PALL Life Sciences

Instructions For Use

USD2915a

Allegro™ 50 L Single-Use Mixer

*Filtration. Separation. Solution.*SM

Contents

1. Introduction

The following instructions are provided for installation of the Pall 50 L Allegro single-use mixer systems in 50 L plastic and jacketed Allegro mixer hardware. The Allegro 50 L mixer can be used for a wide range of applications required in the production of drug products, such as media and buffer preparation as well as final formulation preparations. The instructions contained in the product documentation should be read thoroughly because they contain valuable information gained by extensive experience. It is very important that all instructions are carefully followed and, where appropriate, they should be incorporated into the user's standard operating procedures. If some of the procedures do not suit your needs, please consult Pall or your local distributor before finalizing your system. Use of this product in a manner other than in accordance with Pall's current recommendations may lead to injury or product loss. Pall cannot accept liability for such injury or loss.

2. Warning

Operation outside the specifications defined in the product data sheet or with fluids incompatible with materials of construction may cause personal injury and result in damage to the equipment. Incompatible fluids are fluids that may chemically attack, soften, stress, attack or otherwise adversely affect the materials of construction. Please refer to Pall for exact limits for contact fluids and conditions.

The use of solutions containing low molecular weight alcohol, especially isopropyl alcohol to decontaminate the exterior of the biocontainers may, in circumstances where significant stress (repetitive bending and twisting) is applied during use, cause damage to the molded LDPE inlet and outlet ports. The flexible LDPE film of the Allegro 3D biocontainers is not affected.

This mixer must only be used by persons who have been trained and authorized to do so.

3. Receipt of Equipment

3.1 Allegro Mixer Hardware

- Take care when removing the supplied mixer hardware from the shipping container. Use appropriate equipment when removing the mixer hardware from the shipping container
- Locate or store the hardware in an appropriate indoor location. The equipment is designed for operation in clean rooms and classified areas and as such should be maintained in a clean state and stored when not in use in an appropriate clean location free from adverse environmental conditions
- Only use mixer when brakes are engaged on the castors
- Do not attempt to move the mixer during use
- Use on an even surface
- Always position the equipment so that the emergency stop button and mains isolation switch can be readily accessed

CAUTION!
The User Control Interface (UCI) is configured for correct operation prior to delivery and is therefore not required to be opened during normal operation. The UCI must only be opened by a qualified servicing engineer.

The mixer is earthed through the mains supply cable.

3.2 Single-Use Systems

Store the Allegro 3D single-use mixer system in clean, dry conditions between 2 and 40 °C without exposure to radiation sources like direct sunlight and, wherever practical, in the packaging as delivered.

Do not remove from packaging until just before use.

Check that the packaging is undamaged prior to use.

CAUTION!
Avoid the use of sharp blades or pointed instruments that could damage the Allegro mixer system and other system components.

Do not open the packaging by forcing any of the system components through the sealed end because this can generate particulate contaminants.

Ensure that the system selected is suitable for the application.

Single-use systems used in the Allegro mixer range are designed for single use only.

4. Pictures and Schematics

4.1 Mixer Tote Pictures

Figure 1
Standard Allegro 50 L mixer with plastic tote

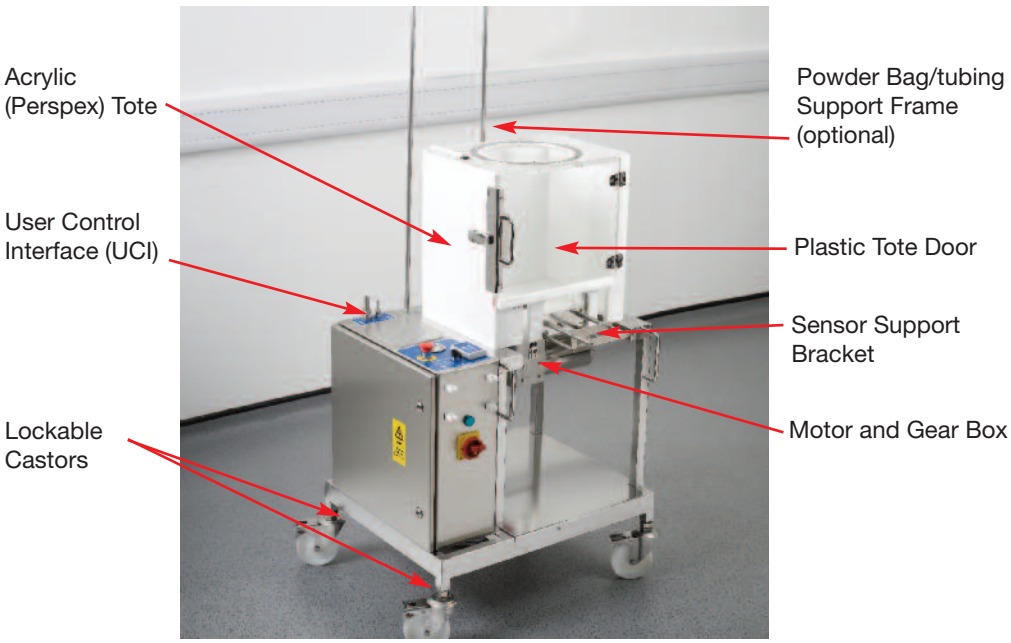
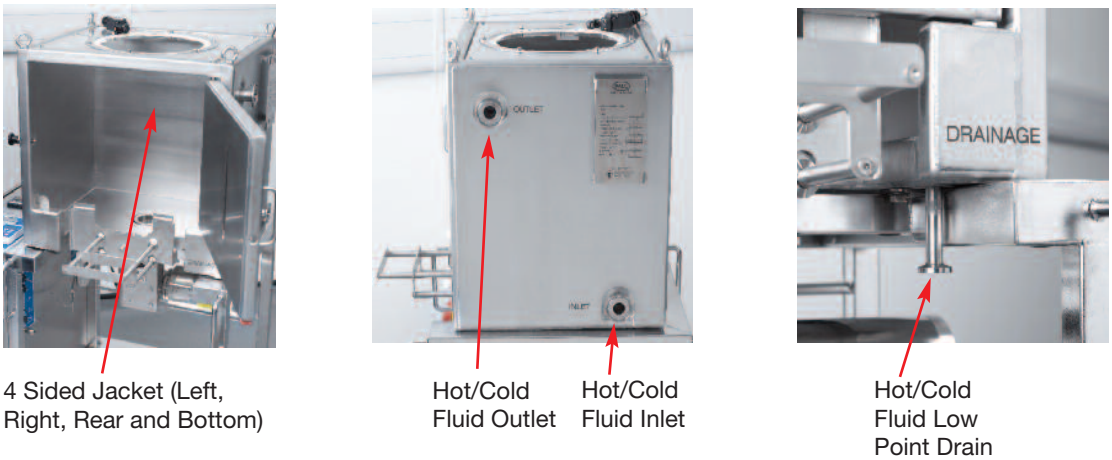


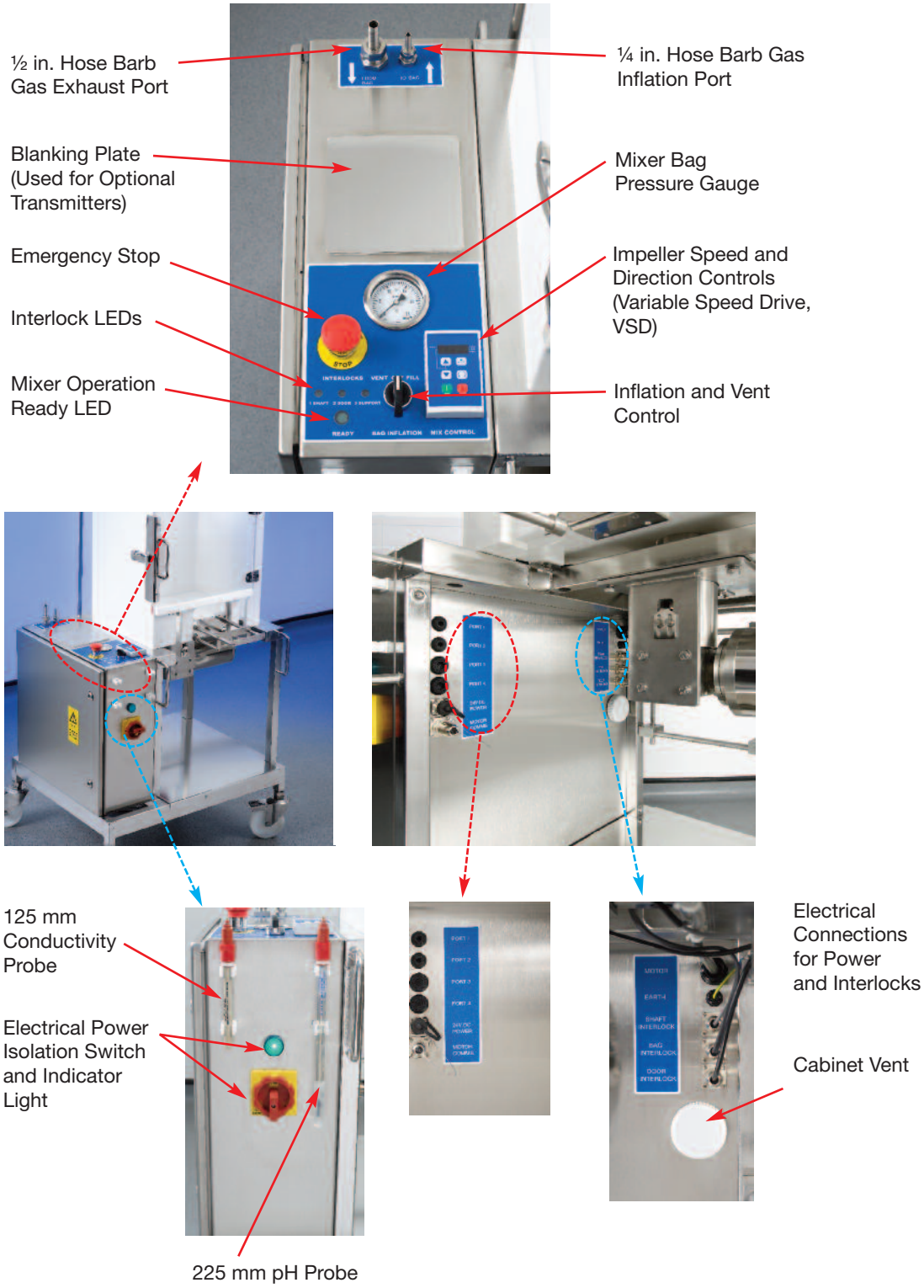
Figure 2
Standard Allegro 50 L mixer jacketed tote (as an alternative to the plastic tote)



4.2 UCI Pictures

Figure 3

Mixer User Control Interface (UCI) TOP

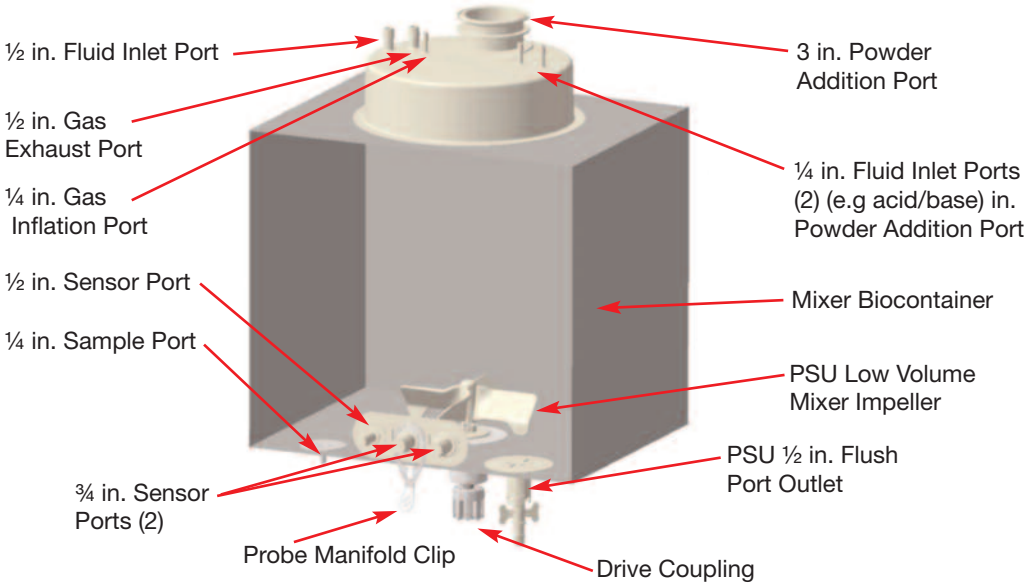


4.3 Single-Use Pictures

Figure 4

Allegro single-use mixer biocontainer ports

NOTE: All materials of construction are polyethylene unless otherwise stated. PSU = Polysulfone



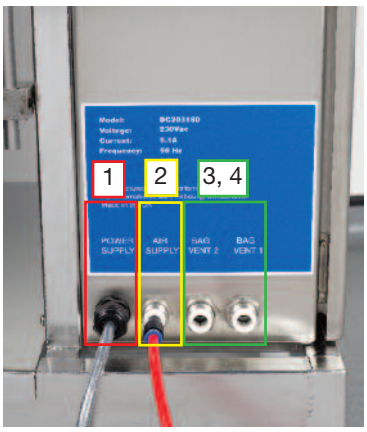
PSU Low Volume Mixer Impeller

5. System Operation

5.1 Connections to the User Control Interface (UCI)

Figure 5

UCI power and gas connections on rear of UCI



WARNING!

