

Cellbag™ bioreactors

CELL GROWTH AND EXPANSION

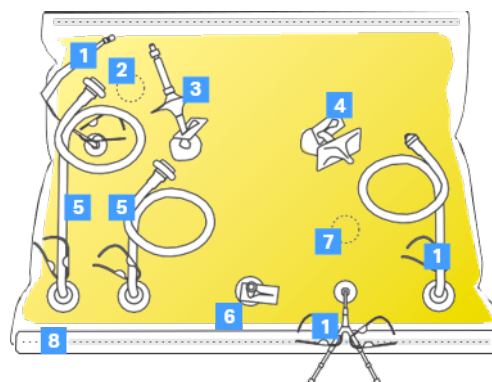
Designed for use with WAVE Bioreactor™ systems, Cellbag™ bioreactors are presterilized, single-use bags for noninvasive mixing of culture medium and cells (Fig 1). Suitable for cultivation in research, development, and commercial manufacturing operations. They eliminate the need for cleaning or sterilization, help minimize cross-contamination risk, and support cell growth. As part of Cytiva's ReadyToProcess™ platform, they can be easily connected to Cytiva products for cell culture, purification, and fluid handling.

Single-use Cellbag bioreactors deliver:

- **Biocompatibility:** These bioreactors are made from Cytiva film cell culture 1 (CC1) film which has been extensively tested to confirm biocompatibility.
- **Ease-of-use:** Presterilized and single-use, these bioreactors don't require cleaning, helping to minimize the risk of cross-contamination.
- **Strength:** Manufactured from a multilayer film, Cellbag bioreactors provide mechanical strength for use in rocking bioreactors.
- **Customization:** Readily customize these bioreactors with connectors, tube sets, and special components that you specify.

Principles of operation

The Cellbag bioreactor is mounted onto the electric rocking base unit of a WAVE Bioreactor system and inflated. Culture medium and cells are loaded into the bag. The rocking motion of the base unit induces waves in the cell culture fluid to provide efficient mixing and gas transfer (Fig 2). The resulting environment within the bioreactor can easily support 1×10^7 cells/mL, allowing you to grow sufficient cells for clinical manufacture and commercial production.



1. Optional tubing
2. Optical DO sensor embedded in bag
3. Air outlet filter
4. Air inlet filter
5. Inoculation/harvest lines
6. Needleless sampling port
7. Optical pH sensor embedded in bag
8. Cellbag rod

Fig 1. Representation of typical Cellbag bioreactor fittings.
DO = dissolved oxygen

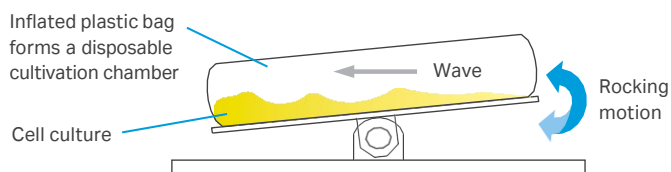


Fig 2. The wave action created by the rocking motion of the WAVE Bioreactor base unit sweeps up cells and prevents settling in the Cellbag bioreactor.

Components and materials of construction

Table 1 provides the materials used to construct the cell bag components. Biocompatibility data is available, but we recommend that you validate the product for your specific application

Table 1. Cellbag bioreactor components and materials

Component	Material
CC1 film	Ultra low density polyethylene fluid contact surface; 5 -layer film
Barbed ports	Polyethylene
Luer connections	Polypropylene
MPC connections	Polycarbonate
MPX connections	Polycarbonate
Tubing adaptors	Polypropylene
C-Flex® tubing	Thermoplastic elastomer (medical grade)
Silicone tubing	Platinum-cured silicone
Screw cap port	Polyethylene
Internal perfusion filter	Low density polyethylene, polyester, polypropylene
Y-connector	Polypropylene
pHOPT1 sensor	Luminophore dye attached to a polycarbonate backing
DOOPT2 sensor	Luminophore disc attached to a polycarbonate backing with silicone adhesive
Tempwell	Polyurethane tubing, polypropylene plug
Vent filter	Hydrophobic membrane, acrylic housing
Swabableclave connector	Polycarbonate, polyester housing, silicone
Readymate Connector	Polycarbonate, polyester, silicone
Kleenpak™ Presto connector	Polyether sulphone, polybutylene terephthalate, silicone
AseptiQuik® connector	Polycarbonate, polyethylene, silicone

¹ pHOPT = optical pH
² DOOPT = optical dissolved oxygen

- The standard Cellbag bioreactor is comprised of the following components:
- Film: designed for bioinert fluid contact and high mechanical strength
 - Ports: permit transfer of fluid into and out of the bag
 - Tubing, connectors, and clamps: facilitate and modulate fluid handling (Fig 3)
 - Rigid bars: allow installation onto the WAVE Bioreactor base unit
 - Air filters: allow gas to flow in and out of the bag
 - Sensors: permit the monitoring and control of conditions within the bioreactor

Cellbag bioreactor configurations, options, and hardware accessories

Cellbag in CC1 film

Cellbag bioreactors are now available in CC1 for single-use bioprocessing, the same film used for HyClone™ cell culture media bags. CC1 film is a well-characterized and Irgafos-168 free film, tested for use in cell culture media storage and bioprocesses, and has a well-planned security of supply.

Material science
CC1 film has been tested for extractables in alignment with the BioPhorum Operations Group (BPOG) testing protocols and extensively qualified against mechanical failure including testing for flexural fatigue and weldability.

Security of supply
Long-term contracts are in place to ensure safety stocks for both the raw materials and film.

Optical sensing technologies
Cytiva offers sensors specifically designed to address industry needs for high accuracy and optimal process control. The optical pH (pHOPT) and DO (DOOPT) sensors are single-use “spot” sensors embedded into the bottom of the bioreactor (Fig 4). Technical specifications for the sensors are shown in Tables 2 and 3. The sensors are supplied preinstalled in the sterilized Cellbag bioreactor. To measure pH and DO with these sensors, you’ll need a ReadyToProcess CBCU gas mixer for ReadyToProcess WAVE™ 25. And you’ll need specially designed fiber-optic cables to connect to the bioreactor. pHOPT and DOOPT modules are available for the larger WAVE Bioreactor 200 system. The optical sensors provide:

- High measurement accuracy with minimal drift over time
- Single-use formats
- Optimization for both minimum and maximum bioreactor working volumes
- Compatibility with internal perfusion filter



Fig 3. Quickly connect aseptically to downstream operations with Cellbag bioreactors that have Readymate connectors.



Fig 4. The optical sensor is embedded in the underside of the Cellbag bioreactor. Shown here is the bag adapter/optical fiber cable attached to the bag port.

Table 2. Optical pH sensor specifications

pH measurement range	pH 4.5 to 8.5
pH control range	pH 6 to 8
pH measurement accuracy	± 0.05 pH within ± 0.25 pH from offset calibration pH ± 0.1 pH within 0.25 to 0.5 pH from offset calibration pH
pH control accuracy (versus setpoint)	± 0.05 pH

Table 3. Optical DO sensor specifications

DO measurement range	0% to 250% air saturation
DO measurement accuracy	± 5% air saturation (excluding atmospheric pressure variations)
DO control range	0% to 100% air saturation

Perfusion solution

The Cellbag portfolio offers a line of perfusion solutions for applications in cell intensified seed train, small-scale production, and other processes. Perfusion bags are fitted with a porous polyethylene-based perfusion filter that floats on the medium and is used to retain cells in the bag during perfusion cultivation or medium exchange. The filter is connected to the wall of the bioreactor via a harvest tube. The outside port of this harvest tube ends in a Luer connector, allowing for the attachment of pump tubing and harvest vessel. Operating a peristaltic pump in the harvest line will create suction and draw liquid through the filter into the harvest vessel. Cells are retained by the filter but lateral movement of the filter across the culture surface delays cell/debris attachment to the filter, which reduces the rate of fouling. The large filter surface area also enables a high flow rate.

M*Bag mixing chambers

M*Bag mixing chambers are disposable presterilized sealed bags for sterile mixing of liquids in WAVE Mixer™ systems. Use the mixing chambers in various applications, including warming and thawing of materials and mixing prior to fill.

