Xcellerex™ magnetic mixer

SINGLE-USE MIXING SYSTEMS

The Xcellerex™ magnetic mixer is a single-use system designed to deliver high performance while meeting the demands of even the most challenging large-scale applications (Fig 1). Available in capacities of 2000 and 3000 L with several configurations to meet the requirements of various mixing processes.

The system includes a novel mixer biocontainer incorporating Allegro™ film for its fluid contact surface with user-centered design elements aimed to bolster durability and improve ease of use. This evolution in design results in enhanced safeguards, providing added protection throughout shipping, storage, and operation. Installation of the single-use system uses an air inflation mechanism, activated at the press of a button. This culminates in an economized and streamlined installation procedure, reducing risk of improper installation, defects, and leaks.

The Xcellerex magnetic mixer system is designed with spatial efficiency in mind. The system fits within existing infrastructures without requiring facility modifications. It is manufactured to fit through most standard cleanroom double doors and within typical cleanroom ceiling heights, including headspace for powder addition. The modular automation provides solutions for both local and remote control requirements, while integrated peristaltic pumps allow for fluid dosing into the biocontainer. Additionally, the combination of a powerful drive unit and impeller allow for vortex formation, promoting dissolution of floating powders.

Fig 1. The Xcellerex magnetic mixer 3000 L system pictured with mixing tank, electrical cabinet, and controller.

Features and benefits

- Robust single-use system built to protect against leaks.
- Intuitive biocontainer installation uses air inflation — reducing potential for error.
- Compact height and footprint to fit in tight facility spaces.
- Modular automation provides remote and local control options.
- Broad volume range results in flexibility of the hardware.
- Powerful impeller generates vortex for mixing of challenging floating powders at high mixing speeds.
- Integrated peristaltic pumps for fluid dosing when controlled remotely.
- In-process pH, conductivity, and temperature measurements for better process visibility and control.
- Thermal jacket on side walls and bottom of mixing tank for heating and cooling across entire volume range (optional).
- Weight sensing using hygienic load cells for easy cleanability (optional).
- Touch-screen human-machine interface (HMI) for intuitive local control (optional).

Recommended applications

- Buffer preparation
- Media preparation

Contact Cytiva's applications experts to evaluate use for other applications.

System overview

Single-use system

At a minimum the system consists of a single-use biocontainer and an inflation set. Each inflation set can only be used once and is required for the operation and installation of a biocontainer. Single-use dosing lines can be purchased and connected to the single-use system for applications requiring multiple fluid additions.

Key features

- Rigid folding base surrounds outside of biocontainer film to protect against defects and leaks during shipping, storage, and operation.
- Built-in carrying case with handles to improve ergonomics and simplify installation (Fig 2).
- Sturdy supportive base under the biocontainer during operation for added durability.
- Hard plastic top hat component covers impeller blades during shipping and storage to prevent rubbing against inside layer of biocontainer film, preventing damage.
- Installation and deployment using air inflation rather than traditional hoist systems.
- Standard and customized options available.

Fig 2. Rigid folding base serves as a carrying case for simple installation.

Single-use biocontainer

The biocontainer (Fig 3) is constructed with Allegro film and includes an impeller (Fig 4). It contains a rigid folding base, which folds around the outside layer of film to offer added protection but does not come in contact with the process fluid. The single-use biocontainers are available in two different configurations, both in 2000 and 3000 L sizes. See ordering information for additional details.

Fig 3. Xcellerex magnetic mixer biocontainer shown in folded state with protective rigid folding base.

Fig 4. Xcellerex magnetic mixer single-use impeller.

Single-use inflation set

A single-use inflation set is required to inflate and deploy the single-use biocontainer. The inflation set is used to connect the single-use biocontainer to the inflation system (Fig 5), which is integrated into the electrical cabinet of the hardware system.

The general use inflation set includes two tubing assemblies, each containing a Kleenpak™ capsule with Emflon™ II membrane in sterilizing grade air filter, AdvantaPure® braided, platinum-cured silicone tubing, and 1.5 in. Tri-Clamp™ sanitary flange fittings at both ends. These are suitable for use with either the standard configuration biocontainer or general-use configuration. The filters are hydrophobic to prevent water ingress into the electrical cabinet and are therefore required to be used for all applications, including non-sterile applications. The filters may not be reused since saturation of the filters impacts inflation, venting, and hydrophobic capabilities.

Fig 5. Inflation sets are used to connect the inflation system, which is found in the electrical cabinet, to the biocontainer.

