



# Special Order BD LSRFortessa™ Cell Analyzer

## Technical Specifications

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The special order BD LSRFortessa cell analyzer puts the power of the BD LSR platform into a compact footprint, and is roughly half the size of the BD™ LSR II. It can easily fit on the benchtop for more cost-effective space utilization. Delivering maximum sensitivity and resolution required for multicolor applications, the special order BD LSRFortessa cell analyzer supports up to 5 lasers and can be used to detect 18 colors simultaneously. In addition to the reduced size, design innovations make filters and detectors more accessible, for easier setup of new experiments.

Through the BD special order program, customers can choose from a wider range of laser wavelengths (11) and powers, further configuring the special order BD LSRFortessa cell analyzer to meet their exact requirements for advanced assay development.

A product brochure and filter guide are also available. For further information, please contact your BD sales representative.

## Performance

### Fluorescence Sensitivity\*

FITC-A: fewer than 80 molecules of equivalent soluble fluorochrome (MESF-FITC)

PE-A: fewer than 30 molecules of equivalent soluble fluorochrome (MESF-PE)

Measurements performed using SPHERO™ Rainbow Calibration Particles RCP-30-5A

### Fluorescence Resolution

Coefficient of variation PI: area of less than 3%, full  $G_0/G_1$  peak for chicken erythrocyte nuclei (CEN) stained with propidium iodide (PI)

### Fluorescence Linearity

Doublet/singlet ratio of 1.95–2.05 for CEN stained with PI and excited with the 488-nm blue laser

### Forward and Side Scatter Sensitivity\*

Achieves separation of 0.5  $\mu\text{m}$  beads from noise in side scatter.

### Forward and Side Scatter Resolution\*

Scatter performance is optimized for resolution of lymphocytes, monocytes, and granulocytes.

### Data Acquisition Rate

Theoretical maximum electronic data collection of 70,000 events/second. Typical operation at 20,000 events/second which requires a sample concentration of  $2 \times 10^7$  cells/mL at an instrument flow rate of 60  $\mu\text{L}/\text{min}$ .

## Excitation Optics

### Excitation Optical Platform

The special order BD LSRFortessa optical layout allows for up to 5 laser wavelengths for laser excitation.

### Laser Wavelengths and Laser Powers\*

488-nm Blue laser (100 mW) with 5 PMT detectors plus side scatter

640-nm Red laser (40 mW) with 3 PMT detectors

405-nm Violet laser (100 mW) with 2 PMT detectors

355-nm UV laser (60 mW) with 2 PMT detectors

561-nm Yellow Green laser (50 mW) with 5 PMT detectors

### Flow Cell Design

Rectangular Quartz Cuvette: Internal cross-section, 430 x 180 mm

External quartz cuvette surfaces have non-reflective coating for maximum transmission of laser light.

Fixed optical assembly of the lasers, with up to 5 spatially-separated laser beams.

## Emission Optics

### Optical Coupling

The quartz cuvette is coupled to the emission lens by refractive-index-matching optical gel for optimal collection efficiency.

### Forward Scatter Detection

Photodiode detector with a 488/10 bandpass filter

### Side Scatter Detector

Photomultiplier tube (PMT) with a 488/10 bandpass filter

### Emission Optical Design

The special order BD LSRFortessa cell analyzer uses BD's patented octagon and trigon detection system. Using reflective optics and fiber-coupled PMTs ensures more efficient light collection than that obtained from transmission optics. Please see the separate filter guide for information on dye and filter options.

\* Through the special order program offered by BD, customers can choose from a wider range of laser wavelengths (from infrared to ultraviolet) and power options, further configuring the special order BD LSRFortessa cell analyzer to meet their exact requirements for advanced assay development. In addition, high-performance, high dynamic range photomultipliers and red-sensitive photomultipliers are also available upon request. Unique configurations may not be covered in this specification sheet. Individual test data is supplied with each instrument. New options are continually being added. Please check with your local sales representative.

