USER MANUAL

ON DEMAND™ INSTALLATION GUIDE

MENU

This is an interactive PDF. Click on an icon tile and navigate to a chapter of interest.

Legal & Safety

Notes

Drum & Frame

Rotary Head

Control Panels

Electrical

Pump Stations

Barcode Scanner

Pictograms

Users can advance or go back single pages by using quick navigation links shown below, right.

Users can navigate to the Menu by clicking on the Menu icon shown below, left.

LEGAL & SAFETY

This manual contains technical information regarding Bayer SeedGrowth™ Equipment. Please read and understand these instructions completely before proceeding to install and operate the equipment. Bayer reserves the right to change specifications, models, components, or materials at any time without notice. For additional equipment information contact us at 1.800.634.6738. Please have this manual available when contacting Bayer.

Always use caution and common sense when working with any chemical. Read the product label and SDS carefully and follow their instructions exactly as described.

Optimal operating conditions for this piece of equipment requires an ambient temperature 32° F to +104° F (0° C to +40° C), relative humidity less than 90% (minimum condensation). Make necessary provisions to protect this piece of equipment against excessive dust, particles containing iron, moisture and against corrosive and explosive gases.

Our technical information is based on extensive testing and is, to the best of our current knowledge, true and accurate but given without warranty as the conditions of use and storage are beyond our control. Variables, such as humidity, temperature, change in seed size or variety and viscosity of chemical products can all affect the accuracy of the chemical application and seed coverage. To ensure the desired application rate and optimum seed coverage, check the calibration periodically throughout the day, and make adjustments as needed.

Any person who is involved in the installation or periodic maintenance of this equipment should be suitably skilled or instructed and supervised using a safe system of work. Isolate the treater before removing guards for maintenance.

EXPOSURE CONTROL

Always use caution and common sense when working with chemicals. Read the product label and SDS carefully and follow their instructions exactly as described. The following Personal Protective Equipment (PPE) recommendations and best practices help promote safe use in seed treatment.

Note: Exposure Control signs and labels conform to the requirements of ANSI Z535.4 or ISO 3864.

Wear protective clothing

Wear disposable or reusable coveralls with long sleeves.

Hand protection required

Wear chemical-resistant gloves.

Wear rubber boots

Wear chemical resistant rubber boots.

Labels

Label recommendations and directions for handling must be followed, including treatment procedure (use of sticker) as well as the safety requirements.

Treatment products

Keep products in a locked room that has been approved for crop protection products.

Wear a mask

Wear respiratory protection.

Eye protection required

Wear protective eyewear.

Calibration

Seed treatment equipment must be checked and calibrated regularly to ensure accurate and safe application.

Clean seed

Use well cleaned seed to avoid creation of polluted dust that will contaminate the machine, treating facility, workers, farmers and the environment during sowing.

Cleaning

Use a vacuum to clean machines. Avoid using compressed air for cleaning.

Laundry

Wash soiled reusable clothing separately. Workers must take a shower after each shift.

Empty containers

Non-returnable empty containers must be triple rinsed before they can be disposed. For others the recommendation of the producer must be followed.

Spillage

Spillage must be avoided; it must be thoroughly cleaned up to avoid contaminating the environment and waterways.

Maintenance

Keep machinery clean between treating sessions.

REFERENCE SYMBOLS

Symbols and signal words are used to identify the level of hazard and help avoid personal injury.

Note: Safety signs and labels conform to the requirements of ANSI Z535.4 or ISO 3864.

Shock Hazard

Alerts that dangerous voltage may be present.

Warning

Alerts that a hazard may cause serious injury or death.

Caution

Alerts that a hazard may cause minor or moderate injury.

Hand crush - moving parts

Alerts crushing is possible.

Pinch point

Keep hands away from pinch points.

Rotating shaft

Do not wear loose clothing around turning parts.

Disconnect

Disconnect to de-energize before opening.

Tools

Required tools for installation and maintenance.

Use guards

Keep guards in place. Do not remove during operation.

Parts

Required parts for installation and maintenance.

Lifting

Requires two people to safely lift an item.

Tip

Calls attention to special information.

Lift points

Requires the use of proper rigging and lifting techniques based on the lift plan.

Note

Emphasizes general information worthy of attention.

Center of gravity

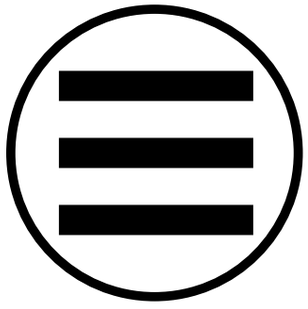
Indicates the center of gravity of the machine to help assist when rigging and lifting.

Example

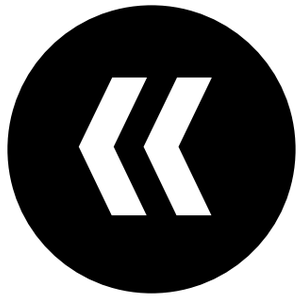
Provides a problem or exercise that illustrates a method or principle.

PICTOGRAMS

Each Signifier displayed here is specific to this User Manual.



