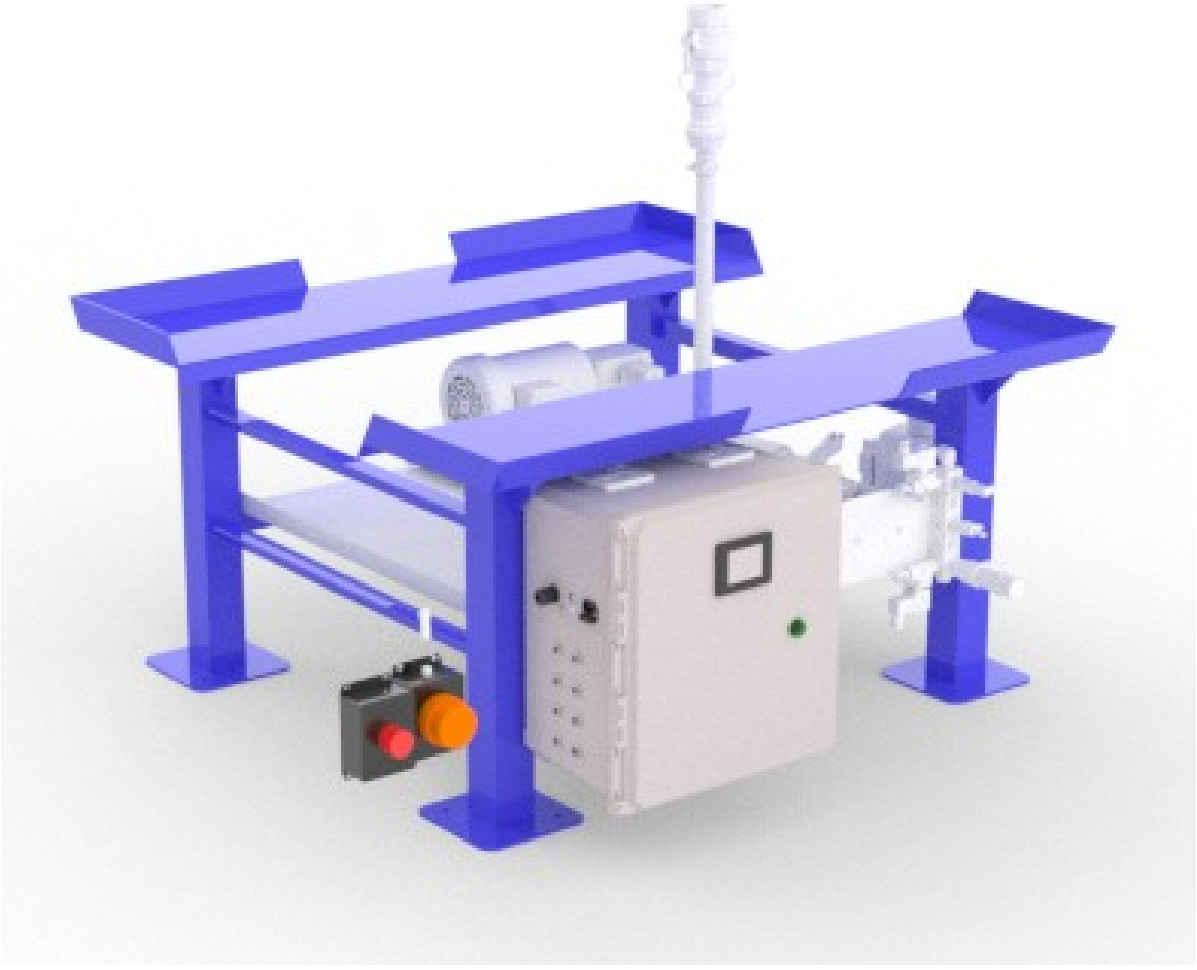
MID-TS-IBC

Operation Manual

Tote Distribution System



WARNINGS!
Disconnect Power Before Service!

Operators should never attempt to service the components inside the unit. To avoid electric shock refer servicing to qualified personnel!

Failure to follow the correct cable connection procedure will result in damage to the circuit board, and voids the warranty!

Please check the labels on the System unit and read the manual before connecting any cables!

Avoid electrostatic discharge! The devices are equipped with electronic components that you may destroy by electrostatic discharge when you touch. Pay attention while handling the devices to good grounding of the environment (persons, job and packing).

