



*A Whole New Dimension
in Bioprocessing*

AVANTI® J-HC

HIGH-CAPACITY BIOPROCESSING
CENTRIFUGE SYSTEM



A Total Solution for Batch Bioprocessing

The Avanti® J-HC system is a technological breakthrough for volume separation of cells and precipitates. Performance and utility are enhanced with the introduction of an innovative array of disposable, sterilizable Harvestline™ system liners (flexible, validated inserts that fit directly into large-volume labware).

The new standard in centrifuge bioprocessing for mammalian and bacterial cell separation, the Avanti J-HC with liners provides:

- Superior levels of productivity
- Reduction in operating costs
- Ease of use
- Optional instrument HEPA filter to facilitate biosafety
- Paperless documentation for Current Good Manufacturing Practices (CGMP) compliance

THE JS-5.0 ROTOR WITH 9L J-WIDE LABWARE can effectively process batch sizes up to 100 liter volumes of bacterial, yeast and tissue homogenates.

THE AVANTI J-HC WITH THE JS-3.4A-1250 ROTOR AND J-WIDE LABWARE is ideally suited for gentle processing of mammalian and insect cell culture in batch sizes up to 60 liters.

THE AVANTI J-HC WITH THE JLA-8.1000 FIXED-ANGLE ROTOR AND J-LITE® POLYCARBONATE, POLYPROPYLENE BOTTLES, AND LINERS quickly processes a full six liters. The JLA-8.1000 provides $15,900 \times g$ for higher throughput where a higher g -force for production is required (such as the pelleting of bacterial or yeast cell culture and tissue homogenates, or the purification of large viruses and polysaccharides for vaccines). The disposable liners for the JLA-8.1000 feature a self-sealing "neck" for enhanced filling control, sample handling and reduce operator exposure to pathogens and aerosols.

The special J-Wide labware with disposable liners facilitates:

- High product recovery with minimal operator exposure
- Easy pellet recovery
- Biosafety through its aerosol cover with filter and O-ring
- Simple loading, storage and clean-up

SPECIFICATIONS

Maximum speed:	10,000 rpm
Maximum g -force:	$17,700 \times g$ (JA-10 rotor @ 10,000 rpm)
Speed control:	± 10 rpm of set speed
Maximum capacity:	9,000 ml
Single-bucket volume:	2,250 ml
Set temperature range:	-10°C to 40°C
Temperature control:	$\pm 2^\circ\text{C}$
User programs:	30 programs, 2 step
Friction reduction:	Automatic
Maximum heat dissipation to room:	2.0 kW, 6,900 BTU/hr
Noise level:	60 dBa — 0.91m (3 ft) in front of instrument at 10,000 rpm
Weight:	300 kg (660 lb)
Dimensions h x w x d cm (in):	91 x 71 x 86 (36 x 28 x 34)

Avanti J-HC Features

- Selection of large-volume swinging-bucket and fixed-angle rotors for a wide range of processing applications
- Smart Friction Reduction System (FRS) to reduce heat output to the lab, which decreases operating costs and allows higher run speeds for greater performance
- CFC-free refrigeration for efficient operation and accurate temperature maintenance

DISPLAY PANEL

- Automatic rotor-type verification for precise performance and temperature control
- g-second operation to ensure reproducible separations, compliance and CGMP
- Streamlined run setup and display capabilities
- Creates and stores up to 30 two-step programs

(A) Viewport strobing for instrument calibration and certification for FDA compliance

(B) SpinTrace™ II Network software with connectivity for up to 32 Avanti J instruments for paperless documentation, data management and CGMP compliance

(C) Digital control panel with soft-touch design for easy run setup and display capabilities

(D) Large-volume ARIES™ swinging bucket rotors with auto-balancing feature

(E) J-Wide labware with aerosol cover, including an O-ring and 0.2-micron filter to facilitate biosafety

(F) Patented high-torque switched reluctance (SR) drive* (fast accel/decel) to enhance productivity and throughput

(G) Low energy consumption and heat output for lower operational costs

(H) Small footprint and ergonomic design for easy access

(I) Foot-pedal door opening for easy sample loading and unloading

(J) Optional laser bar code scanner for accurate data logging



*SR drives are manufactured by Beckman Coulter, Inc., with technology licensed from Switched Reluctance Drives, Ltd., Leed, U.K.

Unique Design Enhances Productivity

New Harvestline™ System liners provide convenience and cost savings

Harvestline System liners provide a closed system for the JS-3.4A-1250, JS-5.0 and JLA-8.1000 rotors provide disposability, ease of use, and low cost. Liners can be sterilized (gamma irradiation), placed in a freezer (-80° C) for prolonged storage and are compatible with commonly used chemicals and solvents (FDA Class VI).

