Mobius® CellReady 3L Bioreactor

User Guide

Notice

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Specifications

Volume	Total	3.0 L
	Working	1.0 to 2.4 L
Nominal Dimensions	Vessel diameter (inner)	5.4 in. (137.0 mm)
	Overall height	9.6 in. (249.0 mm)
	Overall weight	1.5 lb (680.0 g)
	Base diameter	9.5 in. (241.0 mm)
	Thermowell diameter	0.4 in. (7.6 mm)
	Impeller diameter (Marine; Scoping)	3.0 in. (76.2 mm)
Materials of Construction	Vessel, shaft and base	Polycarbonate
	Headplate, thermowell, probe ports and impeller	HDPE
	O-rings and seals	Silicone
	Check Valve	Silicone, Polypropylene
	Septum	ABS, Polyisoprene
	Probe Port Plugs	TPE
	Tubing	C-Flex® 374 Clear Tubing.
Probe Ports	PG 13.5 threaded	
Gas Filters	Overlay and sparge inlets	Millex® 33 mm 0.22 µm PVDF (hydrophobic) filter
	Vent outlet	50 mm, 0.22 µm nylon (hydrophobic) filter
Sampling Port	Luer-actuated sampling port	
Sparging	Sintered Polyethylene Microsparger (pore size 15 to 30 µm)	
	Open pipe sparger 0.09 in. (2.3 mm) diameter	
Recommended Application	Mammalian cell culture	
Gamma Irradiated	to dose exceeding 25 kGy	
Maximum Operating Temperature	40 °C	

Compatibility	Motor Drive Adapter	Integrates with most standard 3L motors
	Heating blanket	Compatible with most standard 3L heating blankets
	Probes	Standard 12 mm (PG13.5 threads) probes, 200 to 235 mm long
	Septum Needle	22 Gauge, 1 in. (to minimize hold-up volume)
Connections	Fluid addition 1	ID 1/8 in. (3.2 mm) with a 1/8 in. Male Luer with Cap
	Fluid addition 2	ID 1/8 in. (3.2 mm) or 1/4 in. (6.4 mm), either with a 1/8 in. Male Luer with Cap
	Fluid addition 3	ID 1/8 in. (3.2 mm) with a 1/8 in. Male Luer with Cap and a One-way Check Valve
	Fluid addition 4	
	Harvest	ID 1/8 in. (3.2 mm) or 1/4 in. (6.4 mm), either with a 1/8 in. Male Luer with Cap
	Air inlet (overlay)	ID 1/8 in. (3.2 mm) with a Millex® 33 mm 0.22 µm PVDF (hydrophobic) filter
	Sparge 1 (microsparger)	ID 1/8 in. (3.2 mm) with a 1/8 in. Male Luer with Cap, a Millex 33 mm 0.22 µm PVDF (hydrophobic) filter and a One-way Check Valve
	Sparge 2 (open pipe)	
	Air outlet (vent)	ID 1/4 in. (6.4 mm) with a 50 mm, 0.22 µm nylon (hydrophobic) filter

Installation Notes

- A motor adapter (ordered separately) is required for operation. See Ordering Information.
- This unit is single use only. **Do not autoclave**.
- To ensure accurate temperature control, position the heating blanket so that the maximum amount of contact area between the blanket and the vessel is below the level of liquid.
- Do not allow the probes to contact the outer surface of the bioreactor.
- Avoid turning probe port caps counterclockwise to minimize contamination risk.
- The thermocouple must reach the bottom of the thermowell to ensure accurate temperature monitoring.
- The thermowell must contain at least 10 mL of water or glycerol at all times.
- The air outlet tubing must be vertical to minimize condensation accumulation in the tubing which may lead to over-pressurization of the bioreactor.
- Both clamps must be closed prior to filling the bioreactor with fluid.
- The materials of construction of the vessel should be considered when adjusting the controller settings for the heating blanket as excessive temperature may cause damage to the vessel. The sampling port is for sampling only. Do not add fluid through this port.
- The sampling port may be treated with 70% isopropanol prior to sampling, but do not expose the Millex filters to isopropanol.