Single-use dosing lines

For applications where fluid dosing is foreseen using the integrated peristaltic pumps on the hardware system, the single-use dosing lines are optional. These dosing lines consist of tubing and connectors that can be used to pump fluid into the biocontainer — available with different tubing types, tubing lengths and connector types, to adapt to standard or custom biocontainer configurations.

Minimum volume criteria

- Minimum mixing volume is the volume required to completely immerse the impeller blades at rest. It is important to note that this minimum mixing volume may not be adequate for some applications, such as challenging solid-liquid mixing scenarios.
- Minimum sensing volume is the lowest volume that allows for the sensor probes to be fully immersed.
- Minimum agitation volume refers to the lowest feasible working volume of the mixer, defined as the volume required to reach the lowest parts of the impeller blades at rest.

Figure 6 illustrates the minimum volume criteria for mixing, sensing, and agitation. See technical specifications for details.

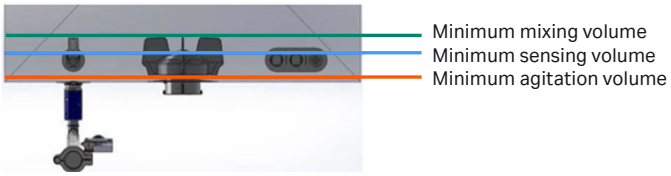

Fig 6. Minimum volume criteria for single-use mixers.

Hardware system

The base hardware system consists of a mixing tank and electrical cabinet, both required to operate the system. A controller is available as an optional accessory and required when local control and process monitoring uses a HMI touch screen.

Key features

- Compact system height under 2.1 m, for spatial efficiency.
- Flexible control options — select to control only remotely with a supervisory control and data acquisition (SCADA) system or distributed control system (DCS) or add the option for local control and process monitoring with a touch screen.
- Integrated process monitoring.
- Powerful integrated drive unit to easily generate a vortex for dissolving floating powders.
- Sloped floor of tank toward drain to reduce residual volume after draining.

Mixing tanks

The mixing tanks are vessels or totes in which the single-use biocontainers are installed (Fig 7). The tanks are available in 2000 and 3000 L nominal capacities in a variety of configurations, with options for load cells, a thermal jacket, and/or American Society of Mechanical Engineers (ASME) certification for versions including a jacket. They consist of an integrated drive unit on the bottom, which rotates the magnetically-coupled impeller inside of the single-use biocontainer.

Fig 7. 3000 L mixing tank shown with electrical cabinet and controller.

Electrical cabinet

The electrical cabinet (Fig 8) provides the equipment necessary to deliver mixing, sensing, weighing, dosing, and air-inflation capabilities when paired with a mixing tank, and is required for operation on all systems. A separate part number from the mixing tank must be ordered along with each mixing tank for operation. It contains two integrated peristaltic pumps for fluid dosing (Fig 9). The electrical cabinet consists of the inflation system and has connections for the single-use inflation sets. It contains the electrical connections for pH, conductivity, and temperature sensing probes, as well as communication ports for remote control of the system. If only using the electrical cabinet and the mixing tank, the system must be controlled remotely by a SCADA system or DCS. The system can only be controlled locally when combined with the optional controller.

Fig 8. Electric cabinet attached to mixing tank, pictured with controller on top.

Fig 9. Integrated dosing pumps can be controlled remotely for transferring fluid into the single-use biocontainer.

Controller

The controller (Fig 10) provides local control of the mixer through a touch screen and operator-friendly HMI. Although being optional, it is necessary for situations where a local control option is desired. It provides the possibility to locally control the speed of the impeller, inflate the biocontainer with air, and sense parameters including pH, weight, temperature, and conductivity. Without the controller, only remote control of the system is possible.

Fig 10. The controller offers a touch screen interface for local monitoring and control of the mixing system.

Accessories and spare parts

Several accessories and spare parts are available for process-specific needs or facility layout (Fig 11). See ordering information for additional details.

Fig 11. Accessories and spare parts available for Xcellerex magnetic mixer systems.

