Disposable Cellbag™ bioreactors for WAVE Bioreactor™ systems

Designed for use with WAVE Bioreactor systems, Cellbag bioreactors (Fig 1) are presterilized, single-use bags for noninvasive mixing of culture medium and cells. They are useful during cultivation in research, development, and commercial manufacturing operations. As part of GE Healthcare Life Sciences' ReadyToProcess platform of ready-to-use products, Cellbag bioreactors require no sterilization or cleaning steps. They provide a suitable environment for cell growth, while minimizing the risk of cross-contamination. Cellbag bioreactors are manufactured from multilayer laminated clear USP Class VI plastics and are easily coupled to the full suite of ReadyToProcess cell culture, purification, and fluid handling products.

Disposable Cellbag bioreactors deliver:

- Ease-of-use: Cellbag bioreactors are presterilized and disposable, requiring no cleaning, thus minimizing the risk of cross-contamination.
- Robustness: The bags are manufactured from multilayer laminated, clear plastic films, designed to provide mechanical strength and bio-inert fluid contact.
- Biocompatibility: The fluid contact layer is an ethylene vinyl acetate (EVA)/low density polyethylene (LDPE) copolymer and the outer noncontact layer is made of low density polyethylene.
- Customization: Cellbag bioreactors can be readily customized for user-specified connectors, tube sets, and special components.

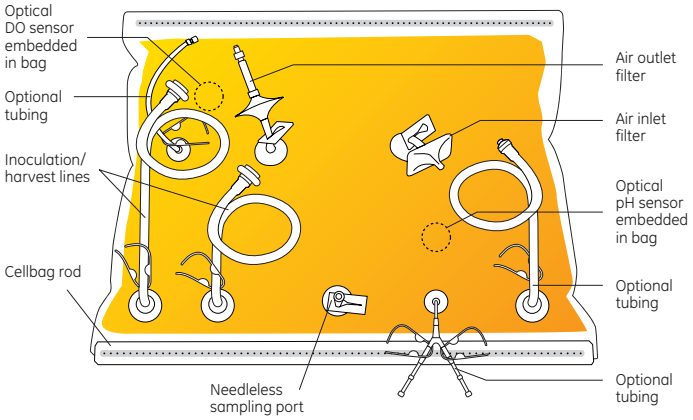


Fig 1. Representation of typical Cellbag bioreactor fittings. DO = dissolved oxygen

Principles of operation

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

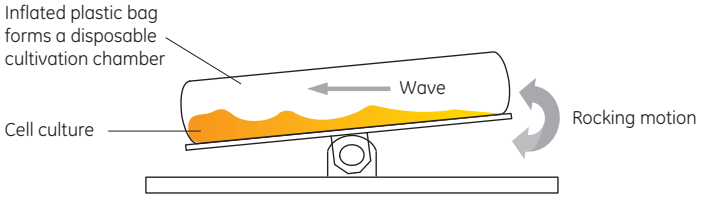


Fig 2. The wave action created by the rocking motion of the WAVE Bioreactor base sweeps up cells and prevents settling in the Cellbag bioreactor.

Components and materials of construction

Cellbag bioreactors are manufactured from multilayered USP Class VI plastics. The cell contact surface is an EVA/LDPE copolymer of the type routinely used for blood collection and handling of biological fluids. The outer layers are made of proprietary composites that provide flexibility, strength, and extremely low gas permeability (Table 1). Data are available to demonstrate biocompatibility. However, validation is recommended for specific applications.

GE Healthcare offers two types of bioreactor films, the original Bioclear™ 10 film and a low-antioxidant version, called Bioclear 11. Both films have the same layered structure and materials of construction, but the Bioclear 11 film is recommended for cell lines that have been found to be sensitive to certain antioxidants.

Table 1. Cellbag bioreactor components and materials

Component	Material
Bioclear 10 film	EVA/LDPE fluid contact surface provides biological compatibility, external layers provide strength and low gas permeability
Bioclear 11 film	Low antioxidant formulation with similar construction to Bioclear 10
Barbed ports	Polyethylene
Luer connections	Polypropylene
MCP connectors	Polycarbonate
MCX connectors	Polycarbonate
Tubing adapters	Polypropylene
C-Flex® tubing	Thermoplastic elastomer (medical grade)
Silicone tubing	Platinum-cured silicone
Screw cap port	Polyethylene
Internal perfusion filter	Polyethylene, polyester, polypropylene, EVA
y-connector	Polypropylene
pHOPT[1] sensor	Luminophore dye attached to a polycarbonate backing
DOOPT II[2] sensor	Luminophore disc attached to a polycarbonate backing with silicone adhesive
Tempwell	Polyurethane tubing, polypropylene plug
Vent filter	0.2 µm, acrylic housing
CLAVE™ Connector	Polycarbonate, polyester housing, silicone
ReadyMate™ Connector	Polycarbonate, polyester, silicone

[1] pHOPT = optical pH

[2] DOOPT II = optical dissolved oxygen

The standard Cellbag bioreactor comprises the following components:

- Bag film, Bioclear 10 or Bioclear 11: multilayer laminated clear plastic film for bioinert fluid contact and high mechanical strength
- Ports: allow access into and out of the bag
- Tubing, connectors, and clamps: facilitate and modulate fluid handling
- Rigid bars: allow installation onto the WAVE Bioreactor base unit
- 0.2 µm air filters: allow gas to flow in and out of the bag

Cellbag bioreactor configurations, options, and hardware accessories

Cellbag bioreactor with ReadyMate connectors

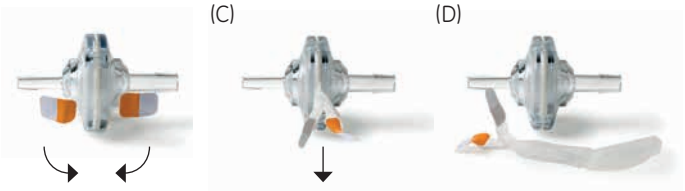
We offer standard Cellbag bioreactors of different volumes (for details, see Table 5 in the Operating specifications section) with ReadyMate disposable aseptic connectors (for details, see Table 7 and 8 in the Sizes and options section). ReadyMate genderless connections allow for simple sterile connection from the Cellbag bioreactor (Fig 3). For example, connections from the Cellbag bioreactor can be made to ULTA™ Pure HC capsule filters for sterile media filtration, to preconfigured harvest kits using ULTA Prime glass fiber prefilter, to ULTA Prime CG filters, or to any other ReadyCircuit™ assembly. ReadyMate connectors range in tubing size from 1/4 to 3/4 inch and feature TC style connectors. Any size can be connected to any other size in a few simple steps (Fig 4).

Fig 3. Cellbag bioreactor equipped with ReadyMate connectors facilitate quick aseptic connection to downstream operations.

(A)

1. Remove the shrink band, protection cap, and release the paper from the face of each ReadyMate connector.
2. Tilt the connector faces to engage the hook of one connector with the slot of the other (B). Bring the connectors together and press together until you hear an audible click.

