, and purification of subcellular components, macromolecules, and nanoparticles, providing the high-purity samples essential for advanced research and development.

This high-performance separation is a critical enabling technology in:

- **Virology & Vaccine Development:** For the concentration and purification of viral particles from cell culture supernatants, a fundamental step in the production of viral vectors for vaccines and gene therapy research.
- **Proteomics & Biochemistry:** To isolate and separate protein complexes and subcellular organelles (e.g., ribosomes, microsomes), allowing for detailed study of their structure and function.
- **Molecular Biology & Genomics:** For the high-purity separation of plasmids, DNA, and RNA, particularly in preparing samples for sensitive downstream applications like sequencing and transfection.
- **Nanotechnology & Materials Science:** To fractionate and purify synthetic nanoparticles, such as quantum dots and liposomes, based on size and density, ensuring the sample uniformity required for advanced material applications.

FEATURES

- Max Speed: 31,200 RPM
- Max RCF: 110,000 x g
- Max Capacity: 6 L
- Intelligent Vacuum System: Ensures effective sealing.
- Real-Time Monitoring: Red, green, and yellow indicator lights display device operation status.
- Durable Construction: High-strength aluminum alloy centrifugal chamber.
- Consistent Cooling: All rotors maintain 4°C or below at maximum speed.
- Energy Efficiency: Standby cooling function can be turned off, reducing energy consumption by over 45%.
- Automatic Rotor ID Recognition: Prevents misoperation.
- Airtight Rotors: Easy rotor replacement.
- Customizable Programs: Allows brief descriptions for each program.

THEORY & METHOD

An ultracentrifuge separates particles in a liquid sample by spinning them at very high speed. The technique, called sedimentation, sorts components such as proteins, nucleic acids, viruses, and subcellular particles by their size, shape, and density.

How High-Speed Sedimentation Works

When the rotor spins, it generates a powerful centrifugal field, often expressed as relative centrifugal force (RCF), or multiples of gravity. This force pushes particles outward toward the bottom of the tube. Denser and larger particles experience more net force and move faster, so they sediment ahead of smaller, lighter ones. Particles that match the density of the surrounding liquid stay suspended.

Why Refrigeration and Vacuum Matter

At ultracentrifuge speeds, friction between the spinning rotor and the surrounding air would generate significant heat. To protect heat-sensitive biological samples, the system runs under refrigeration and, in many designs, reduced pressure to control that heating. The result is a stable, low-temperature environment that preserves sample integrity during long runs. Scientists describe how fast a particle settles using the sedimentation coefficient, measured in Svedberg units (S), which is why ribosomal fractions are named by values such as 50S or 70S.

TECHNICAL SPECIFICATIONS

Specification	TT-UltraC30
Model	TT-UltraC30
Part No.	101312
Max. Speed	31200 rpm
Max. RCF	110000 xg
Max. Capacity	6 x 1000ml
Speed Range	300 - 31200 rpm
Speed Accuracy	±5 rpm
Temperature Range	-20°C - +40°C
Temperature Accuracy	±1°C
Timer	1s ~ 65535x / 1min ~ 6535min, increment 1
ACC/DEC Rate	11 / 11 Soft brake
Storage	1000 pcs

Specification	TT-UltraC30
Screen	10-onch color LCD touch screen
Storage Interface	USB
Noise Level	≤56 dB (A)
Safety Devices	Door interlock, overspeed detection, imbalance detection, over-temperature detection, rotor cover detection
Drive Motor	AC Inverter Motor
Refrigerator	Inverter compressor (Refrigerant: R290)
Power Supply	AC 220V ±10%, 50Hz, 20A (110V is also available)
Total Power	4 kW
Dimensions (L x W x H)	780 x 810 x 867 mm
Net Weight	308 kg
Auto rotor recognition	Applied
Log Management	Optional
Real Time Control (RTC)	Optional
Gradient Centrifugation	Optional
Administrator Management	Optional

TT-UltraC30 Rotor List

Rotor Image	Rotor Type	Capacity	Max. Speed (rpm)	Max. RCF (x g)	Adapters
No.1 Angle Rotor for TT-UltraC30	No.1 Angle Rotor (Ti)	24 x 1.5ml	31200	90329	0.2ml, 0.5ml
No.2 Angle Rotor for TT-UltraC30	No.2 Angle Rotor	24 x 1.5ml	25000	57996	0.2ml, 0.5ml
No.3 Angle Rotor for TT-UltraC30	No.3 Angle Rotor	48 x 1.5ml	24000	63109	0.2ml, 0.5ml
No.4 Angle Rotor for TT-UltraC30	No.4 Angle Rotor	12 x 15ml conical	25000	75465	5ml conical
No.5 Angle Rotor for TT-UltraC30	No.5 Angle Rotor	6 x 50ml conical	25000	70574	15ml conical
No.6 Angle Rotor (Ti) for TT-UltraC30	No.6 Angle Rotor (Ti)	8 x 50ml	30000	110000	5ml, 10ml, 15ml
No.7 Angle Rotor for TT-UltraC30	No.7 Angle Rotor	6 x 200ml conical	17000	43618	10ml, 15ml, 50ml conical
No.8 Angle Rotor for TT-UltraC30	No.8 Angle Rotor	6 x 500ml	10000	18111	15ml, 50ml, 200ml
No.9 Angle Rotor for TT-UltraC30	No.9 Angle Rotor	4 x 1000ml	9000	16481	50ml, 250ml, 500ml
No.10 Angle Rotor for TT-UltraC30	No.10 Angle Rotor	6 x 1000ml	8000	14367	50ml, 250ml, 500ml
No.11 Swing Rotor for TT-UltraC30	No.11 Swing Rotor	4 x 500ml	4000	3255	15ml, 50ml, vacutainer

Rotor Image	Rotor Type	Capacity	Max. Speed (rpm)	Max. RCF (x g)	Adapters
No.12 Swing Rotor for TT-UltraC30	No.12 Swing Rotor	4 x 750ml	4500	4166	15ml, 50ml, vacutainer



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