- **A** Transportation trolley for system mobility
- **B** Thermal control units for heating and cooling
- **C** Powder bag lifts
- **D** Compact powder bag hook for facilities with limited height
- **E** Powder port holder
- **F** Powder handling bags
- **G** Door transport lock
- **H** Probe support to set the correct angle for sensing probes
- **I** Reuseable pH and conductivity probe sensors

Technical specifications: single-use system

Single-use impeller

Type	Radial flow
Number of blades	Four (4)
Materials of construction	Neodymium magnets encased in USP Class VI, animal-derived component-free (ADCF), gamma stable high-density polyethylene (HDPE)
Speed range	80 to 310 rpm
Location in biocontainer	Bottom center
Number of impellers	One (1)
Diameter	208 mm
Blade height	99 mm

Single-use biocontainer

Shape	Hexagonal	
Pressure regulation set point	4 ± 1 mbar	
Maximum allowable continuous pressure	14 mbar	
Operating temperature range	4°C to 40°C	
Maximum temperature of fluid during filling[1]	25°C	
	2000 L tank	**3000 L tank**
Maximum mixing volume	2000 L	3000 L
Minimum agitation volume[2]	36 L	53 L
Minimum mixing volume[2]	258 L	387 L
Minimum sensing volume[2]	76 L	114 L
Residual volume without manipulation[3]	< 2.5 L	< 3.4 L
Residual volume with manipulation[3]	< 0.3 L	< 0.3 L
Deployment method	Air inflation	
Inflation time	1 hour	
Gamma irradiation level	25 to 50 kGy	
Maximum density of mixing fluid	1.16 g/mL	
Film type	Allegro film	
Fluid contact layer material of film	Ultra-low-density polyethylene (ULDPE)	
Gas barrier layer material of film	Ethylene vinyl alcohol (EVOH)	
Ports and fittings materials	HDPE	
Rigid folding base material	HDPE	

[1] Filling the mixer with fluids with a temperature greater then 25°C is prohibited because humid air can pass through the filters of the inflation set and create water ingress in the electrical cabinet by means of condensation.

[2] Values are as-designed and are approximations. Actual values will vary based on inherent design tolerances and slight changes when installing the single-use biocontainer.

[3] Manipulation implies any handling of the single-use system by an operator with the intent of draining as much of the fluid as possible.

Single-use inflation sets

Filter type	Kleenpak capsule with Emflon II membrane sterilizing grade air filter
Tubing type	Braided, platinum-cured silicone
Connector type	1.5 in. Tri-Clamp sanitary flange
Quantity per set	2

Single-use dosing lines

Available tubing types	AdvantaFlex® thermoplastic elastomer (TPE) AdvantaPure platinum-cured silicone tubing
Available connector types	Multiple — see ordering information

Table 1. Overview of single-use biocontainer configurations available for the system.

Single-use biocontainer configurations

		Description	Location	General-use design quantity	Standard design quantity
Fluid inlets	A	1 in. AdvantaFlex TPE tubing with 1.5 in. Tri-Clamp sanitary flange fitting	Top face	1	1
	B	¼ in. AdvantaFlex TPE tubing with ¾ in. Tri-Clamp sanitary flange fittings	Top face	2	0
Air inflation lines	C	½ in. AdvantaPure braided, platinum cured silicone tubing with 1.5 in. Tri-Clamp sanitary flange fittings	Top face	2	2
Drain	D	1 in. AdvantaFlex TPE tubing with 1.5 in. Tri-Clamp sanitary flange fitting	Bottom face	1	1
Powder port	E	4 in. Tri-Clamp sanitary fitting	Top face	1	1
Thermowell	F	For PT100 sensor	Bottom of front face	1	0
Sensor probe ports	G	PG13.5 threaded connection for reusable probe, location	Bottom of front face	2	0
Sample port	H	¼ in. inner diameter AdvantaFlex TPE tubing with luer lock connector	Bottom of front face	1	0