(B) (C) (D)



3. Bring the tabs together and pull both tabs out from the connectors (C) until the protective film is completely removed (D).
4. Apply a standard BioClamp™ (E), a disposable ReadyClamp (F), or a stainless steel sanitary clamp to the connector assembly to lock it closed.

(E) (F)

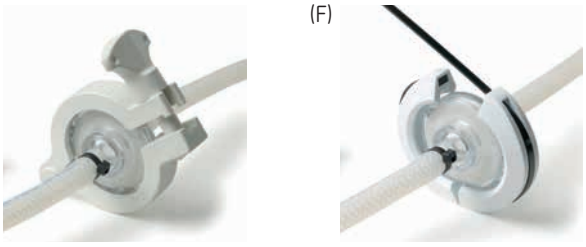


Fig 4. Connections made with ReadyMate.

Cellbag bioreactor hardware accessories

The Cellbag bioreactor can be used with one or more of the hardware accessories in Table 2.

Table 2. Hardware accessories available for use with standard Cellbag bioreactors

Hardware accessories	Use	Compatibility
Air filter heater	For use with air filters to prevent condensation accumulation	Use on the exhaust filter attached to the Cellbag bioreactor
RTD probe	Temperature probe	For use with a Tempwell

Optical sensing technologies

GE Healthcare offers sensors specifically designed to address industry needs for high accuracy and optimal process control. The optical pH (pHOPT) and DO (DOOPT II) sensors (Fig 5) are single-use "spot" sensors embedded into the bottom of the Cellbag bioreactor. Technical specifications for these are shown in Table 3 and 4. The sensors are supplied preinstalled in the sterilized Cellbag bioreactor. To measure pH and DO with these sensors, a ReadyToProcess CBCU gas mixer is required for ReadyToProcess WAVE™ 25. Specially-designed fiber-optic cables are needed to connect to the Cellbag bioreactor. pHOPT and DOOPT II modules are available for the larger WAVE Bioreactor 200 system. Both provide:

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

Fig 5. 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 3. Optical pH sensor specifications

pH measurement range	pH 4.5 to 8.5
pH control range	pH 6.0 to 8.0
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 4. 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

M*Bag mixing chambers

M*Bag mixing chambers are disposable presterilized sealed bags, which enable sterile mixing of liquids in WAVE mixer systems. They are used in various applications including warming and thawing of materials, mixing prior to fill, and so on.

Operating specifications

The Cellbag bioreactor is designed to the following specifications:

- Operating temperature range: 10°C to 50°C
- Maximum operating pressure: 0.1 bar (1.5 psig, 0.01 MPa)

Operating volumes and hardware compatibility details for Cellbag bioreactors and M*Bags are listed in Table 5 and 6, respectively.

Table 5. Operating volumes and hardware compatibility for Cellbag bioreactors

Bag size	Min.	Max.	System	Tray
1 L	50 mL	500 mL	ReadyToProcess WAVE 25	N/A
2 L	100 mL	1 L	ReadyToProcess WAVE 25	Tray 20
10 L	500 mL	5 L	ReadyToProcess WAVE 25	Tray 20
20 L	1 L	10 L	ReadyToProcess WAVE 25	Tray 20
22 L	1 L	10 L	ReadyToProcess WAVE 25	Tray 50
50 L	5 L	25 L	ReadyToProcess WAVE 25	Tray 50
100 L	5 L	50 L	WAVE Bioreactor 200	N/A
200 L	10 L	100 L	WAVE Bioreactor 200	N/A

Table 6. Operating volumes and hardware compatibility for M*Bags

Bag size	Maximum	System
20 L	15 L	Mixer 20/50 and Mixkit20
50 L	35 L	Mixer 20/50 and Mixkit50

Tube kits

Tube kits are designed for use with Cellbag bioreactors and M*Bags. TK001 is a tube kit that uses a CLAVE connector, creating an option to use multiple sampling valves on a Cellbag bioreactor. TK003 features two T-connectors to maximize the number of connection ports. The tube kits are connected to Cellbag bioreactors and M*Bags with Sterile Tube Fuser.

Regulatory conformance

Sterility and endotoxin

Cellbag bioreactors are sterilized by gamma irradiation at 27.5 to 40 kGy. Lot release requires less than 0.125 EU endotoxin/mL detected per bag.

Biocompatability

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

- ISO 10993-4: Hemolysis study *in vivo*, extraction method
- 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

Sizes and options

Detailed information on standard sizes and options available for Cellbag bioreactors is listed in Tables 7 and 8. Cellbag bioreactors can also be customized to suit your specific cell culture process needs.

Table 7. Cellbag bioreactor sizes and options, Bioclear 10 film

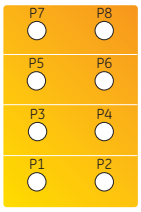
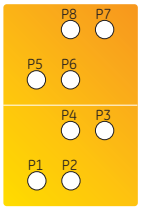
Cellbag	Part number	Ports	Description	Ports	Description
Cellbag 500 mL, Bioclear 10 film	CB500ML10-01	1, 3, 5, 7 2, 4, 6, 8	Air inlet filter 3/16 in × 3/8 in × 2 in silicone, needleless sampling		
					
Cellbag 1 L, Bioclear 10 film	CB0001L10-01	1, 5 2, 6 3, 7 4, 8	1/8 in × 1/4 in × 39 in C-Flex, female Luer 3/16 in × 3/8 in × 2 in silicone, needleless sampling Air outlet filter, check valve Air inlet filter		
					

Table 7. Cellbag bioreactor sizes and options, Bioclear 10 film (continued)