Operating specifications

Cellbag bioreactors are designed to the following specifications:

- Operating temperature range: 10°C to 50°C
- Maximum operating pressure: 0.15 psig (10.3 mbar)

Operating volumes and hardware compatibility details for Cellbag bioreactors and M*Bag mixing chambers are listed in Tables 4 and 5, respectively.

Table 4. Operating volumes and hardware compatibility for Cellbag bioreactors

System	Bag size	Min.*	Max.	Tray
ReadyToProcess WAVE 25	500 mL	50	250	Tray 10 or 20
	1 L	50	500	Tray 10 or 20
	2 L	200 mL†	1 L	Tray 10 or 20
	10 L	500 mL	5 L	Tray 10 or 20
	20 L	1 L	10 L	Tray 20
	22 L	1 L	10 L	Tray 50
	50 L	5 L	25 L	Tray 50

*Depending on application and configuration, it might be possible to cultivate below the recommended minimum volume. However, it is highly recommended to stay above this volume for applications that require high agitation and pH and DO control. The temperature, pH, and DO sensors need to be submerged in liquid throughout the complete rocking cycle to function correctly.

† Cellbag bioreactors with optical sensors require 300 mL minimal working volume.

Table 5. Operating volumes and hardware compatibility for M*Bag mixing chambers.

System	Bag size	Maximum
ReadyToProcess Mixer	20 L	15 L
	50 L	35 L

Tubing assemblies

Standard and custom sterile tubing assemblies are available for use with Cellbag and M*Bag mixing chambers. These standard assemblies can be aseptically connected to the bags via Presto, Readymate, AseptiQuik connectors. Work with your sales specialist to determine the appropriate assembly for your needs.

Regulatory conformance

Sterility and endotoxin

Cellbag bioreactor sizes 500 and 1000 L are sterilized by gamma irradiation at 27.5 to 40 kGy. All other sizes are subjected to 25 to 40 kGy. For all sizes, product release requires detection of less than 0.125 EU endotoxin/mL per monthly process sample.

Film Biocompatibility

Biocompatibility testing was performed on gamma irradiated film (50 kGy) and meets USP Class VI Biological Tests for Plastics (USP88) and ISO 10993 requirements including:

- ISO 10993-5/USP87: cytotoxicity study using ISO elution method
- ISO 10993-6/USP88: muscle implantation study in rabbit
- ISO 10993-10/USP88: acute intracutaneous reactivity study in rabbit
- ISO 10993-11/USP88: acute systemic toxicity in mouse

Cellbag and M*Bag decoder

Use the Cellbag decoder to understand the product codes shown in the ordering information (Fig 5). See Table 4 for working volumes and ordering information for available combinations.

Sizes and options

See Table 6 for detailed information on standard sizes and options available for Cellbag bioreactors. You can also customize Cellbag bioreactors to suit your specific cell culture process needs. See Table 7 for M*Bag mixing chamber sizes and options.

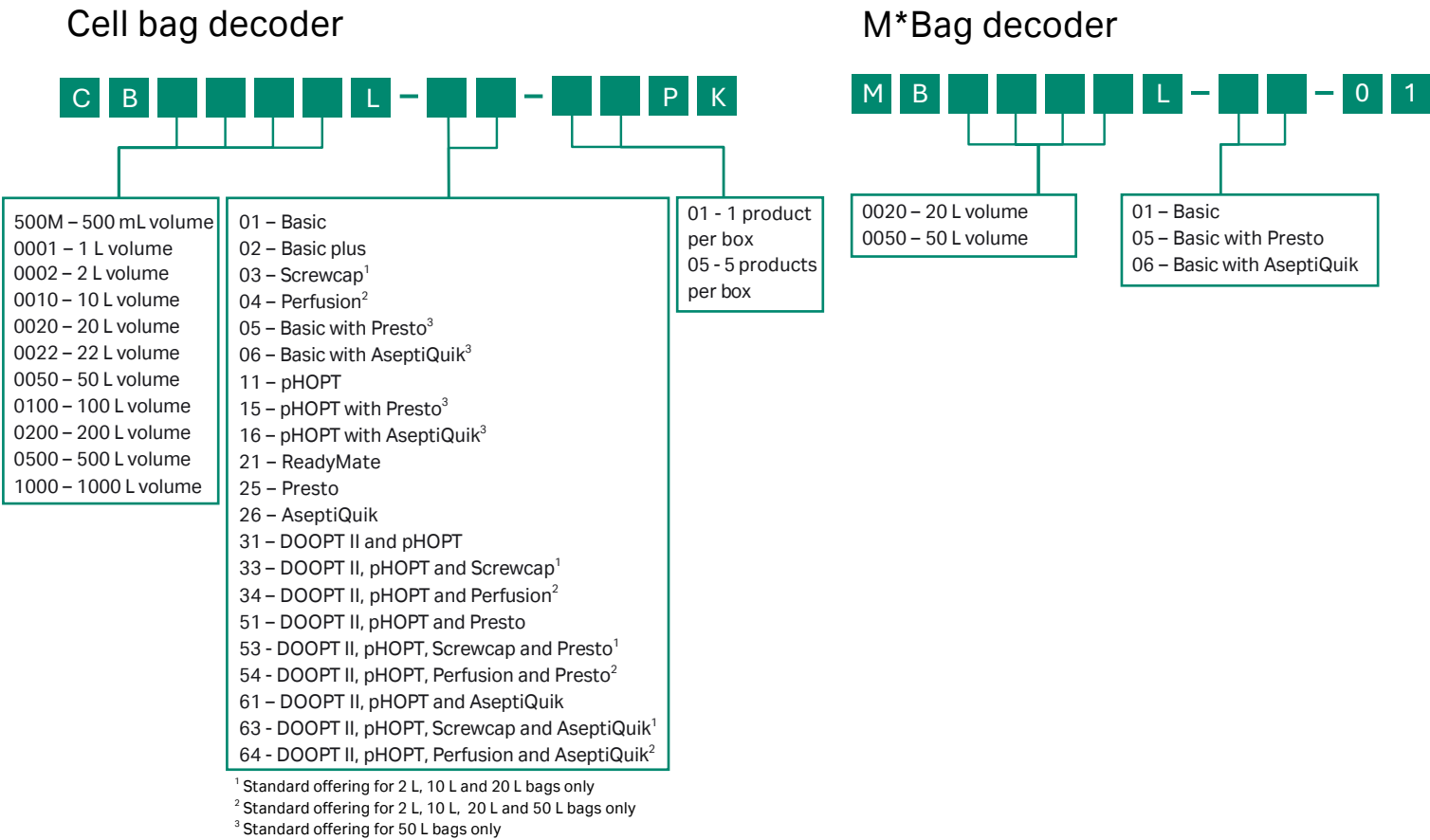
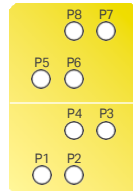
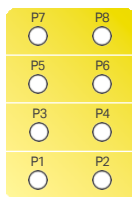
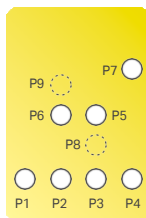
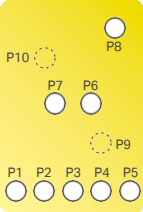
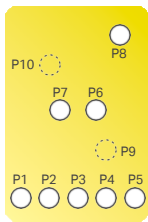


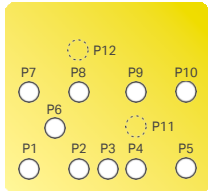
Table 6. Cellbag sizes and options.