Every conceivable measure has been taken to ensure the accuracy and completeness of this documentation. However, as errors can never be fully excluded, we always appreciate any information or suggestions for improving the documentation.

Table of Contents

Introduction and features

The Midexx IBC Tote distribution system is designed as a demand driven loading system similar to how master batch pellet systems operates. But this is designed for liquids.

The system is designed to service six demand sources (maximum). The number of system outputs may be less then six depending on how the system was configured when ordered.

If the system was ordered with less then six output vales these can be ordered and the system can be upgraded to six output lines.

The system is equipped with a **flow sensor** on the input to verify that liquid is available in the tote.

The unit is also equipped with a **pressure sensor** that switches to the next line in the queue.

For safety the unit is also equipped with a **mechanical pressure relief valve** that will vent the over pressure in the manifold to a standard Midexx3D reservoir that can be easily cleaned or replaced,

The system is designed to operate as follows.

When a refill request comes to the input of the controller the controller will place that request into a demand queue.

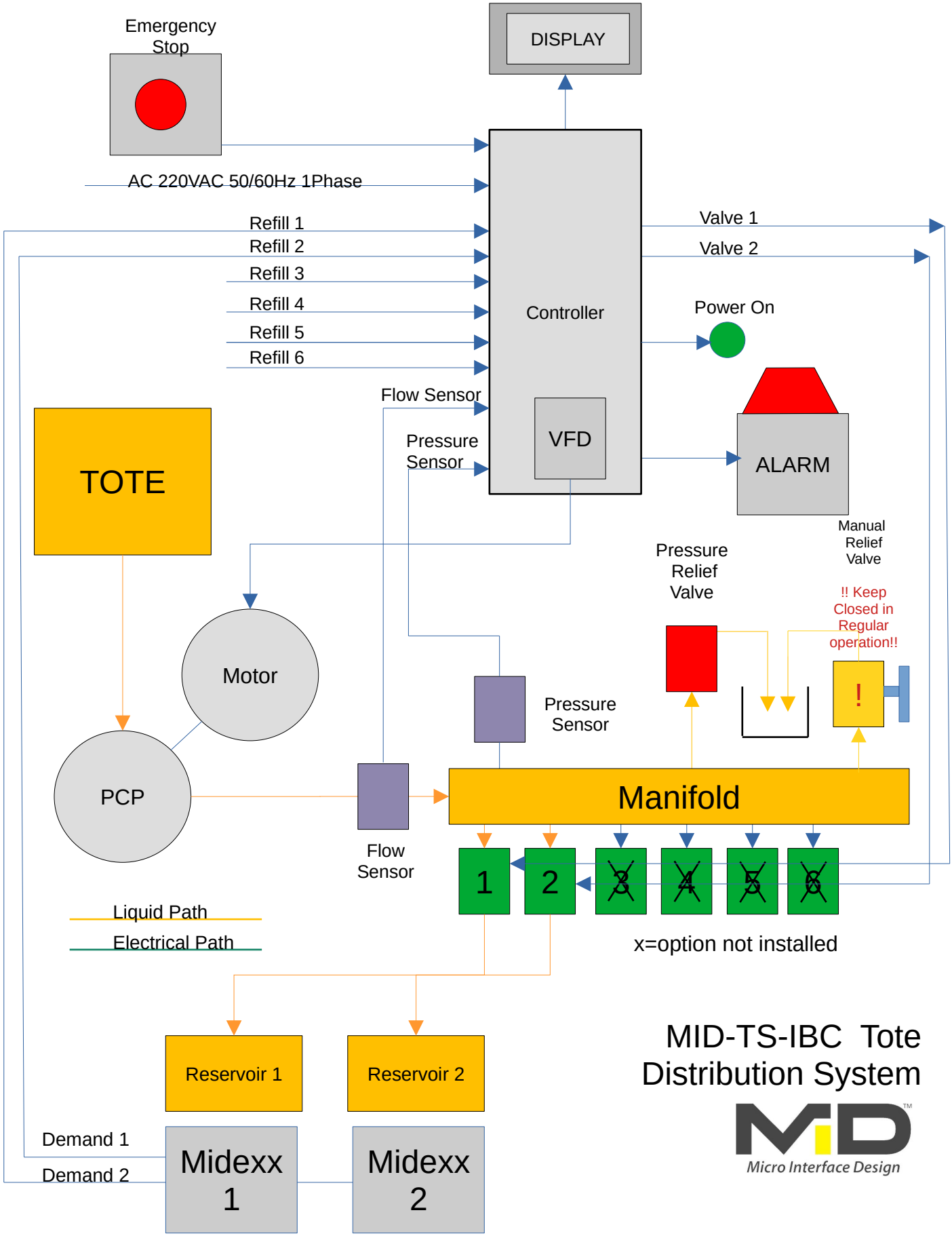
If only one unit has demand then that unit will select the output valve that has made the request and slow start the drive motor connected to the progressive cavity pump. The system will continue to fill the reservoir of the Midexx Dosing system until the demand signal goes away.

