



BIBKO 2000 / 4000 Reclaimer

Owner's Manual

Field	Value
Machine Model	☐ BIBKO 2000 ☐ BIBKO 4000
Plant Name / Location	
Serial Number	
Installation Date	
Plant Voltage	
Installed By	
DHE Inc. Commissioning Tech	
DHE Inc. Contact	209-835-2222
Document Revision	Rev 1.0 — July 2026



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1. Introduction

1.1 About This Manual

This Owner's Manual covers the BIBKO 2000 and BIBKO 4000 residual concrete reclaimer systems. It combines the BIBKO Installation Guide, Operators Manual, and Maintenance Guide into a single reference, organized in three parts:

- Part I — Installation: site preparation, unloading, mechanical and electrical installation, and commissioning. For qualified installation technicians and electricians.
- Part II — Operation: daily operation, truck rinse out, automatic cycles, operator checks, and emergency emptying. For truck drivers and plant operators.
- Part III — Maintenance: scheduled maintenance, PLC settings, winter operation, fault diagnosis, repair procedures, and spare parts. For qualified maintenance personnel.

This manual must be kept at the plant site and accessible to all personnel at all times. Read Section 2 (Safety) before performing any work on or around the machine.

⚠ IMPORTANT — Final commissioning must be performed by a BIBKO Service Technician. No warranty can be assumed for proper function of the system unless a BIBKO Service Technician completes final commissioning.

1.2 Intended Use

The BIBKO Reclaimer is designed solely for processing returned and residual concrete. It separates the concrete into its components — aggregate (sand and gravel) and slurry water (water with suspended cement). Any other use is not permitted.

i Using the machine for any purpose other than its intended use voids all liability and warranty.



1.3 Model Identification

Two models are covered by this manual:

	BIBKO 2000	BIBKO 4000
Solids Discharge Capacity	26 yd ³ /hr (20 m ³ /h)	39 yd ³ /hr (30 m ³ /h)
Reclaimer Width	7 ft (2150 mm)	7 ft (2150 mm)
Reclaimer Length	8 ft (2500 mm)	11½ ft (3500 mm)
Reclaimer Height	7 ft (2150 mm)	7 ft (2150 mm)
Drive Power	5.5 kW	5.5 kW
Dosing Range	2½ ft (750 mm)	4 ft (1250 mm)
Main Washing Chamber	5½ ft (1750 mm)	7½ ft (2250 mm)
Max Solids Grain Size	1¼ in (32 mm)	1¼ in (32 mm)
Separation Cut	0.2 mm	0.2 mm
Inlet Height	2½ ft (750 mm)	2½ ft (750 mm)
Outlet Height	2½ ft (750 mm)	2½ ft (750 mm)
Bearing Type	Flange bearing	Flange bearing
Frost Protection (optional)	2.0 kW	2.0 kW

Both models operate identically. Where differences exist between models they are clearly noted. Your machine model and serial number are recorded on the cover page of this manual. If you are unsure which model is installed at your plant, contact DHE INC. at 209-835-2222.



1.4 Required Personnel and Qualifications

All work on the machine must be performed by qualified personnel:

Role	Qualification Required
Crane / Forklift Operators	Valid crane or forklift license; training on lifting and slinging practices
Installation Personnel	Working knowledge of accident prevention regulations; relevant mechanical assembly experience
Electrical Personnel	Qualified electrician licensed per state and local requirements; working knowledge of the National Electrical Code (NEC / NFPA 70) and local electrical codes; familiar with NFPA 70E safe work practices
Operators	Trained on machine operation (Part II) before operating; if required knowledge is lacking, staff must be trained accordingly
Maintenance Personnel	Trained in accident prevention regulations and qualified for mechanical maintenance work on industrial equipment
PLC Settings / Adjustments	Personnel trained on the BIBKO PLC system; changes to timer and level settings must only be made by authorized personnel
Commissioning	BIBKO Service Technician

1.5 How to Use This Manual

- New operators: read Part II from beginning to end before operating the machine.
- Installers: complete Part I in order. Final commissioning is performed by DHE Inc..
- Maintenance personnel: work from the schedule in Part III, Section 3, and follow the Lockout / Disconnect Procedure in Section 2.4 before every task.
- If the machine stops unexpectedly, go directly to Part II, Section 9 — Emergency Emptying.
- If you observe something that does not look right, refer to Part II, Section 7.5 and contact your maintenance team.