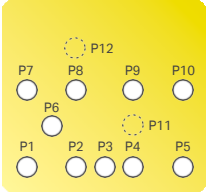
Cellbag	Version	Ports	Description	Cellbag	Version	Ports	Description
Cellbag 500 mL	Basic (01)	1, 3, 5, 7	Air filter		Basic (01)	1, 5	1/8 in × 1/4 in × 39 in C-Flex, female Luer
		2, 4, 6, 8	3/16 in × 3/8 in × 2 in silicone needleless sampling valve			2, 6	3/16 in × 3/8 in × 2 in silicone, needleless sampling
						3, 7	Air outlet filter, check valve
						4, 8	Air inlet filter
							

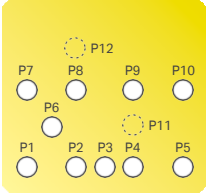
Cellbag	Version	Ports	Description	Ports	Description
	Basic (01)	1	1/8 in × 1/4 in × 39 in C-Flex, female Luer	5	Air inlet filter
		2	N/A	6	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	7-9	N/A
		4	N/A		
	Basic plus (02)	1	1/8 in × 1/4 in × 39 in C-Flex, female Luer	5	Air inlet filter
		2	3/16 in × 3/8 in × 2 in silicone, needleless sampling	6	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, female Luer	7	3/16 in × 3/8 in × 2 in silicone, female Luer
		4	N/A	8, 9	N/A
	Screwcap (03)	1	1/8 in × 1/4 in × 39 in C-Flex, female Luer	5	Air inlet filter
		2	3/16 in × 3/8 in × 2 in silicone, needleless sampling	6	Air outlet filter, check valve
		3	N/A	7	3/16 in × 3/8 in × 2 in silicone, female Luer
		4	Screwcap, 38/400	8, 9	N/A
	Perfusion (04)	1	1/8 in × 1/4 in × 39 in C-Flex, female Luer	5	Air inlet filter
		2	3/16 in × 3/8 in × 2 in silicone, needleless sampling	6	Air outlet filter, check valve
		3	Y-connection attached to perfusion filter	7	3/16 in × 3/8 in × 2 in silicone, female Luer
		4	N/A	8, 9	N/A
	pHOPT (11)	1	1/8 in × 1/4 in × 39 in C-Flex, female Luer	6	Air outlet filter, check valve
		2	3/16 in × 3/8 in × 2 in silicone, needleless sampling	7	3/16 in × 3/8 in × 2 in silicone, female Luer
		3	3/16 in × 3/8 in × 2 in silicone, female Luer	8	pH Sensor body - bottom of bag
		4	N/A	9	N/A
		5	Air inlet filter		
	Readymate (21)	1	1/4 in × 7/16 in × 39 in C-Flex, Readymate	5	Air inlet filter
		2	3/16 in × 3/8 in × 2 in silicone, needleless sampling	6	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, female Luer	7	3/16 in × 3/8 in × 2 in silicone, female Luer
		4	N/A	8, 9	N/A
	DOOPT and pHOPT (31)	1	1/4 in × 7/16 in × 39 in C-Flex, Readymate	6	Air outlet filter, check valve
		2	1/4 in × 7/16 in × 39 in C-Flex, Readymate	7	N/A
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	pH Sensor body - bottom of bag
		4	1/8 in × 1/4 in × 2 in C-Flex, y-connector, 2 of 1/8 in × 1/4 in × 39 in C-Flex, female Luer	9	DO Sensor body - bottom of bag
		5	Air inlet filter		
	DOOPT, pHOPT and Screwcap (33)	1	1/4 in × 7/16 in × 39 in C-Flex, Readymate	6	Air outlet filter, check valve
		2	1/4 in × 7/16 in × 39 in C-Flex, Readymate	7	1/8 in × 1/4 in × 2 in C-Flex, y-connector, 2 of 1/8 in × 1/4 in × 39 in C-Flex, female Luer
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	pH Sensor body - bottom of bag
		4	Screwcap, 38/400	9	DO Sensor body - bottom of bag
		5	Air inlet filter		
	DOOPT, pHOPT and Perfusion (34)	1	1/4 in × 7/16 in × 39 in C-Flex, Readymate	6	Air outlet filter, check valve
		2	1/4 in × 7/16 in × 39 in C-Flex, Readymate	7	1/8 in × 1/4 in × 2 in C-Flex, y-connector, 2 of 1/8 in × 1/4 in × 39 in C-Flex, female Luer
		3	Y-connection attached to perfusion filter	8	pH Sensor body - bottom of bag
		4	3/16 in × 3/8 in × 2 in silicone, needleless sampling	9	DO Sensor body - bottom of bag
		5	Air inlet filter		

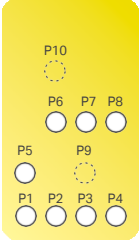
Cellbag	Version	Ports	Description	Ports	Description
Cellbag 10 L 	Basic (01)	1	1/4 in × 7/16 in × 39 in C-Flex, female MPC	6	Air inlet filter
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	7	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	N/A
		4	N/A	9	N/A
		5	N/A	10	N/A
	Basic plus (02)	1	1/4 in × 7/16 in × 39 in C-Flex, female MPC	6	Air inlet filter
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	7	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	3/16 in × 3/8 in × 2 in silicone, female Luer
		4	N/A	9	N/A
		5	3/16 in × 3/8 in × 2 in silicone, female Luer	10	N/A
	Screwcap (03)	1	1/4 in × 7/16 in × 39 in C-Flex, female MPC	6	Air inlet filter
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	7	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	3/16 in × 3/8 in × 2 in silicone, female Luer
		4	N/A	9	N/A
		5	Screwcap, 38/400	10	N/A
	Perfusion (04)	1	3/16 in × 3/8 in × 2 in silicone, needleless sampling	6	Air inlet filter
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	7	Air outlet filter, check valve
		3	N/A	8	3/16 in × 3/8 in × 2 in silicone, female Luer
		4	Y-connection attached to perfusion filter	9	N/A
		5	3/16 in × 3/8 in × 2 in silicone, female Luer	10	N/A
	pHOPT (11)	1	1/4 in × 7/16 in × 39 in C-Flex, female MPC	6	Air inlet filter
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	7	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	3/16 in × 3/8 in × 2 in silicone, female Luer
		4	N/A	9	pH Sensor body - bottom of bag
		5	3/16 in × 3/8 in × 2 in silicone, female Luer	10	N/A
	Readymate (21)	1	1/4 in × 7/16 in × 39 in C-Flex, Readymate	6	Air inlet filter
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	7	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	3/16 in × 3/8 in × 2 in silicone, female Luer
		4	N/A	9	N/A
		5	3/16 in × 3/8 in × 2 in silicone, female Luer	10	N/A
	Presto (25)	1	1/4 in × 7/16 in × 39 in C-Flex, Presto	6	Air inlet filter
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	7	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	3/16 in × 3/8 in × 2 in silicone, female Luer
		4	N/A	9	N/A
		5	3/16 in × 3/8 in × 2 in silicone, female Luer	10	N/A
	AseptiQuik (26)	1	1/4 in × 7/16 in × 39 in C-Flex, AseptiQuik	6	Air inlet filter
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	7	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	3/16 in × 3/8 in × 2 in silicone, female Luer
		4	N/A	9	N/A
		5	3/16 in × 3/8 in × 2 in silicone, female Luer	10	N/A
	DOOPT and pHOPT (31)	1	1/4 in × 7/16 in × 39 in C-Flex, Readymate	6	Air inlet filter
		2	1/4 in × 7/16 in × 39 in C-Flex, Readymate	7	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	N/A
		4	1/8 in × 1/4 in × 2 in C-Flex, y-connector, 2 of 1/8 in × 1/4 in × 39 in C-Flex, female Luer	9	pH Sensor body - bottom of bag
		5	1/4 in × 7/16 in × 39 in C-Flex, female MPC	10	DO Sensor body - bottom of bag
	DOOPT, pHOPT and Screwcap (33)	1	1/4 in × 7/16 in × 39 in C-Flex, Readymate	6	Air inlet filter
		2	1/4 in × 7/16 in × 39 in C-Flex, Readymate	7	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	1/8 in × 1/4 in × 2 in C-Flex, y-connector, 2 of 1/8 in × 1/4 in × 39 in C-Flex, female Luer
		4	1/4 in × 7/16 in × 39 in C-Flex, female MPC	9	pH Sensor body - bottom of bag
		5	Screwcap, 38/400	10	DO Sensor body - bottom of bag