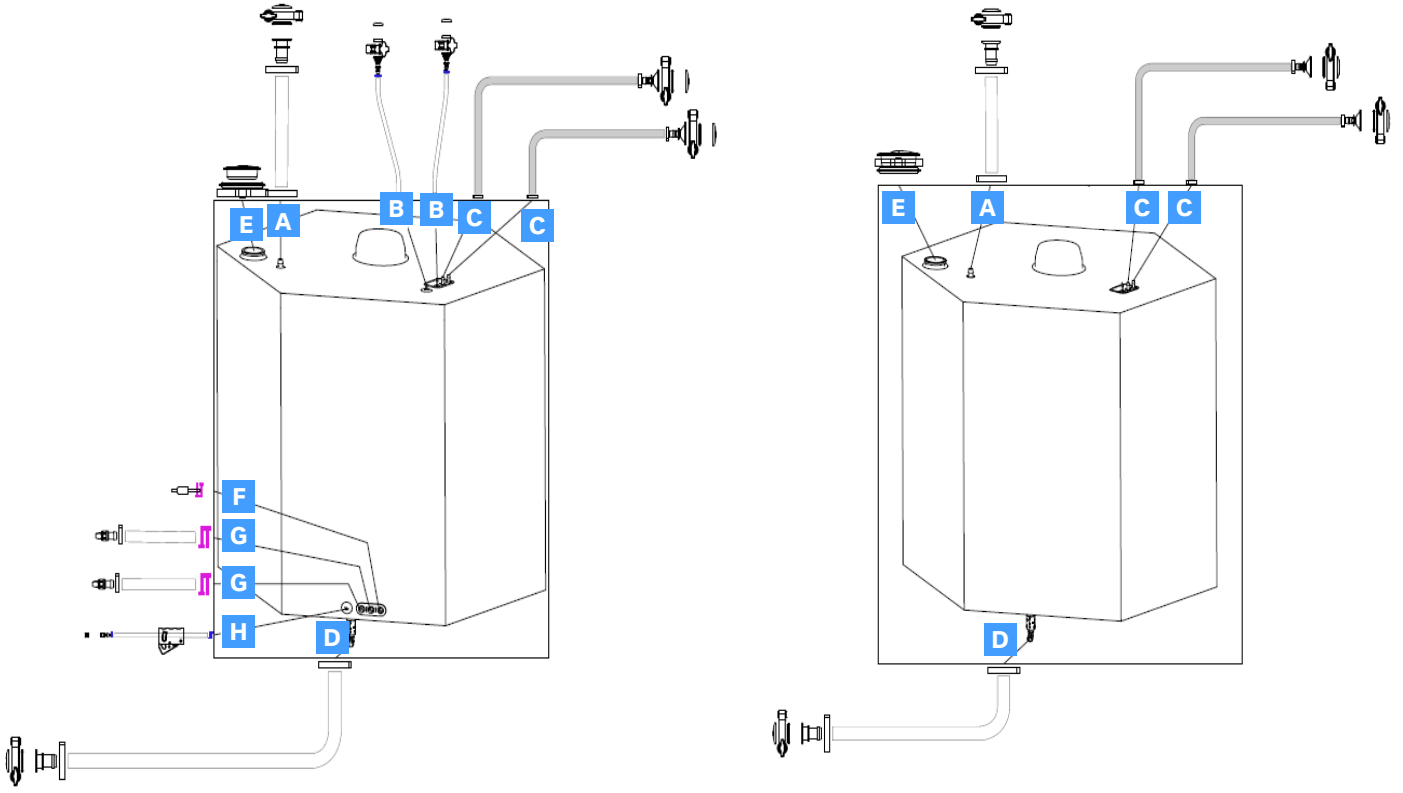

Fig 12. Single-use biocontainer configurations. General-use design (left) and standard design (right).

Technical specifications: hardware

Mixing tanks

Primary material of construction	304 L stainless steel
Dimensions	Varies (see tank configuration Table 2)
Weight	Varies (see tank configuration Table 2)
Geometry	Hexagonal
Surface finish	Brush #4 polished: Ra ≤ 0.89 µm
Welds	According to International Organization for Standardization (ISO) 1507 and ISO 5817 level D
Weld finish	Ground smooth and polished
Mobility	Fixed legs — can be moved using a forklift or optional transportation trolley accessory with a pallet jack[4]
Slope toward drain	2° by design
Noise Level	< 75 dB
Drive unit	
Agitation range	80 to 310 rpm
Motor location	Bottom — integrated with vessel
Motor power	0.75 kW
Jacket (optional on tanks)	
Jacket type	Dimpled and insulated
Jacket location	Right, left, back, and bottom walls
Insulation location	Right, left, back, front, and bottom walls
Approximate heat transfer area	5.3 m² for the 2000 L system 6.9 m² for the 3000 L system
Approximate jacket fluid volume	23.6 L for the 2000 L system 30.6 L for the 3000 L system
Design pressure	6.2 bar from -5°C to 65°C
Design temperature	-5°C to 65°C
Heat transfer fluid connections	1.5 in. in sanitary (ISO 2852 DN15)
Load cells (optional on tanks)	
Number of load cells	3
Brand and type	Mettler-Toledo hygienic load cells and junction box
Ingress protection	Ingress protection (IP) 68/69K (load cell components only)
Accuracy	0.1% of nominal tank volume[5]