If you have questions not covered in this manual, contact DHE Inc. at 209-835-2222.

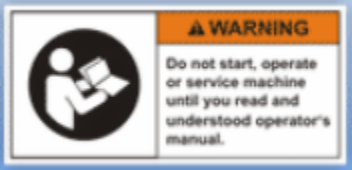


2. Safety

These instructions must be kept easily accessible at the machine at all times. All responsible personnel must read and understand this safety section before beginning work and follow local and regional safety guidance.

2.1 Safety Symbols and Meanings

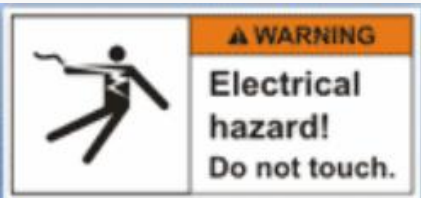
The following symbols appear throughout this manual and on the machine. Learn what each one means before beginning work.

Symbol	Level	Meaning
	WARNING	Do not start, operate, or service the machine until you have read and understood this manual.
	CAUTION	Wear safety glasses when using equipment.
	CAUTION	Hard hat required.
	CAUTION	Safety shoes must be worn in this area.
	CAUTION	Wear gloves in this area.



Symbol	Level	Meaning
	CAUTION	Do not enter without safety vest.
	WARNING	Electrical hazard. Authorized personnel only.
	WARNING	Unauthorized personnel keep out.
	DANGER	Lock out power before removing guards or doors.
	DANGER	Rotating parts inside. Keep hands and body clear at all times.
	CAUTION	Stand clear of suspended load. Never walk or stand beneath a suspended load.



Symbol	Level	Meaning
	WARNING	Electrical hazard. Do not touch.
	WARNING	Conveyor may start without warning. Moving parts can cut and crush. Keep hands and body clear of conveyor.
	CAUTION	Slippery when wet. Use caution on wet surfaces.

2.2 Personal Protective Equipment (PPE)

The following PPE, and any other customer-required PPE, must be worn during all work on or around the machine:

- Safety glasses (face shield when cutting or grinding)
- Hard hat
- Steel-toed safety shoes
- Safety gloves (cut-resistant gloves for installation and repair work)
- High-visibility vest
- Fall protection harness when working at elevation



2.3 General Safety Rules

- Read this manual before operating, installing, or servicing the machine. All personnel must be trained and qualified for the tasks they perform.
- Never remove or bypass protective guards while the machine is running. Reinstall and verify all guards before restoring power.
- Never reach into the machine while it is powered — the machine can start automatically at any time.
- Work on the machine only when it is at a complete standstill and the main switch is locked out (see Section 2.4).
- Never bypass or bridge the main safety switch — bridging is strictly prohibited.
- Access to the machine must be restricted to authorized and qualified personnel.
- All electrical faults must be repaired by a trained and qualified electrician only. Never damage cable sheathing — if damage occurs, switch off power to that area, secure it, and call an electrician.
- Operators: do not switch off the main power switch during normal operations — the machine runs a Rest Period cycle 24/7 and must remain powered.
- Modifications or alterations to the machine are only permitted after consulting DHE Inc. or BIBKO.
- Use genuine BIBKO spare parts only. Use of non-genuine parts voids all liability and warranty.
- Observe all applicable OSHA regulations and local accident-prevention requirements in addition to the rules in this manual.
- Danger of slipping is present around the machine basin and water areas — use non-slip footwear and exercise caution on wet surfaces.
- Non-compliance with safety and operating instructions can result in hazards to people, the environment, and the machine, and voids all warranty and compensation claims. This manual must remain on site at all times.