If a second unit demand arrives the request will be placed in the queue. The first request will get ten minutes of refill or it will stop if the demand from the unit stops because the demand has been satisfied. If the demand has not been satisfied then the distribution system will service the next unit in the queue it will continue to do this unit the demand has been satisfied.

Please review the block diagram for a system overview.

Caution The Ball Valve on the Manifold is to Relieve pressure in the manifold into the overflow. It should be closed during normal Operation.

Block Diagram


Emergency Stop
DISPLAY
AC 220VAC 50/60Hz 1Phase
Refill 1
Refill 2
Refill 3
Refill 4
Refill 5
Refill 6
Controller
Valve 1
Valve 2
Power On
Flow Sensor
Pressure Sensor
VFD
ALARM
TOTE
Manual Relief Valve
Pressure Relief Valve
!! Keep Closed in Regular operation!!
Motor
Pressure Sensor
PCP
Manifold
Flow Sensor
1
2
3
4
5
6
Liquid Path
Electrical Path
x=option not installed
Reservoir 1
Reservoir 2
Demand 1
Demand 2
Midexx 1
Midexx 2
MID-TS-IBC Tote Distribution System
Micro Interface Design

How to install the System.

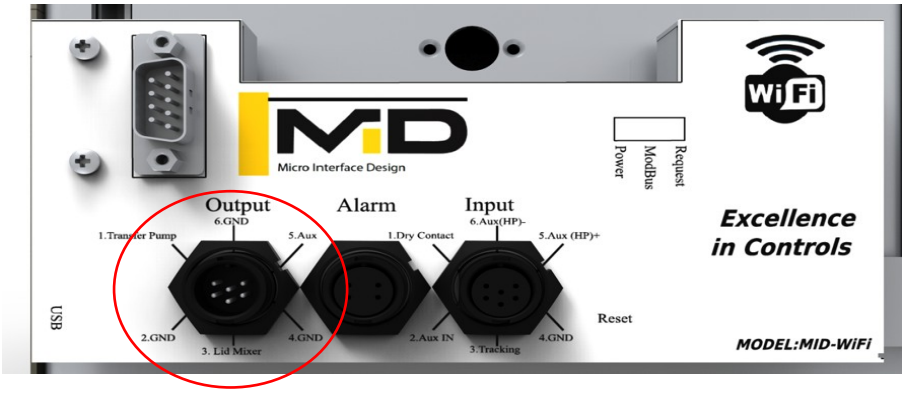
The system will arrive mostly assembled.