Electrical cabinet

Primary material of construction	304 L stainless steel
Dimensions (W × H × D)	1764 × 1764 × 661 mm
Surface finish	Brush #4 polished: Ra ≤ 0.89 µm
Voltage	230 VAC single-phase / 240 VAC 2-phase
Frequency	50/60 Hz
Rated current	6.3 A at 230 VAC single-phase 6.0 A at 240 VAC 2-phase
Plug type	EU: 16 Amp 230 VAC 3-Pole CEE Industrial Plug, IP44 US: NEMA 6-15 plug, 15 Amp, 250 VAC
Gas supply	4.0 ± 0.2 bar
Gas connections	Air in: 10 mm tube fitting Vent 1: 16 mm tube fitting Vent 2: 16 mm tube fitting
Gas type	Clean, dry, oil-free compressed air
Gas flow path towards mixer	DIN EN 10204 2.2 USP Class VI
Local operation	Only possible when combined with controller accessory
Remote operation	Yes, SCADA system or DCS
Control architecture	Fieldbus
Communication protocol	Profinet Ethernet/IP (only for remote control - requires reconfiguration)
Pumps	Type: integrated variable speed peristaltic
	Operation: remote control only
	Brand: Watson-Marlow DriveSure
	Quantity: 2
	Speed range: 8 to 408 rpm
	Flow rate: 0.25 to 1500 mL/minute (dependent on tubing diameter)
	Compatible tubing: 0.6 to 6.4 mm inner diameter, 2.4 mm wall thickness
	Accuracy: ± 1 rpm at 8 rpm / ± 4 rpm at 408 rpm
Temperature sensor	Type: reusable
	Brand: Jumo push-in temperature probe
	Operating temperature: 0°C to 50°C
	Measuring inserts: 1 × PT100 in 3 wire circuit
	Accuracy +/- 1°C from 4°C to 50°C
pH sensor (optional accessory)	Type: reusable
	Brand: Hamilton® EasyFerm® Bio HB Arc 120
	Measuring range: 0 to 14 pH
	Sensitivity: 57 to 59 mV / pH at 25°C
	Accuracy: +/- 0.1 pH
Conductivity sensor (optional accessory)	Type: reusable
	Brand: Hamilton Conducell™ 4USF Arc 120
	Measuring range: 1 µS/cm to 300 mS/cm
	Sensitivity: ± 3% at 1 µS/cm to 100 mS/cm, ± 5% at 100 to 300 mS/cm

Ports and connections on electrical cabinet

Tag name	Description
Emergency stop	Emergency stop button
Reset	Reset button
Buzzer	Buzzer (sound alarm)
Conductivity probe	Port to connect conductivity sensor cable
pH probe	Port to connect pH sensor cable
Temperature probe	Port to connect temperature sensor cable
Ethernet remote out	Port to connect ethernet cable to DCS/ SCADA system/ service PC
E-stop remote out	Port to connect safety circuit of remote system
Temperature out	Port to deliver 0 to 10 VDC analog temperature signal
Linear actuator	Port to connect linear actuator cable to the tank
Locking sensor	Port to connect locking sensor cable to the tank
Load cells	Port to connect load cell cable
Power supply	Port to connect main power cable
Motor power	Port to connect motor cable to the tank
Active vent	Passive vent from biocontainer only when inflation is off
Passive vent	Passive vent from biocontainer
Air supply	Port to connect air supply
Pump 1	Peristaltic pump 1
Pump 2	Peristaltic pump 2
Air to biocontainer	Port to connect single-use system ½ in. inflation tube
Air from biocontainer	Port to connect single-use system ½ in. inflation tube

Controller (optional)

Stand-alone operation	Yes (when combined with electrical cabinet)
Remote operation	Yes, SCADA system or DCS
Control architecture	Siemens PLC
Communication protocol	Profinet and Open Platform Communications Unified Architecture (OPC UA)
PLC software platform	Simatic® total integrated automation (TIA) portal V16
HMI software platform	Simatic TIA portal integrated WinCC
Human Machine Interface	Siemens SIMATIC HMI TP900 comfort panel, 9 in widescreen with touch operation
Data export	OPC UA (remote mode), HMI Ethernet access
Dimensions (W x H x D)	319 X 500 X 231 mm

Environmental operating conditions

Indoor or outdoor use	Indoor only
Altitude	≤ 2000 m
Environmental temperature	15°C to 25°C
Relative humidity	20% to 80% (without condensation)
Mains supply voltage fluctuations	± 10%
Overvoltage category	II
Wet environment	Yes (when all protective covers are applied)
Pollution degree of the intended environment	2