Unpacking

1. Remove the bioreactor from the outer bag and place it in a biological safety cabinet or laminar flow hood.

2. Remove the bioreactor from the inner bag.

Note

A removable label is included on the inner bag for record keeping.

Set-up

Components

Key No.	Description
1	Air Inlet (Overlay) with Millex® 33 Filter
2	Fluid Addition Line with Male Luer-Lok™ Fitting and Cap
3	Thermowell
4	Headplate
5	Fluid Addition Line with Check Valve and Cap
6	Sampling Port
7	Harvest Line with Pinch Clamp and Cap
8	Impeller
9	Base
10	Open Pipe Sparger with Check Valve and Millex 33 Filter
11	Microsparger with Check Valve and Millex 33 Filter
12	Fluid Addition Line with Check Valve and Cap
13	Fluid Addition or Outlet Line with Pinch Clamp and Cap
14	Probe Fitting with Plug
15	Motor Adapter Seat
16	Fluid Addition Line with Cap
17	Fluid Addition Needle Septum
18	Air Outlet (Vent) with Filter
--	Motor Adapter (not shown - ordered separately)

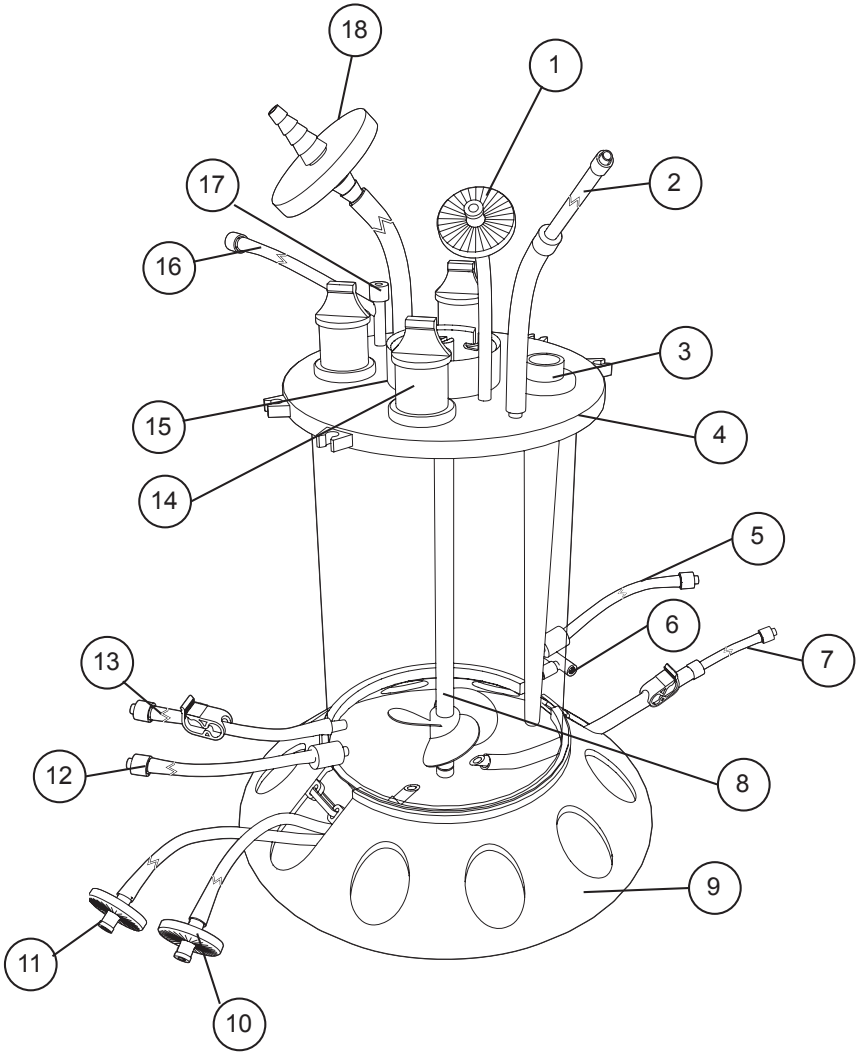


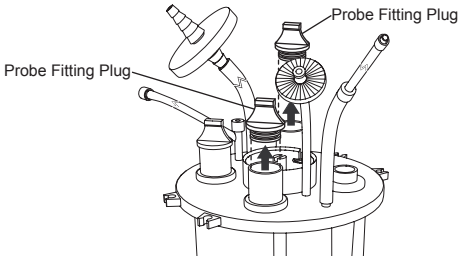
Figure 1: The Mobius CellReady Bioreactor Components