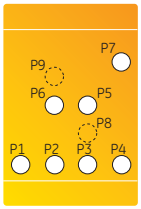
Cellbag	Part number	Ports	Description	Ports	Description
Cellbag 2 L, Bioclear 10 film 	CB0002L10-01	1	1/8 in × 1/4 in × 39 in C-Flex, female Luer	5	Air inlet filter
		2	N/A	6	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	7–9	N/A
		4	N/A		
	CB0002L10-02, Oxywell2 version	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	Oxywell2, for DOOPT probe	8, 9	N/A
	CB0002L10-03, screwcap version	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	Oxywell2, for DOOPT probe	7	3/16 in × 3/8 in × 2 in silicone, female Luer
		4	Screwcap, 38/400	8, 9	N/A
	CB0002L10-04, perfusion version	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	Y-connection attached to perfusion filter	8, 9	N/A
		4	Oxywell2, for DOOPT probe	Int.	Perfusion filter
		5	Air inlet filter		
	CB0002L10-11, pHOPT version	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	pHOPT sensor body - bottom of bag
		4	Oxywell2, for DOOPT probe	9	N/A
		5	Air inlet filter		
	CB0002L10-13, pHOPT and screwcap version	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	Oxywell2, for DOOPT probe	8	pHOPT sensor body - bottom of bag
		4	Screwcap, 38/400	9	N/A
		5	Air inlet filter		
	CB0002L10-14, pHOPT and perfusion version	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	Y-connection attached to perfusion filter	8	pHOPT sensor body - bottom of bag
		4	Oxywell2, for DOOPT probe	9	N/A
		5	Air inlet filter		
	CB0002L10-21, ReadyMate version	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	Oxywell2, for DOOPT probe	8, 9	N/A
	CB0002L10-31, DOOPT II and pHOPT version	1	¼ in × 7/16 in × 39 in C-Flex, ReadyMate	5	Air inlet filter
		2	¼ in × 7/16 in × 39 in C-Flex, ReadyMate	6	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	7	N/A
		4	1/8 in × ¼ in × 2 in C-Flex, y-connector,	8	pHOPT sensor body – bottom of bag
			1/8 in × ¼ in × 18 in C-Flex, female Luer	9	DOOPT II sensor body – bottom of bag
	CB0002L10-33, DOOPT II, pHOPT and screwcap version	1	¼ in × 7/16 in × 39 in C-Flex, ReadyMate	6	Air outlet filter, check valve
		2	¼ in × 7/16 in × 39 in C-Flex, ReadyMate	7	1/8 in × ¼ in × 2 in C-Flex, y-connector,
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling		1/8 in × ¼ in × 18 in C-Flex, female Luer
		4	Screwcap, 38/400	8	pHOPT sensor body – bottom of bag
		5	Air inlet filter	9	DOOPT II sensor body – bottom of bag
	CB0002L10-34, DOOPT II, pHOPT and perfusion version	1	¼ in × 7/16 in × 39 in C-Flex, ReadyMate	6	Air outlet filter, check valve
		2	¼ in × 7/16 in × 39 in C-Flex, ReadyMate	7	1/8 in × ¼ in × 2 in C-Flex, y-connector,
		3	Y-connection attached to perfusion filter		1/8 in × ¼ in × 18 in C-Flex, female Luer
		4	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	pHOPT sensor body – bottom of bag
		5	Air inlet filter	9	DOOPT II sensor body – bottom of bag

Table 7. Cellbag bioreactor sizes and options, Bioclear 10 film (continued)

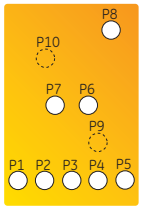
Cellbag	Part number	Ports	Description	Ports	Description
Cellbag 10 L, Bioclear 10 film 	CB0010L10-01	1	1/4 in × 7/16 in × 39 in C-Flex, female MPC	6	Air inlet filter
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	7	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8–10	N/A
		4, 5	N/A		
	CB0010L10-02, Oxywell2 version	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	Oxywell2, for DOOPT probe	9, 10	N/A
		5	3/16 in × 3/8 in × 2 in silicone, female Luer		
	CB0010L10-03, screwcap version	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	Oxywell2, for DOOPT probe	9, 10	N/A
		5	Screwcap, 38/400		
	CB0010L10-04, perfusion version	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	Oxywell2, for DOOPT probe	8	3/16 in × 3/8 in × 2 in silicone, female Luer
		4	Y-connection attached to perfusion filter	9, 10	N/A
		5	3/16 in × 3/8 in × 2 in silicone, female Luer	Int.	Perfusion filter
	CB0010L10-11, pHOPT version	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	Oxywell2, for DOOPT probe	9	pHOPT sensor body - bottom of bag
		5	3/16 in × 3/8 in × 2 in silicone, female Luer	10	N/A
	CB0010L10-13, pHOPT and screwcap version	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	Oxywell2, for DOOPT probe	9	pHOPT sensor body - bottom of bag
		5	Screwcap, 38/400	10	N/A
	CB0010L10-14, pHOPT and perfusion version	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	Oxywell2, for DOOPT probe	8	3/16 in × 3/8 in × 2 in silicone, female Luer
		4	Y-connection attached to perfusion filter	9	pHOPT sensor body - bottom of bag
		5	3/16 in × 3/8 in × 2 in silicone, female Luer	10	N/A
	CB0010L10-21, ReadyMate version	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	Oxywell2, for DOOPT probe	9, 10	N/A
		5	3/16 in × 3/8 in × 2 in silicone, female Luer		
	CB0010L10-31, DOOPT II and pHOPT version	1, 2	¼ in × 7/16 in × 39 in C-Flex, ReadyMate	6	Air inlet filter
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	7	Air outlet filter, check valve
		4	1/8 in × ¼ in × 2 in C-Flex, y-connector	8	N/A
			1/8 in × ¼ in × 18 in C-Flex, female Luer	9	pHOPT sensor body – bottom of bag
		5	¼ in × 7/16 in × 39 in C-Flex, female MPC	10	DOOPT II sensor body – bottom of bag
	CB0010L10-33, DOOPT II, pHOPT and screwcap version	1, 2	¼ 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 × ¼ in × 2 in C-Flex, y-connector, 1/8 in × ¼ in × 18 in C-Flex, female Luer
		4	¼ in × 7/16 in × 39 in C-Flex, female MPC		
		5	Screwcap, 38/400	9	pHOPT sensor body – bottom of bag
		6	Air inlet filter	10	DOOPT II sensor body – bottom of bag
	CB0010L10-34, DOOPT II, pHOPT and perfusion version	1, 2	¼ 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 × ¼ in × 2 in C-Flex, y-connector, 1/8 in × ¼ in × 18 in C-Flex, female Luer
		4	Y-connection attached to perfusion filter		
		5	¼ in × 7/16 in × 39 in C-Flex, female MPC	9	pHOPT sensor body – bottom of bag
		6	Air inlet filter	10	DOOPT II sensor body – bottom of bag

Table 7. Cellbag bioreactor sizes and options, Bioclear 10 film (continued)