Power must be on during all operations including filling and inflation

Compulsory Connections:

1. Power: 120 V or 230 V (depending on UCI/Motor rating). Connect to mains supply.
2. Gas supply (air or nitrogen @ 2 – 6 bar regulated) using 10 mm pneumatic air hose

WARNING!

Ensure connections 3 and 4 are open and free to vent during operation

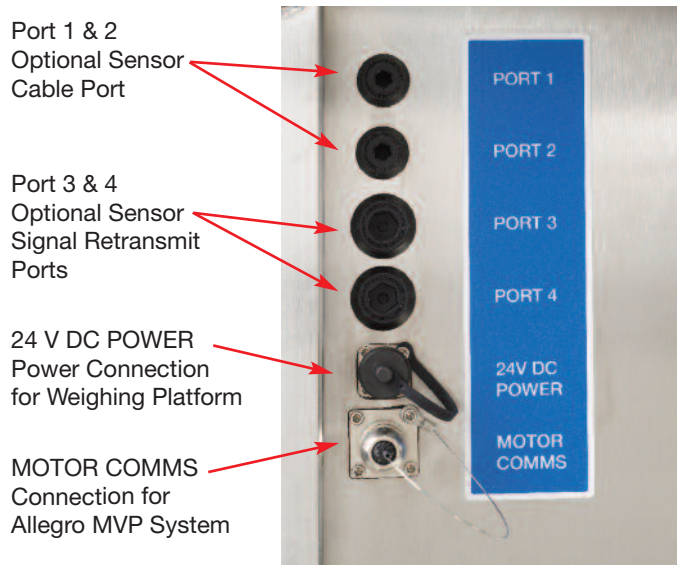
Optional Connections:

3. BAG VENT 1: Downstream Bag Vent (using optional 12 mm pneumatic hose if collecting exhaust nitrogen)
4. BAG VENT 2: Upstream Bag Vent (using optional 12 mm pneumatic hose if collecting exhaust nitrogen)

Optional Connections:

Figure 6

Optional sensor and comms connections UCI INNER FACE FRONT



PORT 1 & PORT 2

Used for connecting appropriate sensor cables at manufacture (depending on mixer configuration).

PORT 3 & PORT 4

Used for connecting appropriate retransmitting cables at manufacture (depending on mixer configuration).

24 V DC POWER
Used for supplying power to the weighing platform version of the Allegro 50 L Mixer.

MOTOR COMMS
Used to link the Allegro 50 L mixer to the Pall Allegro MVP automated system to enable control of the mixer remotely from the Allegro MVP system (either manually or as part of a defined automated phase programed in the Allegro MVP system Phase Step Configurator).

Figure 7
The Pall Allegro MVP automated system linked to a 200 L mixer

Mixer remote operation: The mixer impeller can be controlled remotely by connecting it to the Pall automated Allegro MVP systems via the 'motor comms' port (see Figure 6). When the blanking plug fitted to this port is removed, the UCI for remote operation is enabled.

NOTE: Local operation of the mixer is not possible if the motor comms plug is removed.

NOTE: If the remote control cable is removed, the motor comms plug must be re-connected to the UCI to enable local operation of the mixer from the UCI keypad.

The 'Stop' button will always stop the impeller regardless of system settings.

- Fitting the remote cable into this port and connecting the other end to the Allegro MVP system allows the impeller to be started and stopped, the speed adjusted and the motor direction to be reversed remotely. For further information on how to operate these functions please refer to the instructions for use of the Allegro MVP system.
- Note: If the remote control cable is removed, the port plug must be re-attached to enable normal operation from the UCI keypad.

5.2 Connections to the Allegro Jacketed 50 L Mixer

Connecting and disconnecting the recirculation loop from the Allegro jacketed mixer tote

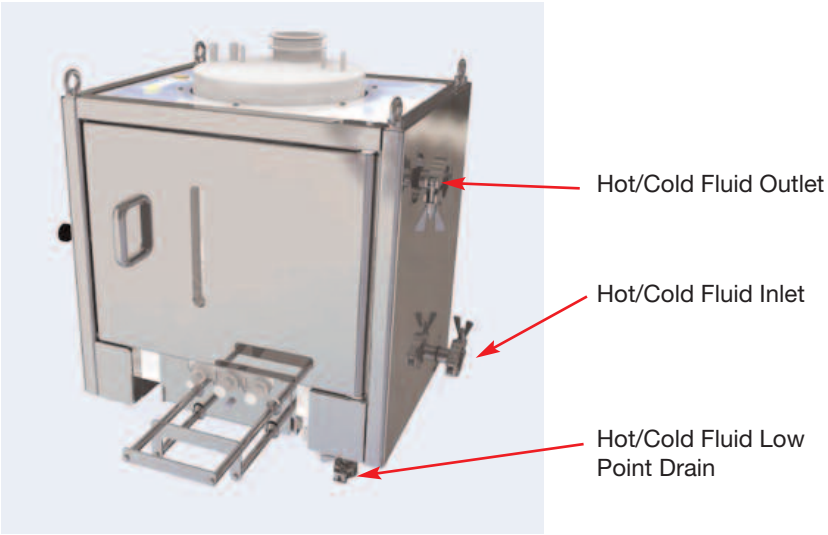
1. Ensure the mixer tote is on level floor and the wheels are locked.
2. Initially set up the thermal circuit, which includes the thermal control unit/utilities supply unit and recirculation loop for the heat transfer fluid. Connect this thermal circuit to the inlet and outlet nozzles of the Allegro jacketed mixer tote.
3. After the tote is connected to the thermal circuit via the inlet and outlet nozzles, the heat transfer fluid is filled in the heat exchanger and circulated through the jacket. Either site utilities or a thermal control unit can be used to establish the flow in the thermal circuit. The differential pressure between the inlet and outlet shall be used to establish the desired flow rate for the thermal transfer fluid.

4. The temperature of the jacket is controlled by controlling the temperature of the heat transfer fluid and / or by regulating the flow rate of heat transfer fluid into the jacket.

Allegro 50 L jacketed mixer tote pressure drop <0.7 bar at 2 cubic meters/hr.

Achieve the desired temperature in the jacket through the thermal circuit (usually the temperature of the product in the biocontainer). Temperature gauges can be attached to monitor temperatures at the inlet and outlet of the Allegro jacketed tote or surface thermocouples can be used to measure temperatures at the inlet and outlet.

WARNING!
Extreme care and precautions should also be taken while handling the heat transfer fluid because of very high and low temperatures.



CAUTION!
Ensure all air is removed from the thermal circuit before starting recirculation of heat transfer fluid.

The heat transfer fluid flow rate is adjusted according to the pressure ratings of the Allegro jacketed mixer tote. Typical pressure drop is shown above.

CAUTION!
Ensure the feed and return lines are isolated and depressurized prior to removal.

The heat transfer fluid is drained through the jacketed tote drain valve following the operation using the low point drain for heating and cooling fluids.

WARNINGS!
- Please note that the thermal circuit with the heat transfer fluid is started up before setting up and filling the Allegro mixer biocontainer in the tote. All the necessary precautions must be in place to regulate temperature and pressure. For example: temperature and pressure gauges at inlet and outlet of the tote.
- Operation outside the specifications defined in the product data sheet may cause irreversible changes to the product, personal injury and can result in damage to the equipment.

5.3 Preparing the Weigh Platform Trolley for Use

Weigh platform quick start guide:
This information is intended to allow the user to quickly start using the weigh platform to measure the weight of the bag contents. For more advanced operation please refer to the full instruction manual included with the mixer.

IMPORTANT. The weigh platform is shipped with the weight of the tote lifted off the load cells by means of 4 half nuts that are rotated upwards on transit bolts. This protects the load cells from shock and vibration during transit:

Nuts in the raised position
for transportation

The 4 nuts must be wound down the transit bolts to allow the tote to sit freely on the load cells before any measurements are attempted. The transit bolts must not be removed, full performance is obtained by rotating the nuts downwards only:

Winding down the top nuts
to engage the load cells

Nuts in the correct position (lowered) to allow weight measurement via the (4) load cells

These nuts should be rotated upwards again to protect the load cells if the mixer is to be shipped to another location.

Operation:
The weighing system will be powered on and start measuring as soon as the main isolating switch is set to on.

The system is designed to measure over a 60 kg range to an accuracy of 20 g. It is supplied already setup and configured for use with the 50 L tote, no further setup is required.

If the display is not already at 0.00, press the zero key, labelled '>0<' to zero the display. The display should always read 0.00 if the tote is empty.

Once the bag system is fully installed and the solids/liquids to be weighed are ready to be added press the green tare key on the weigh platform display, labelled '>T<'.

This will remove the weight of the bag from the display and the weight of any liquids or solids added after this point will be displayed. Likewise if the user wishes to only weigh a proportion of the compounds being added, pressing the tare key again just before that addition will allow this setting the display back to zero.

The tare button can be pressed multiple times, each time removing the last added weight from the display in readiness for the next to be added and measured.

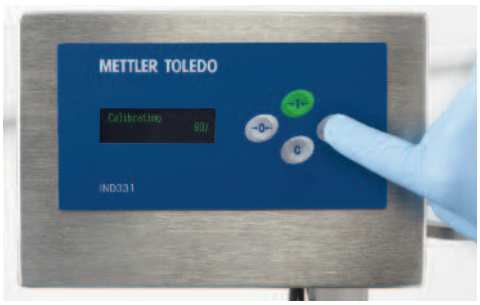
NOTE: The display also shows the word 'net' to indicate that only the bag contents are being weighed.

To cancel the net weight measurement press the button labelled 'C'. This will return the display to measurement of the entire contents of the tote and show 'B/G' instead of 'Net' to indicate gross measurement.

NOTE: In order to zero the display using the zero or tare button the display must be stable and not fluctuating.

For information on calibration please contact Pall for further guidance.

If the weigh platform will not zero, check the wheel locks are on and the system is stable. In certain instances you may need to ‘Set Zero’ by following the steps indicated below:



6. Installing Single-Use System (SUS)

6.1 Removing the System from the Packaging

WARNING!
Do not use a knife or scissors to open the system packaging. These can damage the single-use system. Inspect system for damage. Do not use if damaged.

Allegro single-use mixer systems are typically double bagged. Remove system carefully from packaging.

1. Check packaging is undamaged prior to opening.

2. Open the box and discard the protective packaging according to local regulations.

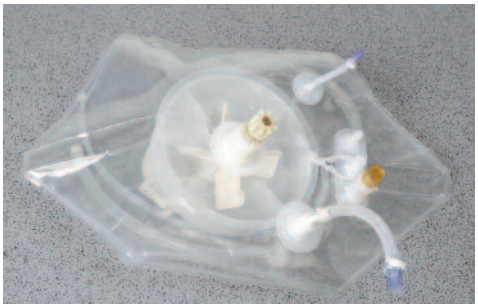
3. Use the easy-tear to open up side of the SUS outer bag.

4. Pull the top face of the outer bag to tear down the sides to reveal the inner packaging bag. Remove outer bag.

5. Use the easy-tear to open up side of the SUS inner bag.

6. Pull the top face of the outer bag to tear down the sides to reveal the single-use mixer system. Remove outer bag.

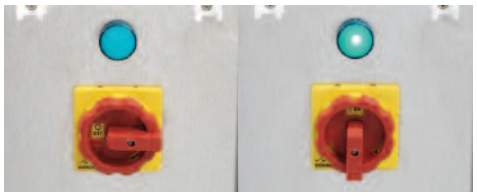
7. Carefully turn the system over to expose the drive shaft coupling.



