# Fraction Collectors Technical Data Sheet
## Select the Fraction Collector to Suit Your Needs

**DATA SHEET | FRACTION COLLECTOR**
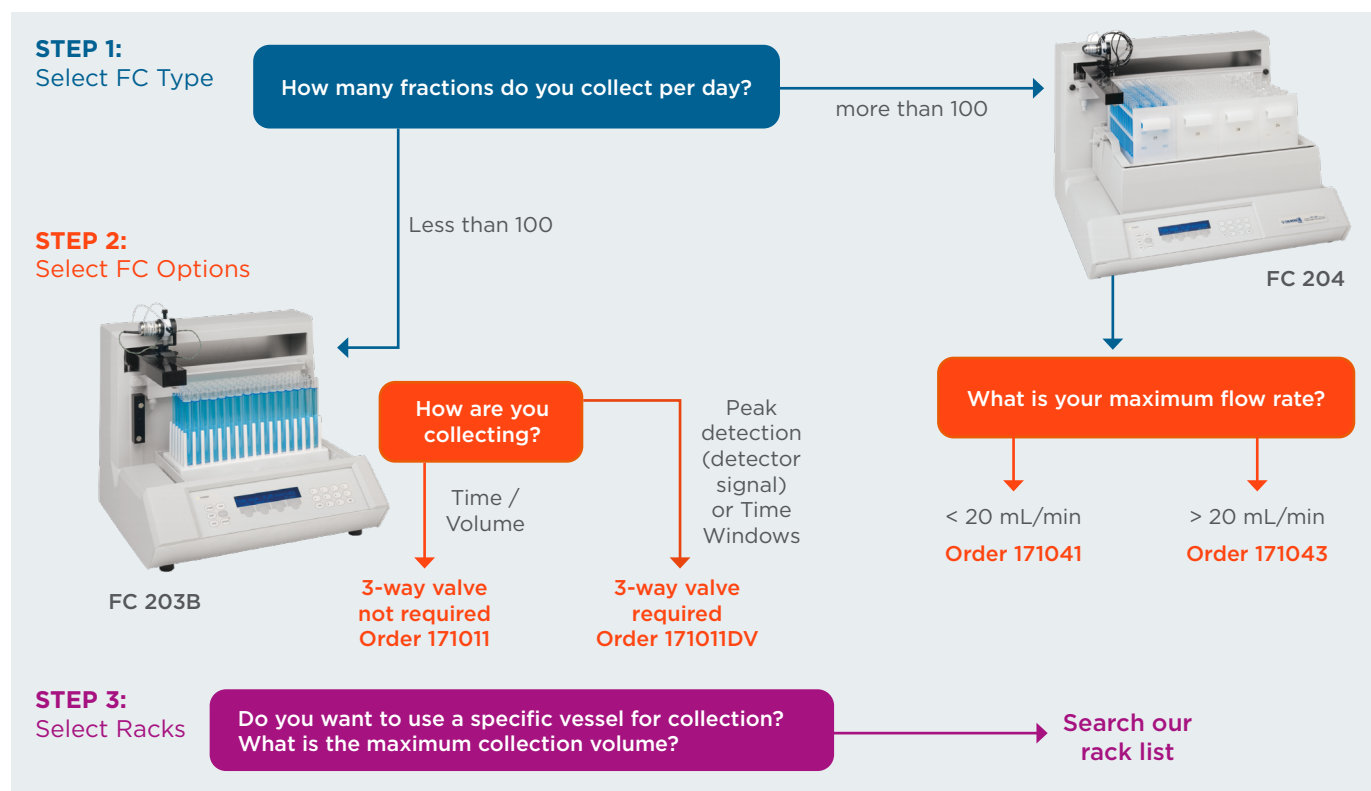
**FRACTION COLLECTORS FC 203B & FC 204**

Gilson offers advanced solutions for fraction collection from small footprint to large capacity models. The collectors accommodate a wide variety of collection vessels, including microplates, vials, and tubes. The built-in, easy-to-use keypad makes setup and operation simple. The fraction collectors can be used standalone or controlled by TRILUTION® LC Software. The compact size fits most fume hoods to protect you from hazardous materials.

**Figure 1**

**FC 203B and FC 204**

## DETERMINE YOUR FRACTION COLLECTION NEEDS IN 3 EASY STEPS!

**STEP 1:**
Select FC Type

How many fractions do you collect per day?

more than 100

**STEP 2:**
Select FC Options

Less than 100

FC 204

FC 203B

How are you collecting?

