Built on more than 30 years of BD experience and leadership in flow cytometry and multicolor analysis, the BD FACSCanto™ flow cytometry system delivers reliable performance, accuracy, and ease of use for today’s busy clinical laboratories.

To further expand your lab’s best-in-class clinical diagnostic services, the BD FACSCanto system has 10-color capability.* Optical enhancements and a 4-3-3 configuration deliver high sensitivity and resolution for accurate results.

To keep your lab operating at peak throughput and efficiency, the BD FACSCanto system automates many features to help streamline process and reduce hands-on time for operators. The BD FACS™ Loader, for example, allows operators to walk away from the cytometer after the samples are introduced, to free time for other activities. Features including quality control and single-tube instrument setup help operators rapidly learn to run routine clinical applications to improve the reliability and consistency of results. To further simplify operation, BD FACSCanto™ clinical software automates setup, compensation analysis, and quality control for predefined clinical applications.

The first BD FACSCanto system was introduced in 2004. Since then there have been many innovations in the product line, reflecting our commitment to reach to ever higher standards. Today’s BD FACSCanto system features a fixed-alignment flow cell in the fluidics system that minimizes startup time and improves reproducibility. To increase sensitivity and resolution for each color in a multicolor assay, a patented optical design maximizes signal detection. Together these capabilities make the BD FACSCanto system one of the most powerful and reliable cell analyzers for busy, best-in-class clinical laboratories today.

*Seven- to ten-color assays are for Research Use Only.
**Optics**

**Lasers**
- Air-cooled:
  - 405-nm solid state, 30-mW fiber power output
  - 488-nm solid state, 20-mW laser output
  - 640-nm solid state, 40-mW fiber power output

**Laser Configuration**
Spatially separated beams with 9 x 65-μm elliptical spots

**Optical Alignment Procedure**
Fixed, no operator alignment required

**Flow Cell**
180 x 430-μm rectangular quartz flow cell

**Collection Optics**
Optical-gel coupled 1.2 NA lens

**FSC Resolution**
1.0 μm

**SSC Resolution**
0.5 μm

**Fluorescence Detector Design**
Reflective optics with a single transmission filter in front of each PMT

**FSC Detector**
Photodiode with 488/10 BP

**SSC Detector**
PMT with 488/10 BP

**Fluorescence Detectors**
10 PMTs in 4-3-3 standard configuration

**Blue Laser Dyes**
FITC,* PE,* PerCP* or PerCP-Cy™5.5,* PE-Cy™7* (525, 575, 678 or 695, 785 nm)

**Red Laser Dyes**
APC,* Alexa Fluor® 700, APC-Cy7* or APC-H7 (660, 720, 785 nm)

**Violet Laser Dyes**
BD Horizon™ V450, BD Horizon™ V500-C, BD Horizon™ Brilliant Violet™ 605 (450, 500, 602 nm)

**Detector Bands**
- Violet Laser: 450/50, 525/50, 605/40 nm
- Blue Laser: 530/30, 575/25, 695/40, 780/60 nm
- Red Laser: 670/30, 712/21, 780/60 nm

**Filter Change Procedure**
Keyed filters, no tools required

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**Performance**

**Fluorescence Threshold Sensitivities**
FITC <100 MESF; PE <50 MESF

**Sensitivity Measurement Using BD FACS™ 7-Color Setup Beads**
Sensitivity determined with the setup beads measures the ability to resolve a dimly stained population from unstained cells. This sensitivity measure takes into account both the separation of the populations and the broadness of the negative population. Different fluorochromes give different separation of the stained and unstained populations. This is also taken into account in the sensitivity measurement: the higher the reported number, the higher the resolution.

Minimum values:
See the BD FACS™ 7-Color Setup Beads Sensitivity Specification Update CD for lot-specific minimum sensitivity specification values.

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**Fluidics**

**General Operation**
Integrated fluidics cart and compressor with onboard housekeeping solutions for automated startup, shutdown, and cleaning cycles

**Sheath Consumption**
1.10 L/h normal operation; <1 mL/h standby

**Housekeeping Solution Capacities**
- BD FACSFlow™ sheath solution (20 L)
- BD™ FACSClean (5 L)
- BD FACS™ Shutdown Solution (5 L)
- Waste tank (10 L)

**Carryover**
<0.1%

**Sample Injection**
Directly into flow cell

**Maximum Particle Size**
50 μm

**Sample Flow Rate, Min**
10 μL/min

**Sample Flow Rate, Mid**
60 μL/min

**Sample Flow Rate, Max**
120 μL/min

**Sample Acquisition Rate**
33,000 events/second with <10% abort rate (10 compensated parameters and 2 scatter parameters) for samples with random arrival time

**Sample Dead Volume**
30-μL Falcon® polystyrene test tubes (12 x 75-mm)

**System Cleaning**
- Daily: Automated startup and shutdown procedures
- Monthly: Long clean

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* Supported by BD IVD assays. Applications other than BD-supported IVD assays are for Research Use Only.
**Data Management**

**Parameters**
Area (A), Width (W), Height (H) for all channels with up to 2 ratios, and Time (T)

**Signal Processing**
18-bit dynamic range with IEEE 32-bit floating-point resolution

**Threshold**
Single parameter (any channel) or AND/OR logical combinations of multiple parameters (any or all channels)

**Compensation**
Full inter-beam matrix, during or post acquisition

**Maximum Logical Gate Regions**
Limited only by system memory (4 GB RAM)

**CPU/Monitors**
19" or 23" flat screen monitors

**Software**
BD FACSDiva™ v7.0 or later,
BD FACSCanto™ clinical v2.4 or later

**Operating System**
Microsoft® Windows® XP Pro

**Options**

**Sample Input with BD FACS Loader Option**

**Loading**
40-tube carousel

**Sample/Test ID**
Indexed carousel, with carousel ID barcode reader

**Throughput**
76 tubes/hour (8 parameters, 6 fluorescence compensated)

**Miscellaneous**
Multiple clinical applications can be run on the same Loader carousel.

**Barcode Reader with Stand**

**Software Compatibility**
BD FACSCanto clinical software and BD FACSDiva software

**2D Reader**
Streamlined input of BD FACS 7-color setup bead target values, input of patient information

**Installation Requirements**

**Size (W x D x H)**
Cytometer: 91.4 x 63.5 x 63.5 cm (36 x 25 x 25 in.)
Fluidics cart: 81.3 x 61 x 67.3 cm (32 x 24 x 26.5 in.)

**Weight**
Cytometer: 104.8 kg (231 lb)
Fluidics cart: 55 kg (121 lb)

**Power**
North America and Japan 110 ±10% VAC, 50–60 Hz
Outside North America 230 ±10% VAC, 50–60 Hz

**Operating Environment**
16°C–31°C (61°F–88°F), 20%–80% noncondensing relative humidity

**Heat Dissipation with BD FACS Loader Installed**
<6,200 BTU/h