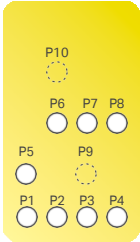
Cellbag	Version	Ports	Description	Ports	Description
	DOOPT, pHOPT and Perfusion (34)	1	1/4 in × 7/16 in × 39 in C-Flex, Readymate	6	Air inlet filter
		2	1/4 in × 7/16 in × 39 in C-Flex, Readymate	7	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	1/8 in × 1/4 in × 2 in C-Flex, y-connector, 2 of 1/8 in × 1/4 in × 39 in C-Flex, female Luer
		4	Y-connection attached to perfusion filter	9	pH Sensor body - bottom of bag
		5	1/4 in × 7/16 in × 39 in C-Flex, female MPC	10	DO Sensor body - bottom of bag
	DOOPT, pHOPT and Presto (51)	1	1/4 in × 7/16 in × 39 in C-Flex, Presto	6	Air inlet filter
		2	1/4 in × 7/16 in × 39 in C-Flex, Presto	7	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	N/A
		4	1/8 in × 1/4 in × 2 in C-Flex, y-connector, 2 of 1/8 in × 1/4 in × 39 in C-Flex, female Luer	9	pH Sensor body - bottom of bag
		5	1/4 in × 7/16 in × 39 in C-Flex, Presto	10	DO Sensor body - bottom of bag
	DOOPT, pHOPT, Screwcap and Presto (53)	1	1/4 in × 7/16 in × 39 in C-Flex, Presto	6	Air inlet filter
		2	1/4 in × 7/16 in × 39 in C-Flex, Presto	7	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	1/8 in × 1/4 in × 2 in C-Flex, y-connector, 2 of 1/8 in × 1/4 in × 39 in C-Flex, female Luer
		4	1/4 in × 7/16 in × 39 in C-Flex, Presto	9	pH Sensor body - bottom of bag
		5	Screwcap, 38/400	10	DO Sensor body - bottom of bag
	DOOPT, pHOPT, Perfusion and Presto (54)	1	1/4 in × 7/16 in × 39 in C-Flex, Presto	6	Air inlet filter
		2	1/4 in × 7/16 in × 39 in C-Flex, Presto	7	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	1/8 in × 1/4 in × 2 in C-Flex, y-connector, 2 of 1/8 in × 1/4 in × 39 in C-Flex, female Luer
		4	Y-connection attached to perfusion filter	9	pH Sensor body - bottom of bag
		5	1/4 in × 7/16 in × 39 in C-Flex, Presto	10	DO Sensor body - bottom of bag
	DOOPT, pHOPT, and AseptiQuik (61)	1	1/4 in × 7/16 in × 39 in C-Flex, AseptiQuik	6	Air inlet filter
		2	1/4 in × 7/16 in × 39 in C-Flex, AseptiQuik	7	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	N/A
		4	1/8 in × 1/4 in × 2 in C-Flex, y-connector, 2 of 1/8 in × 1/4 in × 39 in C-Flex, female Luer	9	pH Sensor body - bottom of bag
		5	1/4 in × 7/16 in × 39 in C-Flex, AseptiQuik	10	DO Sensor body - bottom of bag
	DOOPT, pHOPT, Screwcap and AseptiQuik (63)	1	1/4 in × 7/16 in × 39 in C-Flex, AseptiQuik	6	Air inlet filter
		2	1/4 in × 7/16 in × 39 in C-Flex, AseptiQuik	7	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	1/8 in × 1/4 in × 2 in C-Flex, y-connector, 2 of 1/8 in × 1/4 in × 39 in C-Flex, female Luer
		4	1/4 in × 7/16 in × 39 in C-Flex, AseptiQuik	9	pH Sensor body - bottom of bag
		5	Screwcap, 38/400	10	DO Sensor body - bottom of bag
	DOOPT, pHOPT, Perfusion and AseptiQuik (64)	1	1/4 in × 7/16 in × 39 in C-Flex, AseptiQuik	6	Air inlet filter
		2	1/4 in × 7/16 in × 39 in C-Flex, AseptiQuik	7	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	1/8 in × 1/4 in × 2 in C-Flex, y-connector, 2 of 1/8 in × 1/4 in × 39 in C-Flex, female Luer
		4	Y-connection attached to perfusion filter	9	pH Sensor body - bottom of bag
		5	1/4 in × 7/16 in × 39 in C-Flex, AseptiQuik	10	DO Sensor body - bottom of bag

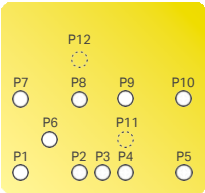
Cellbag	Version	Ports	Description	Ports	Description
	Basic (01)	1	1/4 in × 7/16 in × 39 in C-Flex, female MPC	7	N/A
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	8	Air outlet filter, check valve
		3	N/A	9	Air inlet filter
		4	3/16 in × 3/8 in × 2 in silicone, needleless sampling	10	N/A
		5	N/A	11	N/A
		6	N/A	12	N/A
	Basic plus (02)	1	1/4 in × 7/16 in × 39 in C-Flex, female MPC	7	3/16 in × 3/8 in × 2 in silicone, female Luer
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	8	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/16 in × 3/8 in × 2 in silicone, female Luer	10	N/A
		5	N/A	11	N/A
		6	3/16 in × 3/8 in × 2 in silicone, female Luer	12	N/A
	Screwcap (03)	1	1/4 in × 7/16 in × 39 in C-Flex, female MPC	7	3/16 in × 3/8 in × 2 in silicone, female Luer
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	8	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/16 in × 3/8 in × 2 in silicone, female Luer	10	N/A
		5	Screwcap, 38/400	11	N/A
		6	3/16 in × 3/8 in × 2 in silicone, female Luer	12	N/A
	Perfusion (04)	1	1/4 in × 7/16 in × 39 in C-Flex, female MPC	7	3/16 in × 3/8 in × 2 in silicone, female Luer
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	8	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	9	Air inlet filter
		4	N/A	10	Y-connection attached to perfusion filter
		5	N/A	11	N/A
		6	3/16 in × 3/8 in × 2 in silicone, female Luer	12	N/A
	pHOPT (11)	1	1/4 in × 7/16 in × 39 in C-Flex, female MPC	7	3/16 in × 3/8 in × 2 in silicone, female Luer
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	8	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/16 in × 3/8 in × 2 in silicone, female Luer	10	N/A
		5	N/A	11	pH Sensor body - bottom of bag
		6	3/16 in × 3/8 in × 2 in silicone, female Luer	12	N/A
	Readymate (21)	1	1/4 in × 7/16 in × 39 in C-Flex, Readymate	7	3/16 in × 3/8 in × 2 in silicone, female Luer
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	8	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/16 in × 3/8 in × 2 in silicone, female Luer	10	N/A
		5	N/A	11	N/A
		6	3/16 in × 3/8 in × 2 in silicone, female Luer	12	N/A
	Presto (25)	1	1/4 in × 7/16 in × 39 in C-Flex, Presto	7	3/16 in × 3/8 in × 2 in silicone, female Luer
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	8	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/16 in × 3/8 in × 2 in silicone, female Luer	10	N/A
		5	N/A	11	N/A
		6	3/16 in × 3/8 in × 2 in silicone, female Luer	12	N/A
	AseptiQuik (26)	1	1/4 in × 7/16 in × 39 in C-Flex, AseptiQuik	7	3/16 in × 3/8 in × 2 in silicone, female Luer
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	8	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/16 in × 3/8 in × 2 in silicone, female Luer	10	N/A
		5	N/A	11	N/A
		6	3/16 in × 3/8 in × 2 in silicone, female Luer	12	N/A