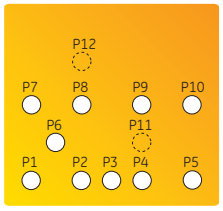
Cellbag	Part number	Ports	Description	Ports	Description
Cellbag 20 L, Bioclear 10 film 	CB0020L10-01	1	1/4 in × 7/16 in × 39 in C-Flex, female MPC	5–7	N/A
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	8	Air outlet filter, check valve
		3	N/A	9	Air inlet filter
		4	3/16 in × 3/8 in × 2 in silicone, needleless sampling	10–12	N/A
	CB0020L10-02, Oxywell2 version	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	Oxywell2, for DOOPT probe
		5	N/A	11, 12	N/A
		6	3/16 in × 3/8 in × 2 in silicone, female Luer		
	CB0020L10-03, screwcap version	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	Oxywell2, for DOOPT probe
		5	Screwcap, 38/400	11, 12	N/A
		6	3/16 in × 3/8 in × 2 in silicone, female Luer		
	CB0020L10-04, perfusion version	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	Oxywell2, for DOOPT probe	10	Y-connection attached to perfusion filter
		5	N/A	11, 12	N/A
		6	3/16 in × 3/8 in × 2 in silicone, female Luer	Int.	Perfusion filter
	CB0020L10-11, pHOPT version	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	Oxywell2, for DOOPT probe
		5	N/A	11	pHOPT sensor body - bottom of bag
		6	3/16 in × 3/8 in × 2 in silicone, female Luer	12	N/A
	CB0020L10-13, pHOPT and screwcap version	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	Oxywell2, for DOOPT probe
		5	Screwcap, 38/400	11	pHOPT sensor body - bottom of bag
		6	3/16 in × 3/8 in × 2 in silicone, female Luer	12	N/A
	CB0020L10-14, pHOPT and perfusion version	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	Oxywell2, for DOOPT probe	10	Y-connection attached to perfusion filter
		5	N/A	11	pHOPT sensor body - bottom of bag
		6	3/16 in × 3/8 in × 2 in silicone, female Luer	12	N/A
	CB0020L10-21, ReadyMate version	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	Oxywell2, for DOOPT probe
		5	N/A	11, 12	N/A
		6	3/16 in × 3/8 in × 2 in silicone, female Luer		
	CB0020L10-31, DOOPT II and pHOPT version	1, 2	3/8 in × 5/8 in × 39 in C-Flex, ReadyMate	7	3/16 × 3/8 × 18 in silicone, female Luer
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	Air outlet filter, check valve
		4	1/8 in × ¼ in × 2 in C-Flex, y-connector, 1/8 in × ¼ in × 18 in C-Flex, female Luer	9	Air inlet filter
				10	N/A
		5	3/8 in × 5/8 in × 39 in C-Flex, female MPC	11	pHOPT sensor body – bottom of bag
		6	N/A	12	DOOPT II sensor body – bottom of bag
	CB0020L10-33, DOOPT II, pHOPT and screwcap version	1, 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 × ¼ in × 2 in C-Flex, y-connector, 1/8 in × ¼ in × 18 in C-Flex, female Luer
		5	Screwcap, 38/400		
		6	N/A	11	pHOPT sensor body – bottom of bag
		7	3/16 × 3/8 × 18 in silicone, female Luer	12	DOOPT II sensor body – bottom of bag
	CB0020L10-34, DOOPT II, pHOPT and perfusion version	1, 2	3/8 in × 5/8 in × 39 in C-Flex, ReadyMate	7	3/16 × 3/8 × 18 in silicone, female Luer
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	Air outlet filter, check valve
		4	3/8 in × 5/8 in × 39 in C-Flex, female MPC	9	Air inlet filter
		5	1/8 in × ¼ in × 2 in C-Flex, y-connector, 1/8 in × ¼ in × 18 in C-Flex, female Luer	10	Y-connection attached to perfusion filter
				11	pHOPT sensor body – bottom of bag
		6	N/A	12	DOOPT II sensor body – bottom of bag

Table 7. Cellbag bioreactor sizes and options, Bioclear 10 film (continued)

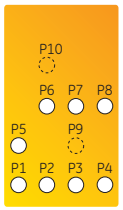
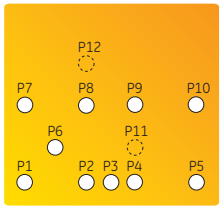
Cellbag	Part number	Ports	Description	Ports	Description
Cellbag 22 L, Bioclear 10 film 	CB0022L10-02, Oxywell2 version	1	1/4 in × 7/16 in × 39 in C-Flex, female MPC	6	Air outlet filter, check valve
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	7	Air inlet filter
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	Oxywell2, for DOOPT probe
		4	3/16 in × 3/8 in × 2 in silicone, female Luer	9, 10	N/A
		5	Tempwell, for RTD probe		
	CB0022L10-11, pHOPT version	1	1/4 in × 7/16 in × 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	Oxywell2, for DOOPT probe
		4	3/16 in × 3/8 in × 2 in silicone, female Luer	9	pHOPT sensor body - bottom of bag
		5	Tempwell, for RTD probe	10	N/A
	CB0022L10-21, ReadyMate version	1	1/4 in × 7/16 in × 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	Oxywell2, for DOOPT probe
		4	3/16 in × 3/8 in × 2 in silicone, female Luer	9, 10	N/A
		5	Tempwell, for RTD probe		
	CB0022L10-31, DOOPT II and pHOPT version	1, 2	3/8 in × 5/8 in × 39 in C-Flex, ReadyMate	6	Air inlet filter
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	7	Air outlet filter, check valve
		4	1/8 in × ¼ in × 2 in C-Flex, y-connector, 1/8 in × ¼ in × 18 in C-Flex, female Luer	8	3/8 in × 5/8 in × 39 in C-Flex, female MPC
				9	pHOPT sensor body – bottom of bag
		5	Tempwell, for RTD probe	10	DOOPT II sensor body – bottom of bag
Cellbag 50 L, Bioclear 10 film 	CB0050L10-01	1	1/4 in × 7/16 in × 39 in C-Flex, female MPC	8	Air outlet filter, check valve
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	9	Air inlet filter
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	10–12	N/A
		4–7	N/A		
	CB0050L10-02, Oxywell2 version	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	Oxywell2, for DOOPT probe
		5	N/A	11, 12	N/A
		6	3/16 in × 3/8 in × 2 in silicone, female Luer		
	CB0050L10-04, perfusion version	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	Oxywell2, for DOOPT probe	10	Y-connection attached to perfusion filter
		5	N/A	11, 12	N/A
		6	3/16 in × 3/8 in × 2 in silicone, female Luer	Int.	Perfusion filter
	CB0050L10-11, pHOPT version	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	Oxywell2, for DOOPT probe
		5	N/A	11	pHOPT sensor body - bottom of bag
		6	3/16 in × 3/8 in × 2 in silicone, female Luer	12	N/A
	CB0050L10-14, pHOPT and perfusion version	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	Oxywell2, for DOOPT probe	10	Y-connection attached to perfusion filter
		5	N/A	11	pHOPT sensor body - bottom of bag
		6	3/16 in × 3/8 in × 2 in silicone, female Luer	12	N/A
	CB0050L10-21, ReadyMate version	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	Oxywell2, for DOOPT probe
		5	3/8 in × 5/8 in × 39 in C-Flex, ReadyMate	11, 12	N/A
		6	3/16 in × 3/8 in × 2 in silicone, female Luer		
	CB0050L10-31, DOOPT II and pHOPT version	1, 2	3/8 in × 5/8 in × 39 in C-Flex, ReadyMate	7	3/16 × 3/8 × 18 in silicone, female Luer
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	Air outlet filter, check valve
		4	1/8 in × ¼ in × 2 in C-Flex, y-connector, 1/8 in × ¼ in × 18 in C-Flex, female Luer	9	Air inlet filter
				10	N/A
		5	3/8 in × 5/8 in × 39 in C-Flex, female MPC	11	pHOPT sensor body – bottom of bag
		6	N/A	12	DOOPT II sensor body – bottom of bag

Table 7. Cellbag bioreactor sizes and options, Bioclear 10 film (continued)