Installing the Probes

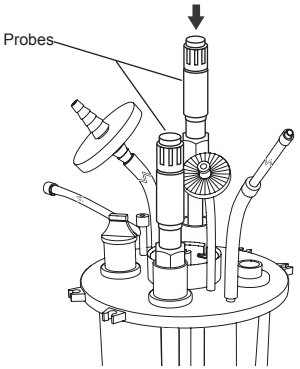
NOTES

Avoid twisting the probe fitting counterclockwise to minimize contamination risk.
Do not cross thread the probe.
Do not overtighten the probe in the fitting.
Misalignment may result in the probe touching the impeller.
Calibrate and autoclave the probes before aseptically installing them.

1. Remove the plugs from the probe fittings that will be used.



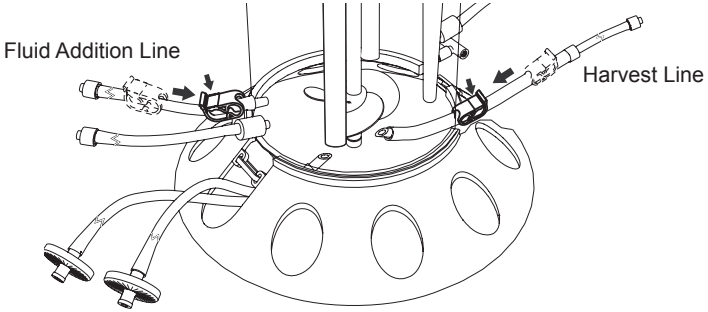
2. Aseptically insert the probe into the probe fitting. **Do not to allow the probe to contact the outer surface of the bioreactor.**



3. Secure the probe into the probe fitting. Keep the probe vertical while turning it clockwise.

Securing the Tubing

1. Move the pinch clamp on the Harvest Line as close to the vessel as possible then close the clamp.

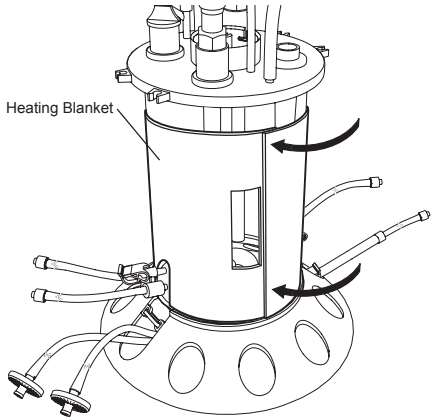


2. Move the pinch clamp on the Fluid Addition as close to the vessel as possible then close the clamp.

3. Secure all tubing, filters and fittings prior to removing the bioreactor from the biological safety cabinet or laminar flow hood.

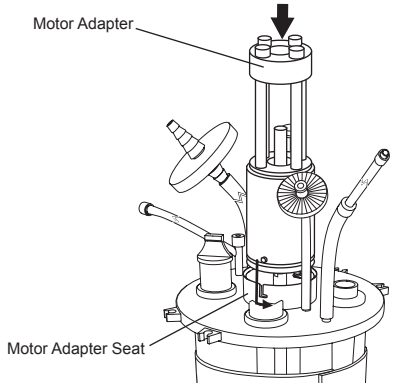
Connecting to a Controller

1. Attach a three liter heating blanket to the bioreactor ensuring a snug fit around the vessel. The materials of construction of the vessel should be considered when adjusting the controller settings for the heating blanket as excessive temperature may cause damage to the vessel.