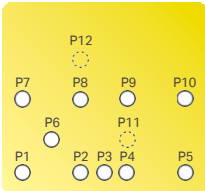
Cellbag	Version	Ports	Description	Ports	Description
Cellbag 20 L 	DOOPT and pHOPT (31)	1	3/8 in × 5/8 in × 39 in C-Flex, Readymate	7	3/16 in × 3/8 in × 18 in silicone, female Luer
		2	3/8 in × 5/8 in × 39 in C-Flex, Readymate	8	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	9	Air inlet filter
		4	1/8 in × 1/4 in × 2 in C-Flex, y-connector, 2 of 1/8 in × 1/4 in × 39 in C-Flex, female Luer	10	N/A
		5	3/8 in × 5/8 in × 39 in C-Flex, female MPC	11	pH Sensor body - bottom of bag
		6	N/A	12	DO Sensor body - bottom of bag
	DOOPT, pHOPT and Screwcap (33)	1	3/8 in × 5/8 in × 39 in C-Flex, Readymate	7	3/16 in × 3/8 in × 18 in silicone, female Luer
		2	3/8 in × 5/8 in × 39 in C-Flex, Readymate	8	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/8 in × 5/8 in × 39 in C-Flex, female MPC	10	1/8 in × 1/4 in × 2 in C-Flex, y-connector, 2 of 1/8 in × 1/4 in × 39 in C-Flex, female Luer
		5	Screwcap, 38/400	11	pH Sensor body - bottom of bag
		6	N/A	12	DO Sensor body - bottom of bag
	DOOPT, pHOPT and Perfusion (34)	1	3/8 in × 5/8 in × 39 in C-Flex, Readymate	7	3/16 in × 3/8 in × 18 in silicone, female Luer
		2	3/8 in × 5/8 in × 39 in C-Flex, Readymate	8	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/8 in × 5/8 in × 39 in C-Flex, female MPC	10	Y-connection attached to perfusion filter
		5	1/8 in × 1/4 in × 2 in C-Flex, y-connector, 2 of 1/8 in × 1/4 in × 39 in C-Flex, female Luer	11	pH Sensor body - bottom of bag
		6	N/A	12	DO Sensor body - bottom of bag
	DOOPT, pHOPT and Presto (51)	1	3/8 in × 5/8 in × 39 in C-Flex, Presto	7	3/16 in × 3/8 in × 18 in silicone, female Luer
		2	3/8 in × 5/8 in × 39 in C-Flex, Presto	8	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	9	Air inlet filter
		4	1/8 in × 1/4 in × 2 in C-Flex, y-connector, 2 of 1/8 in × 1/4 in × 39 in C-Flex, female Luer	10	N/A
		5	3/8 in × 5/8 in × 39 in C-Flex, Presto	11	pH Sensor body - bottom of bag
		6	N/A	12	DO Sensor body - bottom of bag
	DOOPT, pHOPT, Screwcap and Presto (53)	1	3/8 in × 5/8 in × 39 in C-Flex, Presto	7	3/16 in × 3/8 in × 18 in silicone, female Luer
		2	3/8 in × 5/8 in × 39 in C-Flex, Presto	8	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/8 in × 5/8 in × 39 in C-Flex, Presto	10	1/8 in × 1/4 in × 2 in C-Flex, y-connector, 2 of 1/8 in × 1/4 in × 39 in C-Flex, female Luer
		5	Screwcap, 38/400	11	pH Sensor body - bottom of bag
		6	N/A	12	DO Sensor body - bottom of bag
	DOOPT, pHOPT, Perfusion and Presto (54)	1	3/8 in × 5/8 in × 39 in C-Flex, Presto	7	3/16 in × 3/8 in × 18 in silicone, female Luer
		2	3/8 in × 5/8 in × 39 in C-Flex, Presto	8	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/8 in × 5/8 in × 39 in C-Flex, female Presto	10	Y-connection attached to perfusion filter
		5	1/8 in × 1/4 in × 2 in C-Flex, y-connector, 2 of 1/8 in × 1/4 in × 39 in C-Flex, female Luer	11	pH Sensor body - bottom of bag
		6	N/A	12	DO Sensor body - bottom of bag
	DOOPT, pHOPT, and AseptiQuik (61)	1	3/8 in × 5/8 in × 39 in C-Flex, AseptiQuik	7	3/16 in × 3/8 in × 18 in silicone, female Luer
		2	3/8 in × 5/8 in × 39 in C-Flex, AseptiQuik	8	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	9	Air inlet filter
		4	1/8 in × 1/4 in × 2 in C-Flex, y-connector, 2 of 1/8 in × 1/4 in × 39 in C-Flex, female Luer	10	N/A
		5	3/8 in × 5/8 in × 39 in C-Flex, AseptiQuik	11	pH Sensor body - bottom of bag
		6	N/A	12	DO Sensor body - bottom of bag

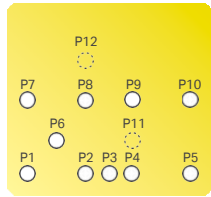
Cellbag	Version	Ports	Description	Ports	Description
	DOOPT, pHOPT, Screwcap and AseptiQuik (63)	1	3/8 in × 5/8 in × 39 in C-Flex, AseptiQuik	7	3/16 in × 3/8 in × 18 in silicone, female Luer
		2	3/8 in × 5/8 in × 39 in C-Flex, AseptiQuik	8	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/8 in × 5/8 in × 39 in C-Flex, AseptiQuik	10	1/8 in × 1/4 in × 2 in C-Flex, y-connector, 2 of 1/8 in × 1/4 in × 39 in C-Flex, female Luer
		5	Screwcap, 38/400	11	pH Sensor body - bottom of bag
		6	N/A	12	DO Sensor body - bottom of bag
	DOOPT, pHOPT, Perfusion and AseptiQuik (64)	1	3/8 in × 5/8 in × 39 in C-Flex, AseptiQuik	7	3/16 in × 3/8 in × 18 in silicone, female Luer
		2	3/8 in × 5/8 in × 39 in C-Flex, AseptiQuik	8	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/8 in × 5/8 in × 39 in C-Flex, AseptiQuik	10	Y-connection attached to perfusion filter
		5	1/8 in × 1/4 in × 2 in C-Flex, y-connector, 2 of 1/8 in × 1/4 in × 39 in C-Flex, female Luer	11	pH Sensor body - bottom of bag
		6	N/A	12	DO Sensor body - bottom of bag

Cellbag	Version	Ports	Description	Ports	Description
	Basic (01)	1	1/4 in x 7/16 in x 39 in C-Flex, female MPC	6	Air outlet filter, check valve
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	7	Air inlet filter
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	N/A
		4	N/A	9	N/A
		5	N/A	10	N/A
	Basic plus (02)	1	1/4 in x 7/16 in x 39 in C-Flex, female MPC	6	Air outlet filter, check valve
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	7	Air inlet filter
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	N/A
		4	3/16 in × 3/8 in × 2 in silicone, female Luer	9	N/A
		5	N/A	10	N/A
	pHOPT (11)	1	1/4 in x 7/16 in x 39 in C-Flex, female MPC	6	Air outlet filter, check valve
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	7	Air inlet filter
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	N/A
		4	3/16 in × 3/8 in × 2 in silicone, female Luer	9	pH Sensor body - bottom of bag
		5	N/A	10	N/A
	Readymate (21)	1	1/4 in x 7/16 in x 39 in C-Flex, Readymate	6	Air outlet filter, check valve
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	7	Air inlet filter
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	N/A
		4	3/16 in × 3/8 in × 2 in silicone, female Luer	9	N/A
		5	N/A	10	N/A
	Presto (25)	1	1/4 in x 7/16 in x 39 in C-Flex, Presto	6	Air outlet filter, check valve
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	7	Air inlet filter
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	N/A
		4	3/16 in × 3/8 in × 2 in silicone, female Luer	9	N/A
		5	N/A	10	N/A
	AseptiQuik (26)	1	1/4 in x 7/16 in x 39 in C-Flex, AseptiQuik	6	Air outlet filter, check valve
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	7	Air inlet filter
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	N/A
		4	3/16 in × 3/8 in × 2 in silicone, female Luer	9	N/A
		5	N/A	10	N/A