Regulatory compliance

European directives	Conformité Européenne (CE)
United States directives	Nationally Recognized Testing Laboratory (NRTL) certification (optional)
	ASME boiler and pressure vessel code certification (optional)
Other applicable directives	Machinery directive 2006/42/EC
	Low voltage directive 2014/35/EU
	Electromagnetic compatibility directive 2014/30/EU
	Restriction of hazardous substances directive 2011/65/EU
Applicable standards	Electrical safety of laboratory equipment International Electrotechnical Commission (IEC)/European Norm (EN) 61010-1
	Electrical safety of laboratory equipment, national deviations USA and Canada Underwriters Laboratories (UL)/ Canadian Standards Association (CSA) 61010-1
	Electrical safety of laboratory equipment, particular requirements for mixing and stirring IEC/EN/UL/CSA 61010-2-051
	Machine safety IEC/EN 60204-1
	Machine safety (ISO) 12100:2010
	Electromagnetic compatibility (EMC) EN 61326-1:2013 EN 61000-3-2:2014 EN 61000-3-3:2013
	Federal Communications Commission (FCC) testing acc. Code of Federal Regulations (CFR) 47, Part 15, Subpart B, Section 15.107, 15.109
IP rating	IP54 (when all protective covers are applied)
Applicable standards for air inflation flow path items	(WFI)
Verified compatible cleaning agents	96% Ethanol; 70% Isopropanol/30% deionized water; Water for Injection

Site preparation

Requirements for unloading and moving crated tank	Forklift with greater than 3000 kg payload and a fork length of at least 2 m

Moving the mixer tanks is possible using a forklift or the transportation trolley. When using a forklift, the forks enter from the front of the system. Width dimensions in Table 2 must be taken into account when passing through doorways. When using the transportation trolley in combination with a pallet jack, and having forks of at least 1.3 m, the forks enter from the side of the tank. The depth dimension of Table 2 should be taken into account when passing through doorways.

Table 2. Overview of mixing tank configurations available for the system.

Mixing tank configurations

		Configuration				
Product code	**Nominal volume**	**Weight sensing**	**Thermal jacket**	**ASME certification**	**Approximate empty weight[6]**	**Width × height × depth[7]**
XM2000JHT-B4N	2000 L	Yes	Yes	No	906 kg	1702 × 2023 × 1535 mm
XM2000JHT-B4A	2000 L	Yes	Yes	Yes	906 kg	1702 × 2023 × 1535 mm
XM2000NHN-B4N	2000 L	No	No	No	811 kg	1676 × 2023 × 1535 mm
XM3000JHT-B4N	3000 L	Yes	Yes	No	1158 kg	1949 × 2098 × 1750 mm
XM3000JHT-B4A	3000 L	Yes	Yes	Yes	1158 kg	1949 × 2098 × 1750 mm
XM3000NHN-B4N	3000 L	No	No	No	1044 kg	1926 × 2098 × 1750 mm

[6] Weights displayed above are approximations and will vary based on inherent design tolerances.
[7] The dimensions stated are for the mixing tanks alone, without the electrical cabinet attached. When the electrical cabinet is installed on a 2000 L tank, the system width increases by 388 mm and the depth increases by 185 mm. When the electrical cabinet is installed on a 3000 L tank, the system width increases by 361 mm and the depth increases by 170 mm.

Minimum required clearances for system operation

Operational clearances must be planned for around all sides of the system as well as above the system (Fig 13). When the mixer biocontainer is fully inflated, the top of the biocontainer will extend beyond the highest point of the mixer tank, so facility ceiling heights must account for this (Fig 14).

If using the Cytiva powder lift to make powder additions to the biocontainer, additional space above the mixing tank is required to account for the added height of the powder bags, powder chutes, and hooks. The amount of space will vary based on the sizes of the tank, powder bag, and hook accessory used. A compact hook is available as an alternative to the hook that comes standard with the powder lift and a compact 30 L powder bag is available for environments with low ceiling heights. For mixing applications requiring the addition of floating powders, it is recommended to use a powder chute bag to prevent the powder from sticking to the top sheet of the biocontainer and releasing into the environment.

Table 3 provides details regarding clearances for operating the mixing system, depending on the combination of products being used.

Fig 13. Minimum ceiling height required when using 3000 L mixing tank with 30 L powder bag and optional compact hook for powder lift.

Fig 14. Fully inflated biocontainer extends above the top of the mixing tank.

Table 3. Overview of minimum ceiling height when using the Cytiva powder bag lift in combination with a powder transfer bag (PTV), powder chute bag (PCB) and available hooks.