8. Remove the cover (Note: Cover may not look exactly as shown).

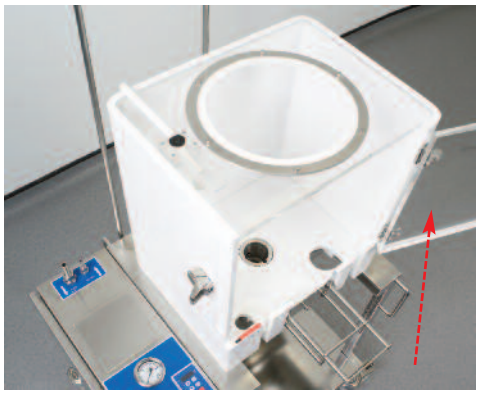
6.2 Installing the System

1. Apply wheel locks to the mixer tote.



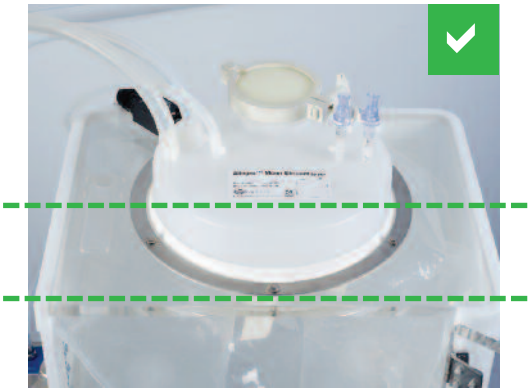
2. Turn on power and check that the power light comes on.

WARNING!
Power must be ON to control bag pressure during operation



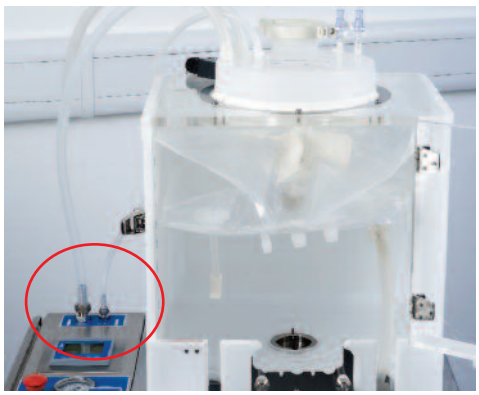
3. Open the door to the Allegro 50 L mixer tote.

4. Push the white section at the top of the single-use system up through the hole in the lid of the plastic or jacketed tote



5. Make sure the label of the single-use mixer system is parallel with the front of the tote

6. Check the ‘1 BAG’ light is illuminated



7. Connect the inflation and exhaust lines from the single-use system to the hose barbs on the User Control Interface (UCI)

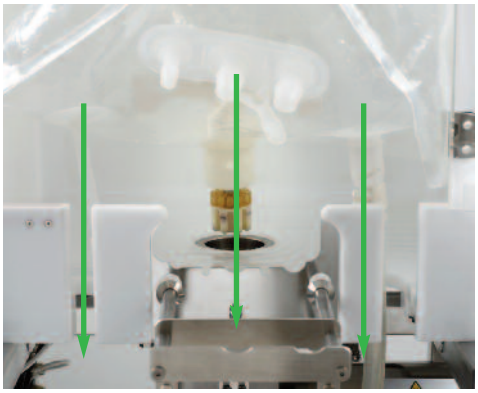
WARNING!

Inflation and exhaust lines MUST be connected to appropriate ports and be free from blockage or restriction to ensure proper regulation of air pressure during operation

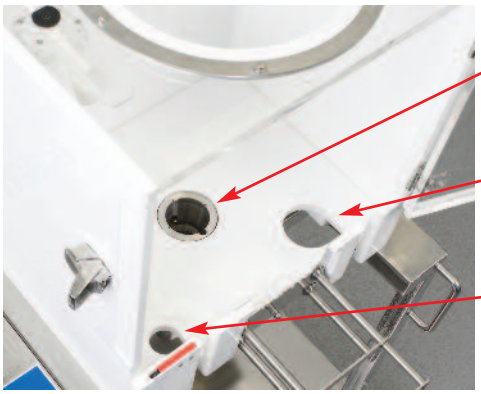
8. Begin inflation by switching the 'BAG INFLATION' switch to 'ON'. Gas should now start to enter the single-use mixer system

WARNING!

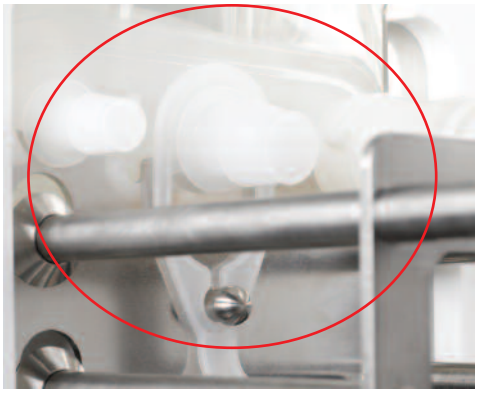
Operator should be in attendance throughout steps 8 - 13



9. As the system inflates the shaft coupling will move towards the bottom of the tote.
Align the shaft coupling, sample line and outlet tubing with the ports on the bottom of the tote (see next picture).

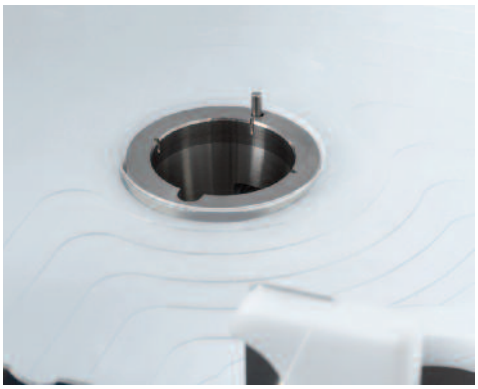


10. As the system approaches full inflation. STOP inflation by turning the BAG INFLATION switch to the 'OFF' position to allow operator to conduct steps 11 & 12.



11. Align the probe manifold on the single-use mixer system to the metal plate at the front of the mixer tote and attach the probe manifold clip.

When the shaft coupling is correctly located, the ‘2 SHAFT’ light is illuminated on the UCI. If the light is not on, refer to troubleshooting.



SHAFT interlock pin which will activate the UCI light when the SUS is in the correct position.

12. Close and secure the door and check 'DOOR' interlock light is illuminated.

13. Turn the BAG INFLATION switch to the ‘ON’ position.

14. Check all lights are on and the variable speed drive is energized (shows ‘STOP’ on the display)

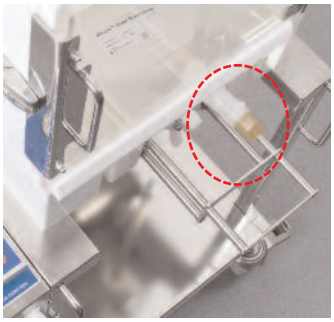
6.3 Connecting Sensors

6.3.1 Non Aseptic Port Sensor Attachment

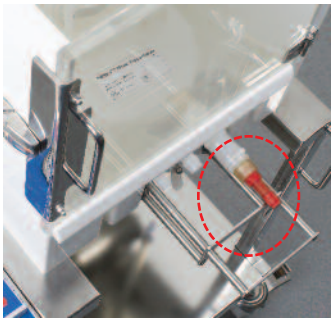
NOTE: Sensor ports are specific to certain Allegro SUS designs. Check that the sensor being used is compatible with the attachment method. Only use approved sensors. The non-aseptic port is supplied with a plug that will provide a fluid seal should a sensor not be required for the specific activity.

NOTE: Sensors must be installed in the Allegro single-use mixer system before fluid is added.

1. Turn the BAG INFLATION switch to the 'OFF' position.



2. Unscrew the plug from the non-aseptic sensor port on the Allegro mixer biocontainer.



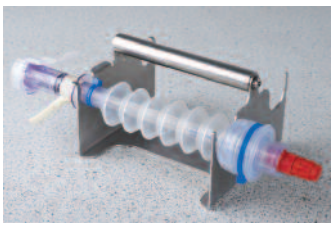
3. Insert appropriate sensor (e.g. conductivity) into the sensor port and screw in to ‘hand tight’. Note: this should be sufficient to create a fluid seal during operation (typically 0.5 Nm). If the port leaks, tighten further. Contact Pall for recommended sensors.
4. Connect the sensor cable to the sensor to allow display of the values (either locally on the mixer via the optional sensor transmitter, or via a remote system such as the Allegro MVP automated system).

6.3.2 Aseptic Port Sensor Attachment (Connecting to a Female Kleenpak® Sterile Connector)

NOTE: Sensors must be installed in the Allegro single-use mixer system before fluid is added.

1. Insert appropriate 225 mm sensor (i.e. pH) into the bellows assembly and secure. Contact Pall for recommended sensors.

NOTE: Take care not to push the sensor end too far during installation in the bellows, as this may cause damage to the Kleenpak sterile connector peel strip.



2. If required autoclave this assembly prior to use utilizing an appropriate support mechanism to avoid damage during autoclave. Contact Pall for details of support manifold.

Connecting the bellows assembly (including sensor) to the single-use mixer

1. Remove protective caps from both the female Kleenpak sterile connector (attached to the single-use system) and the male Kleenpak sterile connector (on the bellows assembly) and follow the Kleenpak sterile connector instructions (Pall document reference number USD 2233) to make the sensor connection.

2. Connect the male and female Kleenpak sterile connectors (peel strips still in folded position, strips facing up) by 'clicking' them together, inspecting the locating regions on both sides of the Kleenpak sterile connectors to confirm full engagement. **NOTE:** Take care not to push the sensor during attachment, as this may cause damage to the Kleenpak sterile connector peel strips.

3. Supporting the Kleenpak sterile connector, remove the anti-actuation tab. **NOTE:** At this point a Kleenpak assembly aid can be used to confirm full engagement of the male connector to the female connector, although with full operational training, the assembly aid is generally not routinely required.

4. Supporting the Kleenpak sterile connector, remove both peel strips simultaneously.

5. Complete the sterile connection by pushing the male connector's plunger into the female connector.

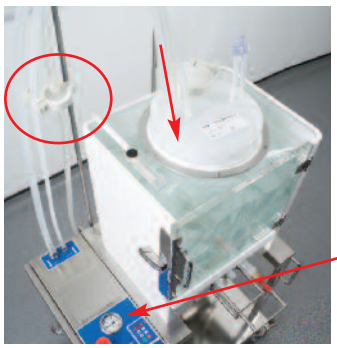
6. Engage the sensor into the Allegro single-use mixer by pushing the sensor into the mixer biocontainer, collapsing the bellows.

7. Engage the end of the bellows in to the sensor support bracket to maintain optimum sensor position in the mixer.

7. Fluid Addition

WARNING!
Power must be ON to allow the UCI to regulate pressure

Once the single-use system is inflated, the system can be filled with fluid. During fluid addition the system will regulate the pressure in the single-use system by allowing gas to exhaust from the rear of the UCI.



1. Connect a suitable fluid addition line to the mixer inlet line and add fluid

WARNING!
Filling phase must be observed to ensure pressure does not exceed specifications as outlined below

If the pressure continues to rise above 20 mbar on the UCI during filling, reduce the fluid filling rate. The fill rate for the 50 L mixer should not exceed 10 L/min

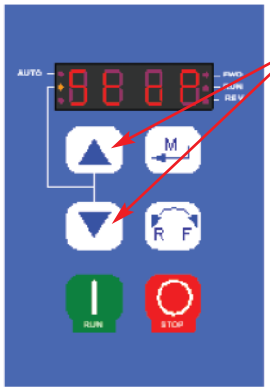
Approximate fill volume can be observed using the volume indicator on the inside of the tote (viewed through the door during filling)

Accurate fill volume (by weight measurement) can be determined using the weigh platform version of the 50 L mixer. Here the mixer trolley is equipped with built in load cells.

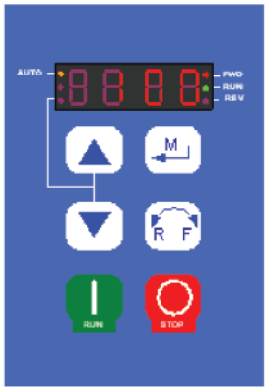
8. Running the Allegro Mixer

The mixer speed percentage (%) and direction of rotation are controlled by the panel on the UCI.

Figure 8
Setting the mixer rotation speed in %



To set the % speed for the rotation, use the panel to increase the % figure to the desired value.