Cellbag	Version	Ports	Description	Ports	Description
Cellbag 22 L 	DOOPT and pHOPT (31)	1	3/8 in x 5/8 in x 39 in C-Flex, Readymate	6	Air inlet filter
		2	3/8 in x 5/8 in x 39 in C-Flex, Readymate	7	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling	8	3/8 in x 5/8 in x 39 in C-Flex, female MPC
		4	1/8 in x 1/4 in x 2 in C-Flex, y-connector, 2 of 1/8 in x 1/4 in x 39 in C-Flex, female Luer	9	pH Sensor body - bottom of bag
		5	N/A	10	DO Sensor body - bottom of bag
	DOOPT, pHOPT and Presto (51)	1	3/8 in x 5/8 in x 39 in C-Flex, Presto	6	Air inlet filter
		2	3/8 in x 5/8 in x 39 in C-Flex, Presto	7	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling	8	3/8 in x 5/8 in x 39 in C-Flex, Presto
		4	1/8 in x 1/4 in x 2 in C-Flex, y-connector, 2 of 1/8 in x 1/4 in x 39 in C-Flex, female Luer	9	pH Sensor body - bottom of bag
		5	N/A	10	DO Sensor body - bottom of bag
	DOOPT, pHOPT, and AseptiQuik (61)	1	3/8 in x 5/8 in x 39 in C-Flex, AseptiQuik	6	Air inlet filter
		2	3/8 in x 5/8 in x 39 in C-Flex, AseptiQuik	7	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling	8	3/8 in x 5/8 in x 39 in C-Flex, AseptiQuik
		4	1/8 in x 1/4 in x 2 in C-Flex, y-connector, 2 of 1/8 in x 1/4 in x 39 in C-Flex, female Luer	9	pH Sensor body - bottom of bag
		5	N/A	10	DO Sensor body - bottom of bag

Cellbag	Version	Ports	Description	Ports	Description
Cellbag 50 L 	Basic (01)	1	1/4 in x 7/16 in x 39 in C-Flex, female MPC	7	N/A
		2	1/8 in x 1/4 in x 39 in C-Flex, female Luer	8	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling	9	Air inlet filter
		4	N/A	10	N/A
		5	N/A	11	N/A
		6	N/A	12	N/A
	Basic plus (02)	1	1/4 in x 7/16 in x 39 in C-Flex, female MPC	7	3/16 in x 3/8 in x 2 in silicone, female Luer
		2	1/8 in x 1/4 in x 39 in C-Flex, female Luer	8	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/16 in x 3/8 in x 2 in silicone, female Luer	10	N/A
		5	N/A	11	N/A
		6	3/16 in x 3/8 in x 2 in silicone, female Luer	12	N/A
	Perfusion (04)	1	1/4 in x 7/16 in x 39 in C-Flex, female MPC	7	3/16 in x 3/8 in x 2 in silicone, female Luer
		2	1/8 in x 1/4 in x 39 in C-Flex, female Luer	8	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling	9	Air inlet filter
		4	N/A	10	Y-connection attached to perfusion filter
		5	N/A	11	N/A
		6	3/16 in x 3/8 in x 2 in silicone, female Luer	12	N/A
	Basic with Presto (05)	1	1/4 in x 7/16 in x 39 in C-Flex, Presto	7	N/A
		2	1/8 in x 1/4 in x 39 in C-Flex, female Luer	8	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling	9	Air inlet filter
		4	N/A	10	N/A
		5	N/A	11	N/A
		6	N/A	12	N/A
	Basic with AseptiQuik (06)	1	1/4 in x 7/16 in x 39 in C-Flex, AseptiQuik	7	N/A
		2	1/8 in x 1/4 in x 39 in C-Flex, female Luer	8	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling	9	Air inlet filter
		4	N/A	10	N/A
		5	N/A	11	N/A
		6	N/A	12	N/A

Cellbag	Version	Ports	Description	Ports	Description
	pHOPT (11)	1	1/4 in x 7/16 in x 39 in C-Flex, female MPC	7	3/16 in x 3/8 in x 2 in silicone, female Luer
		2	1/8 in x 1/4 in x 39 in C-Flex, female Luer	8	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/16 in x 3/8 in x 2 in silicone, female Luer	10	N/A
		5	N/A	11	pH Sensor body - bottom of bag
		6	3/16 in x 3/8 in x 2 in silicone, female Luer	12	N/A
	pHOPT and Presto (15)	1	1/4 in x 7/16 in x 39 in C-Flex, Presto	7	3/16 in x 3/8 in x 2 in silicone, female Luer
		2	1/8 in x 1/4 in x 39 in C-Flex, female Luer	8	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/16 in x 3/8 in x 2 in silicone, female Luer	10	N/A
		5	N/A	11	pH Sensor body - bottom of bag
		6	3/16 in x 3/8 in x 2 in silicone, female Luer	12	N/A
	pHOPT and AseptiQuik (16)	1	1/4 in x 7/16 in x 39 in C-Flex, AseptiQuik	7	3/16 in x 3/8 in x 2 in silicone, female Luer
		2	1/8 in x 1/4 in x 39 in C-Flex, female Luer	8	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/16 in x 3/8 in x 2 in silicone, female Luer	10	N/A
		5	N/A	11	pH Sensor body - bottom of bag
		6	3/16 in x 3/8 in x 2 in silicone, female Luer	12	N/A
	Readymate (21)	1	1/4 in x 7/16 in x 39 in C-Flex, Readymate	7	3/16 in x 3/8 in x 2 in silicone, female Luer
		2	1/8 in x 1/4 in x 39 in C-Flex, female Luer	8	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/16 in x 3/8 in x 2 in silicone, female Luer	10	N/A
		5	3/8 in x 5/8 in x 39 in C-Flex, Readymate	11	N/A
		6	3/16 in x 3/8 in x 2 in silicone, female Luer	12	N/A
	Presto (25)	1	1/4 in x 7/16 in x 39 in C-Flex, Presto	7	3/16 in x 3/8 in x 2 in silicone, female Luer
		2	1/8 in x 1/4 in x 39 in C-Flex, female Luer	8	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/16 in x 3/8 in x 2 in silicone, female Luer	10	N/A
		5	3/8 in x 5/8 in x 39 in C-Flex, Presto	11	N/A
		6	3/16 in x 3/8 in x 2 in silicone, female Luer	12	N/A
	AseptiQuik (26)	1	1/4 in x 7/16 in x 39 in C-Flex, AseptiQuik	7	3/16 in x 3/8 in x 2 in silicone, female Luer
		2	1/8 in x 1/4 in x 39 in C-Flex, female Luer	8	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/16 in x 3/8 in x 2 in silicone, female Luer	10	N/A
		5	3/8 in x 5/8 in x 39 in C-Flex, AseptiQuik	11	N/A
		6	3/16 in x 3/8 in x 2 in silicone, female Luer	12	N/A
	DOOPT and pHOPT (31)	1	3/8 in x 5/8 in x 39 in C-Flex, Readymate	7	3/16 in x 3/8 in x 18 in silicone, female Luer
		2	3/8 in x 5/8 in x 39 in C-Flex, Readymate	8	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling	9	Air inlet filter
		4	1/8 in x 1/4 in x 2 in C-Flex, y-connector, 2 of 1/8 in x 1/4 in x 39 in C-Flex, female Luer	10	N/A
		5	3/8 in x 5/8 in x 39 in C-Flex, female MPC	11	pH Sensor body - bottom of bag
		6	N/A	12	DO Sensor body - bottom of bag
	DOOPT, pHOPT and Perfusion (34)	1	3/8 in x 5/8 in x 39 in C-Flex, Readymate	7	3/16 in x 3/8 in x 18 in silicone, female Luer
		2	3/8 in x 5/8 in x 39 in C-Flex, Readymate	8	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/8 in x 5/8 in x 39 in C-Flex, female MPC	10	Y-connection attached to perfusion filter
		5	1/8 in x 1/4 in x 2 in C-Flex, y-connector, 2 of 1/8 in x 1/4 in x 39 in C-Flex, female Luer	11	pH Sensor body - bottom of bag
		6	N/A	12	DO Sensor body - bottom of bag