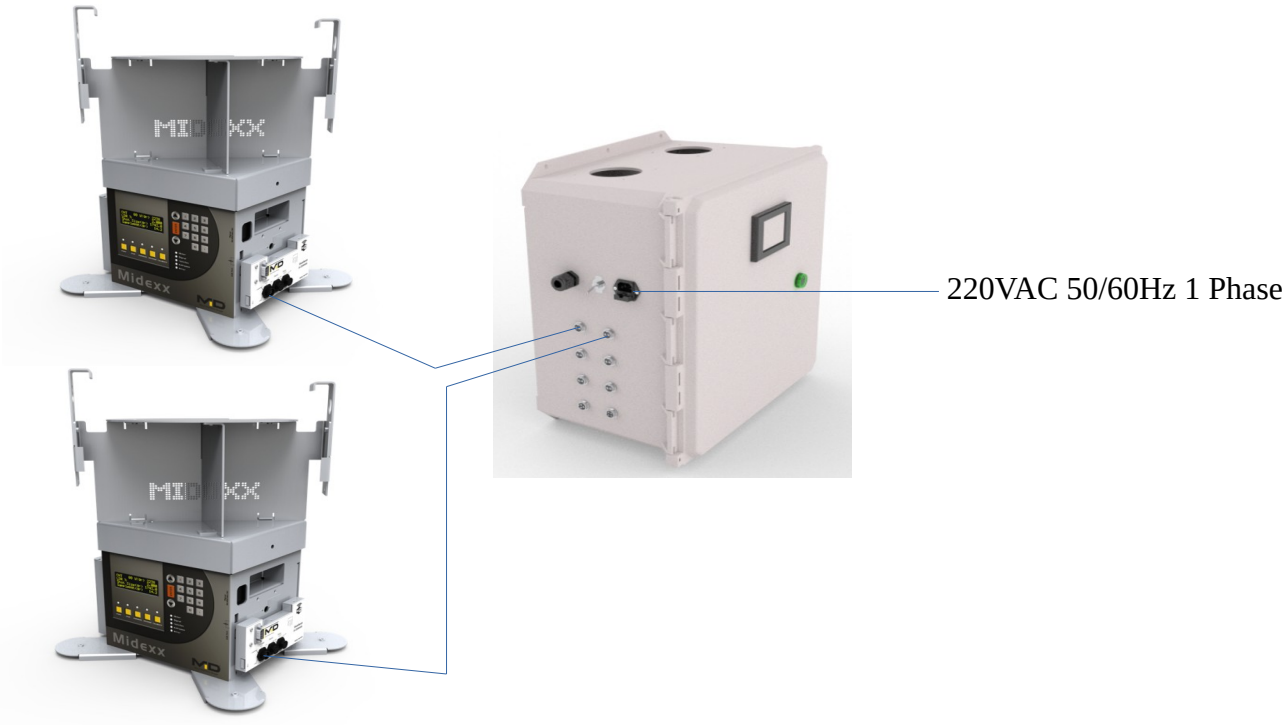
What is required from the users is to connect the demand wires and connect the distribution hoses to the correct unit.

How to connect the refill demand cables.

The Cables (~70m) were already prepared with connectors and tested at our facility.

Connect the Refill cables from the Output port of the MID-WiFi and connect to the Tote controller Refill 1 and Refill 2.