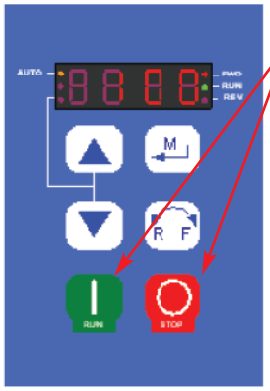


The direction of rotation is set as either 'FWD' or 'REV'.
FWD = Clockwise/Up-flow
REV = Counter-clockwise/ Downflow

To change from current direction:
1. Press 'R F' button

The LED next to either FWD or REV will flash for approx 4 seconds, indicating the new direction

2. Press and release 'M' button within 4 seconds. This will activate rotation in the opposite direction



To start the mixer press 'RUN'. The mixer will ramp up to the set % speed in the set direction of rotation.

To stop mixing, press 'STOP'.
The mixer will ramp down to a stop (0 %)

The following table shows the relationship between set speed (%) and revolutions per minute (rpm):

Set Speed (%)	rpm
25	50
50	100
75	150
100	200

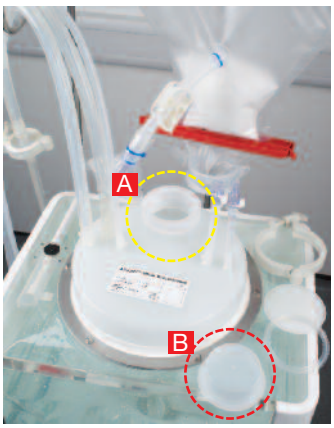
NOTE: The mixer can also be stopped by using the Emergency Stop button. In order to restart the mixer after activating the Emergency Stop button, the E-Stop must be fully released from its activated position and the 'RUN' button pressed on the UCI.
NOTE: Holding down the 'M' button for more than 4 seconds will enter set-up mode. It is not necessary to enter set-up for mixer operation. After the 'M' is pressed the first time the control panel will be looking for the password to be entered. 3 further presses of this button will return the display back to normal operation.

9. Adding Powder

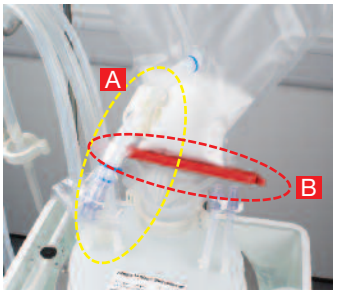
Pre-measured powder additions can be added into the mixer using the support mechanism on the Allegro mixer tote and the 3 in. powder addition port.

1. Powder can be pre-dispensed into an appropriate powder delivery bag (e.g 1 or 5 kg) and supported on the optional frame.

2. Switch ‘BAG INFLATION’ Switch to the ‘OFF’ Position.



3. Open the 3 in. port on the top of the mixer (A) and remove the plug (B) from the powder bag.



4. Connect the powder bag to the 3 in. port on the mixer (A). When connected the red clip (B) on the powder bag can be removed to dispense the powder into the fluid. Some powder bags have a flush line.

WARNING!
Do not attempt to place hand through the 3 in. powder addition port at any point during operation. Risk of personal injury.

5. Reconnect 3 in. powder port cap, secure with clamp and switch inflation to 'ON' to re-inflate the mixer biocontainer.

10. Draining

Draining can be performed in a number of ways according to the specific application requirements. Table 1 below gives drainage approaches according to application requirements.

Before draining the mixer, follow the below instructions:

1. Connect the outlet port to the desired downstream equipment or receptacle according to the specific fitting on the single-use system (e.g. Kleenpak sterile connector or quick connector).
2. Open the outlet port valve by gently rotating the flush port bayonet valve to a stop, allowing fluid to flow out of the Allegro mixer biocontainer.

CAUTION! Take care to not over-rotate, apply excessive force, or pull the flush outlet valve during operation. This may cause it to detach from the mixer. Use MINIMUM force when rotating the bayonet valve to open the outlet line.

Table 1

Draining the mixer system

Mixer rotation	'Bag Inflation' Setting	When to Use	Comments
On Then OFF	ON Then VENT	To keep the mixer inflated and to continue mixing during dispensing the mixed volume	Once the mixer is empty, 'Bag Inflation' can be switched to 'Vent' to allow collapse of the bag prior to removal. Once 'Vent' has been selected, the top of the bag should be gently pushed down into the mixer tote to free the top hat from the upper gasket to vent the biocontainer and allow removal.
OFF	ON (until fluid dispensed) Then VENT	To keep the mixer inflated during dispensing the mixed volume	As above No agitation of fluid during dispensing
OFF	OFF	To allow the mixer to collapse during dispensing the mixed volume	The top of the mixer SU system should be gently pushed down into the mixer tote to free the top hat from the upper gasket at the start of the fluid dispensing phase. Allows for removal of the single-use mixer system as soon as fluid volume is fully dispensed from the system.

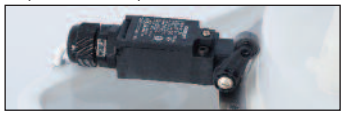
Note: Fluid dispensing is normally done using a peristaltic pump on the outlet tubing, especially when a filter is being used downstream of the mixer chamber.

The floor of the Perspex tote is specifically designed to provide very high yield/fluid recovery during draining.

11. Single-Use System Removal

1. Once drainage is complete, close the flush port outlet valve as well as all other inlets and outlets.
2. Power down the UCI.
3. Detach inlet/outlet tubing from other systems.
4. Detach the inflation and exhaust lines from the UCI.
5. Remove any sensors from the front sensor connection ports.
6. Detach the sensor port locating tab on the front of the mixer and open the tote door, taking care to feed the sample line and sensor connections through the holes on the door.
7. Push the top of the 50 L mixer SUS down through the top opening of the tank. Remove the single-use mixer system by placing hands directly under the system (either side of the impeller) and lifting the system straight up to clear the shaft from the drive unit of the tote.
8. Dispose of the single-use system according to local regulations, including any necessary decontamination steps.

12. Troubleshooting

Issue	Possible Cause(s)	Check/Corrective Action
When system is installed the '1 BAG' interlock LED is NOT illuminated	System is not powered up	Check system is connected correctly to power supply and the LED on the UCI power light is illuminated GREEN.
	Malfunction of the micro switch	Check the micro switch is operating correctly by carefully operating it manually to check that it is working. Check the cable connection to the micro switch. Replace with spare item or call Pall for warranty/servicing. 
At the end of Inflation process, the '2 SHAFT' interlock LED is NOT illuminated	System is not powered up	Check system is connected correctly to power supply and the LED on the UCI power light is illuminated GREEN.
	Shaft is not completely in place	Stop the inflation process and visually check the shaft/impeller assembly is flush with the bottom of the tote. If not (slightly raised) gently manipulate the system to allow the shaft coupling to drop into position.
	Malfunction of the micro switch	Check the cable connection to the micro switch. Replace with spare item or call Pall for warranty/servicing.
When the system is fully inflated and in place, and the door is closed the '3 DOOR interlock LED is NOT illuminated	System is not powered up	Check system is connected correctly to power supply and the LED on the UCI power light is illuminated GREEN.
	Malfunction of the micro switch	Check the door is correctly aligned above the interlock.  Replace with spare item or call Pall for warranty/servicing.
Local operation is not possible via the mix control panel: 'ERR' is displayed on mix control panel when motor run button is pressed	MOTOR COMMS plug not fitted to the MOTOR COMMS port on the UCI	Fit the MOTOR COMMS plug to the connector  

13. Specifications

	50 L Standard Unit	50 L Jacketed Unit	50 L Std and Weigh Plat	50 L Jkt and Weigh Plat
230 Vac PN	LGRMXTTE50L230A	LGRMXJTTE50L230A	LGRMXWTTE50L230A	LGRMXWJTTE50L230A
120 Vac PN	LGRMXTTE50L120A	LGRMXJTTE50L120A	LGRMXWTTE50L120A	LGRMXWJTTE50L120A
Weight (empty) (kg)	94	133	103	142
Weight (full – 50 kg liquid in jacket version (kg))	144	186.5	153	195.5
Footprint (L x W) (mm/in.)	883 x 654 / 35 x 26	883 x 654 / 35 x 26	964 x 654 / 40 x 26	964 x 654 / 40 x 26
Height exc bag and powder bag support (mm/in.)	1286 / 51	1286 / 51	1364 / 54	1364 / 54
Materials of Construction				
Tote	Acrylic (Perspex)	304 Stainless Steel	Acrylic (Perspex)	304 Stainless Steel
Frame	304 Stainless Steel	304 Stainless Steel	304 Stainless Steel	304 Stainless Steel
Wheels	Nylon/Stainless Steel	Nylon/Stainless Steel	Nylon/Stainless Steel	Nylon/Stainless Steel
Weighing Platform Accuracy (g)	N/A	N/A	20	20
Gas connections	Supply & Cabinet Vent: 10 mm Pneumatic tubing outside diameter BAG VENTS: 12 mm Pneumatic tubing outside diameter			
Min/Max Volume (L)	2 – 50			
Mixer Volume Covering Impeller (L)	10			
Mixer Volume Covering Sensors (L)	6.5			
Current (A)	5.1 (230 Vac) 9.2 (120 Vac)			
Frequency (Hz)	50-60			
Motor Power (kW)	0.18			
Impeller speed (%)	0 – 100			
Gas Supply (barg/psig)	2 – 6 / 30 – 90			
Noise (dB)	< 70			
IP Rating	IP65/Nema 4			

14. General Maintenance

It is recommended that the Allegro 50 L single-use mixer is serviced on an annual basis. Pall Advanced Separation Systems (PASS) Servicing Group can provide this as a service. Please contact your Pall representative for further details.

The following checks should be carried out on a regular basis:

- Inspect power cables to ensure they are intact and undamaged. Do not use the mixer if damage is found
- Check gas supply tubing for integrity and damage
- Check the operation of the emergency stop button
- Check the operation of the mains power isolation switch
- Check the door catches are firmly attached to the tote and there is no sign of damage on the panels and joins of the tote

If any damage is found or any part of the product is not functioning normally then do not continue using the product and contact Pall for help and advice. This mixer does not contain any user-serviceable parts.

In general, the following critical spares should be considered to be held in stock since failure of these items in use will prevent use of the mixing system. Component replacement instructions can be obtained from Pall Advanced Separations Systems (PASS) engineering group. Please contact Pall.

To isolate the mixer before disconnection or maintenance work:

- Switch off electrical power supply at the main isolating switch on the UCI
- Switch off electrical power at the plug end and unplug the mixer
- Switch off gas supply and disconnect the supply tubing from the UCI
- The main isolating switch on the UCI can be padlocked ‘OFF’. This switch isolates both electrical and pneumatic energy sources in the UCI.

Allegro 50 L Mixers - Spare Parts List

ID	Part Number	Description
1	DC203596	Shaft micro switch
2	DC203598	Support micro switch
3	KDC202230B00	Door mounted probe support assembly
4	DC203597	50 L mixer magnetic door sensor assembly
5	LGRXXXA101A99	UCI key

Optional Items

Allegro 50 L Mixers - Optional Parts List

ID	Part Number	Description
1	LGRMX50LSF	Powder bag/tubing support frame
2	LGRMX50LTBS	Powder bag and tubing support
3	LGRMX50LFS	Funnel support

15. WEEE Declaration

The presence of this label on a product means that the product contains electrical or electronic materials and therefore should not be disposed of as unsorted waste but instead treated separately. The presence of these materials may, if not disposed of properly, have potential adverse effects on the environment and human health. Within the European Union users are urged to recycle such products when being replaced with a newer version or when they have outlived their useful lives. However as the legislation and facilities vary throughout the member states, please contact your local Pall sales office or distributor to discuss the available options for correctly disposing of this product.

16. Warranty

Pall warrants that Allegro hardware and systems manufactured by Pall, when properly stored and installed, and operated at ratings, specifications and design conditions, will be free from defects in material and workmanship during their shelf life.

Pall liability under any warranty is limited solely to replacing, or issuing credit for the Allegro systems and hardware that may become defective during the Warranty Period.

17. Cleaning Recommendations

The frame, stainless steel components (such as jacketed totes) and UCI can be cleaned using a soft cloth and a neutral detergent or alcohol solution. Do not use abrasive cleaning agents.