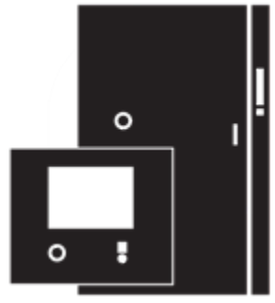
Menu



Previous

Advance

Pump Stations



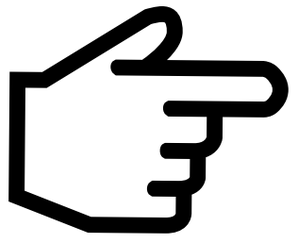
Control Panels

Tools

Barcode Scanner

Rotary Heads

Drum & Frame



Cursor Hand

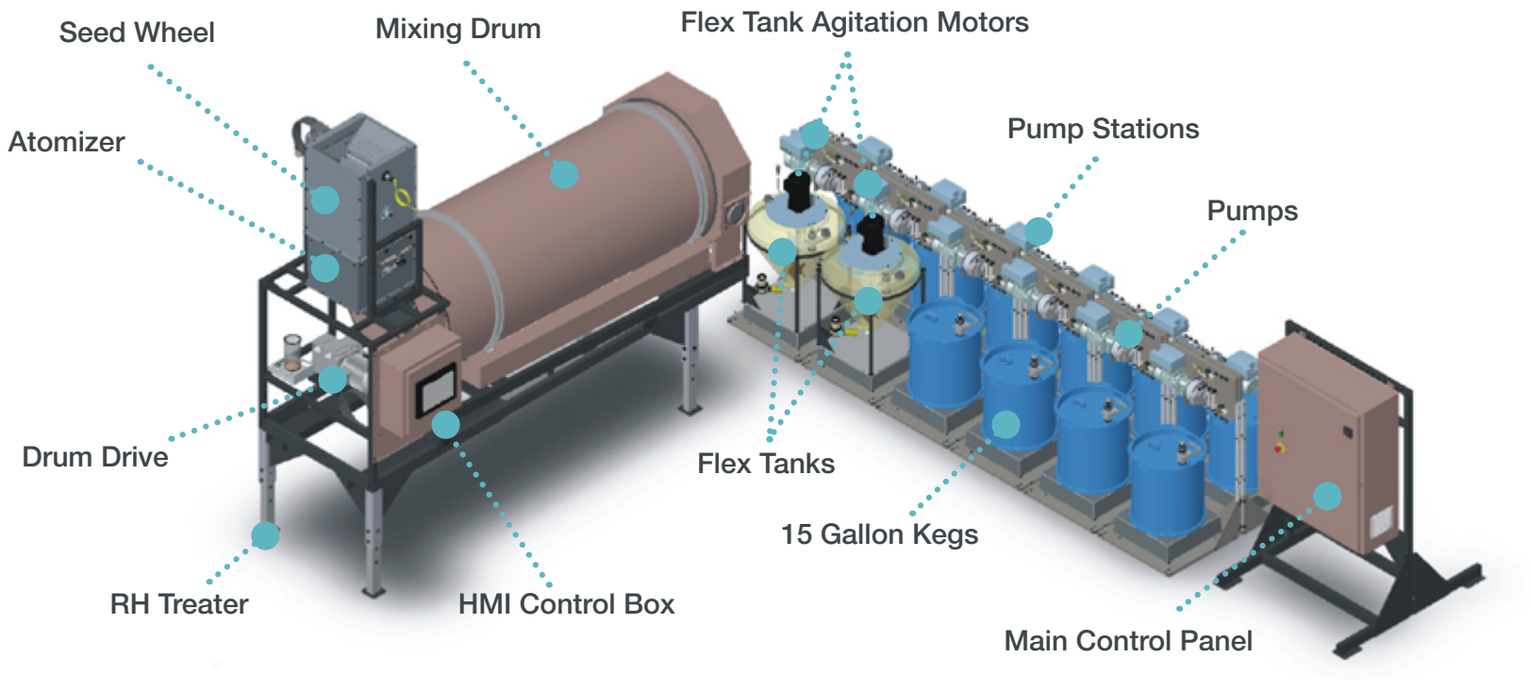
Like

EXPLANATORY NOTES

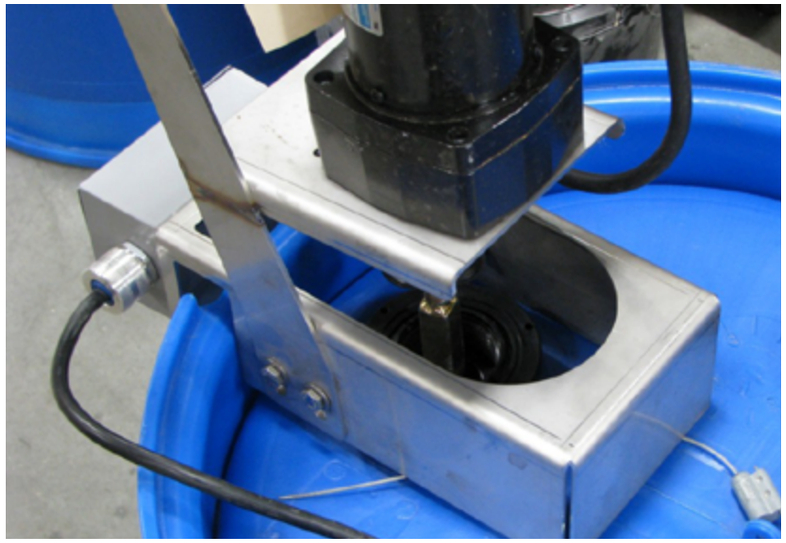
The On Demand System

The On Demand “System” refers to the diagram, right, including items shown at the bottom of the page.

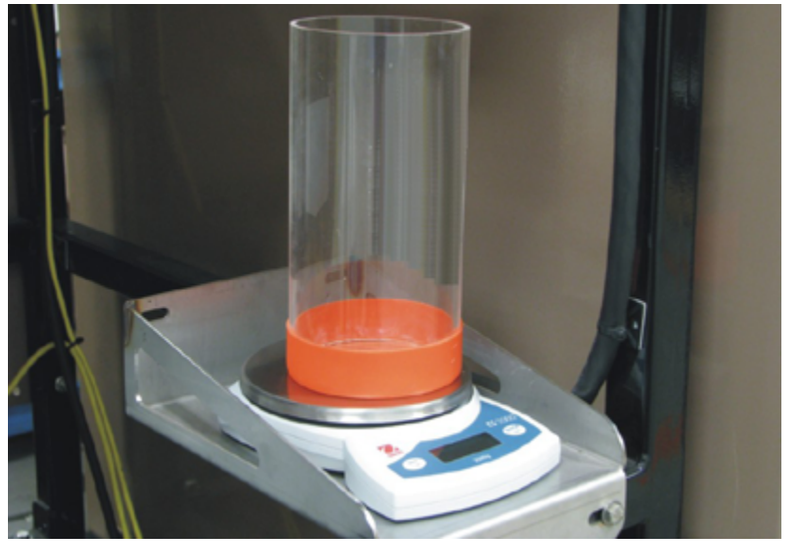
The HMI Control Box is a remote apparatus, which can be mounted on the RH Treater Frame, as shown right.



Barcode Scanner



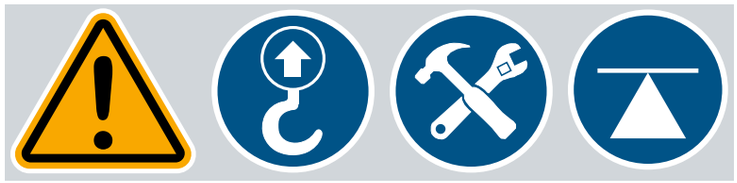
Keg Mixer



Calibration Cylinder and Grams Scale

DRUM & FRAME

If using an existing RH Drum Treater with the On Demand System, skip to page 13:
Control Panels ➲



General Notes

Wiring schematic drawings are printed and enclosed inside the On Demand Main Control Panel, door as shown below, left.

Inspection

Components of the On Demand System will ship separately: Rotary Head Assembly, Drum & Frame Assembly, Main Control Panel, HMI Controller and each Pump Station (up to 12).

- Remove all components and check for damaged or missing parts that may have occurred during shipping and report it IMMEDIATELY ➲

Drum & Frame Assembly (wrapped)

Rotary Head

Pump Station

Control Panels

Drum & Frame Assembly

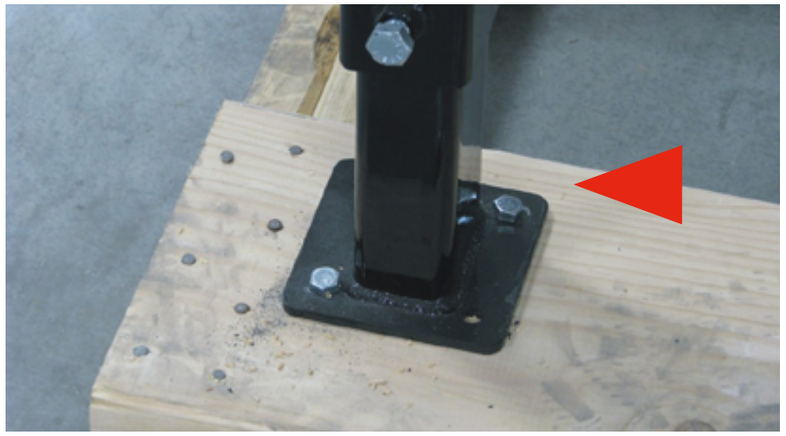
Step 1: Lift the Drum & Frame Assembly off the shipping truck with a forklift.

- Fork pockets are provided at the end of the Drum Frame.

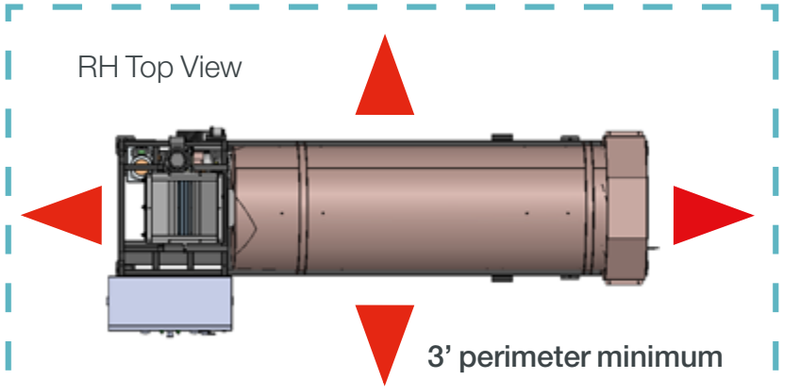
Required Drum & Frame assembly tools

- Forklift
- Tin Snips
- 3/4” Socket Head Wrench (2)
- 5/16” Socket Head Wrench (1)
- 1/2” Socket Head Wrench (2)
- 7/8” Socket Head Wrench (2)
- 5/32” Allen Wrench (1)

Step 2: Remove the protective covering from the Drum & Frame Assembly.