Operational clearances required for system

Category	2000 L mixing tank	3000 L mixing tank
Minimum clearance in rear of system	0.40 m	0.40 m
Minimum clearance on sides of system	0.75 m	0.75 m
Minimum clearance in front of system	0.85 m	1.05 m

Minimum ceiling height

System configuration	2000 L mixing tank	3000 L mixing tank
Hardware system with inflated biocontainer only	2.55 m	2.61 m

Hardware system with additional accessories

Powder transfer bag	Powder chute	Hook type	2000 L mixing tank	3000 L mixing tank
30 L compact design Product codes: PD2UATS0000-SC19 PD2UATS0000-0027 PD2UAT-0000-0027	No	Compact hook Product code: XMHOOK-B4N	2.93 m	2.99 m
		Standard hook	3.08 m	3.14 m
	Yes 15 cm length (contact Cytiva for details)	Compact hook Product code: XMHOOK-B4N	3.08 m	3.14 m
		Standard hook	3.23 m	3.29 m
50 L standard design Product code: PD2UAT-0000-0010	No	Compact hook Product code: XMHOOK-B4N	3.10 m	3.16 m
		Standard hook	3.23 m	3.29 m
	Yes 15 cm length (contact Cytiva for details)	Compact hook Product code: XMHOOK-B4N	3.35 m	3.41 m
		Standard hook	3.49 m	3.55 m

Ordering information

Single-use systems

When ordering single-use systems, it is important to note that one biocontainer and one inflation set are required for operation of each run.

Type	Description	Product code
Standard design biocontainer	2000 L standard, 4 in. powder port, Allegro film	6407-1318A
	3000 L standard, 4 in. powder port, Allegro film	6407-1317Z
General use design biocontainer	2000 L general use design, 4 in. powder port, Allegro film	6407-1317U
	3000 L general use design, 4 in. powder port, Allegro film	6407-1067Z
General use inflation set	General use inflation set, 1.5 in. Tri-Clamp connectors, 2000 or 3000 L	6407-1243S
Dosing lines	¼ in., 3 m length, MPC to ¾ in. Tri-Clamp connector, AdvantaFlex tubing	7291-1940A
	¼ in., 3 m length, MPC to ¾ in. Tri-Clamp connector, AdvantaPure tubing	7291-1939Z
	¼ in., 1.5 m length, MPC to ¾ in. Tri-Clamp connector, AdvantaFlex tubing	7291-1939Y
	¼ in. inner dimaeter,1.5 m length, MPC to ¾ in. Tri-Clamp connector, AdvantaPure tubing	7291-1939X
	¼ in., 1.5 m length, Kleenpak Presto sterile connector to Kleenpak sterile disconnector to Kleenpak Presto sterile connector, AdvantaFlex tubing	7292-1939U
	¼ in., 1.5 m length, Kleenpak Presto sterile connector to Kleenpak sterile disconnector to Kleenpak Presto sterile connector, AdvantaPure tubing	7292-1939T
	¼ in., 3 m length, Kleenpak Presto sterile connector to Kleenpak sterile disconnector to Kleenpak Presto sterile connector, AdvantaFlex tubing	7292-1939W
	¼ in., 3 m length, Kleenpak Presto sterile connector to Kleenpak sterile disconnector to Kleenpak Presto sterile connector, AdvantaPure tubing	7292-1939V
	¼ in., 5 m length, Kleenpak Presto sterile connector to Kleenpak sterile disconnector to Kleenpak Presto sterile connector, AdvantaFlex tubing	7292-1939S
	¼ in., 5 m length, Kleenpak Presto sterile connector to Kleenpak sterile disconnector to Kleenpak Presto sterile connector, AdvantaPure tubing	7292-1939R
Powder transfer bags	30 L powder bag, 4 in. sanitary outlet diameter, sterile claim	PD2UATS0000-SC19
	30 L powder bag, 4 in. sanitary outlet diameter, gamma irradiated	PD2UATS0000-0027
	30 L powder bag, 4 in. sanitary outlet diameter, non-sterile	PD2UAT-0000-0027
	50 L powder bag, 4 in. sanitary outlet diameter, sterile claim	PD2UATS0000-SC10
	50 L powder bag, 4 in. sanitary outlet diameter, gamma irradiated	PD2UATS0000-0010
	50 L powder bag, 4 in. sanitary outlet diameter, non-sterile	PD2UAT-0000-0010
Power chute	Powder chute bag, 4 in. sanitary outlet diameter, gamma irradiated	Contact Cytiva for details

Hardware

When ordering hardware, it is important to note that the mixing tanks and electrical cabinet cannot operate independently. Both are required for operation and have individual product codes.