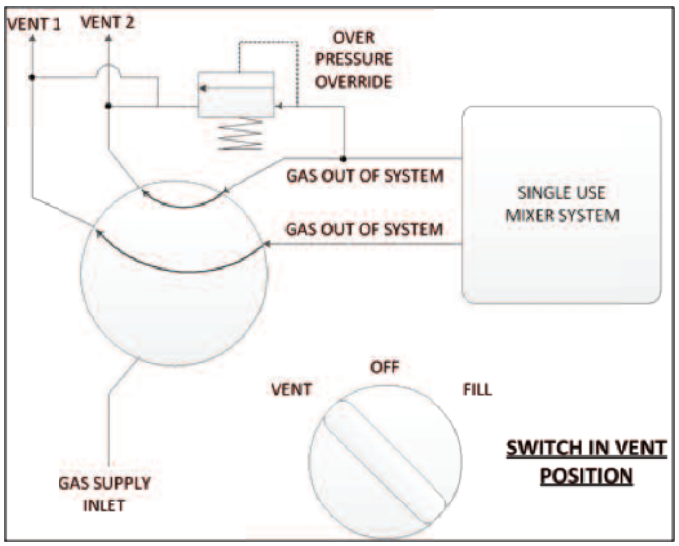
The acrylic tote may be wiped down with a cloth (not directly sprayed) using a mixture of up to 20% alcohol to water. Biocides A and B may also be used to clean the tote.

18. Manufacturer Details

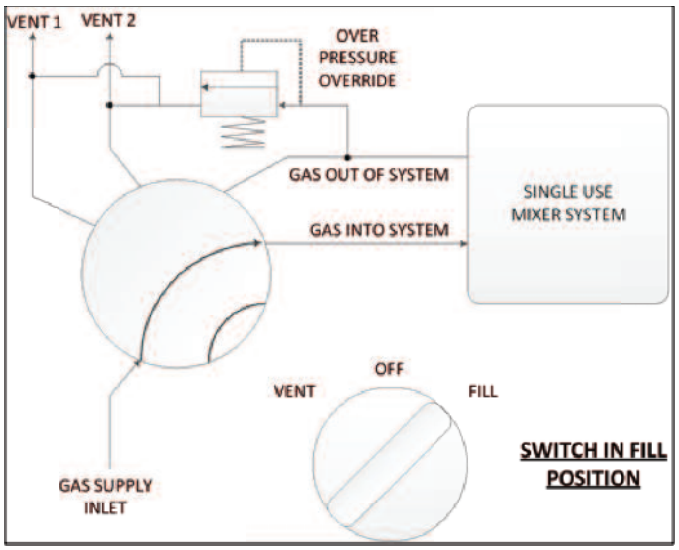
The Allegro 50 L Mixer is manufactured by:

Pall UK Manufacturing
Walton Road
Farlington
Portsmouth
Hampshire
P06 1TD
GBR
+44-23-9230-3303

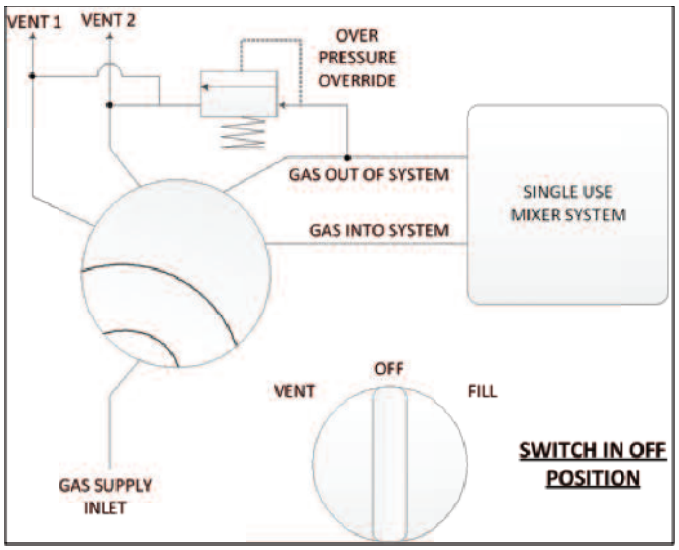
19. Appendix 1: Pneumatic Diagram for Gas Vent Operation



Switch in VENT position:
Use this position to open both the gas lines to vent the single-use system when controlled collapsing the mixer system prior to removal from the system.

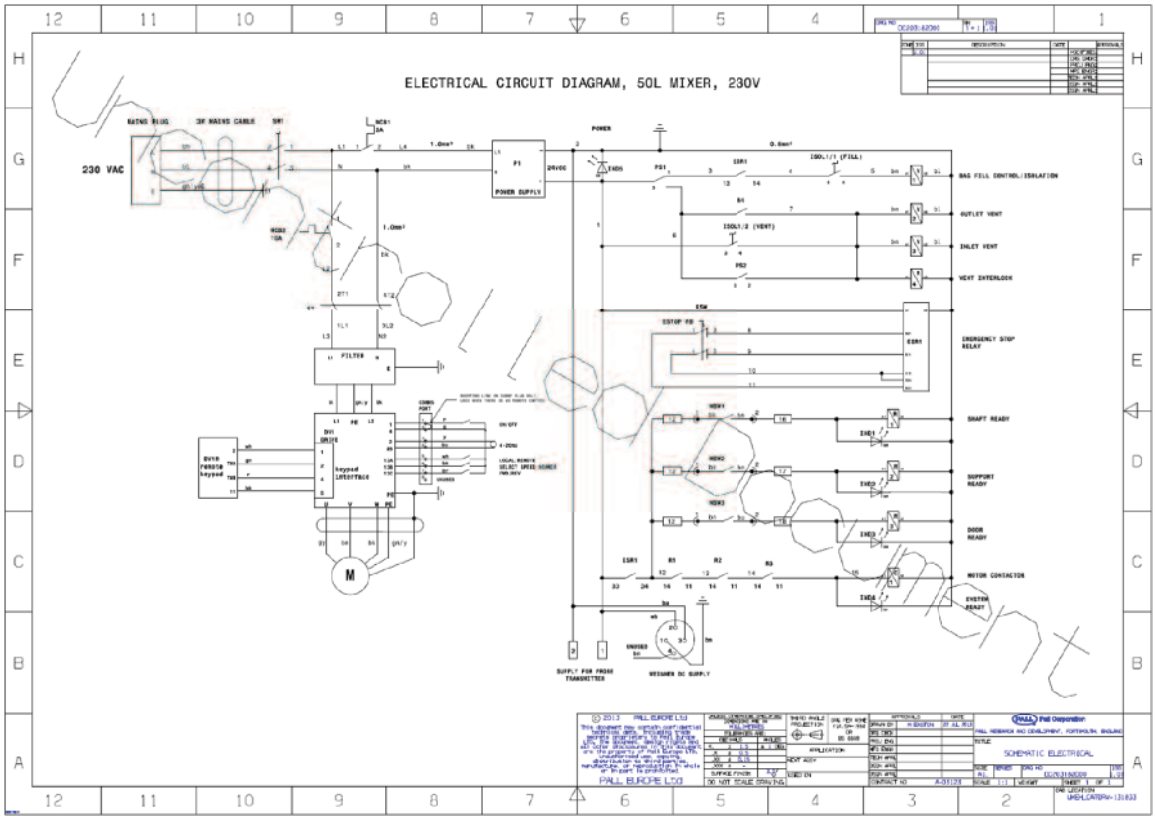


Switch in FILL position:
Use this position to control the inflation of the mixer bag during normal operation

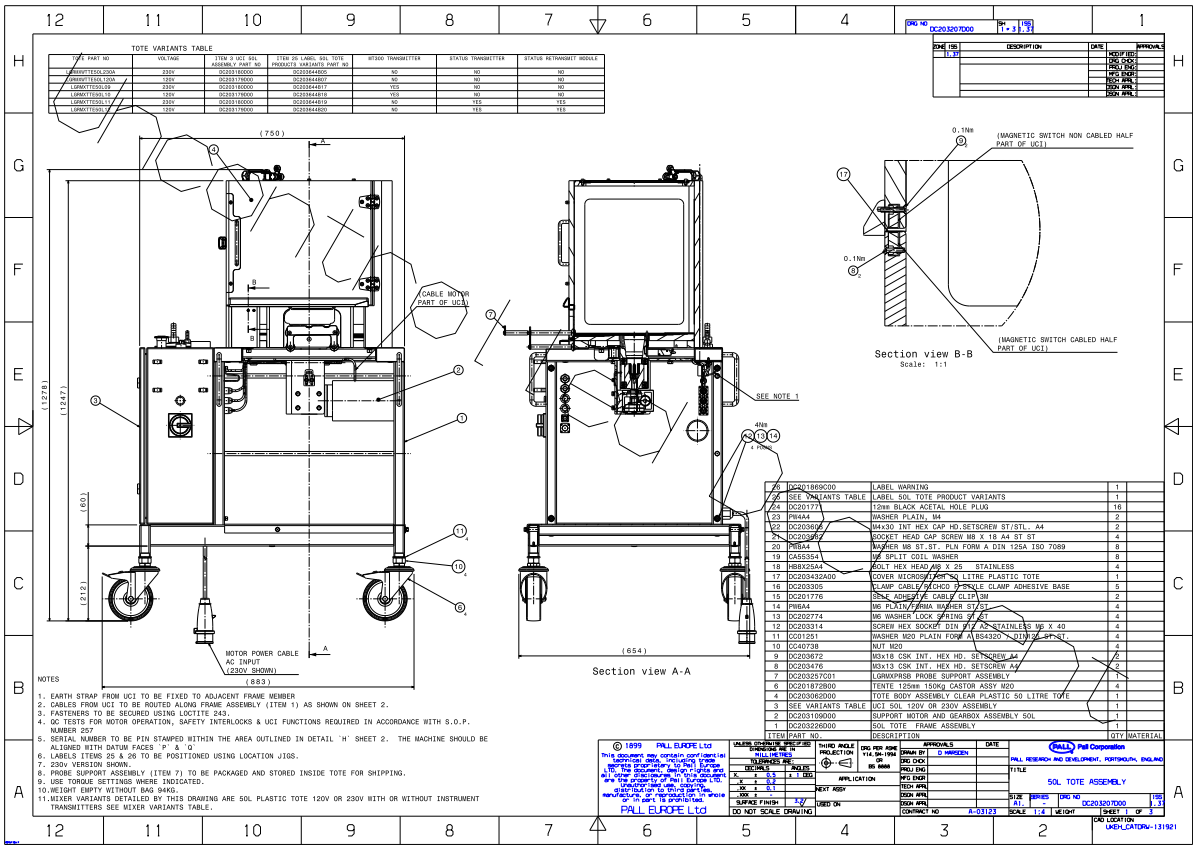


Switch in OFF position:
Use this position when adding powder to the mixer via the powder port or when removing the bag from the system following use.