## Fluidics

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### Sample Flow Rates

Front key panel provides three modes: RUN, STNDBY, and PRIME

Continuously adjustable flow rate, plus three preset flow rates:

LO = 12  $\mu$ L/min

MED = 35  $\mu$ L/min

HI = 60  $\mu$ L/min

### Standard Fluidic Reservoirs

One 8-L sheath and 10-L waste container provided.

### Recommended Fluidics Upgrade Option

BD FACSTFlow™ supply system: automated fluidics system, which includes a rolling cart and two 20-L Cubitainer® packages.

## High Throughput Option

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The BD™ High Throughput Sampler (HTS) option is available to increase your lab productivity by acquiring samples from a 96- or 384-well microtiter plate.

## Workstation

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### OS

Windows® XP Professional SP3

### Processor

Intel® Core™ 2 Duo processor, 3.0 GHz

### RAM

HP 2 GB (2 x 1 GB DDR2-800 ECC)

### Hard drives

HP 80 GB SATA/3Gbs 7200 rpm HD (1st slot)

HP 250 GB SATA/3Gbs NCQ 7200 rpm HD (2nd slot)

### DVD drive

HP 16x DVD+/-RW, SuperMulti SATA

### Networking

Integrated Broadcom Gigabit 10/100/1000 Ethernet

Broadcom 5751 NetXtreme® Gigabit PCIE NIC Ethernet

## Data Management

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Software: BD FACSDiva™ v 6.1 or later

## Peripheral Options

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### Monitor Options

Two 19-in. LCDs, 2560 x 1024 resolution (standard)

One 22-in. LCD, 1680 x 1050 resolution (optional)

One 24-in. LCD, 1920 x 1200 resolution (optional)

### Printer Options

Options vary by location. Please check with the local sales representative.

## Installation Requirements

### Recommended Laboratory Conditions

Operating Temperature  
66–80°F (19–27°C)

Humidity  
10% to 90% relative, non-condensing

### Physical Characteristics

Size  
38 H x 30 D x 36 W in.  
(96.5 x 76.2 x 91.5 cm)

Weight  
~440 lb (199.6 kg)

### Table Options

Custom Tables

- Instrument table (table with Pelican drawer on wheeled casters):  
33.25 H x 32 D x 54 W in.  
(84.46 x 81.3 x 137.2 cm)
- Workstation table (computer table with keyboard tray on wheeled casters):  
33.25 H x 32 D x 36.6 W in.  
(84.46 x 81.3 x 92.96 cm)

### Electrical Requirements

BD requires one dedicated circuit for the cytometer and the computer system (including printer) with a dedicated AC source not shared with any other equipment. All support equipment (computer, monitor, and printer) will be powered from the line conditioner supplied or specified by BD Biosciences.

US:

120-VAC (±10%), 50/60-Hz, 15-A

Europe:

110-VAC (±10%), 50/60-Hz, 15-A or

230-VAC (±10%), 50/60-Hz, 10-A

Japan:

100-VAC (±10%), 50/60-Hz, 15-A

Taiwan, Korea, and China:

110-VAC (±10%), 50/60-Hz, 15-A or

230-VAC (±10%), 50/60-Hz, 10-A

Australia, New Zealand, India,

Southeast Asia, Hong Kong:

230-VAC (±10%), 50/60-Hz, 10-A

## Regulatory Requirements

BD Biosciences certifies that the special order BD LSRFortessa cell analyzer conforms to relevant directives to bear the CE mark. It also conforms to the UL and CAN/CSA general requirements (61010.1). The special order BD LSRFortessa flow cytometer is a Class I (1) laser product per CDRH regulations and EN/IEC 60825.

## Technical Assistance

BD Biosciences Customer Support Center  
2350 Qume Drive  
San Jose, CA 95131-1807  
877.232.8995

Customers outside the US, contact your local BD Biosciences representative or distributor.

Class I (1) laser product.

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

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