Cellbag	Version	Ports	Description	Ports	Description
Cellbag™ 50 L	DOOPT, pHOPT and Presto (51)	1	3/8 in x 5/8 in x 39 in C-Flex, Presto	7	3/16 in x 3/8 in x 18 in silicone, female Luer
		2	3/8 in x 5/8 in x 39 in C-Flex, Presto	8	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling	9	Air inlet filter
		4	1/8 in x 1/4 in x 2 in C-Flex, y-connector, 2 of 1/8 in x 1/4 in x 39 in C-Flex, female Luer	10	N/A
		5	3/8 in x 5/8 in x 39 in C-Flex, Presto	11	pH Sensor body - bottom of bag
		6	N/A	12	DO Sensor body - bottom of bag
	DOOPT, pHOPT Perfusion, and Presto (54)	1	3/8 in x 5/8 in x 39 in C-Flex, Presto	7	3/16 in x 3/8 in x 18 in silicone, female Luer
		2	3/8 in x 5/8 in x 39 in C-Flex, Presto	8	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/8 in x 5/8 in x 39 in C-Flex, Presto	10	Y-connection attached to perfusion filter
		5	1/8 in x 1/4 in x 2 in C-Flex, y-connector, 2 of 1/8 in x 1/4 in x 39 in C-Flex, female Luer	11	pH Sensor body - bottom of bag
		6	N/A	12	DO Sensor body - bottom of bag
	DOOPT, pHOPT Perfusion, and AseptiQuik (61)	1	3/8 in x 5/8 in x 39 in C-Flex, AseptiQuik	7	3/16 in x 3/8 in x 18 in silicone, female Luer
		2	3/8 in x 5/8 in x 39 in C-Flex, AseptiQuik	8	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling	9	Air inlet filter
		4	1/8 in x 1/4 in x 2 in C-Flex, y-connector, 2 of 1/8 in x 1/4 in x 39 in C-Flex, female Luer	10	N/A
		5	3/8 in x 5/8 in x 39 in C-Flex, AseptiQuik	11	pH Sensor body - bottom of bag
		6	N/A	12	DO Sensor body - bottom of bag
	DOOPT, pHOPT Perfusion, and AseptiQuik (64)	1	3/8 in x 5/8 in x 39 in C-Flex, AseptiQuik	7	3/16 in x 3/8 in x 18 in silicone, female Luer
		2	3/8 in x 5/8 in x 39 in C-Flex, AseptiQuik	8	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling	9	Air inlet filter
		4	3/8 in x 5/8 in x 39 in C-Flex, AseptiQuik	10	Y-connection attached to perfusion filter
		5	1/8 in x 1/4 in x 2 in C-Flex, y-connector, 2 of 1/8 in x 1/4 in x 39 in C-Flex, female Luer	11	pH Sensor body - bottom of bag
		6	N/A	12	DO Sensor body - bottom of bag

Cellbag	Version	Ports	Description	Ports	Description
	Basic plus (02)	1	N/A	8	Air inlet filter
		2	3/8 x 5/8 in x 78 in C-Flex, male MPC	9	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, female Luer	10	Air outlet filter, check valve
		4	3/16 in x 3/8 in x 2 in silicone, needleless sampling	11	3/8 x 5/8 in x 78 in C-Flex, male MPC (with dip tube)
		5	1/4 x 7/16 in x 78 in C-Flex, male MPC	12	N/A
		6	1/8 in x 1/4 in x 78 in C-Flex, female Luer	13	N/A
		7	N/A		
	pHOPT (11)	1	N/A	8	Air inlet filter
		2	3/8 x 5/8 in x 78 in C-Flex, male MPC	9	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, female Luer	10	Air outlet filter, check valve
		4	3/16 in x 3/8 in x 2 in silicone, needleless sampling	11	3/8 x 5/8 in x 78 in C-Flex, male MPC (with dip tube)
		5	1/4 x 7/16 in x 78 in C-Flex, male MPC	12	pH Sensor body - bottom of bag
		6	1/8 in x 1/4 in x 78 in C-Flex, female Luer	13	N/A
		7	N/A		
	DOOPT and pHOPT (31)	1	3/8 x 5/8 in x 78 in C-Flex, Readymate	8	Air inlet filter
		2	3/8 x 5/8 in x 78 in C-Flex, male MPC	9	Air outlet filter, check valve
		3	1/8 in x 1/4 in x 2 in C-Flex, y-connector, 2 of 1/8 in x 1/4 in x 39 in C-Flex, female Luer	10	Air outlet filter, check valve
		4	3/16 in x 3/8 in x 2 in silicone, needleless sampling	11	3/8 x 5/8 in x 78 in C-Flex, male MPC (with dip tube)
		5	1/4 x 7/16 in x 78 in C-Flex, male MPC	12	pH Sensor body - bottom of bag
		6	1/8 in x 1/4 in x 78 in C-Flex, female Luer	13	DO Sensor body - bottom of bag
		7	N/A		

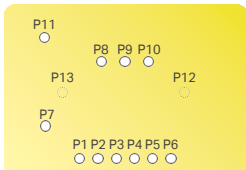
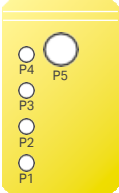
Cellbag	Version	Ports	Description	Ports	Description
	Basic plus (02)	1	N/A	8	Air inlet filter
		2	3/8 x 5/8 in x 78 in C-Flex, male MPC	9	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, female Luer	10	Air outlet filter, check valve
		4	3/16 in x 3/8 in x 2 in silicone, needleless sampling	11	3/8 x 5/8 in x 78 in C-Flex, male MPC (with dip tube)
		5	1/4 x 7/16 in x 78 in C-Flex, male MPC	12	N/A
		6	1/8 in x 1/4 in x 78 in C-Flex, female Luer	13	N/A
		7	N/A		
	pHOPT (11)	1	N/A	8	Air inlet filter
		2	3/8 x 5/8 in x 78 in C-Flex, male MPC	9	Air outlet filter, check valve
		3	3/16 in x 3/8 in x 2 in silicone, female Luer	10	Air outlet filter, check valve
		4	3/16 in x 3/8 in x 2 in silicone, needleless sampling	11	3/8 x 5/8 in x 78 in C-Flex, male MPC (with dip tube)
		5	1/4 x 7/16 in x 78 in C-Flex, male MPC	12	N/A
		6	1/8 in x 1/4 in x 78 in C-Flex, female Luer	13	pH Sensor body - bottom of bag
		7	N/A		
	DOOPT and pHOPT (31)	1	3/8 x 5/8 in x 78 in C-Flex, Readymate	8	Air inlet filter
		2	3/8 x 5/8 in x 78 in C-Flex, male MPC	9	Air outlet filter, check valve
		3	1/8 in x 1/4 in x 2 in C-Flex, y-connector, 2 of 1/8 in x 1/4 in x 39 in C-Flex, female Luer	10	Air outlet filter, check valve
		4	3/16 in x 3/8 in x 2 in silicone, needleless sampling	11	3/8 x 5/8 in x 78 in C-Flex, male MPC (with dip tube)
		5	1/4 x 7/16 in x 78 in C-Flex, male MPC	12	DO Sensor body - bottom of bag
		6	1/8 in x 1/4 in x 78 in C-Flex, female Luer	13	pH Sensor body - bottom of bag
		7	N/A		

Table 7. M*Bag sizes and options

M*Bag mixing chamber	Version	Ports	Description
	Basic (01)	1	1/4 in x 3/8 in x 3 in C-Flex, female MPC
		2	3/16 in x 3/8 in x 2 in silicone, female Luer
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling
		4	1/4 in x 3/8 in x 3 in C-Flex, female MPC
		5	Threaded plug
	Basic with Presto (05)	1	1/4 in x 3/8 in x 3 in C-Flex, Presto
		2	3/16 in x 3/8 in x 2 in silicone, female Luer
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling
		4	1/4 in x 3/8 in x 3 in C-Flex, Presto
		5	Threaded plug
	Basic with AseptiQuik (06)	1	1/4 in x 3/8 in x 3 in C-Flex, AseptiQuik
		2	3/16 in x 3/8 in x 2 in silicone, female Luer
		3	3/16 in x 3/8 in x 2 in silicone, needleless sampling
		4	1/4 in x 3/8 in x 3 in C-Flex, AseptiQuik
		5	Threaded plug