- Mammalian and insect culture separations
- Bacterial, yeast and tissue homogenate isolations
- Virus harvesting for vaccine production – viral vector gene therapy and monoclonal antibody production

J-Wide labware features a special cup for the separation of cell culture, with a wide-mouth opening for easy sample removal. Biosafety is facilitated by a unique aerosol cover with a 0.2-micron filter to minimize contamination and significantly reduce operator exposure to pathogens. The sturdy JS-3.4A-1250 labware is autoclavable and resistant to the major chemicals and solvents used in bioprocessing and vaccine-production facilities.

The J-Wide cup has a wide mouth for easy sample handling, and comes with a contoured spatula for maximum pellet recovery.

Mammalian and Insect Cell Culture Separations

JS-3.4A-1250 SWINGING-BUCKET ROTOR WITH LINERS

The 7.5 Liter JS-3.4A-1250 ARIES™ swinging-bucket rotor with special J-Wide labware, Harvestline System liners and ARIES technology can be used for gentle pelleting of shear-sensitive samples such as mammalian and insect cell cultures of up to 3,370 × g. At 3,400 rpm, the rotor is capable of processing a 6 × 1,250 mL sample load (7.5 liters total) in one spin.





Bacterial Cell Harvesting

JS-5.0 SWINGING-BUCKET ROTOR WITH LINERS

The 9 Liter JS-5.0 swinging-bucket rotor with J-Wide labware and Harvestline System liners allows for greater sample throughput using the Avanti J-HC bioprocessing system. This system is ideal for separating bacterial, yeast and tissue homogenates. At $7,500 \times g$, the rotor harvests E. Coli at a clearing rate of 99.7% in 7 minutes (throughput of better than 36 liters/hour).

Bacteria and Vaccine Isolation

JLA-8.1000 J-LITE FIXED-ANGLE ROTOR WITH LINERS

The JLA-8.1000 composite rotor system with Harvestline self-sealing liners processes six liters in less than 10 minutes. Its lightweight construction and removable cannisters make it highly convenient for large-volume processing. The J-LITE bottles and cap closures are ideal for harvesting bacterial and yeast cell cultures from fermentors, clearing cell debris from homogenates or purifying large-volume viruses and polysaccharides for vaccine production. This rotor provides up to $15,900 \times g$ for high throughput.



Your Partner in CGMP Compliance

From process development and pilot production through manufacturing, the Avanti® J-HC bioprocessing system helps you meet federal CGMP guidelines.

Avanti J-HC offers a total solution for CGMP compliance in batch bioprocessing.

The Avanti J-HC bioprocessing system is manufactured according to ISO 9001 guidelines, which include preproduction design controls.

Implications of compliance include:

- Higher quality
- Improved reliability
- Better accountability
- Reduce operator exposure to biological materials

Our ongoing commitment to CGMP compliance is evident in the quality and reliability of the Avanti J-HC system.

Intuitive SpinTrace™ II Process Documentation Software — Productivity and CGMP Compliance

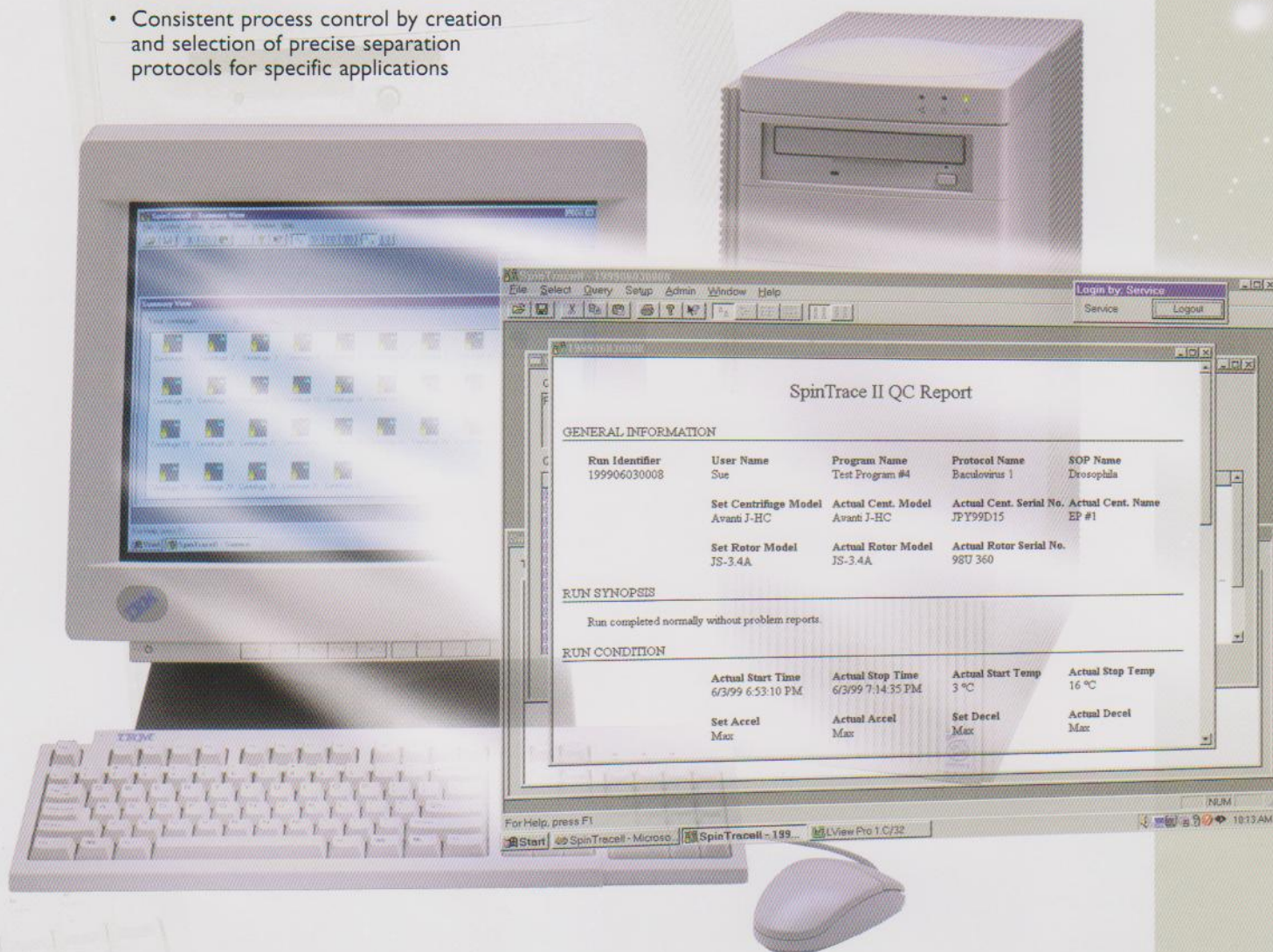
SpinTrace II is a laboratory information network for Avanti J-HC and Avanti J-I Series centrifuges, providing accurate data collection and paperless bioprocessing documentation. It also provides consistent process control, complete traceability and database management with a high degree of user-friendliness. The optional SpinTrace II Network offers centralized management and monitoring of up to 32 centrifuges from a single workstation — which can be located remotely up to 500 feet away. The system displays real-time run status, records run parameters and performs various database queries to create CGMP documentation.