Input side of Controller

Emergency Stop Switch

On / Off Switch

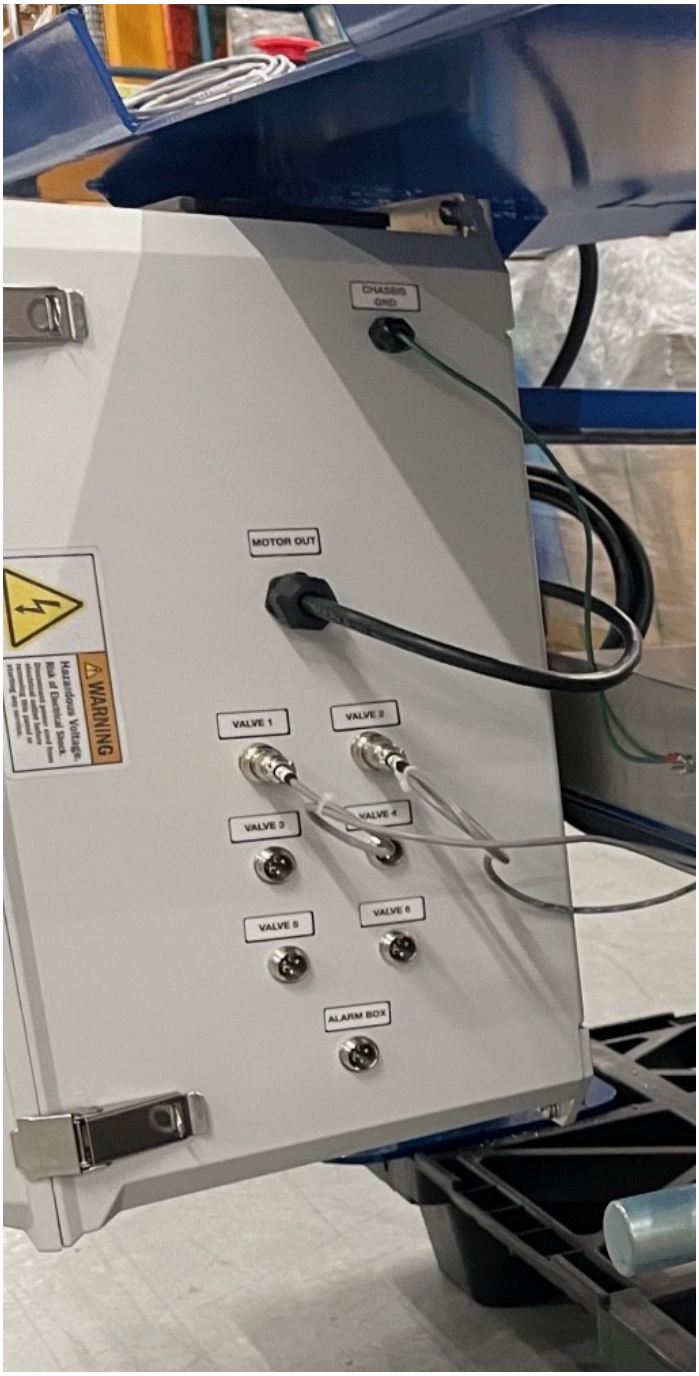
220VAC 50/60Hz 1 Phase

Connect to ~~Midexx 1 and Midexx~~ 2

The System is equipped to service six Midexx Dosing units. But this example system is only equipped with two output valves. So these refill inputs are not used.

Sensor Inputs ~~Flow Sensor & P~~ressure Sensor

Output Side of Controller



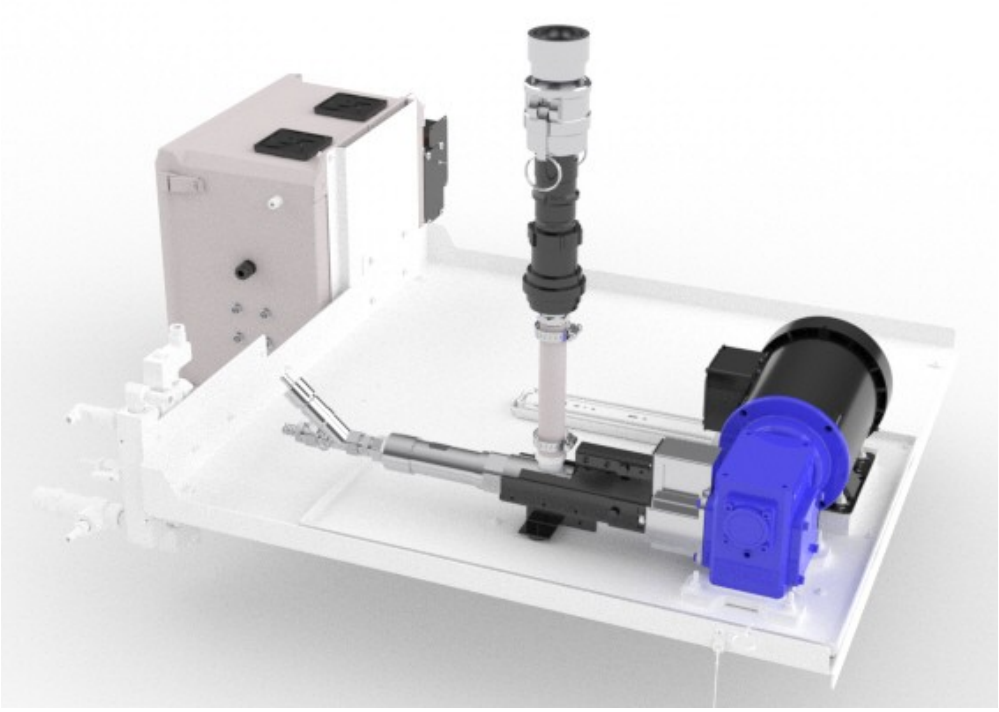
Output vales installed for Refill 1 and Refill 2

Output vales not installed

Connect Alarm Light

Connecting the Tote

The image below has the pump input hose line very short for documentation and assembly instruction in a typical instillation this length will be much longer and should easily reach the spout of the ICB tote.