2.4 Lockout / Disconnect Procedure

⚡ LOCKOUT REQUIRED — Before any maintenance or repair work: switch off the main power switch and secure against reconnection. Bridging this safety device is strictly prohibited.

1. Notify all personnel in the area that the machine is being shut down for maintenance.
2. Press the STOP button on the PLC touchscreen.
3. Switch off the main power switch at the switch cabinet.
4. Apply a lockout device to the main switch to prevent reconnection. When multiple workers are involved, each worker applies their own personal lock and tag.
5. Verify the machine is de-energized before beginning work. Attempt a start from the control panel to confirm the machine cannot start, then return the controls to off.
6. After work is complete, remove lockout, reattach all guards, and restore power.

This procedure supports compliance with OSHA lockout/tagout requirements (29 CFR 1910.147). Where your plant has a site-specific LOTO program, follow it in conjunction with the steps above.



2.5 Electrical Safety

All electrical work must be performed by a trained and qualified electrician. The electrical system must be installed in accordance with the NEC (NFPA 70) and local electrical codes.

- Always switch off and lock out main power before working on electrical components.
- Never work on live electrical equipment.
- If cable sheathing is damaged, switch off power immediately, secure the area, and contact an electrician.
- Do not bypass or modify electrical safety devices.

⚡ ELECTRICAL HAZARD — Switch off main power and secure against reconnection before doing ANY work on electrical systems. Never reach into the danger area when checking drive rotation direction.

2.6 Working with Lifted and Suspended Loads

- Slings, chains, and lifting equipment must be rated for the weight of the component being lifted.
- Never walk or stand beneath a suspended load.
- All personnel not directly involved in a lift must clear the drop zone.
- Use non-slip footwear near the machine and basin — surfaces are frequently wet.
- Lift the Reclaimer only using the specially designated load-carrying points.
- Only licensed crane and forklift operators may operate lifting equipment.
- Personnel working at elevation must be secured against falling at all times — use a lifting platform and fall protection harness.

2.7 Automatic Start Warning

The machine runs automatically 24/7 even when no trucks are present. The Rest Period cycle runs a brief wash at regular intervals to prevent cement from hardening inside. Never assume the machine is off because it is not currently running.

⚠ AUTOMATIC RESTART HAZARD — The Reclaimer operates in automatic mode. After the rest period it will restart without warning. Before working on or near the machine: switch off main power and secure against reconnection. Do not rely on the machine being "stopped" on the display.



2.8 Noise and Emissions

The following noise levels are produced during normal operation, measured at 33 ft (10 m). Hearing protection is recommended when the truck mixer is actively washing.

Noise Source	Noise Level at 33 ft (10m)
Reclaimer cycling (wash cycle)	44 dB(A)
Slurry Tank agitator cycling	48 dB(A)
Truck mixer during washing	67 dB(A)
Total rated noise level (all sources combined)	67 dB(A)

Note: Noise levels above 85 dB(A) require mandatory hearing protection under OSHA regulations. The combined noise level at this machine does not exceed this threshold under normal operating conditions. However, hearing protection is recommended when working in close proximity to an actively washing truck mixer.



PART I — INSTALLATION

Site preparation, unloading, mechanical and electrical installation, and commissioning. For qualified installation technicians and electricians.