Step 3: Use a 3/4” socket head wrench to remove the 1/2” Drum Frame shipping bolts from the pallet ➲



Step 4: Use a forklift to lift the Drum & Frame Assembly off the shipping pallet and place it in the desired location.

- Locate the Treater on a solid, flat vibration-free surface and fasten down with anchors.
- The recommended location for all components of the treating system should be on one single floor.
- Plan accordingly! The Treater must be easily accessible to an electrical power source.
- Allow access to the treater from all sides for the purpose of operation, adjustments, maintenance and clean-up.

Warning! Drum bands must be removed prior to running the Drum, to prevent damage!

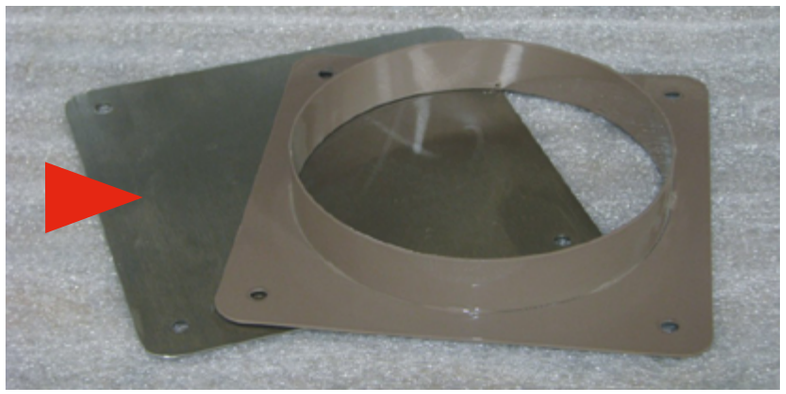
Caution! Removing Drum band can cause injury! Wear proper personal protective equipment: gloves and safety glasses. Place one hand on the banding above the cut, while standing to the side of the banding, as shown above. This will reduce the chance of banding flying out of control, causing injury. Discard used banding material responsibly.

Step 5: Use tin snips to cut the metal banding that holds the Drum down onto the Drum Frame during shipping ➲

Integrated Aspiration

- Only clean and dust-free seed should be used in the treating process.
- An exhaust unit supplied by the customer must be connected to a central aspiration system.
- Recommended aspiration: 500-600cfm.
- The six inch OD connection for the exhaust unit is located on the Doghouse (discharge end of drum).

Step 1: Use a 5/16” socket to remove the four (4) 10-32 hex head bolts and washers.
- Remove the Dust Collection Plate and Cover.



Step 2: Remove the Doghouse Cover.

Step 3: Replace the Dust Collection Plate and securely fasten the four (4) 10-32 washers and bolts.

ROTARY HEAD

Rotary Head Assembly

Step 1: Remove the Rotary Head (RH) Assembly from the shipping crate.

Supplied assembly hardware

- Signal Cable (1)
- Grams Scale (1)
- Calibrated Cylinder (1)
- Operator's Manual (1)

Required Rotary Head assembly tools

- Forklift / material handling device
- Tin snips
- 3/4" Socket Head Wrench (2)
- 5/16" Socket Head Wrench (1)
- 1/2" Socket Head Wrench (2)
- 7/8" Socket Head Wrench (2)

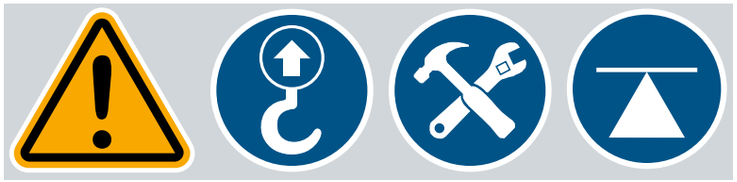
Control Panels

Pump Station

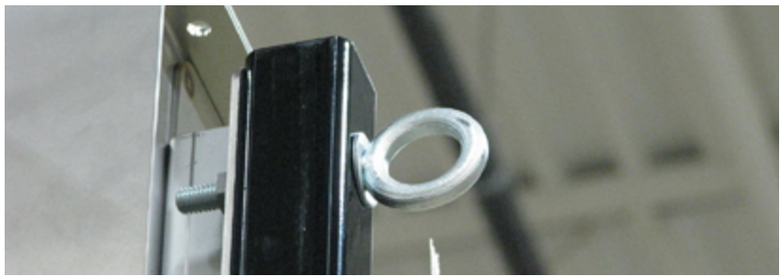
Step 2: Cut the shrink wrap and remove the box of miscellaneous parts and the Portable Scale from the Treating Head Assembly frame.

Step 3: Use a 3/4" socket head wrench to remove the 1/2" Treating Head Assembly shipping bolts holding the Head Assembly onto the pallet ➲

Note: to ensure proper alignment, note the Treating Head Assembly orientation! The Transition fits inside the Drum opening.



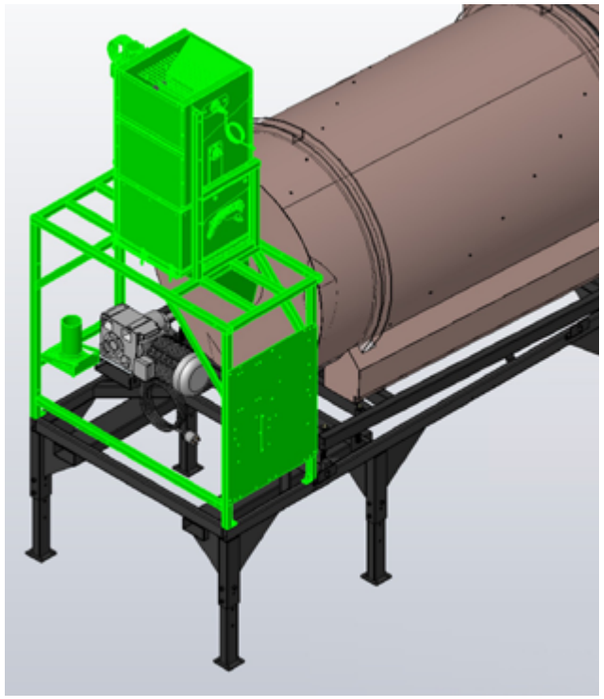
For best assembly results, use an anti-seize on all bolts.



Step 4: Use the eyelets located on top of the Treating Head Assembly Frame to properly rig and securely lift the Treating Head Assembly off the shipping pallet.

Step 5: Set the Treating Head Assembly on top of the Drum Frame, as shown left.

Step 6: Use a 1/2”” socket head wrench and factory supplied 5/16” hardware to fasten the Treating Head Assembly to the Drum Frame in this order: bolt+flat washer+[frame]+lock-washer+nut and tighten securely ➲

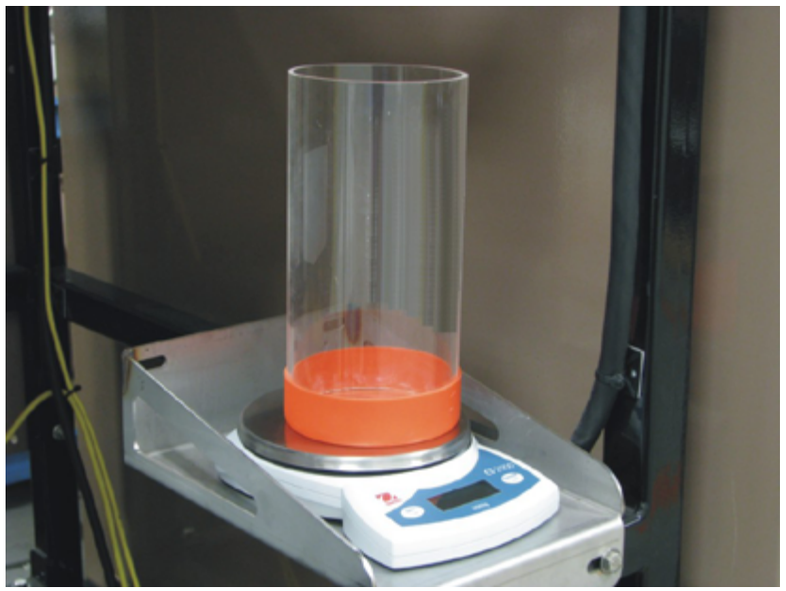


Step 1: Connect the Power Adapter to the back side of the grams Scale.