Connecting the Distribution Tubes

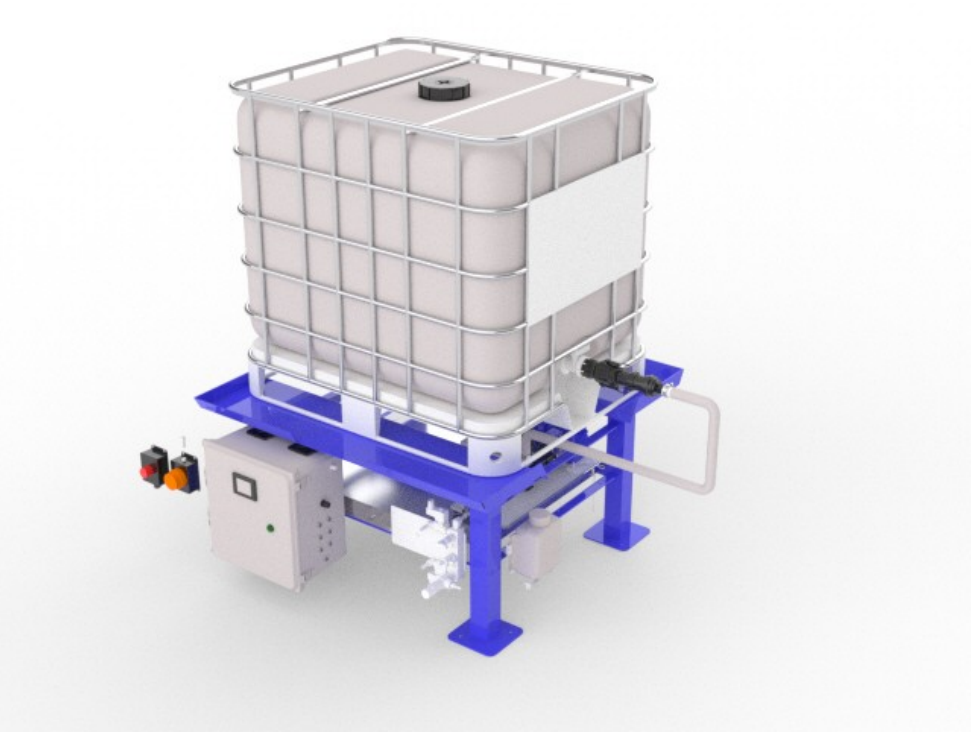
Connect distribution hoses to Valve 1 and Valve 2 and connect to the Midexx Reservoirs.

Startup

Place the IBC Tote stand in the correct location on the production floor so it can be easily accessed by a forklift for delivery of the tote material.

The IBC Tote stand has a **25,000lbs (11,339 kg) maximum** capacity rating.

The Orientation of the IBC tote is shown below.



With the IBC tote in this position, connect the input hose to the input of the transfer pump and the other end to the tote.

The instruction below are for the initial setup. To remove the food grade vegetable oil from the transfer pump.

Please keep the valve in the tote closed for now.

Connect the distribution hoses to the Midexx Dosing units but not to the manifold valves on the distribution system for now.

Connect the cables to the Midexx Controllers as mentioned above.

Open the tote ball valve.

Place a container or cup on the outputs of the valves off the manifold.

Turn on the power to the IBC Tote distribution system.

Connect only one Midexx dosing units and place it in start mode.

This should open the Valve (valve 1) and allow the vegetable oil to be removed from the transfer pump.

When the valve is clear of oil press stop on the Midexx dosing unit to stop the transfer pump.

Now connect the second Midexx unit and press the start button on the dosing unit and oil and some additive will flow out of the second valve. Press Stop on the second Dosing unit when no oil is present.

Now connect the distribution tubes to the valves.

Press start on on the first dosing unit and it will start to refill the reservoir. Press start on the second unit and it will be added to the queue and will be refilled are the first unit is full or ten minutes have passed.

When both reservoirs are full then you can setup the Dosing units for the application injection or extrusion.

The LCD display Messages.

The LCD will display the following messages.

Running

When this message is present the IBC Tote is refilling a dosing system.

The message will be printed on the screen.

The dosing system that it is refilling Mode.

This is normal.

No Flow Alarm

This message is reporting that the flow sensor has been tripped and no additive is coming out of the transfer pump.

<u>Trouble shooting tips.</u>

- Check if Tote has material.
- Make sure the Pump coupling is Connected to the motor.
- VFD Fuse is good.
- Input hose to the Pump is Connected and the quick connect is inserted properly.
- The Flow sensor is connected to the controller.

Hi Pressure Alarm

This is an alarm that says a high pressure event is occurring for the line being refilled. If a single request the unit will shutdown the transfer pump until the over pressure signal goes back to normal.

If multiple refill requests are in the queue the line reporting the high pressure will be placed on the bottom of the queue and the next line will be refilled.

Trouble shooting Tips

- Check that the distribution lines are not blocked or pinched.
- Check that the electric valve is connected to the controller
- Check that the Electric valve is is not blocked internally.

No Demand

No dosing systems are requesting a refill.

This is normal

WARRANTY

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