Other Process Development Technologies from Beckman Coulter

Elutriation, continuous flow and zonal centrifugation ♦ Analytical ultracentrifugation ♦ Capillary electrophoresis ♦ DNA sequencing ♦ HPLC ♦ UV/Vis spectrophotometry

SpinTrace II Network

- Complete run parameter traceability for CGMP compliance
- Accurate data management and paperless documentation with laser bar code scanner
- Centralized monitoring of run status up to 32 centrifuges with one PC
- System security with user password and bar code ID
- Consistent process control by creation and selection of precise separation protocols for specific applications
- Maximum reproducibility by validating run conditions with process parameters
- Visual bar code scanner feedback at PC and centrifuge for step-by-step operation
- Industry-standard technology: Windows NT[®], IBM[®]-compatible PC, Windows[®] user interface, RS-232



A Broad Selection of Large-Capacity Rotors



JS-3.4A-1250 SWINGING-BUCKET ROTOR



JLA-10.500 HIGH-SPEED ROTOR



JA-10 FIXED-ANGLE ROTOR



JS-5.0 SWINGING-BUCKET ROTOR



JLA-8.1000 J-LITE FIXED-ANGLE ROTOR

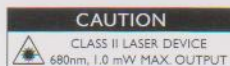


JS-4.2A ARIES SWINGING-BUCKET ROTOR

For more detailed centrifuge information, visit us at www.beckmancoulter.com/centrifugefirst

Beckman Coulter instruments include automated liquid handling, capillary electrophoresis, centrifugation, ultracentrifugation, chromatography data systems, DNA sequencing, electrochemistry, HPLC, integrated core systems, laboratory data management, scintillation counting, and spectrophotometry.

‡ All trademarks are the property of their respective owners.



Developing innovative solutions in genetic analysis, drug discovery, and instrument systems.

Innovate **Automate**
SIMPLIFY

Beckman Coulter, Inc. • 4300 N. Harbor Boulevard, Box 3100 • Fullerton, California 92834-3100
Sales: 1-800-742-2345 • Service: 1-800-551-1150 • Telex: 678413 • Fax: 1-800-643-4366 • www.beckmancoulter.com

Worldwide Bioresearch Division Offices:

Australia (61) 2 9844-6000 Canada (905) 819-1234 China (86) 10 6515 6028 Eastern Europe, Middle East, Africa (41) 22 994 07 07
France 01 49 90 90 00 Germany (89) 358700 Hong Kong (852) 2814 7431/2814 0481 Italy 02-953921 Japan 03-5404-8359
Mexico 525-559-16-35 Netherlands 0297-230630 Singapore (65) 339 3633 South Africa (27) 11-805-2014/5 Spain 91 728 7900
Sweden 08-564 85 900 Switzerland 0800 850 810 Taiwan (886) 2 2378 3456 U.K. 01494 441181 U.S.A. 1-800-742-2345.