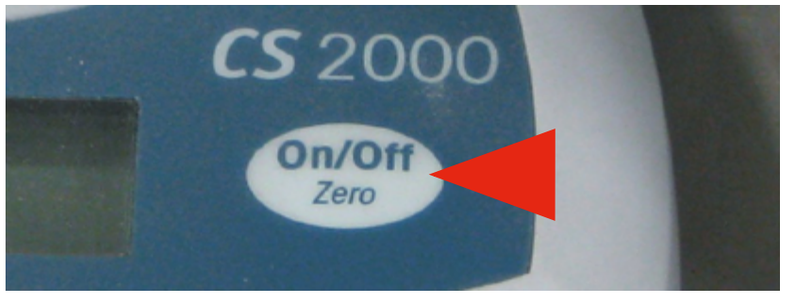
- Plug power cord into an external 115VAC power source.

Supplied assembly components

- Grams Scale (1)
- Calibrated Cylinder (1)



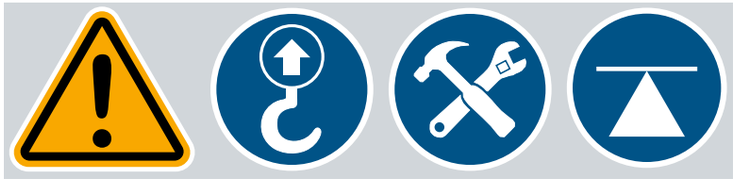
Step 3: Set the grams Scale and Calibration Cylinder on the Scale Tray - (already connected to the Treating Head Frame).



Step 4: Push the **ON/OFF** Power button when ready to use for seed calibration.

- Zero the Scale with the Calibration Cylinder on the scale ➲

Remove the RED fork brackets once the Surge Bin is securely fastened to the Frame.



Optional Surge Bin

Step 1: Use a 3/4” socket head wrench to remove the 1/2” Treating Head Assembly shipping bolts.

Step 2: Use a forklift to set the Optional Surge Bin on top of the Treating Head Assembly Frame as shown left.

- Use a 1/2”” socket head wrench and factory supplied 5/16” hardware to fasten the Surge Bin to the Treating Head Assembly Frame in this order: bolt+flat washer+[frame]+lock-washer+nut and tighten securely.

CONTROL PANELS

Control Panels

Step 1: Use tin snips to cut metal bands (refer to cautions and warnings, as shown on page 7).

- Remove all components and check for any damage or missing parts that may have occurred during shipping and report it IMMEDIATELY!

Step 2: Ensure a licensed electrician wires the system following the National Electrical Codes for the area.

- Provide external 208/230VAC, 1-ph, 60 Hz, 88FLA service to the Main Control Panel.
- Wiring schematic drawings are enclosed inside the **Main Control Panel**, as shown on page 5.
- Mount the Main Control Panel in a location that provides clearance for the door, close proximity to external power source, cable lengths to pumps, the HMI Control Box and to the RH Treater ➲

Step 3: Mount the HMI Control Box in close proximity to the Main Control Panel.

- Keep in mind cable lengths to pumps and cable runs from the Main Control Panel.

Step 4: Use a screwdriver to open the HMI Control Box cover. Remove the Cell Phone Antenna.

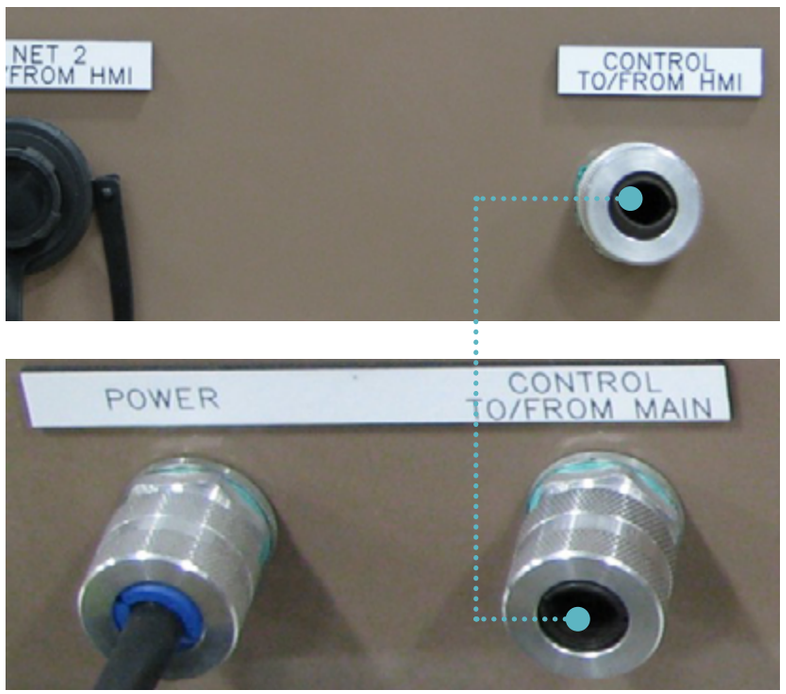
- Carefully thread in the Cell Phone Antenna to the port on the side of the HMI Control Box, as shown left.

Step 5: Connect the HMI Control Box Power Cord (marked Power) to an external 115VAC/1PH/60Hz/15FLA power supply.

ELECTRICAL

Electrical Connections

WARNING! Ensure the Main Control Panel Power Switch is in the **OFF** position (**DOWN**) as shown left, when making the following electrical connections.



Main Control Panel to HMI

Step 1: Wire the factory supplied 30' Signal Cord inside the Main Control Panel through the connector located on the bottom of the panel labeled: **CONTROL TO/FROM HMI.**

Step 2: Wire the other end of the 30' Signal Cord inside the HMI Control Box through the connector located on the bottom of the box labeled: **CONTROL TO/FROM MAIN** ➲

Circuit Breakers

Circuit breakers are shipped in the **OFF** position and must be enabled prior to starting the system. Open the Main Control Panel door and turn **ON** each breaker inside the Panel, connect the 30' Signal cable as follows:

Main Control Panel

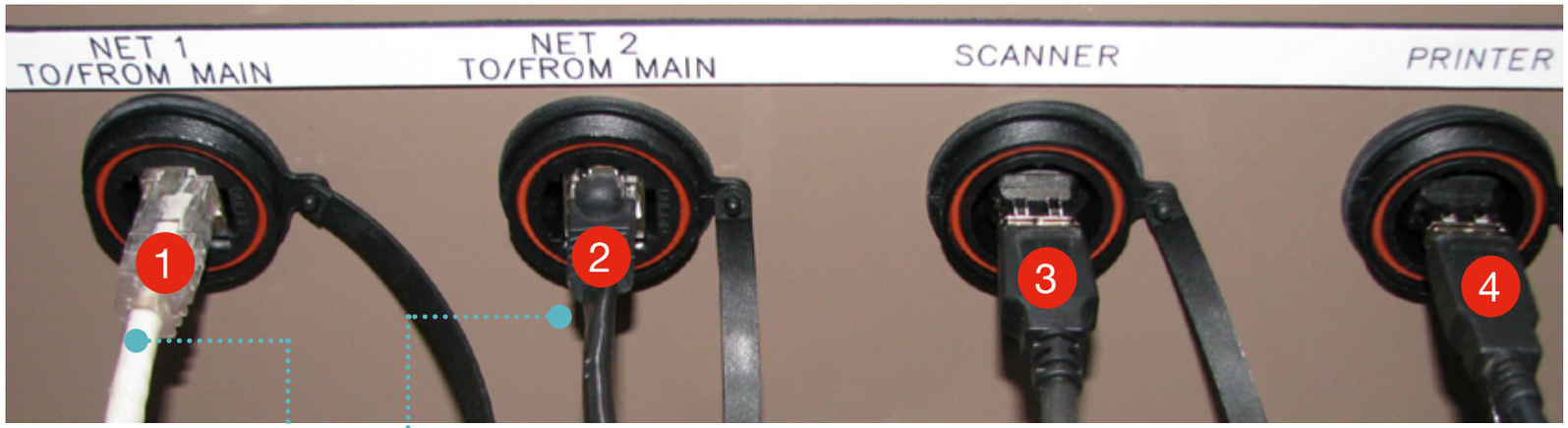
CONTROL TO/FROM HMI

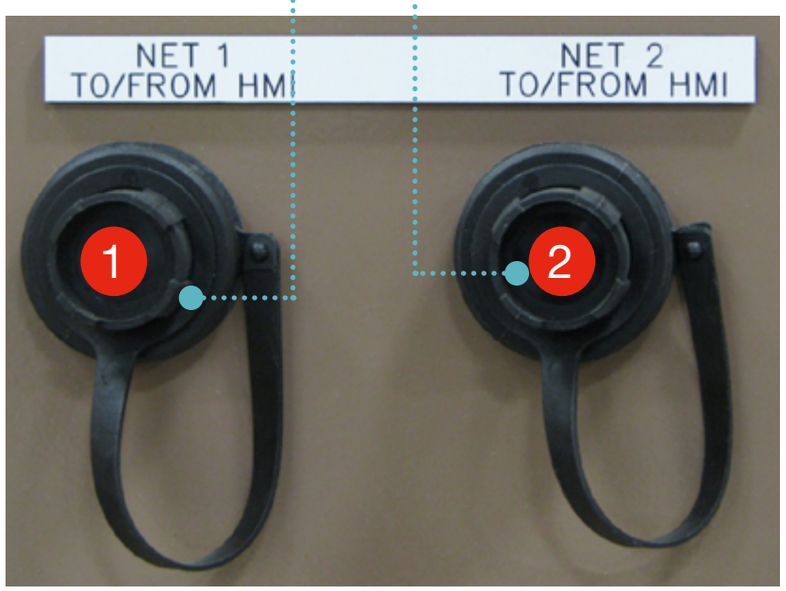
- 1021-RED
- 1022-WHITE-TB1022
- 2302-RED/WHITE/BLACK-PIN 2-2302
- 2304-ORANGE-PIN 1-2302
- COM-BLACK-COM-TERMINAL
- +24-BLUE-+24-TERMINAL
- 2206-WHITE/BLACK-PIN 4-TB2202

HMI Control Box

CONTROL TO/FROM MAIN

- 1021-RED-E-STOP
- 1022-WHITE-E-STOP
- 2302-RED/WHITE STRIPE-TB
- 2304-ORANGE
- COM-BLACK
- +24-BLUE
- 2206-WHITE/BLACK STRIPE





Step 3 & 4:

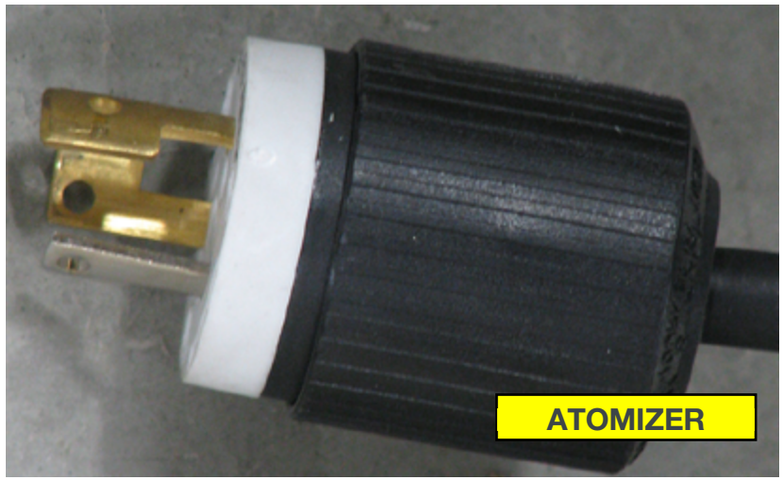
❸ Connect the factory supplied Scanner cable.

❹ Connect the customer supplied Printer cable (if used) to the bottom of the HMI Control Box Ports (bottom, marked: **SCANNER & PRINTER**), as shown left.

Step 5 7 6:

❶ Connect the two factory supplied Ether Net Cables (white and black) from the Main Control Panel Ports (bottom, marked: **NET 1 & 2 TO/FROM HMI**) to..

❷ The HMI Control Box Ports (bottom, marked: **NET 1 & 2 TO/FROM MAIN**) as shown above and left ➲



Electrical Connections

Step 1: Connect the Atomizer 3-prong Power Cord to the bottom of the Main Control Panel receptacle marked: **ATOMIZER**.

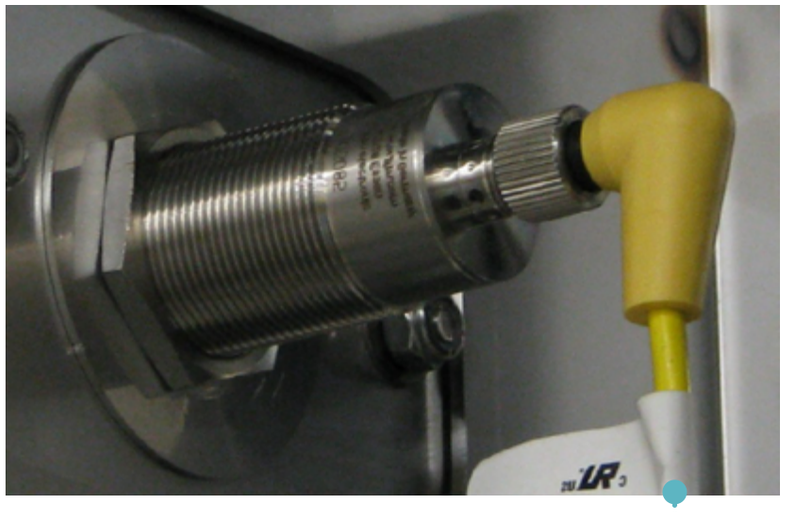
Step 2: Connect the Seed Wheel 4-prong Power Cord to the bottom of the Main Control Panel receptacle marked: **SEEDWHEEL**.

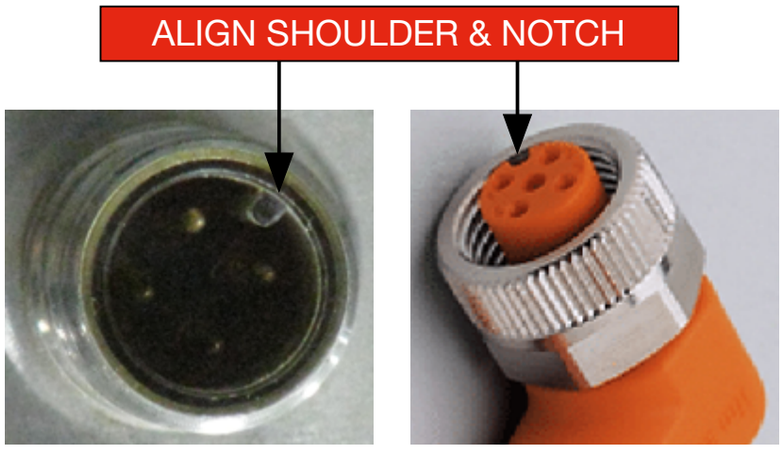
Step 3: Connect the Drum VFD 4-prong Power Cord to the bottom of the Main Control Panel receptacle marked: **DRUM** ➲

Hopper Sensor Cable

Step 1: Connect the Inlet Hopper Low Level signal cable to the bottom of the Main Control Panel receptacle marked: **SEEDWHEEL SENSOR** (as shown below).

- **CAREFULLY** slide the signal cable into the receptacle.
- Align the receptacle shoulder with the connector notch (when aligned, receptacle pins will push into the connector).
- Screw the shield on hand tight ONLY!



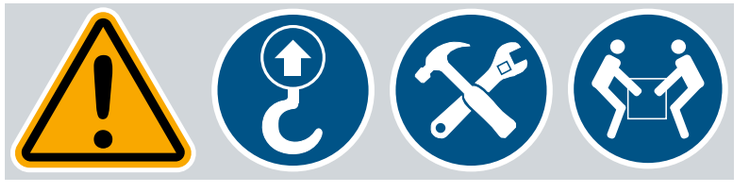


4-pin receptacle

4-pin connector

4-pin receptacle on Main Control Panel

PUMP STATIONS



Pump Station Assembly

- Assembly requires two people.
- Each Pump Station ships on a pallet in box, as shown left.