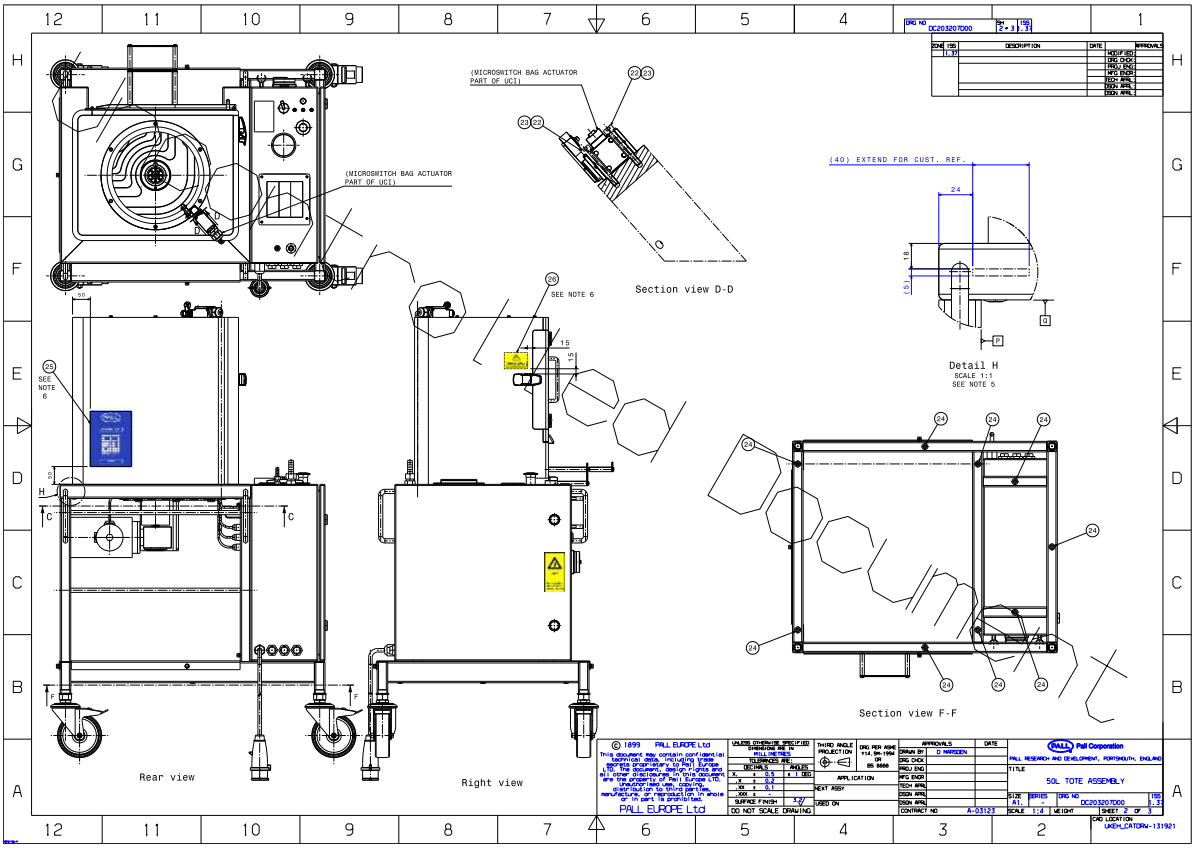
20. Appendix 2: Wiring Diagrams

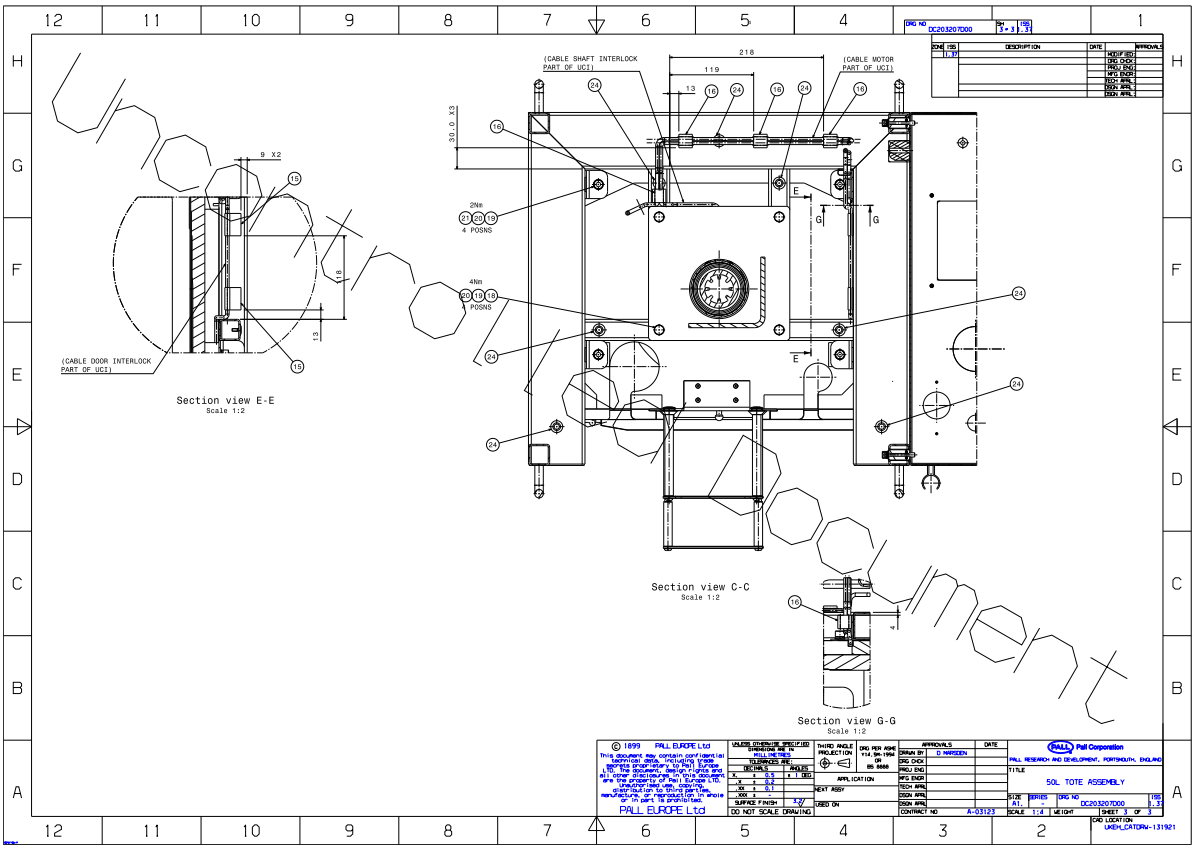


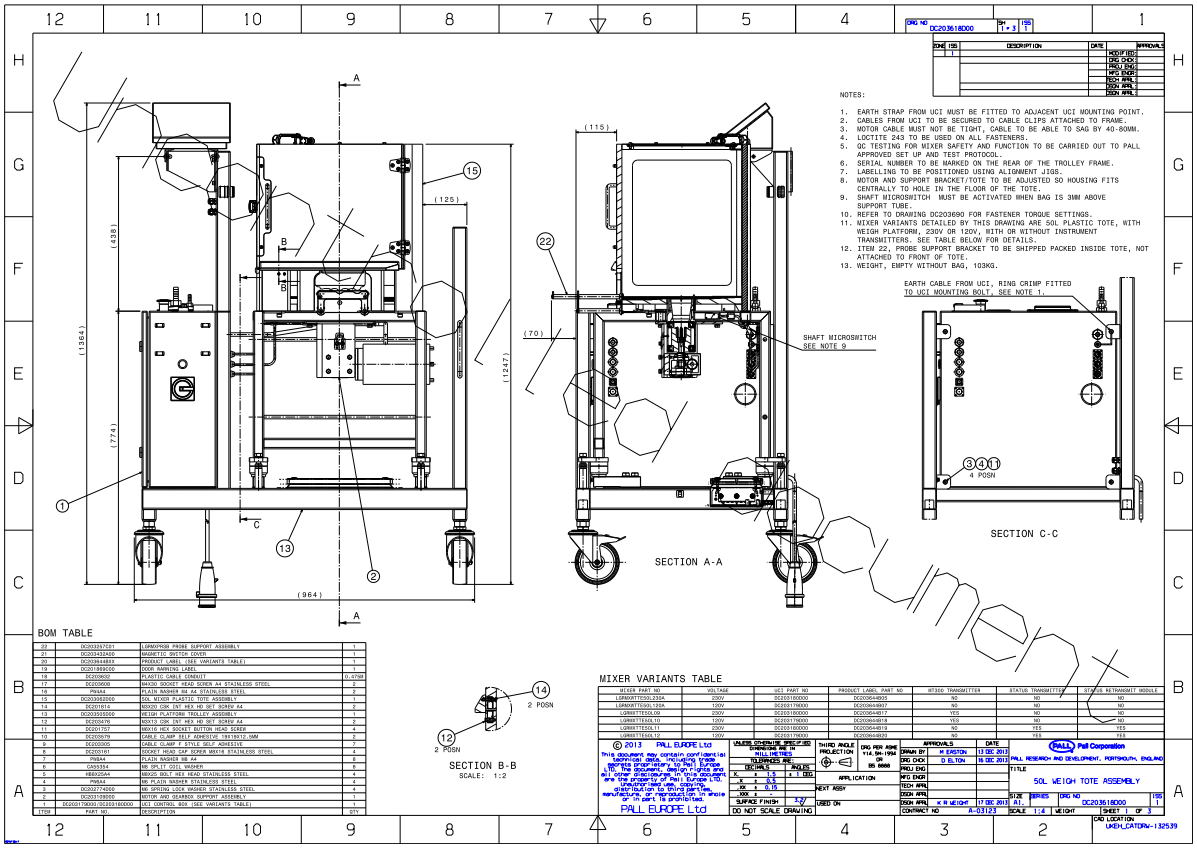
21. Appendix 3: General Assembly Drawings

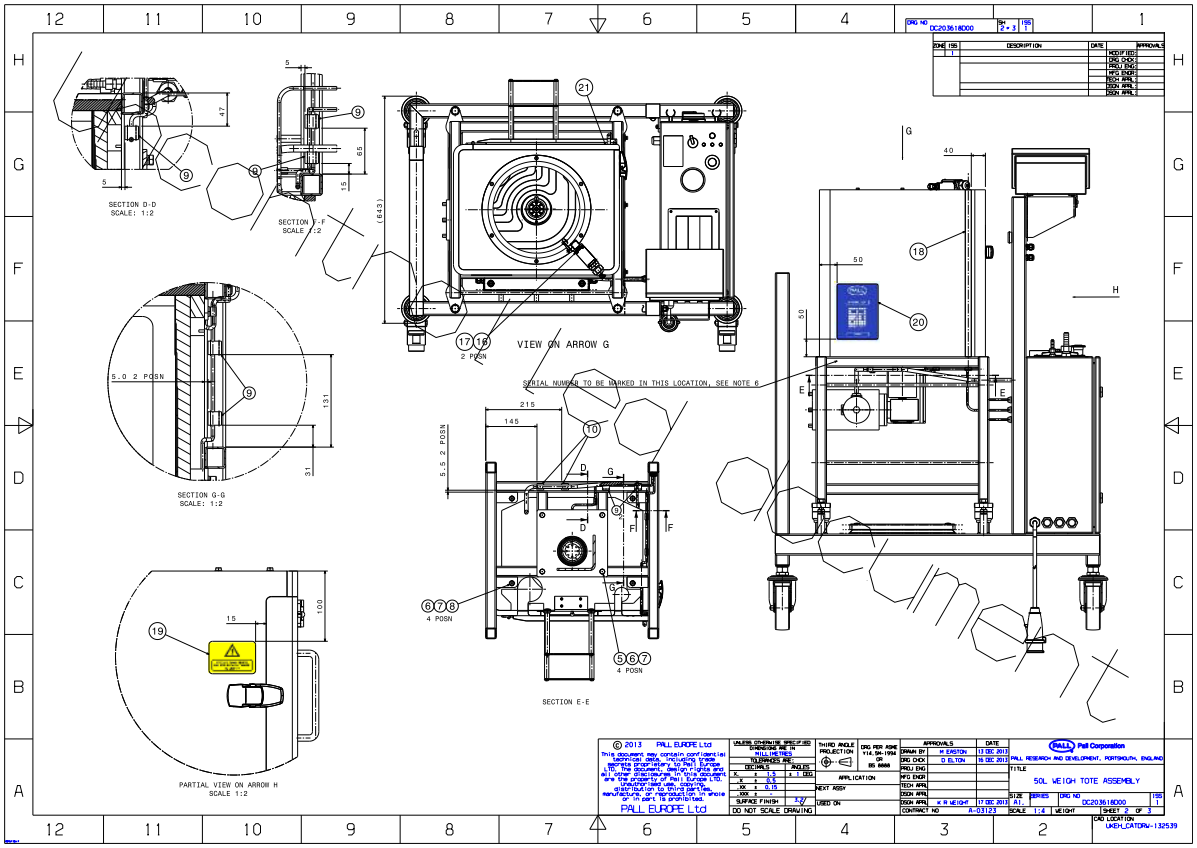


PALL Life Sciences


(MICROSWITCH BAG ACTUATOR PART OF UCI)
(MICROSWITCH BAG ACTUATOR PART OF UCI)
Section view D-D
(40) EXTEND FOR CUST. REF.
Detail H
SCALE 1:1
SEE NOTE 5
SEE NOTE 6
SEE NOTE 6
Rear view
Right view
Section view F-F
DC203207D00
50L TOTE ASSEMBLY
PALL EUROPE Ltd


(CABLE SHAFT INTERLOCK PART OF UCI)
(CABLE MOTOR PART OF UCI)
(CABLE DOOR INTERLOCK PART OF UCI)
Section view E-E
Scale 1:2
Section view C-C
Scale 1:2
Section view G-G
Scale 1:2
DC203207D00
50L TOTE ASSEMBLY
PALL EUROPE Ltd