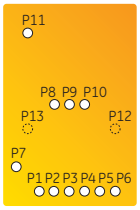
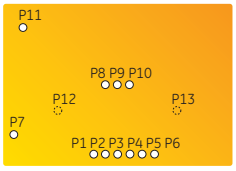
Cellbag	Part number	Ports	Description	Ports	Description
Cellbag 100 L, Bioclear 10 film 	CB0100L10-02, Oxywell2 version	1	Oxywell2, for DOOPT probe	7	Tempwell, for RTD probe
		2	3/8 in × 5/8 in × 78 in C-Flex, male MPC	8	Air inlet filter
		3	3/16 in × 3/8 in × 2 in silicone, female Luer	9	Air outlet filter, wide bore, check valve
		4	3/16 in × 3/8 in × 2 in silicone, needleless sampling	10	Air outlet filter, wide bore, check valve
		5	1/4 in × 7/16 in × 78 in C-Flex, male MPC	11	3/8 in × 5/8 in × 78 in C-Flex, male MPC, silicone diptube
		6	1/8 in × 1/4 in × 78 in C-Flex, female Luer	12, 13	N/A
	CB0100L10-11, pHOPT version	1	Oxywell2, for DOOPT probe	7	Tempwell, for RTD probe
		2	3/8 in × 5/8 in × 78 in C-Flex, male MPC	8	Air inlet filter
		3	3/16 in × 3/8 in × 2 in silicone, female Luer	9	Air outlet filter, wide bore, check valve
		4	3/16 in × 3/8 in × 2 in silicone, needleless sampling	10	Air outlet filter, wide bore, check valve
		5	1/4 in × 7/16 in × 78 in C-Flex, male MPC	11	3/8 in × 5/8 in × 78 in C-Flex, male MPC, silicone diptube
		6	1/8 in × 1/4 in × 78 in C-Flex, female Luer	12	pHOPT sensor body - bottom of bag
				13	N/A
	CB0100L10-31, DOOPT II and pHOPT version	1	3/8 in × 5/8 in × 78 in C-Flex, ReadyMate	7	Tempwell, for RTD probe
		2	3/8 in × 5/8 in × 78 in C-Flex, male MPC	8	Air inlet filter
		3	1/8 in × ¼ in × 2 in C-Flex, Y-connector	9	Air outlet filter, wide bore, check valve
		4	3/16 in × 3/8 in × 2 in Silicone, needleless sampling	10	Air outlet filter, wide bore, check valve
		5	¼ in × 7/16 in × 78 in, C-Flex, male MPC	11	3/8 in × 5/8 in × 78 in C-Flex, male MPC, silicone diptube
		6	1/8 in × ¼ in × 78 in C-Flex, female Luer	12	pHOPT sensor body – bottom of bag
				13	DOOPT II sensor body – bottom of bag
Cellbag 200 L, Bioclear 10 film 	CB0200L10-02, Oxywell2 version	1	Oxywell2, for DOOPT probe	7	Tempwell, for RTD probe
		2	3/8 in × 5/8 in × 78 in C-Flex, male MPC	8	Air inlet filter
		3	3/16 in × 3/8 in × 2 in silicone, female Luer	9	Air outlet filter, wide bore, check valve
		4	3/16 in × 3/8 in × 2 in silicone, needleless sampling	10	Air outlet filter, wide bore, check valve
		5	1/4 in × 7/16 in × 78 in C-Flex, male MPC	11	3/8 in × 5/8 in × 78 in C-Flex, male MPC, silicone diptube
		6	1/8 in × 1/4 in × 78 in C-Flex, female Luer	12, 13	N/A
	CB0200L10-11, pHOPT version	1	Oxywell2, for DOOPT probe	7	Tempwell, for RTD probe
		2	3/8 in × 5/8 in × 78 in C-Flex, male MPC	8	Air inlet filter
		3	3/16 in × 3/8 in × 2 in silicone, female Luer	9	Air outlet filter, wide bore, check valve
		4	3/16 in × 3/8 in × 2 in silicone, needleless sampling	10	Air outlet filter, wide bore, check valve
		5	1/4 in × 7/16 in × 78 in C-Flex, male MPC	11	3/8 in × 5/8 in × 78 in C-Flex, male MPC, silicone diptube
		6	1/8 in × 1/4 in × 78 in C-Flex, female Luer	12	pHOPT sensor body - bottom of bag
				13	N/A
	CB0200L10-31, DOOPT II and pHOPT version	1	3/8 in × 5/8 in × 78 in C-Flex, ReadyMate	7	Tempwell, for RTD probe
		2	3/8 in × 5/8 in × 78 in C-Flex, male MPC	8	Air inlet filter
		3	1/8 in × ¼ in × 2 in C-Flex, Y-connector	9	Air outlet filter, wide bore, check valve
		4	3/16 in × 3/8 in × 2 in Silicone, needleless sampling	10	Air outlet filter, wide bore, check valve
		5	¼ in × 7/16 in × 78 in, C-Flex, male MPC	11	3/8 in × 5/8 in × 78 in C-Flex, male MPC, silicone diptube
		6	1/8 in × ¼ in × 78 in C-Flex, female Luer	12	pHOPT sensor body – bottom of bag
				13	DOOPT II sensor body – bottom of bag

Table 8. Cellbag bioreactor sizes and options, Bioclear 11 film

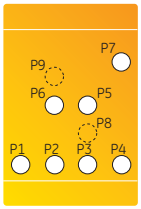
Cellbag	Part number	Ports	Description	Ports	Description
Cellbag 2 L, Bioclear 11 film 	CB0002L11-01	1	1/8 in × 1/4 in × 39 in C-Flex, female Luer	5	Air inlet filter
		2	N/A	6	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	7–9	N/A
		4	N/A		
	CB0002L11-02, Oxywell2 version	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	Oxywell2, for DOOPT probe	8, 9	N/A
	CB0002L11-03, screwcap version	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	Oxywell2, for DOOPT probe	7	3/16 in × 3/8 in × 2 in silicone, female Luer
		4	Screwcap, 38/400	8, 9	N/A
	CB0002L11-04, perfusion version	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	Y-connection attached to perfusion filter	8, 9	N/A
		4	Oxywell2, for DOOPT probe	Int.	Perfusion filter
		5	Air inlet filter		
	CB0002L11-11, pHOPT version	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	pHOPT sensor body - bottom of bag
		4	Oxywell2, for DOOPT probe	9	N/A
		5	Air inlet filter		
	CB0002L11-21, ReadyMate version	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	Oxywell2, for DOOPT probe	8, 9	N/A
	CB0002L11-31, DOOPT II and pHOPT version	1	¼ in × 7/16 in × 39 in C-Flex, ReadyMate	5	Air inlet filter
		2	¼ in × 7/16 in × 39 in C-Flex, ReadyMate	6	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	7	N/A
		4	1/8 in × ¼ in × 2 in C-Flex, y-connector,	8	pHOPT sensor body – bottom of bag
			1/8 in × ¼ in × 18 in C-Flex, female Luer	9	DOOPT II sensor body – bottom of bag
	CB0002L11-33, DOOPT II, pHOPT and screwcap version	1	¼ in × 7/16 in × 39 in C-Flex, ReadyMate	6	Air outlet filter, check valve
		2	¼ in × 7/16 in × 39 in C-Flex, ReadyMate	7	1/8 in × ¼ in × 2 in C-Flex, y-connector, 1/8 in × ¼ in × 18 in C-Flex, female Luer
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling		
		4	Screwcap, 38/400	8	pHOPT sensor body – bottom of bag
		5	Air inlet filter	9	DOOPT II sensor body – bottom of bag
	CB0002L11-34, DOOPT II, pHOPT and perfusion version	1	¼ in × 7/16 in × 39 in C-Flex, ReadyMate	6	Air outlet filter, check valve
		2	¼ in × 7/16 in × 39 in C-Flex, ReadyMate	7	1/8 in × ¼ in × 2 in C-Flex, y-connector, 1/8 in × ¼ in × 18 in C-Flex, female Luer
		3	Y-connection attached to perfusion filter		
		4	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	pHOPT sensor body – bottom of bag
		5	Air inlet filter	9	DOOPT II sensor body – bottom of bag