Peak detection (detector signal) or Time Windows

What is your maximum flow rate?

Time / Volume

< 20 mL/min
**Order 171041**

> 20 mL/min
**Order 171043**

**3-way valve not required Order 171011**

**3-way valve required Order 171011DV**

**STEP 3:**
Select Racks

Do you want to use a specific vessel for collection? What is the maximum collection volume?

**Search our rack list**

## Available Racks

| Rack Code | Part Number | Material | Vessel [Quantity] | Vessel Capacity | Compatible with FC 203B [Quantity] | Compatible with FC 204 [Quantity] |
|---|---|---|---|---|---|---|
| 0 | 270430 | Polypropylene | 12x32 mm vials [80] | 2 mL | Yes [1] | No [NA] |
| 4 | 130412 | Stainless Steel | 12 x 75 mm tubes or 12 x 100 mm tubes [80] | 5 mL or 8 mL | Yes [1] | No [NA] |
| 11 | 170413 | Stainless Steel | 13 x 100 mm tubes [105] | 9 mL | Yes [1] | No [NA] |
| 14 | 170414 | Stainless Steel | 12 x 75 mm tubes or 12 x 100 mm tubes [128] | 5 mL or 8 mL | Yes [1] | No [NA] |
| 15 | 170415 | Aluminum | 96-well microplate (shallow and deep) [1] | | Yes [1] | No [NA] |
| 16 | 170416 | Aluminum | 96-well microplate (shallow) [4] | | No [NA] | Yes [1] |
| 16D | 170416D | Aluminum | 96-well microplate (deep) [4] | | No [NA] | Yes [1] |
| 17 | 170418 (rack) 170417 (rack heightener) | Aluminum | Deep well microplates | 2 mL (96-well plate), 5 mL (48-well plate), 10 mL (24-well plate | No [NA] | Yes [1] |
| 20 | 150425 | Polypropylene | 10 x 100 mm tubes [108] | 4.5 mL | Yes [1] | Yes [4] |
| 21 | 150422 | Polypropylene | 13 x 100 mm tubes [60] | 9 mL | Yes [1] | Yes [4] |
| 22 | 150424 | Polypropylene | 18 x 150 mm tubes or 18 x 180 mm tubes [44] | 25 mL or 32 mL | No [NA] | Yes [4] |
| 23 | 150426 | Polypropylene | 17 x 170 mm scintillation vials [44] | 6.8 mL | Yes [1] | Yes [4] |
| 23W | 270433 | Polypropylene and Stainless Steel | 15 x 45 mm vials [44] | 4 mL | Yes [1] | Yes [4] |
| 24 | 150427 | Polypropylene | 28 x 60 mm scintillation vials [14] | 20 mL | Yes [1] | Yes [4] |
| 28 | 150420 | Polypropylene | 10 x 65 mm tubes or 10 x 75 mm tubes [108] | 3 mL or 3.5 mL | Yes [1] | Yes [4] |
| 29 | 150429 | Polypropylene | 12 x 65 mm tubes or 12 x 75 mm tubes [60] | 3.5 mL or 5 mL | Yes [1] | Yes [4] |
| 29LE | 2704342 | Polypropylene and Stainless Steel | 1.5 mL Eppendorf vials [60] | 1.5 mL | Yes [1] | Yes [4] |
| 29SE | 2704341 | Polypropylene and Stainless Steel | 0.5 mL Eppendorf vials [60] | 0.5 mL | Yes [1] | Yes [4] |

## MULTIPLE COLUMN OPTION (AVAILABLE FOR FC 203B AND FC 204)

The multiple column option allows collecting effluent from several columns at the same time. This option should be used in conjunction with time mode collection and requires part number 174732.
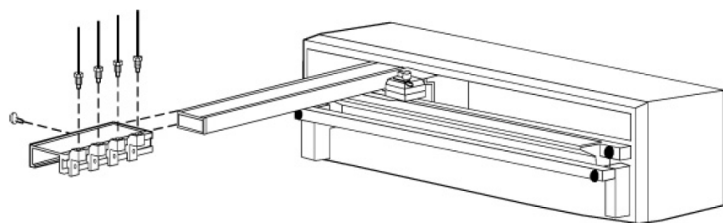