3. Technical Data

3.1 Reclaimer — Main Unit

Specification	BIBKO 2000	BIBKO 4000
Solids discharge capacity	26 yd ³ /hr (20 m ³ /hr)	39 yd ³ /hr (30 m ³ /hr)
Reclaimer width	7 ft (2150 mm)	7 ft (2150 mm)
Reclaimer length	8 ft (2500 mm)	11½ ft (3500 mm)
Reclaimer height	7 ft (2150 mm)	7 ft (2150 mm)
Drive power	5.5 kW	5.5 kW
Main washing chamber (standard)	8 ft (2500 mm)	11½ ft (3500 mm)
Main washing chamber (with Dosing Buffer)	5¾ ft (1750 mm)	7½ ft (2250 mm)
Dosing range (with Dosing Buffer)	2½ ft (750 mm)	4 ft (1250 mm)
Max solid grain size	Up to 32 mm (1¼")	Up to 32 mm (1¼")
Separation Cut	0.2 mm	0.2 mm
Inlet height	2½ ft (750 mm)	2½ ft (750 mm)
Outlet height	2½ ft (750 mm)	2½ ft (750 mm)
Bearing type	Flange bearing	Flange bearing
Frost protection heater (optional)	2.0 kW	2.0 kW



3.2 Screw Conveyor (WDF)

Specification	6'7" (2 m)	9'10" (3 m)	13'1" (4 m)	16'5" (5 m)	19'8" (6 m)
Type	22	32	42	52	62
Conveyor length	7'1" (2170 mm)	10'5" (3170 mm)	13'8" (4170 mm)	16'11" (5170 mm)	20'3" (6170 mm)
Cloth length	6'7" (2000 mm)	9'10" (3000 mm)	13'1" (4000 mm)	16'5" (5000 mm)	19'8" (6000 mm)
Drive power	3.0 kW	3.0 kW	3.0 kW	3.0 kW	3.0 kW
Conveyor width	20 in (500 mm)	20 in (500 mm)	20 in (500 mm)	20 in (500 mm)	20 in (500 mm)
Conveyor height	20 in (500 mm)	20 in (500 mm)	20 in (500 mm)	20 in (500 mm)	20 in (500 mm)
Auger diameter	12¾ in (325 mm)	12¾ in (325 mm)	12¾ in (325 mm)	12¾ in (325 mm)	12¾ in (325 mm)
Flank lead (pitch)	8 in (200 mm)	8 in (200 mm)	8 in (200 mm)	8 in (200 mm)	8 in (200 mm)
Bearing location	Outside water area	Outside water area	Outside water area	Outside water area	Outside water area

3.3 Noise Emissions

The following noise levels are produced during normal operation:

Source	Measurement	Level
Reclaimer cycling	Emission level @ 7m	52 dB(A)
Reclaimer cycling	Noise rating @ 7m	48 dB(A)
Reclaimer cycling	Noise rating @ 10m	44 dB(A)
Agitator cycling	Emission level @ 7m	59 dB(A)
Agitator cycling	Noise rating @ 7m	52 dB(A)
Agitator cycling	Noise rating @ 10m	48 dB(A)
Truck mixer during washout	Emission level @ 10m	75 dB(A)
Truck mixer during washout	Noise rating @ 10m	67 dB(A)
Combined total (all sources)	Noise rating @ 10m	67 dB(A)

All measured levels are below the OSHA 85 dB(A) 8-hour action level at the stated distances.