Ordering information

Product	Version	Part code	Bags per package	Part code	Bags per package
Cellbag 500 mL	Basic	CB500ML-01-05PK	5	CB500ML-01-01PK	1
Cellbag 1 L	Basic	CB0001L-01-05PK	5	CB0001L-01-01PK	1
Cellbag 2 L	Basic	CB0002L-01-05PK	5	CB0002L-01-01PK	1
	Basic plus	CB0002L-02-05PK	5	CB0002L-02-01PK	1
	Screwcap	CB0002L-03-05PK	5	CB0002L-03-01PK	1
	Perfusion	CB0002L-04-05PK	5	CB0002L-04-01PK	1
	pHOPT	CB0002L-11-05PK	5	CB0002L-11-01PK	1
	Readymate	CB0002L-21-05PK	5	CB0002L-21-01PK	1
	DOOPT and pHOPT	CB0002L-31-05PK	5	CB0002L-31-01PK	1
	DOOPT, pHOPT and Screwcap	CB0002L-33-05PK	5	CB0002L-33-01PK	1
	DOOPT, pHOPT and Perfusion	CB0002L-34-05PK	5	CB0002L-34-01PK	1
Cellbag 10 L	Basic	CB0010L-01-05PK	5	CB0010L-01-01PK	1
	Basic plus	CB0010L-02-05PK	5	CB0010L-02-01PK	1
	Screwcap	CB0010L-03-05PK	5	CB0010L-03-01PK	1
	Perfusion	CB0010L-04-05PK	5	CB0010L-04-01PK	1
	pHOPT	CB0010L-11-05PK	5	CB0010L-11-01PK	1
	Readymate	CB0010L-21-05PK	5	CB0010L-21-01PK	1
	Presto	CB0010L-25-05PK	5	CB0010L-25-01PK	1
	AseptiQuik	CB0010L-26-05PK	5	CB0010L-26-01PK	1
	DOOPT and pHOPT	CB0010L-31-05PK	5	CB0010L-31-01PK	1
	DOOPT, pHOPT and Screwcap	CB0010L-33-05PK	5	CB0010L-33-01PK	1
	DOOPT, pHOPT and Perfusion	CB0010L-34-05PK	5	CB0010L-34-01PK	1
	DOOPT, pHOPT and Presto	CB0010L-51-05PK	5	CB0010L-51-01PK	1
	DOOPT, pHOPT, Screwcap and Presto	CB0010L-53-05PK	5	CB0010L-53-01PK	1
	DOOPT, pHOPT, Perfusion and Presto	CB0010L-54-05PK	5	CB0010L-54-01PK	1
	DOOPT, pHOPT and AseptiQuik	CB0010L-61-05PK	5	CB0010L-61-01PK	1
	DOOPT, pHOPT, Screwcap and AseptiQuik	CB0010L-63-05PK	5	CB0010L-63-01PK	1
	DOOPT, pHOPT, Perfusion and AseptiQuik	CB0010L-64-05PK	5	CB0010L-64-01PK	1
Cellbag 20 L	Basic	CB0020L-01-05PK	5	CB0020L-01-01PK	1
	Basic plus	CB0020L-02-05PK	5	CB0020L-02-01PK	1
	Screwcap	CB0020L-03-05PK	5	CB0020L-03-01PK	1
	Perfusion	CB0020L-04-05PK	5	CB0020L-04-01PK	1
	pHOPT	CB0020L-11-05PK	5	CB0020L-11-01PK	1
	Readymate	CB0020L-21-05PK	5	CB0020L-21-01PK	1
	Presto	CB0020L-25-05PK	5	CB0020L-25-01PK	1
	AseptiQuik	CB0020L-26-05PK	5	CB0020L-26-01PK	1
	DOOPT and pHOPT	CB0020L-31-05PK	5	CB0020L-31-01PK	1
	DOOPT, pHOPT and Screwcap	CB0020L-33-05PK	5	CB0020L-33-01PK	1
	DOOPT, pHOPT and Perfusion	CB0020L-34-05PK	5	CB0020L-34-01PK	1
	DOOPT, pHOPT and Presto	CB0020L-51-05PK	5	CB0020L-51-01PK	1
	DOOPT, pHOPT, Screwcap and Presto	CB0020L-53-05PK	5	CB0020L-53-01PK	1
	DOOPT, pHOPT, Perfusion and Presto	CB0020L-54-05PK	5	CB0020L-54-01PK	1
	DOOPT, pHOPT and AseptiQuik	CB0020L-61-05PK	5	CB0020L-61-01PK	1
	DOOPT, pHOPT, Screwcap and AseptiQuik	CB0020L-63-05PK	5	CB0020L-63-01PK	1
	DOOPT, pHOPT, Perfusion and AseptiQuik	CB0020L-64-05PK	5	CB0020L-64-01PK	1

Product	Version	Part code	Bags per package	Part code	Bags per package
Cellbag 22 L	Basic	CB0022L-01-05PK	5	CB0022L-01-01PK	1
	Basic plus	CB0022L-02-05PK	5	CB0022L-02-01PK	1
	pHOPT	CB0022L-11-05PK	5	CB0022L-11-01PK	1
	Readymate	CB0022L-21-05PK	5	CB0022L-21-01PK	1
	Presto	CB0022L-25-05PK	5	CB0022L-25-01PK	1
	AseptiQuik	CB0022L-26-05PK	5	CB0022L-26-01PK	1
	DOOPT and pHOPT	CB0022L-31-05PK	5	CB0022L-31-01PK	1
	DOOPT, pHOPT and Presto	CB0022L-51-05PK	5	CB0022L-51-01PK	1
	DOOPT, pHOPT and AseptiQuik	CB0022L-61-05PK	5	CB0022L-61-01PK	1
Cellbag 50 L	Basic	CB0050L-01-05PK	5	CB0050L-01-01PK	1
	Basic plus	CB0050L-02-05PK	5	CB0050L-02-01PK	1
	Perfusion	CB0050L-04-05PK	5	CB0050L-04-01PK	1
	Basic with Presto	CB0050L-05-05PK	5	CB0050L-05-01PK	1
	Basic with AseptiQuik	CB0050L-06-05PK	5	CB0050L-06-01PK	1
	pHOPT	CB0050L-11-05PK	5	CB0050L-11-01PK	1
	pHOPT with Presto	CB0050L-15-05PK	5	CB0050L-15-01PK	1
	pHOPT with AseptiQuik	CB0050L-16-05PK	5	CB0050L-16-01PK	1
	Readymate	CB0050L-21-05PK	5	CB0050L-21-01PK	1
	Presto	CB0050L-25-05PK	5	CB0050L-25-01PK	1
	AseptiQuik	CB0050L-26-05PK	5	CB0050L-26-01PK	1
	DOOPT and pHOPT	CB0050L-31-05PK	5	CB0050L-31-01PK	1
	DOOPT, pHOPT and Perfusion	CB0050L-34-05PK	5	CB0050L-34-01PK	1
	DOOPT, pHOPT and Presto	CB0050L-51-05PK	5	CB0050L-51-01PK	1
	DOOPT, pHOPT, Perfusion and Presto	CB0050L-54-05PK	5	CB0050L-54-01PK	1
	DOOPT, pHOPT and AseptiQuik	CB0050L-61-05PK	5	CB0050L-61-01PK	1
	DOOPT, pHOPT, Perfusion and AseptiQuik	CB0050L-64-05PK	5	CB0050L-64-01PK	1
Cellbag 100 L	Basic plus	-	-	CB0100L-02-01PK	1
	pHOPT	-	-	CB0100L-11-01PK	1
	DOOPT and pHOPT	-	-	CB0100L-31-01PK	1
Cellbag 200 L	Basic plus	-	-	CB0200L-02-01PK	1
	pHOPT	-	-	CB0200L-11-01PK	1
	DOOPT and pHOPT	-	-	CB0200L-31-01PK	1
M*Bag 20 L	Basic	-	-	MB0020L-01-01PK	1
	Basic with Presto	-	-	MB0020L-05-01PK	1
	Basic with AseptiQuik	-	-	MB0020L-06-01PK	1
M*Bag 50 L	Basic	-	-	MB0050L-01-01PK	1
	Basic with Presto	-	-	MB0050L-05-01PK	1
	Basic with AseptiQuik	-	-	MB0050L-06-01PK	1

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