**Figure 2**

Multiple column adapter for FC 203B and FC 204

## Standard Parts

The fraction collectors are shipped ready to use, with drain trough and dispense head already installed, and include the following standard accessories.

| FC 203B | | | | FC 204 | | |
|---|---|---|---|---|---|---|
| Component | Quantity | Part Number | | Component | Quantity | Part Number |
| 3-way valve kit (with 171011DV) | 1 | 170730 | | 3-way valve kit | 1 | 170734 or 170735 |
| Rack holder assembly (with antlers) | 1 | 170471 | | Tray Platform | 1 | 1704743 |
| 80-cavity collection plate | 1 | 12040102 | | Polypropylene Tray | 1 | 1704744 |
| Tube retaining bar (for code 1 rack) | 1 | 170472 | | Inlet Tubing with 2 fittings | 1 | 1703548 |
| Inlet Tubing with 2 fittings | 1 | 1703548 | | Tygon Drain Tubing | 10 feet | 470343706 |
| Polypropylene pan | 1 | 1704731 | | Inlet Tubing Support Bracket | 1 | 1707202 |
| Terminal Block Connector | 1 | 638310512 | | Terminal Block Connector | 1 | 638310512 |
| Tube gauge | 1 | 12090002 | | Spare Fuses | 2 | 6730054007 |
| Spare Fuses | 2 | 6730054007 | | User's Guide | 1 | LT1733USB |
| User's Guide | 1 | LT1731USB | | Quick Reference Guide | 1 | LT1734 |
| Quick Reference Guide | 1 | LT1732 | | Power Cord | | |
| Power Cord | | | | | | |

## Replacement Parts

| Component | Part Number | Compatibility | |
|---|---|---|---|
| | | FC 203B | FC 204 |
| 3-way valve kit (includes inlet and outlet tubing, connector and dispensing needle) | Depends on model | 170730 | 170734 |
| Prep 3-way valve kit (flow rates up to 200 mL/min) | 170735 | No | X |
| Small bore dispense needle | 1707305 | For Code 2 and Code 15 racks with 3-way valve | For Code 16 rack with 3-way valve kit |
| Large bore dispense needle (flow rates > 100 mL/min) | 1727304 | No | X |
| Standard bore need for 3-way valve | 1707303 | X | X |
| Front drain trough | Depends on model | 17013004 | 17014202 |
| Inlet drop tubing assembly, 0.8 mm | 1703548 | X | X |
| Inlet drop tubing assembly, 1.5 mm | 1703549 | X | X |
| Inlet tubing assembly for 3-way valve, 2 ft. | 1307302 | X | X |
| Drain tubing assembly for 3-way valve, 2 ft. | 1307303 | X | X |

## Replacement Parts (Continued)

| Component | Part Number | Compatibility | |
| --- | --- | --- | --- |
| | | FC 203B | FC 204 |
| Drain tubing for drain trough | Depends on model | 17074304 | 470343706 |
| Coupling for ¼"-28 fittings; package of 5 | F1410050 | X | X |
| Drop detector assembly, Valox | Depends on model | 170350V (Factory installed) | 170354 (Factory installed) |
| Glass sleeve for drop detector (package of 6) | 17235003 | X | X |
| Multiple column adapter | 174732 | X | X |
| 2-conductor interconnect wire; 6 ft. | 709910206 | X | X |
| GSIOC Cable, 30 in. | 36078143 | X | X |
| Event Cable | 100731 | X | X |
| Pomona cable adapter | 6374022611 | X | X |

## FREQUENT Q&A'S

### Can I collect in microplates?
Yes, the fraction collectors accept a wide variety of collection vessels, including microplates, microvials, and tubes.

### What is the largest volume of tube that can be used?
- The FC 204 can accommodate 18 x 180 mm tubes, holding a maximum volume of 32 mL.
- The FC 203B can accommodate 13 x 100 mm tubes, holding a maximum volume of 9 mL, or 28 x 60 mm scintillation vials, holding a maximum volume of 20 mL.