Step 1: Use tin snips to cut the metal banding holding the box onto the pallet (refer to cautions and warnings, as shown on page 7).

- Remove the box cover ➲

Required Pump Station assembly tools

- Utility knife
- Phillips Screwdriver
- Pipe wrench (2)
- 3/8” wrench (2)
- 7/16” wrench (2)
- 9/16” wrench (2)

Supplied assembly hardware

Frame Assembly

- 1/4-20 X 1.50 zinc hex bolt (2)
- 1/4-20 stainless hex nut - serrated flange (2)

Bench Scale Assembly

- #10-32 stainless hex screw (2)
- #10-32 stainless hex lock nut (2)
- Flat washer, stainless (2)
- E10M 5 pin shielded ext cable-M12 (1)

Supplied assembly components

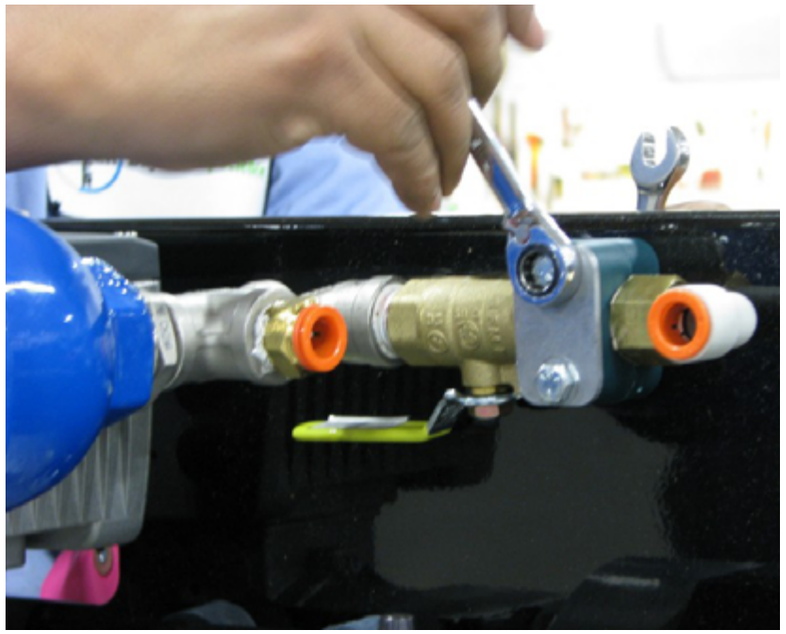
- Pump Element kit
- 1/2” OD LDPE Tubing
- 1/2” ID Vinyl Tubing

Step 2: Remove all components and check for any damage or missing parts that may have occurred during shipping and report it IMMEDIATELY!

Step 3: Set the pump station frame assembly on the floor near the RH treater (refer to system photo, shown left.

Step 4: Remove the installation hardware kit in a cloth bag from the box:

- two 1/4-20 x 1.75 hex bolt ss
- two 1/4-20 hex nut - serrated flange: ss, as shown left ➲



Step 5: Use a box end wrench to loosen the Vibration Mount bolt.

Step 6: Swing the Air Release Valve 90° degrees in the upright position.

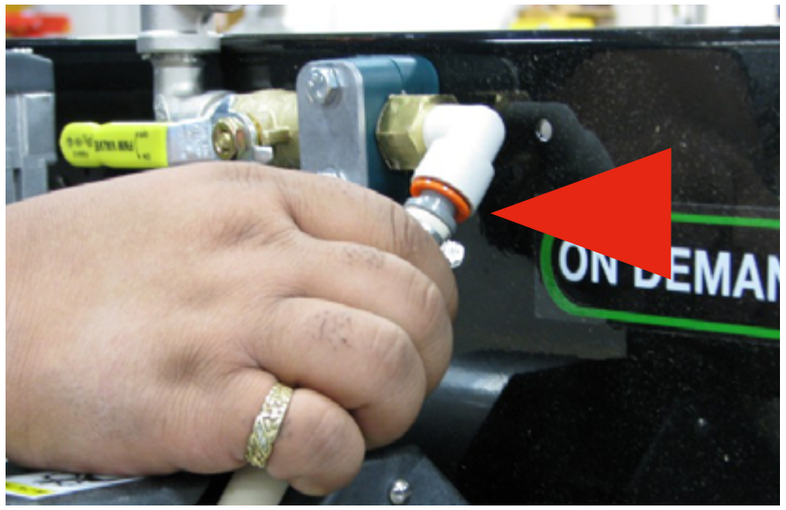
- Use a box end wrench to tighten the Vibration Mount bolt ➲

Step 7: Swing the In-line Strainer Assembly down 90° degrees.

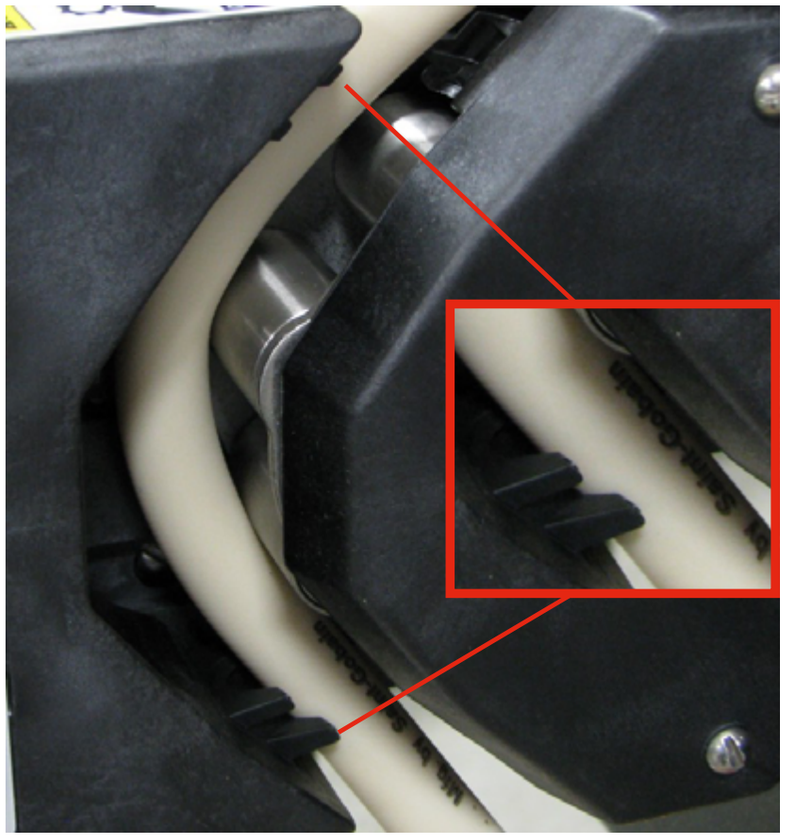
- Hand tighten the flare fitting (nut) to hold the In-line Strainer Assembly in place, as shown.

Step 8: Use two adjustable wrenches to tighten the flare fitting nut and the 1/2” npt to 3/4” male brass flare connector, as shown.

Step 9: Open the Pump Head Assembly, using the Pump Head Handle (down position), as shown ➲

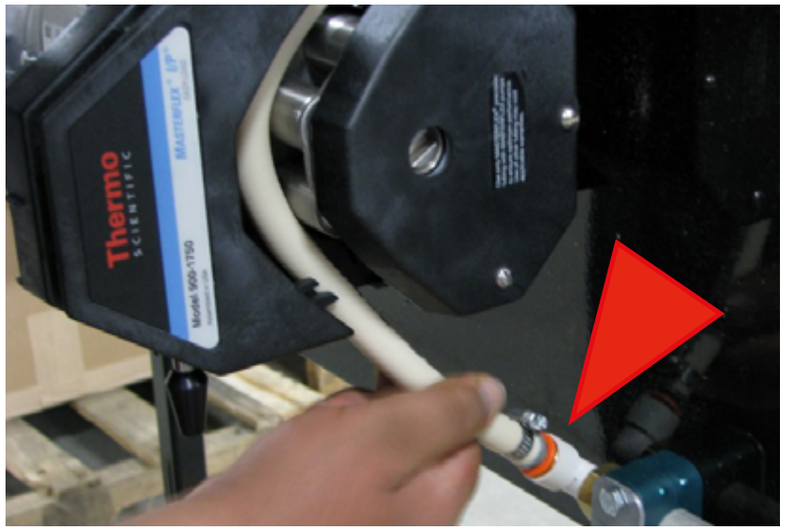


Step 10: Insert one end of the factory supplied Pump Element into the orange Fitting Receptacle on the Pump Treatment Valve Vibration Mount, as shown.