Type	Description	Product code
Standard tanks without jacket and without load cells	Xcellerex magnetic mixer, 2000 L, stainless steel container	XM2000NHN-B4N
	Xcellerex magnetic mixer, 3000 L, stainless steel container	XM3000NHN-B4N
Jacketed tanks with load cells	Xcellerex magnetic mixer, 2000 L, stainless steel container, jacketed, with load cells	XM2000JHT-B4N
	Xcellerex magnetic mixer, 2000 L, stainless steel container, jacketed, with load cells (ASME certified)	XM2000JHT-B4A
	Xcellerex magnetic mixer, 3000 L, stainless steel container, jacketed, with load cells	XM3000JHT-B4N
	Xcellerex magnetic mixer, 3000 L, stainless steel container, jacketed, with load cells (ASME certified)	XM3000JHT-B4A
Electrical cabinet	Xcellerex magnetic mixer electrical cabinet	XMCABINET-FPID
Controller (optional)	Xcellerex magnetic mixer local controller	XMCONTROL-S
NRTL certification	NRTL certification for hardware system	Available upon request

Spare parts and accessories

Type	Description	Product code
Power cords[8]	Power cord for USA (included with system)	Contact Cytiva for details
	Power cord for Europe (included with system)	Contact Cytiva for details
Powder addition accessories	Powder port holder for 4 in. powder ports	XMPOWDERSUP-B4N
	Large powder bag lift	LGRMXPBSL
	Compact hook for limited cleanroom height	XMHOOK-B4N
Transportation trolley	Transportation trolley; wheel material: high-quality nylon 6	XMTRANSPORT-B4N
Reusable probe sensors	Hamilton EasyFerm Bio HBArc 120 pH probe, 120 mm length	XMPROBE-PH-120
	Hamilton Conducell 4USF Arc 120 conductivity probe, 120 mm length	XMPROBE-COND-120
Probe support	Probe support, to set the correct probe angle	XMPROBSUP-NS-B4N
Door lock	Door transport lock	XMDOORLOCK

[8]See technical specifications for plug types that come standard with each system. Power cords with different plug types compatible with the system power requirements can be requested.

Temperature control unit (TCU) and associated accessories

Type	Description	Product code
TCU system	Lauda Ultracool UC 3005 HW Circulation thermostat; 400 VAC; 3/PE; 50 Hz and 460 VAC; 3/PE; 60 Hz; cooling and heating capability	XMTCU-UC3005
	Lauda Variocool VC10000, air cooled, 400 VAC; 50 Hz and 460 VAC; 60 Hz to 3 phase, max 5.3 bar at 50 Hz/7.3 bar at 60 Hz; cooling and heating capability	TCU-LA-V10A-UL
	Lauda Variocool VC10000, Water Cooled, 400 VAC; 50 Hz and 460 VAC; 60 Hz to 3 phase, max 5.3 bar at 50 Hz/7.3 bar at 60 Hz; cooling and heating capability	TCU-LA-V10W-UL
Hoses	Hose connect kit for UC3005, 6 m (mixer to TCU)	XMTCU-HCT6M
	Hose connect kit for VC10000, 2 m (mixer to TCU)	LT-SVSP509
	Hose connect kit for VC10000, 4 m (mixer to TCU)	LT-SVSP5095-4M
Heat transfer fluid	KRYO 30 heat transfer fluid, 20 L unit	457-18091-00
Other TCU accessories	Lauda TCU connection cable for analog module via XMCABINET-FPID	XMTCU-TEMP
	Pressure relief kit for ASME systems	PHB0050729
	Analog module; Two (2) inputs and two (2) outputs via six-pole DIN socket; independently configurable as 0 to 20 mA, 4 to 20 mA, or 0 to 10 VDC	I/O Interface: type: LZR-912

Qualification services

Site acceptance test (SAT), installation qualification and operational qualification (IQOQ), extended warranty, preventative maintenance and other comprehensive service plans are available upon request. Please contact a Cytiva sales representative for more information.

Protect your equipment and optimize productivity

We recommend that the Xcellerex magnetic mixer equipment is serviced on an annual basis. Routine annual Preventative Maintenance (PM) of the instrument is essential to ensure extended operation. The PM must be performed by Cytiva approved service engineers. The annual PM includes testing of all the Xcellerex magnetic mixer internal components and sub-systems. Maintenance and/or repair work should not be undertaken by the user. Please contact your Cytiva representative for full details of our PM and calibration services.

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