### Can I collect based on a detector signal?
When using peak mode, the detector signal is monitored, and peaks are identified for collection using either an adaptive-slope algorithm or a specified millivolt threshold.
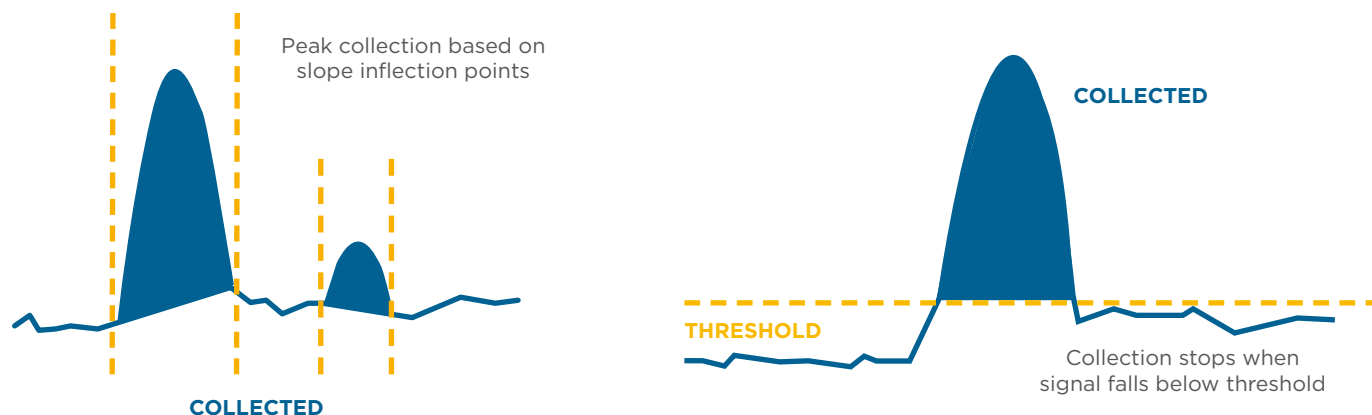


Peak collection based on slope inflection points

COLLECTED

COLLECTED

THRESHOLD

Collection stops when signal falls below threshold

**Figure 3**

**Fraction collection based on detector signal by slope or threshold**

## Can the fraction collector be used standalone or is software required?

The fraction collectors can operate as stand-alone instruments with an easy-to-use keypad or can be controlled through your PC via TRILUTION® LC Software.

## Can I integrate the fraction collector with other systems?

Contact closure inputs are available to remotely start, advance, or stop, making the fraction collectors compatible with most HPLC systems.

## Can I collect from multiple columns or flow paths?

Multicolumn adapters are available for collecting up to 18 separate channels.

## Can the system be placed in a fume hood?

The compact size of the FC 203B and FC 204 allows them to fit in most fume hoods.

## Can I set up different collection windows?

Up to 10 programmable time windows can be added for collecting only what you want, while discarding the column's void volume, peaks of no interest, and equilibration volumes.
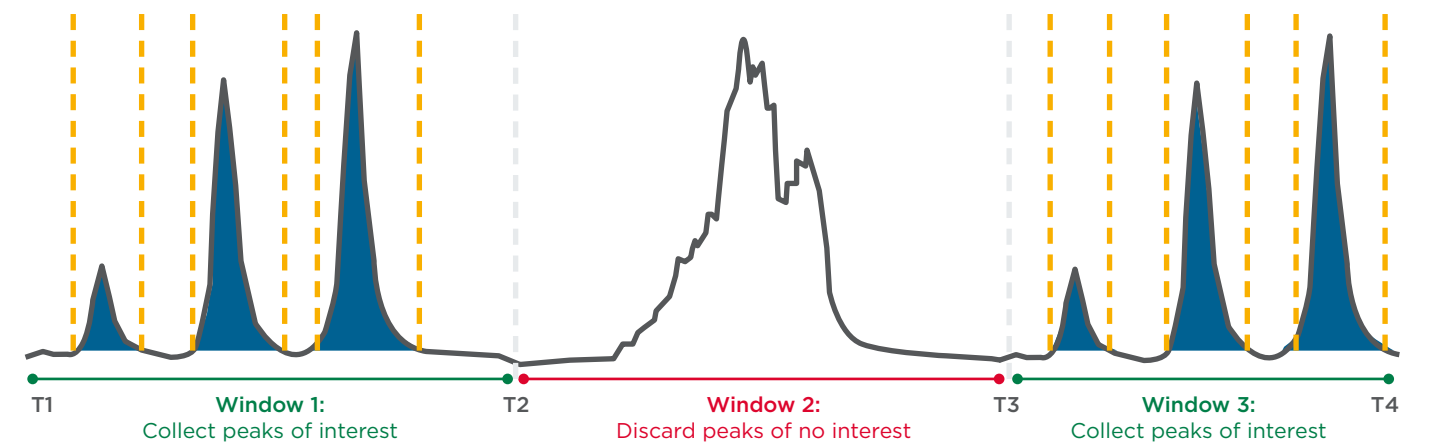