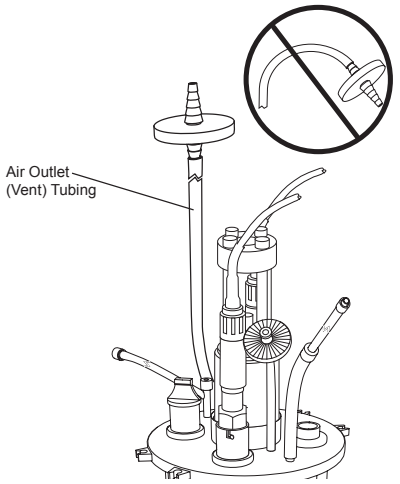
2. Mount the motor onto the motor adapter (see Motor Adapter User Guide).

3. Install the motor adapter onto the bioreactor by aligning the pins on the adapter with the slots in the adapter seat and aligning the drive shaft connection on the adapter with the top of the impeller shaft. Push down firmly so that the pins seat in the slots. Turn the adapter until the pins lock into place.



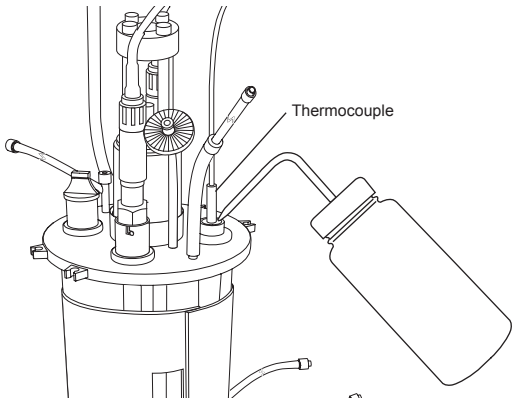
4. Connect probe cables from the controller to the probes.

5. Secure the air outlet tubing so that it is vertical to minimize condensation accumulation in the tubing which may lead to over-pressurization of the bioreactor.



6. Insert the thermocouple from the controller into the thermowell.

7. Fill the thermowell with at least 10 mL of water or glycerol to ensure accurate temperature measurement.

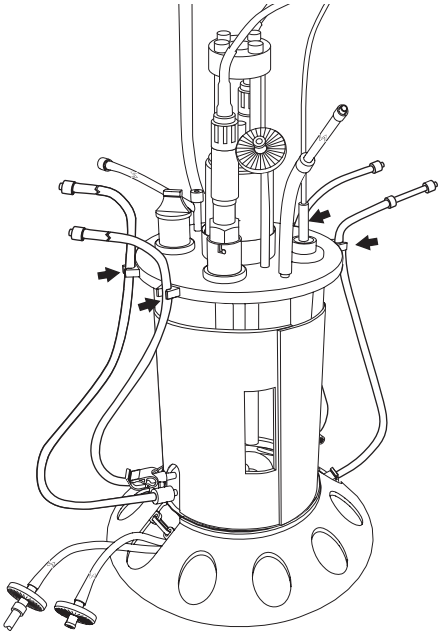


NOTE

The thermocouple must reach the bottom of the thermowell to ensure accurate temperature monitoring.

Connecting the Gas Supply

1. Connect tubing to clips on headplate.



2. Fit all gas supply lines with male 1/8 in. (3.2 mm) Luer fittings to secure connections to the attached Millex 33 0.22 µm filters.