Table 8. Cellbag bioreactor sizes and options, Bioclear 11 film (continued)

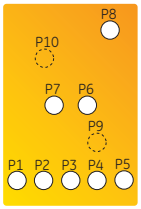
Cellbag	Part number	Ports	Description	Ports	Description
Cellbag 10 L, Bioclear 11 film 	CB0010L11-01	1	1/4 in × 7/16 in × 39 in C-Flex, female MPC	6	Air inlet filter
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	7	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8–10	N/A
		4, 5	N/A		
	CB0010L11-02, Oxywell2 version	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	Oxywell2, for DOOPT probe	9, 10	N/A
		5	3/16 in × 3/8 in × 2 in silicone, female Luer		
	CB0010L11-03, screwcap version	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	Oxywell2, for DOOPT probe	9, 10	N/A
		5	Screwcap, 38/400		
	CB0010L11-04, perfusion version	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	Oxywell2, for DOOPT probe	8	3/16 in × 3/8 in × 2 in silicone, female Luer
		4	Y-connection attached to perfusion filter	9, 10	N/A
		5	3/16 in × 3/8 in × 2 in silicone, female Luer	Int.	Perfusion filter
	CB0010L11-11, pHOPT version	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	Oxywell2, for DOOPT probe	9	pHOPT sensor body - bottom of bag
		5	3/16 in × 3/8 in × 2 in silicone, female Luer	10	N/A
	CB0010L11-21, ReadyMate version	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	Oxywell2, for DOOPT probe	9, 10	N/A
		5	3/16 in × 3/8 in × 2 in silicone, female Luer		
	CB0010L11-31, DOOPT II and pHOPT version	1, 2	¼ in × 7/16 in × 39 in C-Flex, ReadyMate	6	Air inlet filter
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	7	Air outlet filter, check valve
		4	1/8 in × ¼ in × 2 in C-Flex, y-connector	8	N/A
			1/8 in × ¼ in × 18 in C-Flex, female Luer	9	pHOPT sensor body – bottom of bag
		5	¼ in × 7/16 in × 39 in C-Flex, female MPC	10	DOOPT II sensor body – bottom of bag
	CB0010L11-33, DOOPT II, pHOPT and screwcap version	1, 2	¼ 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 × ¼ in × 2 in C-Flex, y-connector, 1/8 in × ¼ in × 18 in C-Flex, female Luer
		4	¼ in × 7/16 in × 39 in C-Flex, female MPC		
		5	Screwcap, 38/400	9	pHOPT sensor body – bottom of bag
		6	Air inlet filter	10	DOOPT II sensor body – bottom of bag
	CB0010L11-34, DOOPT II, pHOPT and perfusion version	1, 2	¼ 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 × ¼ in × 2 in C-Flex, y-connector, 1/8 in × ¼ in × 18 in C-Flex, female Luer
		4	Y-connection attached to perfusion filter		
		5	¼ in × 7/16 in × 39 in C-Flex, female MPC	9	pHOPT sensor body – bottom of bag
		6	Air inlet filter	10	DOOPT II sensor body – bottom of bag

Table 8. Cellbag bioreactor sizes and options, Bioclear 11 film (continued)

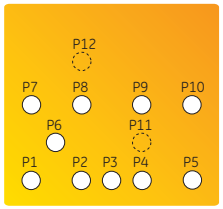
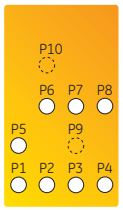
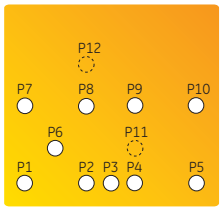
Cellbag	Part number	Ports	Description	Ports	Description
Cellbag 20 L, Bioclear 11 film 	CB0020L11-01	1	1/4 in × 7/16 in × 39 in C-Flex, female MPC	5–7	N/A
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	8	Air outlet filter, check valve
		3	N/A	9	Air inlet filter
		4	3/16 in × 3/8 in × 2 in silicone, needleless sampling	10–12	N/A
	CB0020L11-02, Oxywell2 version	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	Oxywell2, for DOOPT probe
		5	N/A	11, 12	N/A
		6	3/16 in × 3/8 in × 2 in silicone, female Luer		
	CB0020L11-03, screwcap version	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	Oxywell2, for DOOPT probe
		5	Screwcap, 38/400	11, 12	N/A
		6	3/16 in × 3/8 in × 2 in silicone, female Luer		
	CB0020L11-04, perfusion version	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	Oxywell2, for DOOPT probe	10	Y-connection attached to perfusion filter
		5	N/A	11, 12	N/A
		6	3/16 in × 3/8 in × 2 in silicone, female Luer	Int.	Perfusion filter
	CB0020L11-11, pHOPT version	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	Oxywell2, for DOOPT probe
		5	N/A	11	pHOPT sensor body - bottom of bag
		6	3/16 in × 3/8 in × 2 in silicone, female Luer	12	N/A
	CB0020L11-21, ReadyMate version	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	Oxywell2, for DOOPT probe
		5	N/A	11, 12	N/A
		6	3/16 in × 3/8 in × 2 in silicone, female Luer		
	CB0020L11-31, DOOPT II and pHOPT version	1, 2	3/8 in × 5/8 in × 39 in C-Flex, ReadyMate	7	3/16 × 3/8 × 18 in silicone, female Luer
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	Air outlet filter, check valve
		4	1/8 in × ¼ in × 2 in C-Flex, y-connector, 1/8 in × ¼ in × 18 in C-Flex, female Luer	9 10	Air inlet filter N/A
		5	3/8 in × 5/8 in × 39 in C-Flex, female MPC	11	pHOPT sensor body – bottom of bag
		6	N/A	12	DOOPT II sensor body – bottom of bag
	CB0020L11-33, DOOPT II, pHOPT and screwcap version	1, 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 × ¼ in × 2 in C-Flex, y-connector, 1/8 in × ¼ in × 18 in C-Flex, female Luer
		5	Screwcap, 38/400		
		6	N/A	11	pHOPT sensor body – bottom of bag
		7	3/16 × 3/8 × 18 in silicone, female Luer	12	DOOPT II sensor body – bottom of bag
	CB0020L11-34, DOOPT II, pHOPT and perfusion version	1, 2	3/8 in × 5/8 in × 39 in C-Flex, ReadyMate	7	3/16 × 3/8 × 18 in silicone, female Luer
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	Air outlet filter, check valve
		4	3/8 in × 5/8 in × 39 in C-Flex, female MPC	9	Air inlet filter
		5	1/8 in × ¼ in × 2 in C-Flex, y-connector, 1/8 in × ¼ in × 18 in C-Flex, female Luer	10 11	Y-connection attached to perfusion filter pHOPT sensor body – bottom of bag
		6	N/A	12	DOOPT II sensor body – bottom of bag