**T1**   **Window 1:**   **T2**   **Window 2:**   **T3**   **Window 3:**   **T4**
Collect peaks of interest   Discard peaks of no interest   Collect peaks of interest

**Figure 4**

**Programmed collection windows**

| TECHNICAL SPECIFICATIONS FC 203B and FC 204 Fraction Collectors | |
|---|---|
| **Specification** | **Definition or Value** |
| 3-way Valves | FC 203B: 3-port, PTFE, 67 µL internal volume, 3.5 µL dead volume from common port to the normally closed port, up to 20 mL/min with large-bore needle<br>FC 204: 3-port, PTFE, 114 µL internal volume, 6 µL dead volume from common port to the normally closed port, up to 200 mL/min with large-bore needle |
| Communication Interface | GSIOC; Inputs for start/advance and end/home; output for control of peripheral devices |
| Data Acquisition | An input channel for analog-to-digital conversion; digital data is transmitted on the GSIOC |
| Detector Input | ±100 mV full scale |
| Drop Counting | Up to 9,999 drops per fraction<br>Maximum rate: 20 drops/sec |
| Event Marker | 100 ms pulse |

| Specification | Definition or Value |
|---|---|
| Front Panel | Five commands, HELP, YES, NO, and 0–9 numeric hard keys; four soft keys |
| Display Panel | Two-line, 24-character display on backlit LCD |
| Manufacturing Standards | Meets applicable Safety and EMC certification standards; UL and CE certified |
| Maximum Collection Volume/Tube | FC 203B: 20 mL scintillation vials (28 x 60 mm) with optional Code 24 rack<br>FC 204: 32 mL tubes (18 x 180 mm) or 25 mL tubes (18 x 50 mm) |
| Maximum Fractions | FC 203B: 128 tubes (12 x 75 mm) with optional Code 14 rack<br>FC 204: Up to 768 when configured with eight 96-well, 2-mL Whatman/Polyfiltronics microplates on a Code 17 rack |
| Multiple-Column Collection | Simultaneous collection from up to 8 (FC 203B) or up to 18 (FC 204) columns with installation of optional multiple column adaptor(s) |
| Multiple-Cycle Operation | Repetitive collection of each sample into same set of tubes or collection of each sample into different set of tubes |
| Number of Racks | FC 203B: Holds one rack<br>FC 204: Holds one Code 16 or Code 16D rack, one Code 17 rack or up to four Code 20-Series racks (all racks must be the same code) |
| Operating Modes | Drop, Manual, Peak + Drop, Peak + Time, Time |
| Peak Detection | Adaptive-slope algorithm that applies user-specified parameters to accommodate drifting baselines, negative, and asymmetrical peaks, or absolute threshold level that collects all peaks above specified mV value<br>Peak parameters: peak height or level, in mV; peak width at half-height, in minutes<br>Minimum peak height for fractionation: 0.1 mV full scale<br>Detector-collector delay: 0.01 minute increments |
| Power Requirements | Frequency: 50–60 Hz<br>Voltage: 100–120V or 220–240V; main voltage fluctuations not to exceed ±10% of the nominal voltage<br>Current rating: 0.5A for 100–120V, or 0.25A for 220–240V |
| Programmable Time Units | From 0.01 to 99.99 minutes per tube with a 0.01 minute limit of resolution |
| Software | Via TRILUTION® LC Software |
| Time-Based Programming | Up to 10 collection windows and 10 drain steps in any mode |
| Tube Change Time | 100–250 ms (FC 203B) or 100–720 ms (FC 204) center to center, depending on rack type |
| Zero Power Memory | Maintains memory for a minimum of five years from date of shipment |
| Dimensions (W x D x H) | FC 203B: 32.4 x 29.2 x 26.7 cm (12.8 x 11.5 x 10.5 in.)<br>FC 204: 47.9 x 46.4 x 33.0 cm (18.9 x 18.3 x 13.0 in.) |
| Weight | FC 203B: 5 kg (11 lbs.)<br>FC 204: 10.9 kg (24 lbs.) |

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