Step 11: Insert the Pump Element onto the Pump Head Rollers, as shown.

- Ensure Pump Element fits behind Pump Head Clips ➲



Step 12: Insert the other end of the factory supplied Pump Element into the orange Fitting Receptacle on the In-line Strainer Vibration Mount, as shown.

Step 13: Close Pump Head (up position), as shown.

Step 14: Connect the Pump Power Cord through the back side of the Pump Stand to the Pump, as shown ➲

Note: To prevent leakage from the Strainer, remove the basket housing and lube the rubber O-ring with Vaseline, then replace the basket housing and securely tighten by hand.

Step 15: Connect one end of the factory supplied vinyl clear Tubing gray fitting to the top fitting on the Plumbing Assembly, as shown.

- Use a screwdriver to tighten the Hose clamp.

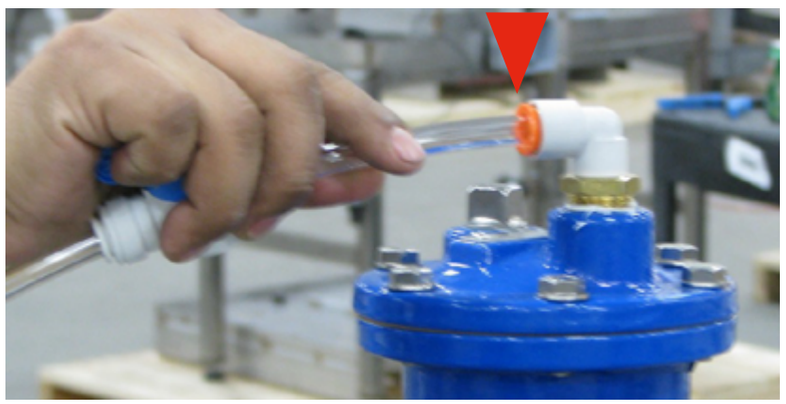
Step 16: Connect the other end of the factory supplied vinyl clear Tubing gray fitting to the In-line Filter Assembly, as shown.

- Use a screwdriver to tighten the Hose clamp ➲

Note: Orientation of the ball valve in the picture above enables chemical flow to the Treater.

Step 17: Use a utility knife to cut the zip tie around the clear vinyl Tubing coil.

- Connect one end of the factory supplied 3/8” OD clear vinyl Tubing to the bottom fitting on the Plumbing Assembly, as shown.



Step 18: Connect the other end of the factory supplied 3/8” OD vinyl clear Tubing to the top fitting on the Pump Assembly, as shown.

Step 19: Insert the gray fitting into one end of the factory supplied vinyl clear Tubing.

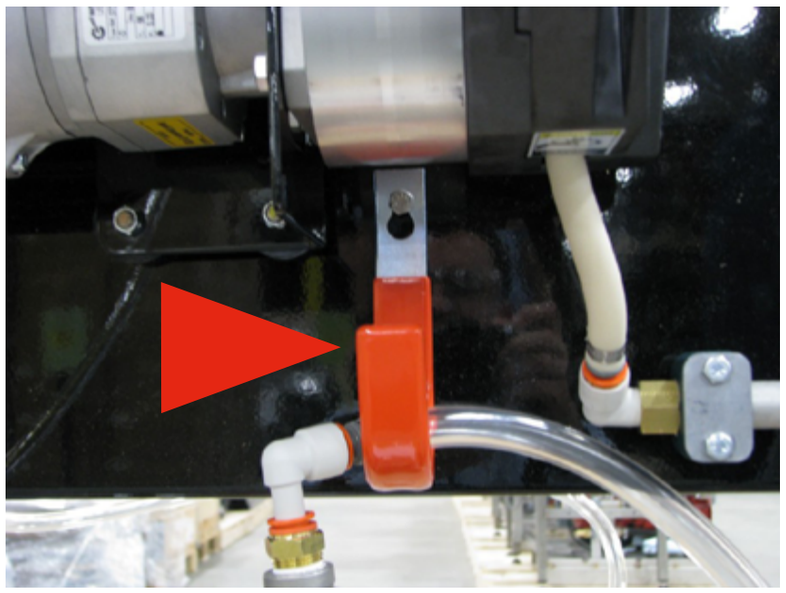
- Connect the gray fitting to the bottom fitting on the Pump Assembly, as shown.
- Use a screwdriver to tighten the Hose clamp ➲

Step 20: Remove the Chemical Inlet Manifold from the packaging.

- Insert the stem into the set collar on the Atomizer Housing.
- Insert tube all the way in until it touches the Atomizer.
- Then back it out approximately 1/8” of an inch.
- Use a 5/32” Allen wrench to tighten the screw on the Set Collar.
- The orientation of the Manifold MUST be as pictured below, with the tubing ports facing **DOWN**.

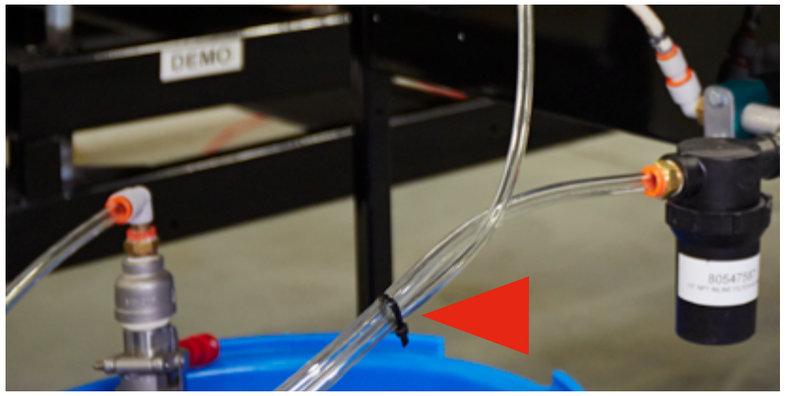
Step 21: Connect the other end of the factory supplied Tubing (from step 19) into the Chemical Inlet Manifold, as shown.

- Start with the bottom ports and work the rest of the way up to the top for each Pump Station used with the system (up to 12).

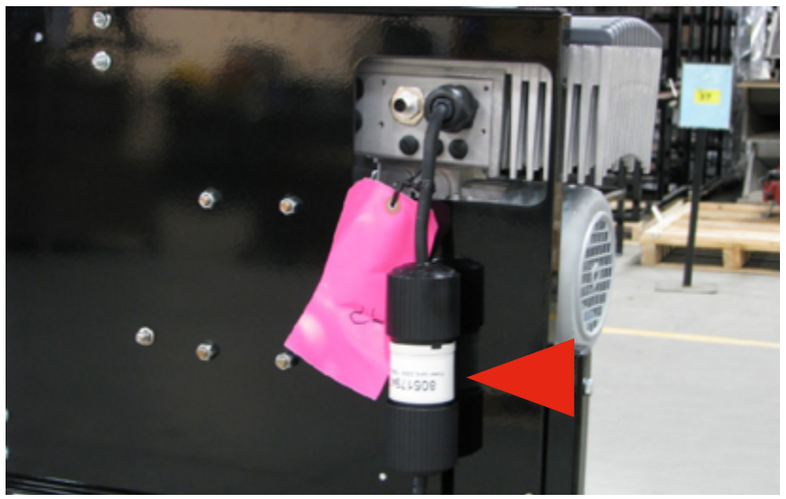


Step 22: Connect the vinyl coated hook to the Pump Assembly, as shown.

