



INSTRUMENT USE SHEET

BECKMAN OPTIMA XL-100K ULTRACENTRIFUGE

General Information

- **Instrument:** Beckman Optima XL-100K Ultracentrifuge
- **Brand:** BECKMAN
- **Location:**
 - CRIETT – Padiglione Bassani
 - Via J.H. Dunant n°5, Varese
 - Floor: -1
- **Contact:**

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Dr. Maristella MASTORE

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User List: Dr. Paola Moretto

Training Path: Yes*

** Autonomous use of the instrument is permitted. The practical part involves one-on-one training. For the theoretical part, the contact person will provide a handout on operating principles.*

Internal tickets can be viewed on the intranet page (access with university credentials): <https://intranet.uninsubria.it/areadocumenti/ticket-strumenti-criett-utenti-interni>

The fee schedule for external users can be viewed on the website:

www.uninsubria.it/criett



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"The scientific support from CRIETT centre of University of Insubria (instrument code: MIC03) is greatly acknowledged."

Instrument Code: EP01

Access Modes

Direct Access (Self-Service)

- **Who:** Research groups or users who use the instrument continuously and have received specific training.
- **Mode:** The trained user can access and use the instrument independently by making an online reservation.

Access with Scientific Technician (Full-Service)

- **Who:** Research groups that use the instrumentation occasionally, external users, or those without qualified personnel of their own.
- **Mode:** Access occurs through the assistance of dedicated technical staff, who manage the reservation and use of the instrument.

Occasional/Temporary User: Can access the instrument through the Contact Person or via an authorized User

Description and Functionality

The Beckman Optima XL-100K ultracentrifuge is a high-performance preparative centrifuge designed for the separation and purification of biological particles and macromolecules through the application of extremely high centrifugal forces. Operating under vacuum, it can reach speeds up to 100,000 rpm and accelerations up to approximately $802,000 \times g$, enabling the isolation of viruses, exosomes, cellular organelles, proteins, and nucleic acids.

Beckman Website: <https://goto.beckman.it/tubi-da-centrifuga-e-ultracentrifuga-beckman-coulter-centrifuge-tubes/>

Main Features

- Separation of particles based on density, size, and mass.
- Differential and density gradient ultracentrifugation.
- Isolation and purification of:
 - viruses and viral particles;
 - exosomes and extracellular vesicles;
 - cellular organelles (mitochondria, nuclei, microsomes);
 - proteins, macromolecular complexes, and nucleic acids.
- Precise control of speed, temperature, and centrifugation time.
- Storage of customized operational programs.
- Safety system with rotor imbalance detection and monitoring of operating conditions.

Technical Specifications

- **Maximum Speed:** 100,000 rpm
- **Maximum Centrifugal Force:** $802,000 \times g$
- **Temperature Range:** 0–40 °C
- Compatible with numerous Beckman rotors for various biological and biochemical applications.

Available Rotors

Rotor DOCX	Type DOCX	Max RPM DOCX
100Ti	Fixed angle	100,000
SW60	Swinging bucket	60,000
NVT65	Fixed angle	65,000

Safety Warnings

- Only use the ultracentrifuge after completing the designated training path.
- Always check the integrity of tubes, adapters, and rotors before use.
- Accurately balance samples to avoid vibrations, damage to the rotor, and safety hazards.
- Exclusively use compatible rotors, accessories, and tubes approved by the manufacturer.
- Do not exceed the speed and load limits specified for the rotor being used.
- Ensure that the rotor is properly installed and tightened before starting.
- Do not open the lid until the rotor has come to a complete stop.
- In case of a spill of biological material or hazardous substances, follow the decontamination procedures established by the laboratory.
- Thoroughly clean and dry the rotors and the centrifugation chamber after use.

Operational Notes

- Immediately report any anomalies, unusual noises, vibrations, or error messages to the personnel responsible.
- At the end of use, leave the instrument clean and in the conditions required by the laboratory's standard operating procedures.

Materials and accessories provided by CRIETT

- Rotors
- Rotor user manuals
- Tube user manuals

Materials and accessories for analysis to be provided by the user

- Disposable tubes