Table 8. Cellbag bioreactor sizes and options, Bioclear 11 film (continued)

Cellbag	Part number	Ports	Description	Ports	Description
Cellbag 22 L, Bioclear 11 film 	CB0022L11-01	1	1/4 in × 7/16 in × 39 in C-Flex, female MPC	5	Tempwell, for RTD probe
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	6	Air outlet filter, check valve
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	7	Air inlet filter
		4	N/A	8–10	N/A
	CB0022L11-02, Oxywell2 version	1	1/4 in × 7/16 in × 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	Oxywell2, for DOOPT probe
		4	3/16 in × 3/8 in × 2 in silicone, female Luer	9, 10	N/A
		5	Tempwell, for RTD probe		
	CB0022L11-11, pHOPT version	1	1/4 in × 7/16 in × 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	Oxywell2, for DOOPT probe
		4	3/16 in × 3/8 in × 2 in silicone, female Luer	9	pHOPT sensor body - bottom of bag
		5	Tempwell, for RTD probe	10	N/A
	CB0022L11-21, ReadyMate version	1	1/4 in × 7/16 in × 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	Oxywell2, for DOOPT probe
		4	3/16 in × 3/8 in × 2 in silicone, female Luer	9, 10	N/A
		5	Tempwell, for RTD probe		
	CB0022L11-31, DOOPT II and pHOPT version	1, 2	3/8 in × 5/8 in × 39 in C-Flex, ReadyMate	6	Air inlet filter
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	7	Air outlet filter, check valve
		4	1/8 in × ¼ in × 2 in C-Flex, y-connector, 1/8 in × ¼ in × 18 in C-Flex, female Luer	8	3/8 in × 5/8 in × 39 in C-Flex, female MPC
				9	pHOPT sensor body – bottom of bag
		5	Tempwell, for RTD probe	10	DOOPT II sensor body – bottom of bag
Cellbag 50 L, Bioclear 11 film 	CB0050L11-01	1	1/4 in × 7/16 in × 39 in C-Flex, female MPC	8	Air outlet filter, check valve
		2	1/8 in × 1/4 in × 39 in C-Flex, female Luer	9	Air inlet filter
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	10–12	N/A
		4–7	N/A		
	CB0050L11-02, Oxywell2 version	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	Oxywell2, for DOOPT probe
		5	N/A	11, 12	N/A
		6	3/16 in × 3/8 in × 2 in silicone, female Luer		
	CB0050L11-11, pHOPT version	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	Oxywell2, for DOOPT probe
		5	N/A	11	pHOPT sensor body - bottom of bag
		6	3/16 in × 3/8 in × 2 in silicone, female Luer	12	N/A
	CB0050L11-21, ReadyMate version	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	Oxywell2, for DOOPT probe
		5	3/8 in × 5/8 in × 39 in C-Flex, ReadyMate	11, 12	N/A
		6	3/16 in × 3/8 in × 2 in silicone, female Luer		
	CB0050L11-31, DOOPT II and pHOPT version	1, 2	3/8 in × 5/8 in × 39 in C-Flex, ReadyMate	7	3/16 × 3/8 × 18 in silicone, female Luer
		3	3/16 in × 3/8 in × 2 in silicone, needleless sampling	8	Air outlet filter, check valve
		4	1/8 in × ¼ in × 2 in C-Flex, y-connector, 1/8 in × ¼ in × 18 in C-Flex, female Luer	9	Air inlet filter
				10	N/A
		5	3/8 in × 5/8 in × 39 in C-Flex, female MPC	11	pHOPT sensor body – bottom of bag
		6	N/A	12	DOOPT II sensor body – bottom of bag