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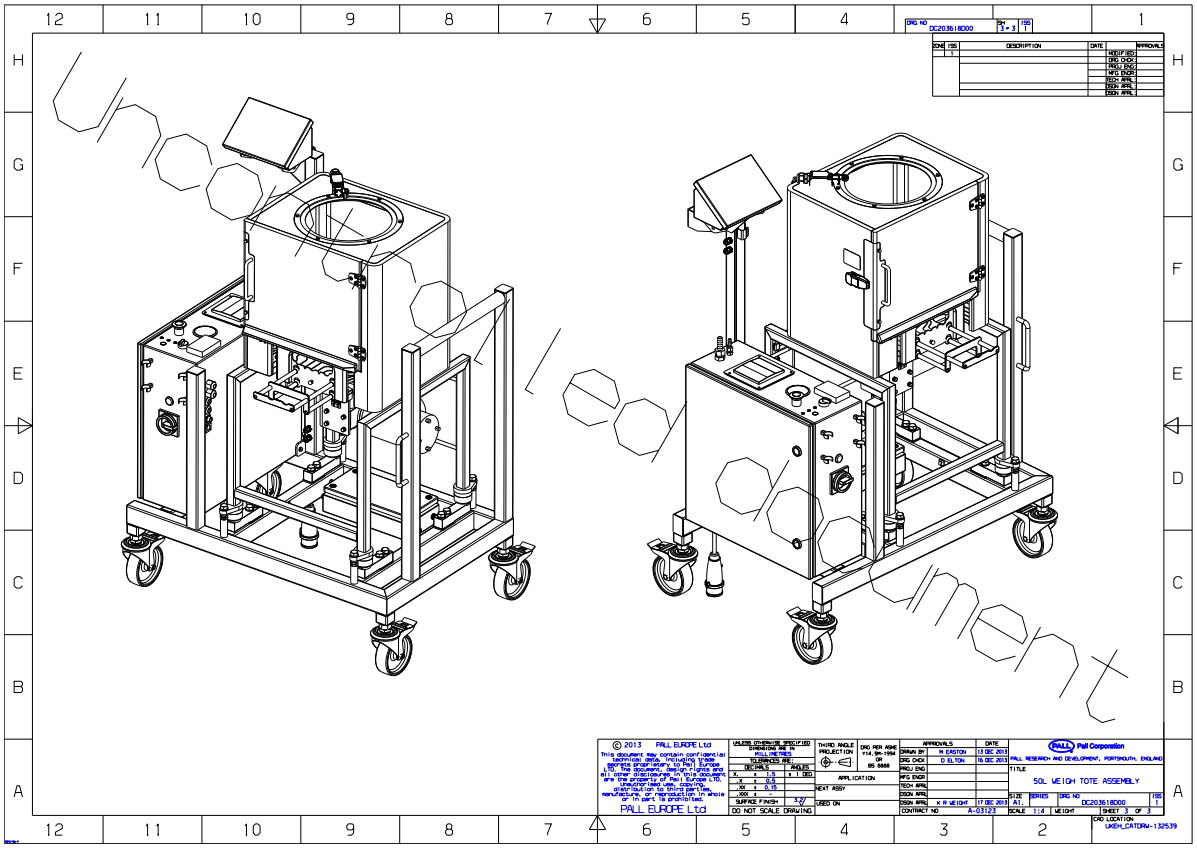
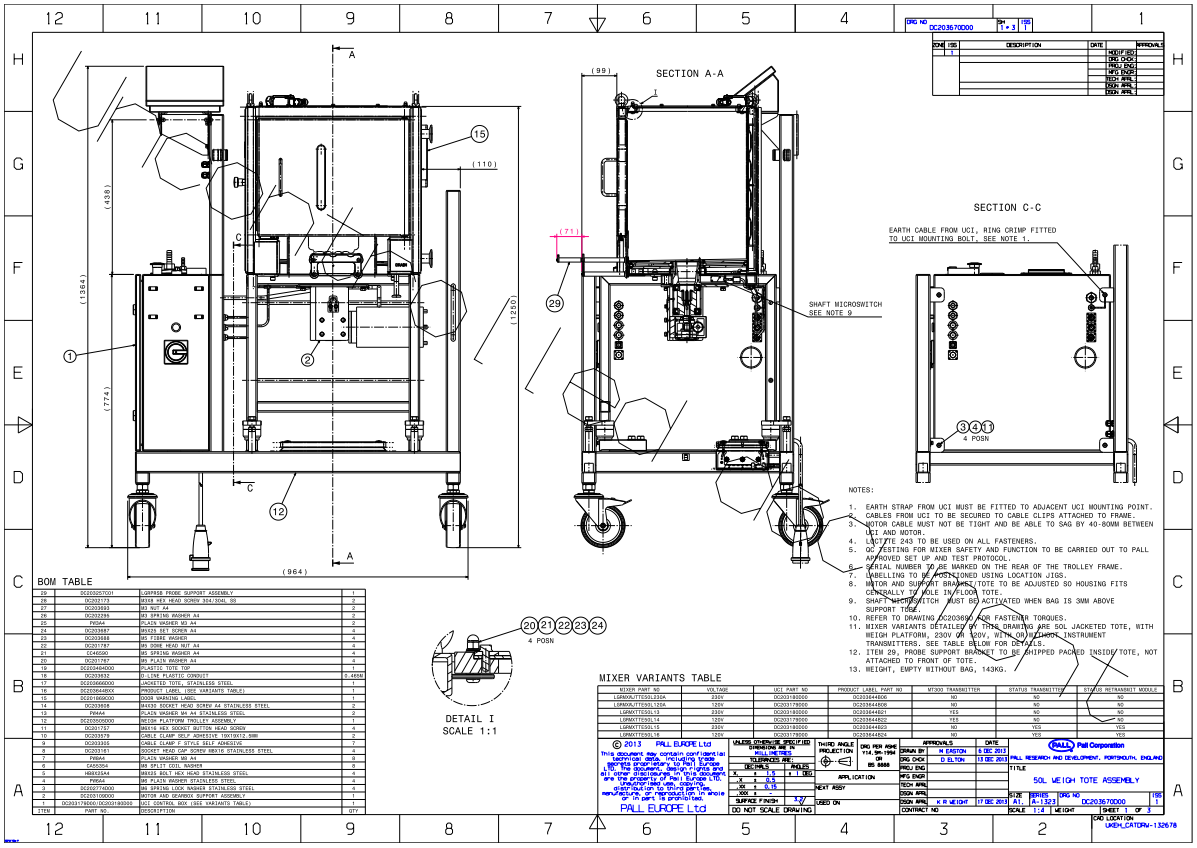
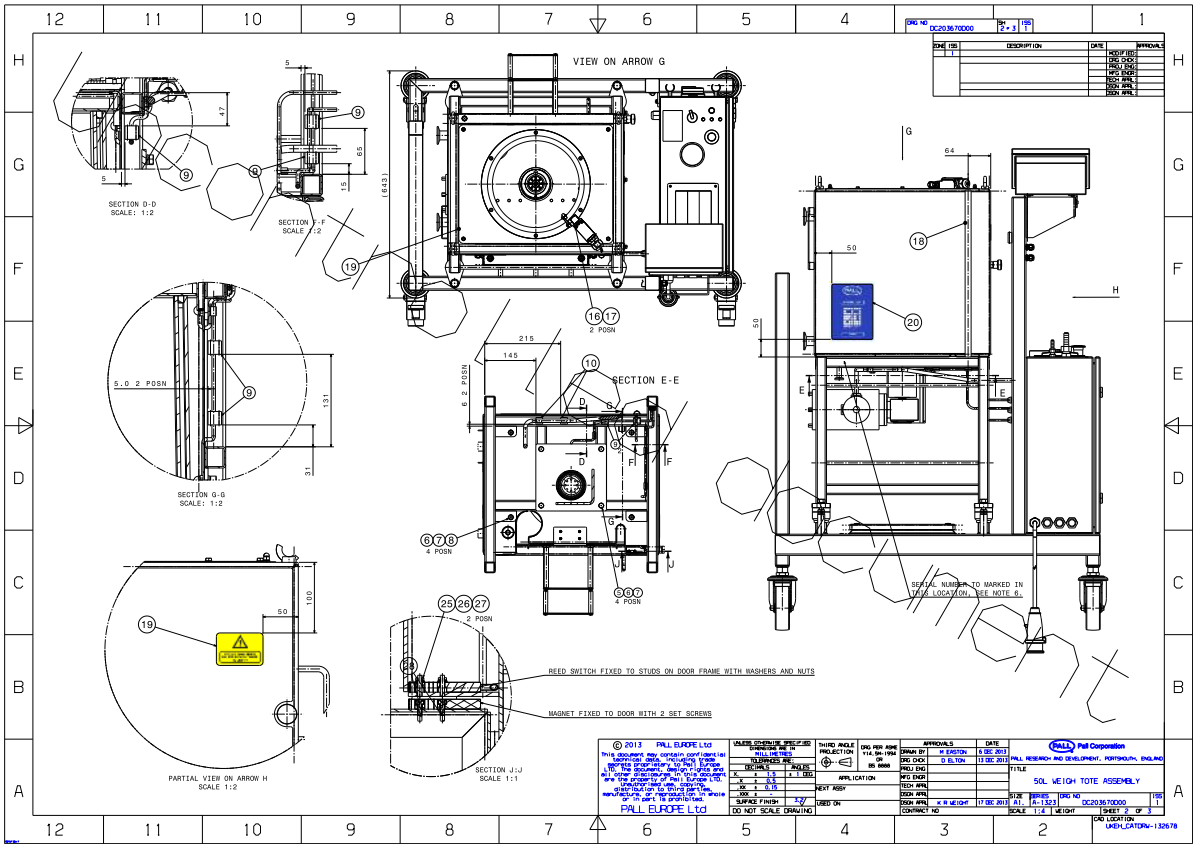
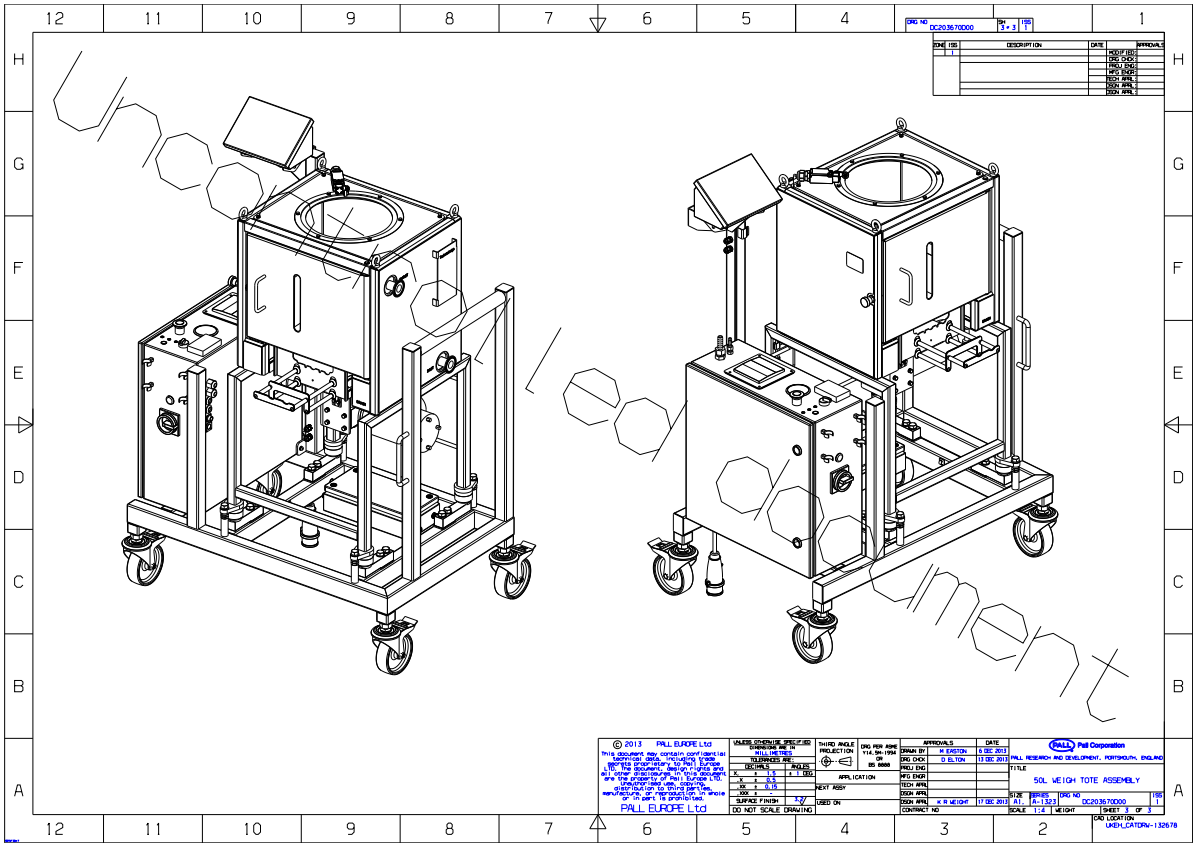