3. Connect the overlay gas supply to the air inlet (overlay) line.

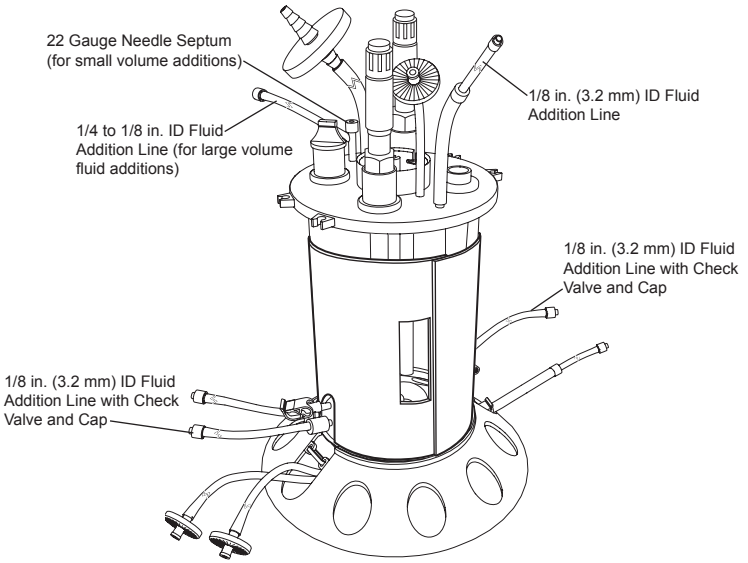
4. For total gas flow rates >500 mL/min, a bubble trap (user supplied) is required. Connect the bubble trap to the air inlet (overlay) line using a tubing welder and use the air outlet (vent) line for the gas overlay.

5. The Mobius CellReady bioreactor comes with two sparging options, a 15-30 µm sintered polyethylene micro sparger and a 2.3 mm open pipe sparger. Each sparge line is fitted with a one-way check valve. Pressure and flow rates should be calibrated to accommodate a slight back pressure from the one-way check valve.

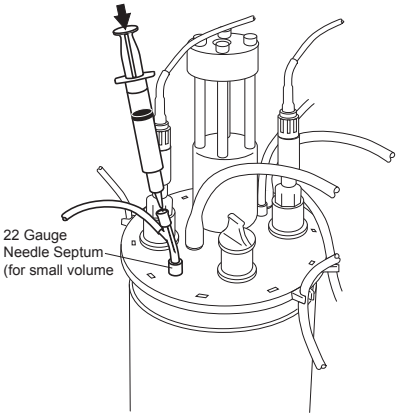
Adding Fluid to the Bioreactor

1. All fluid addition lines have a 1/8 in. (3.2 mm) male Luer fittings for aseptic connections.

2. There are two fluid addition lines on the headplate and two fluid addition lines on the sides of the vessel.



3. There is one fluid addition septum port on the headplate.



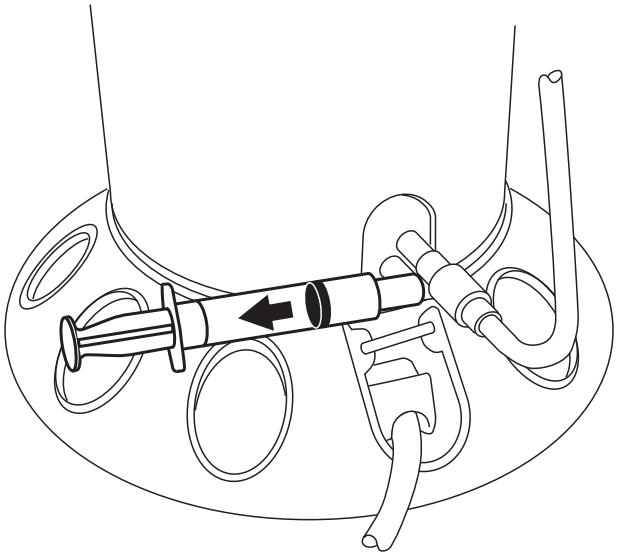
Sampling

Note

The sampling port is for sampling only. Do not add fluid through this port.

1. Clean the outside of the sampling port with an appropriate disinfecting solution.

2. Attach a sterile syringe fitted with a 1/8 in. (3.2 mm) male Luer fitting to the port and withdraw the desired sample volume.



3. Clean the outside of the port with an appropriate disinfecting solution.

Note

Flushing prior to sampling is not required due to the low hold-up volume of the sampling port.

Disposing of the Bioreactor

1. The base is recyclable. Remove the base by cutting the tie wraps that secure the base to the vessel and pull firmly to separate.

2. Dispose of the remaining components following local regulations and standard operating procedures.

Ordering Information

Catalogue Number	Description
CR0003L100	Mobius CellReady 3L Bioreactor
CR0003L102*	Mobius CellReady 3L Motor Adapter

*Contact your local Millipore Representative for additional motor adapters.

General Limited Warranty

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