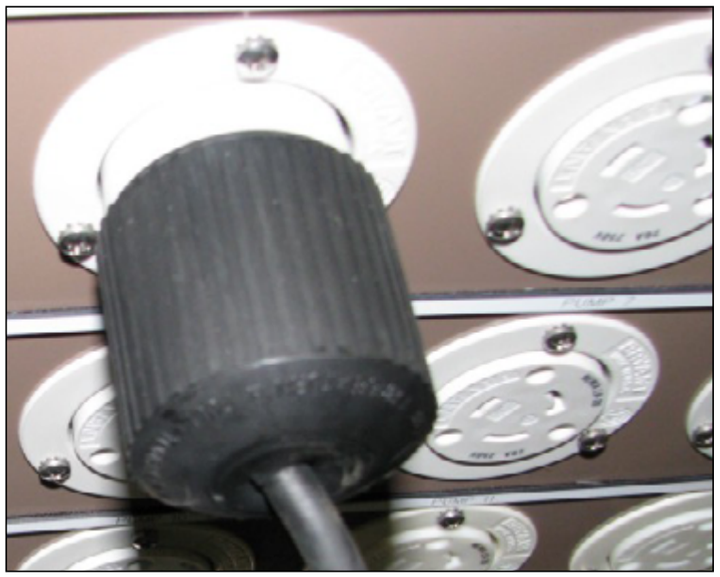
- Use one 1/4” stainless lock washer on the backside and one 1/4-20 x .75 stainless hex bolt on the front side and connect to the Pump Assembly ➲



Step 23: Use the factory supplied zip ties to bundle the Plumbing Assembly Tubing together, to prevent tangling.



Step 24: Connect the Pump Power Cord (connected to pump, refer to step 14, page 24) to the Main Controller.



Step 25: Insert and twist to lock Pump Power Cord to the bottom of the Main Controller, marked **PUMP (1-12)**, as shown.

- Repeat steps 1-25 for each Pump Station used (1-12) with the system, including Flex tanks ➲

Note: Do not run 5pin or 8pin signal cables parallel to Power cable. Do not run within 8” apart. If the Power and Signal cables must cross, it should be perpendicular.

Bench Scale Assembly

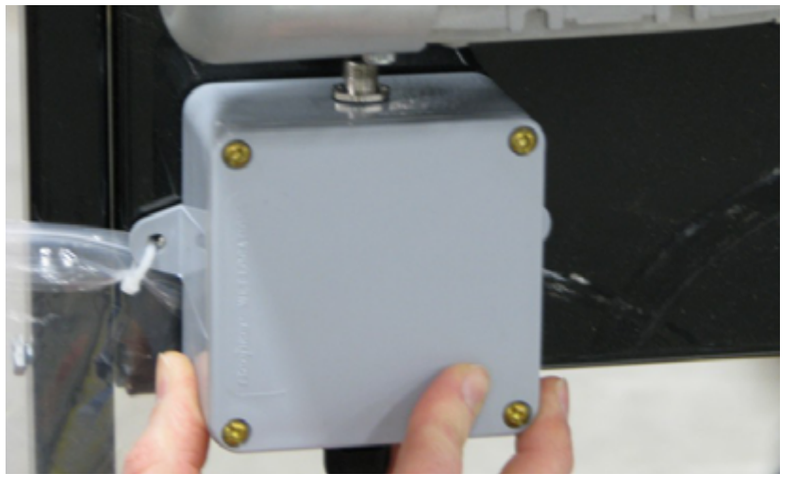
- Assembly requires two people.
- The Bench Scale Assembly ships on a pallet as part of the Pump Station Assembly (previously shown on page 19).
- Remove all components and check for any damage or missing parts that may have occurred during shipping and report it IMMEDIATELY!

Step 1: Set the back two Level Feet in the Scale Position Plates, as shown.

- The scale must be level! Adjust the Scale feet - remove the stainless cover and use the level bubble in the middle until the scale sits level on the floor ➲

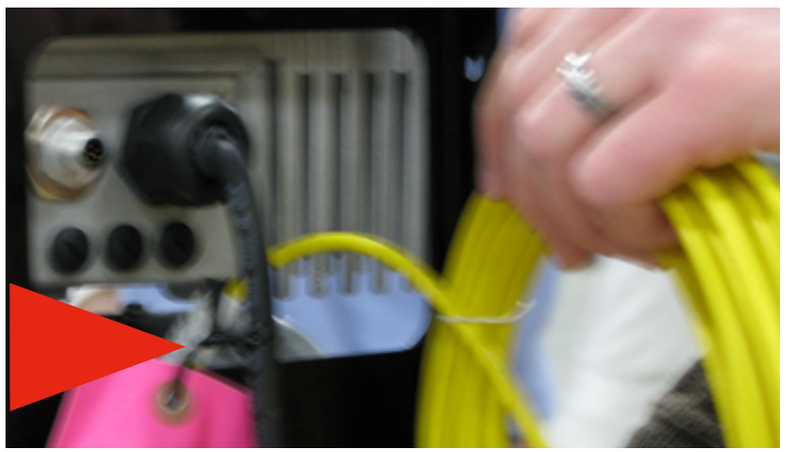
Step 2: Connect the Male end of the Scale **5pin** Signal Cable to the Scale J-box.

- Cut the zip tie around the cable.



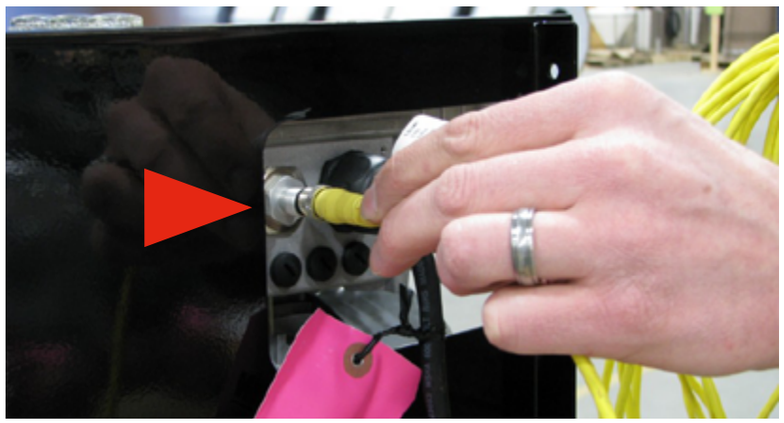
Step 3: Align pre-drilled holes with Scale J-box holes on side and mount to the Pump Assembly.

- Use four 10-32 nuts and bolts. Securely tighten.



Step 4: Feed the Scale Signal Cable through the backside opening of the Pump Assembly, as shown ➲

Step 5: Connect the other end of the Scale **5pin** Signal Cable from the J-box into the bottom of the Main Controller, marked **SCALE (1-12)**, as shown.



Step 6: Connect the Pump Signal **8pin** Cable into the back of the Pump Stand, as shown.

Step 7: Connect the other end of Pump Signal **8pin** Cable into the bottom of the Main Controller, marked **PUMP (1-12)**, as shown.

- Repeat steps 1-7 for each Pump Station (1-12) used in the system.

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Pressure-sensitive number labels are provided for each Pump Station and Pump Station Cables. Label each Pump Station used (1-12) as shown below.

BARCODE SCANNER

Note: Depending upon treater location (open or closed environment) wind can cause scale weight fluctuations. Recommend surrounding the scales with a wind block.

HMI

Scanner

Barcode Scanner

Connect Scanner docking station to bottom of HMI, as shown, marked: **SCANNER** (refer to page 16).

- Place Scanner Gun on Scanner Cradle, as shown left.

Quick checks

Prior to advancing any further in the installation process, ensure the following items have been checked for proper installation.

✓ COMMUNICATION SIGNAL CABLES ARE CONNECTED AND NOT CROSSED OR TOUCHING

✓ POWER CORDS ARE PROPERLY CONNECTED TO POWER SOURCE

✓ PUMP STANDS ARE NOT TOUCHING THE BENCH SCALE - VIBRATION WILL CAUSE DATA INTERFERENCE

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