Ordering information

Product	Version	Quantity	Part number	Code number
Cellbag bioreactor, Bioclear 10 film				
Cellbag 500 mL	Basic	1	CB500ML10-01	28-4124-11
Cellbag 1 L	Basic	1	CB0001L10-01	28-4122-68
Cellbag 2 L	Basic	1	CB0002L10-01	28-4122-69
Cellbag 2 L	Oxywell2	1	CB0002L10-02	28-4122-70
Cellbag 2 L	screwcap	1	CB0002L10-03	28-4122-71
Cellbag 2 L	perfusion	1	CB0002L10-04	28-4123-42
Cellbag 2 L	pHOPT	1	CB0002L10-11	28-9840-74
Cellbag 2 L	pHOPT and screwcap	1	CB0002L10-13	29-0123-53
Cellbag 2 L	pHOPT and perfusion	1	CB0002L10-14	29-0123-55
Cellbag 2 L	ReadyMate	1	CB0002L10-21	28-4130-16
Cellbag 2 L	DOOPT II and pHOPT	1	CB0002L10-31	29-0152-12
Cellbag 2 L	DOOPT II, pHOPT and screwcap	1	CB0002L10-33	29-0153-07
Cellbag 2 L	DOOPT II, pHOPT and perfusion	1	CB0002L10-34	29-0153-08
Cellbag 10 L	Basic	1	CB0010L10-01	28-4122-78
Cellbag 10 L	Oxywell2	1	CB0010L10-02	28-4122-79
Cellbag 10 L	screwcap	1	CB0010L10-03	28-4122-80
Cellbag 10 L	perfusion	1	CB0010L10-04	28-4123-54
Cellbag 10 L	pHOPT	1	CB0010L10-11	28-9840-79
Cellbag 10 L	pHOPT and screwcap	1	CB0010L10-13	29-0123-57
Cellbag 10 L	pHOPT and perfusion	1	CB0010L10-14	29-0123-60
Cellbag 10 L	ReadyMate	1	CB0010L10-21	28-4130-17
Cellbag 10 L	DOOPT II and pHOPT	1	CB0010L10-31	29-0152-13
Cellbag 10 L	DOOPT II, pHOPT and screwcap	1	CB0010L10-33	29-0153-09
Cellbag 10 L	DOOPT II, pHOPT and perfusion	1	CB0010L10-34	29-0153-12
Cellbag 20 L	Basic	1	CB0020L10-01	28-4122-86
Cellbag 20 L	Oxywell2	1	CB0020L10-02	28-4122-87
Cellbag 20 L	screwcap	1	CB0020L10-03	28-4122-88
Cellbag 20 L	perfusion	1	CB0020L10-04	28-4123-59
Cellbag 20 L	pHOPT version	1	CB0020L10-11	28-9840-80
Cellbag 20 L	pHOPT and screwcap	1	CB0020L10-13	29-0124-55
Cellbag 20 L	pHOPT and perfusion	1	CB0020L10-14	29-0124-60
Cellbag 20 L	ReadyMate	1	CB0020L10-21	28-4130-18
Cellbag 20 L	DOOPT II and pHOPT	1	CB0020L10-31	29-0152-14
Cellbag 20 L	DOOPT II, pHOPT and screwcap	1	CB0020L10-33	29-0153-13
Cellbag 20 L	DOOPT II, pHOPT and perfusion	1	CB0020L10-34	29-0153-15
Cellbag 22 L	Oxywell2	1	CB0022L10-02	28-4123-01
Cellbag 22 L	pHOPT	1	CB0022L10-11	28-9840-89
Cellbag 22 L	ReadyMate	1	CB0022L10-21	28-4130-19
Cellbag 22 L	DOOPT II and pHOPT	1	CB0022L10-31	29-0152-15
Cellbag 50 L	Basic	1	CB0050L10-01	28-4123-04
Cellbag 50 L	Oxywell2	1	CB0050L10-02	28-4123-05
Cellbag 50 L	perfusion	1	CB0050L10-04	28-4123-83
Cellbag 50 L	pHOPT	1	CB0050L10-11	28-9840-90
Cellbag 50 L	pHOPT and perfusion	1	CB0050L10-14	29-0124-70
Cellbag 50 L	ReadyMate	1	CB0050L10-21	28-4130-20
Cellbag 50 L	DOOPT II and pHOPT	1	CB0050L10-31	29-0152-16
Cellbag 100 L	Oxywell2	1	CB0100L10-02	28-4123-97
Cellbag 100 L	pHOPT	1	CB0100L10-11	28-9840-91
Cellbag 100 L	DOOPT II and pHOPT	1	CB0100L10-31	29-0189-06
Cellbag 200 L	Oxywell2	1	CB0200L10-02	28-4123-99
Cellbag 200 L	pHOPT	1	CB0200L10-11	28-9840-92
Cellbag 200 L	DOOPT II and pHOPT	1	CB0200L10-31	29-0189-07

Product	Version	Quantity	Part number	Code number
Cellbag bioreactor, Bioclear 11 film				
Cellbag 2 L	Basic	1	CB0002L11-01	29-0905-53
Cellbag 2 L	Oxywell2	1	CB0002L11-02	29-0913-39
Cellbag 2 L	screwcap	1	CB0002L11-03	29-0913-54
Cellbag 2 L	perfusion	1	CB0002L11-04	29-0913-43
Cellbag 2 L	pHOPT	1	CB0002L11-11	29-0974-47
Cellbag 2 L	ReadyMate	1	CB0002L11-21	29-0913-47
Cellbag 2 L	DOOPT II and pHOPT	1	CB0002L11-31	29-0974-52
Cellbag 2 L	DOOPT II, pHOPT and screwcap	1	CB0002L11-33	29-0974-53
Cellbag 2 L	DOOPT II, pHOPT and perfusion	1	CB0002L11-34	29-0913-31
Cellbag 10 L	Basic	1	CB0010L11-01	29-0913-19
Cellbag 10 L	Oxywell2	1	CB0010L11-02	29-0913-40
Cellbag 10 L	screwcap	1	CB0010L11-03	29-0913-55
Cellbag 10 L	perfusion	1	CB0010L11-04	29-0913-46
Cellbag 10 L	pHOPT	1	CB0010L11-11	29-0975-02
Cellbag 10 L	ReadyMate	1	CB0010L11-21	29-0913-48
Cellbag 10 L	DOOPT II and pHOPT	1	CB0010L11-31	29-0975-03
Cellbag 10 L	DOOPT II, pHOPT and screwcap	1	CB0010L11-33	29-0975-04
Cellbag 10 L	DOOPT II, pHOPT and perfusion	1	CB0010L11-34	29-0913-32
Cellbag 20 L	Basic	1	CB0020L11-01	29-0913-15
Cellbag 20 L	Oxywell2	1	CB0020L11-02	29-0913-41
Cellbag 20 L	screwcap	1	CB0020L11-03	29-0913-57
Cellbag 20 L	perfusion	1	CB0020L11-04	29-0913-44
Cellbag 20 L	pHOPT version	1	CB0020L11-11	29-0975-05
Cellbag 20 L	ReadyMate	1	CB0020L11-21	29-0913-52
Cellbag 20 L	DOOPT II and pHOPT	1	CB0020L11-31	29-0975-06
Cellbag 20 L	DOOPT II, pHOPT and screwcap	1	CB0020L11-33	29-0975-07
Cellbag 20 L	DOOPT II, pHOPT and perfusion	1	CB0020L11-34	29-0913-30
Cellbag 22 L	Basic	1	CB0022L11-01	29-0914-34
Cellbag 22 L	Oxywell2	1	CB0022L11-02	29-0975-08
Cellbag 22 L	pHOPT	1	CB0022L11-11	29-0975-09
Cellbag 22 L	ReadyMate	1	CB0022L11-21	29-0975-10
Cellbag 22 L	DOOPT II and pHOPT	1	CB0022L11-31	29-0975-11
Cellbag 50 L	Basic	1	CB0050L11-01	29-0913-20
Cellbag 50 L	Oxywell2	1	CB0050L11-02	29-0913-42
Cellbag 50 L	pHOPT	1	CB0050L11-11	29-0975-12
Cellbag 50 L	ReadyMate	1	CB0050L11-21	29-0913-53
Cellbag 50 L	DOOPT II and pHOPT	1	CB0050L11-31	29-0975-16
M*Bag, Bioclear 10 film				
M*Bag 20 L	Basic	1	MB0020L10-01	29-0998-95
M*Bag 50 L	Basic	1	MB0050L10-01	29-0998-96
Cellbag bioreactor and M*Bag accessories				
Clave sampling valve on 6.4 mm O.D. C-Flex tubing		1	TK001	28-4124-12
PVC tubing with press-in plug		1	TK002	28-4124-13
Tube Kit, PVC and silicone tubing with T-connectors		1	TK003	28-4124-14
Check valve, 250 L (pack of 25)		1	WV050087	28-4124-49
Check valve, 100/200 L (pack of 50)		1	WV050088	28-4124-50
Oxywell2		1	WV050089	28-4124-51

Related literature

For regulatory support online, visit www.gelifesciences.com/rsf. Upon subscription and approval, the website can be used to obtain the Cellbag validation guide, Change control notifications, and Certificates of quality.

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