50L WEIGH TOTE ASSEMELY
DC203618D00
PALL EUROPE Ltd


SECTION A-A
SECTION C-C
DETAIL I
SCALE 1:1
BOM TABLE
MIXER VARIANTS TABLE
50L WEIGH TOTE ASSEMELY
DC203670D00
PALL EUROPE Ltd





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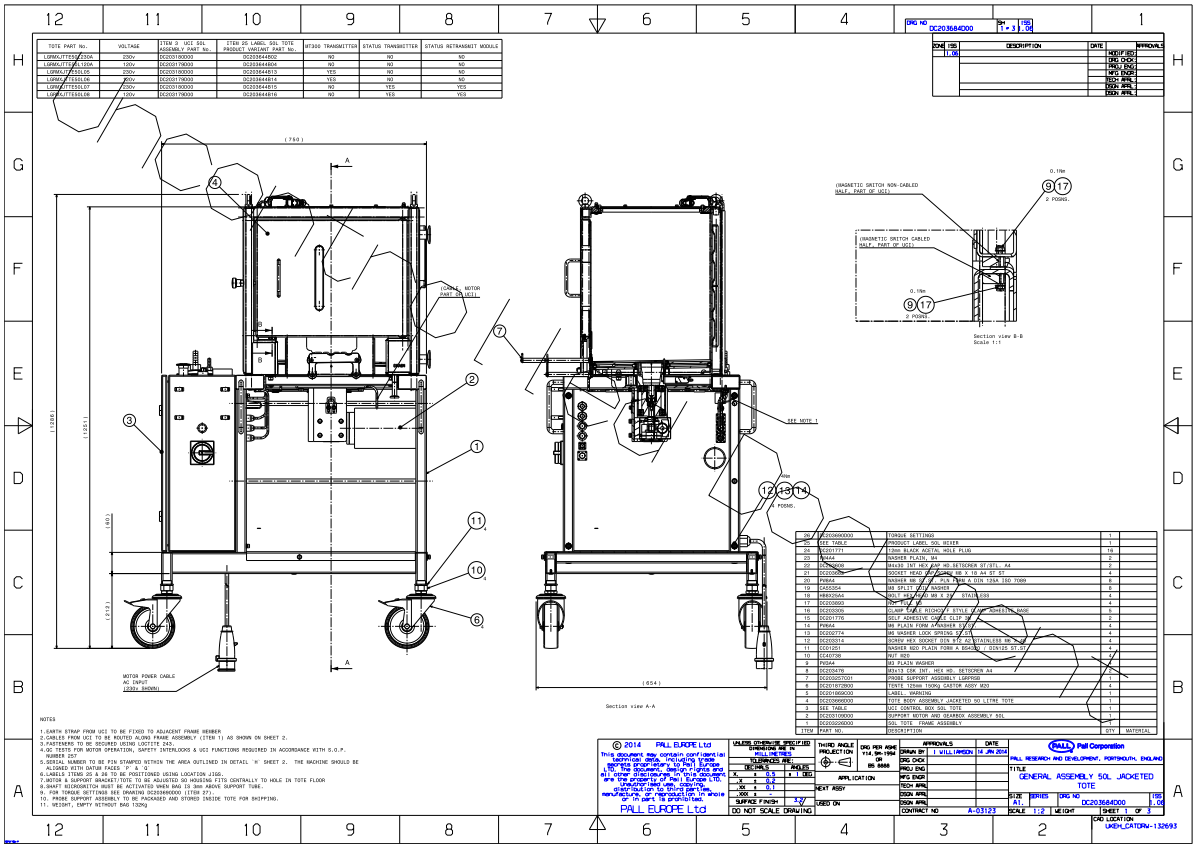

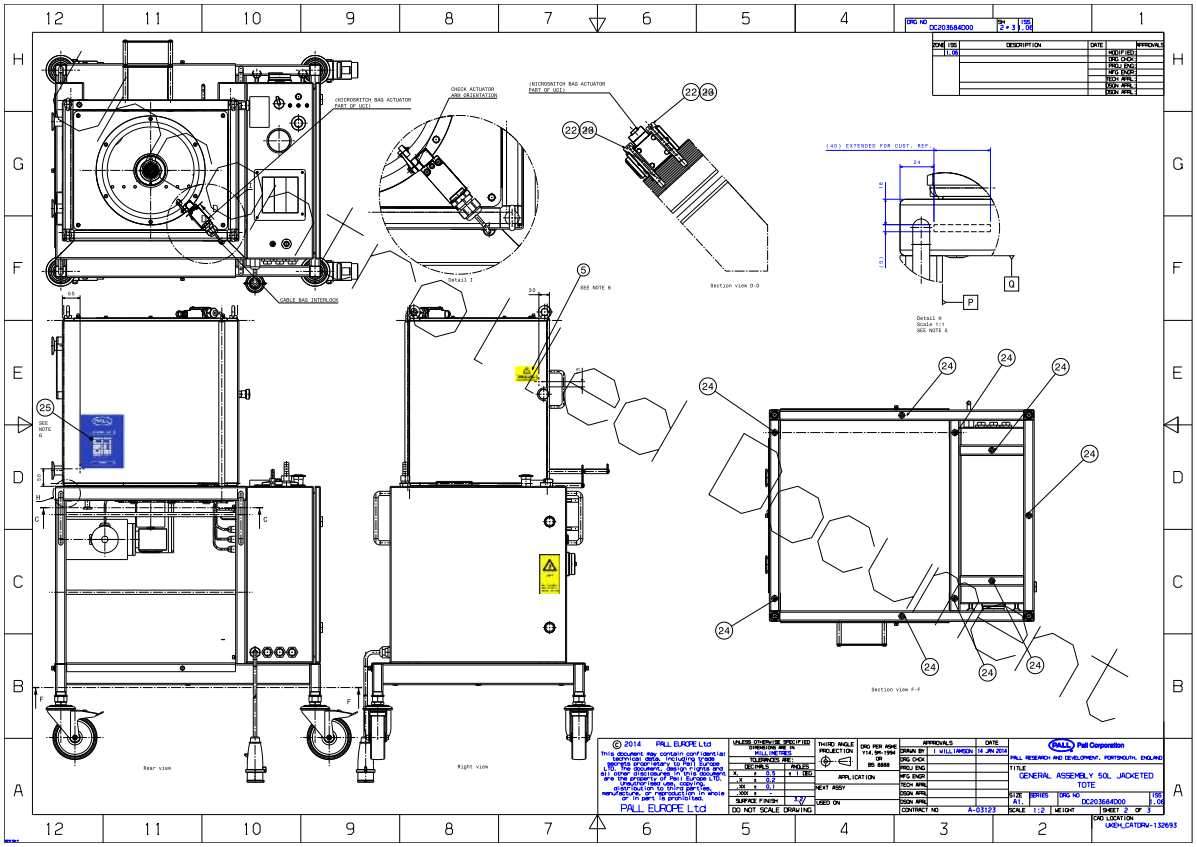

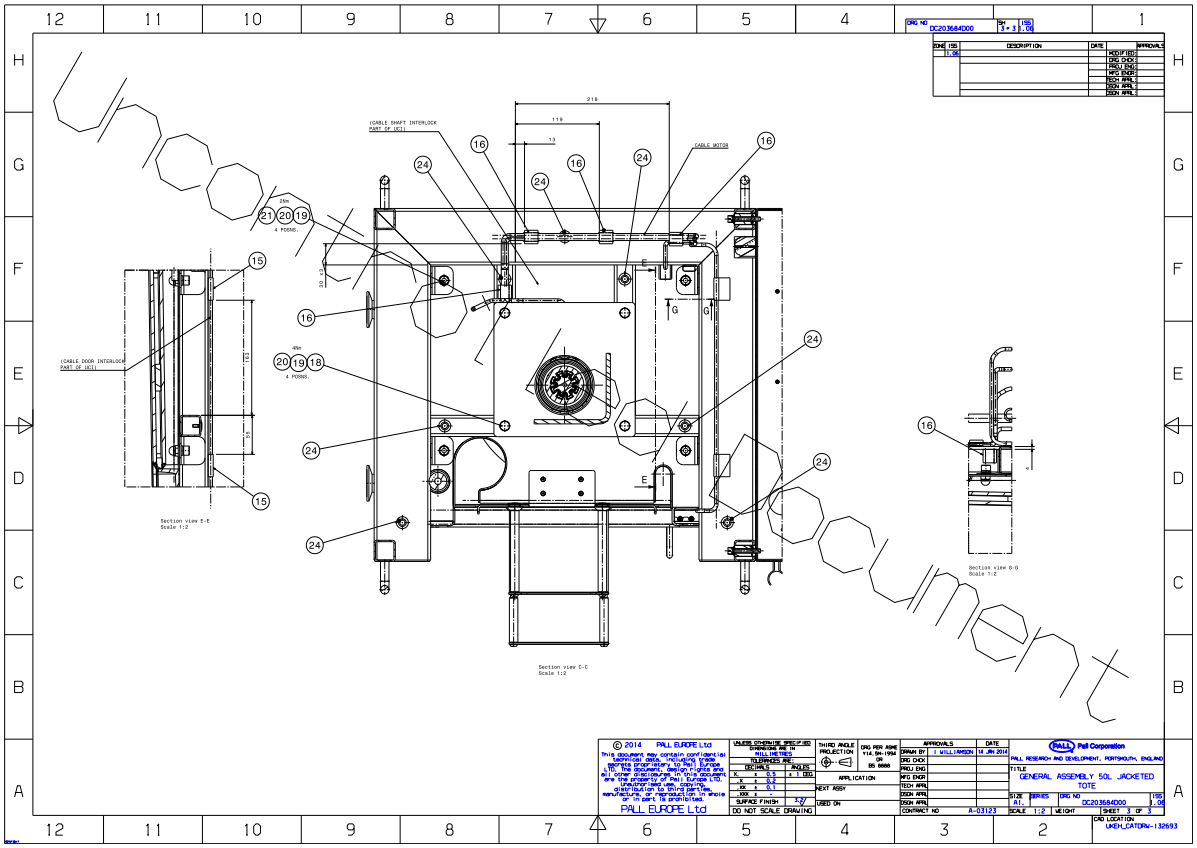

22. Appendix 4: pH Electrode Care

Electrode Calibration

Since glass pH electrodes measure H+ concentration relative to their reference half-cells, they must be calibrated periodically to ensure accurate, repeatable measurements. Our wide selection of commercial pH calibration buffers include solutions standardized against NIST-certified pH references for calibrating meters with resolution up to 0.001 pH.

Although calibration against one pH reference buffer (one-point calibration) typically ensures accurate pH measurement, frequent two-point or even three-point calibrations ensure the most reliable results. Make sure your pH system includes calibration buffers for a range of pH values.

Conditioning

pH electrodes are shipped with the electrodes moist. Prior to using your electrode for the first time, follow these three steps to condition your electrode:

1. Remove the protective cap or rubber boot from the bottom of the sensor and rinse the electrode with distilled or deionized water.
2. Place the electrode in a beaker containing one of the liquids listed below (in order of ionic ability to condition the electrode). Soak for 20 minutes.

- 3.8 M or 4.0 M KCL
- 4.0 pH buffer
- 7.0 pH buffer

NOTE: Never condition a pH electrode in distilled or deionized water. Long term exposure to pure water will damage the special glass membrane.

3. After conditioning the sensor for 20 minutes, rinse the electrode with distilled or deionized water. The electrode is now ready for calibration and to measure pH.

Handling

Electrodes should be rinsed between samples with distilled or deionized water. Never wipe an electrode—wiping can cause erroneous readings due to static charges. Blot the end of the electrode with lint-free paper to remove excess water.

Refillable Electrodes

The filling solution in refillable electrodes should be filled up to, but not past, the refill hole. Make sure the refill hole is left open when measuring to ensure that the fill solution flows properly through the reference junction.

Storage

Always keep your pH electrode moist. We recommend that you store your electrode in a solution of 4 M KCl. If 4 M KCl is not available, use a pH 4 or 7 buffer solution. DO NOT store electrode in distilled or deionized water—this will cause ions to leach out of the glass bulb and render your electrode useless.

After storage, you may notice white KCl crystals forming outside your electrode. This will not interfere with measurements. Simply rinse the electrode and blot dry before use.

Protective Rubber Boot

Most electrodes are shipped with a protective rubber boot over the glass bulb to help prevent cracking or scratching. Remove the rubber boot before using your electrode. Keep your electrode in long-term storage with the boot on—just fill the boot with enough 4 M KCl solution to cover the glass bulb and replenish as needed to keep the bulb moist.

From http://www.coleparmer.com/TechLibraryArticle/550

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