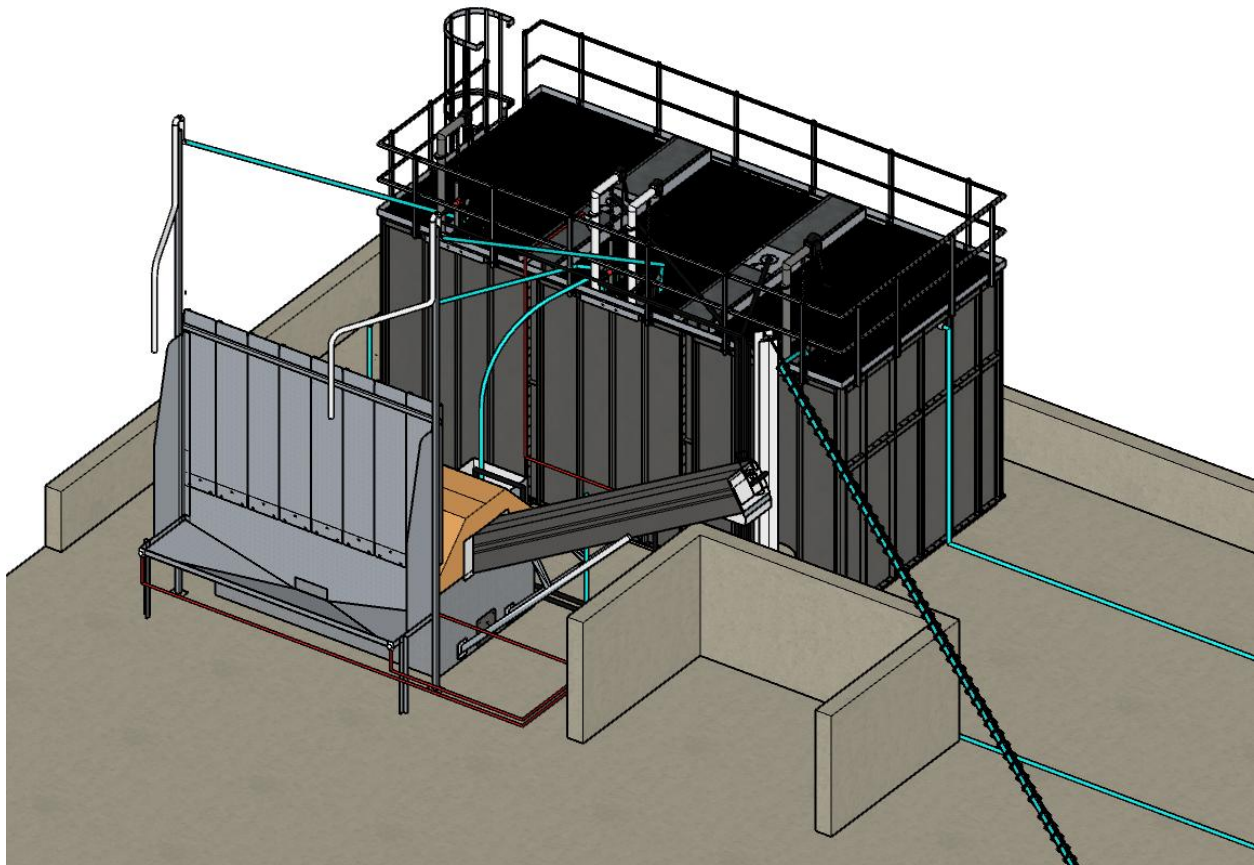


4. Site Preparation

All site preparation work must be completed before the Reclaimer is delivered. The site-specific planning drawing (Appendix A) is the governing document for all dimensions, positions, and civil work. Contact DHE Inc. at 209-835-2222 if the planning drawing is not on file.

4.1 Planning Drawing

Review the planning drawing before any concrete or civil work begins. It defines the overall site layout, machine footprint and positioning, foundation dimensions, pit locations, and water line routing. No dimension in this section overrides the planning drawing.



4.2 Foundation

The Reclaimer, Dosing Buffer (if equipped), and Shaker Screen (if equipped) are installed on a flat, level concrete foundation and anchored with concrete anchors. Customer responsible for foundation engineering and design.

4.3 Slurry Pit and Freshwater Pit

Pit dimensions vary by operation and are site-specific. If a Shaker Screen is installed, the concrete walls at its location must be cast at the specified slant angle before the screen is installed — see the planning drawing for wall angle, dimensions, and anchor bolt layout.



4.4 Truck Access and Discharge Area

The site must allow mixer trucks to position at the Feed Tray and provide clear space beneath the Screw Conveyor discharge for the washed aggregate stockpile. Crane access is required during installation.

4.5 Electrical Supply (To be confirmed by customer electrician)

Plant power must be available at the switch cabinet location shown on the planning drawing. Typical main connected loads: Reclaimer drive 5.5 kW, Screw Conveyor drive 3.0 kW, machine heating (optional) 2.0 kW, plus agitator and pump motors. Select cable cross-sections per the Electrical Requirements (Appendix B).

4.6 Water Supply

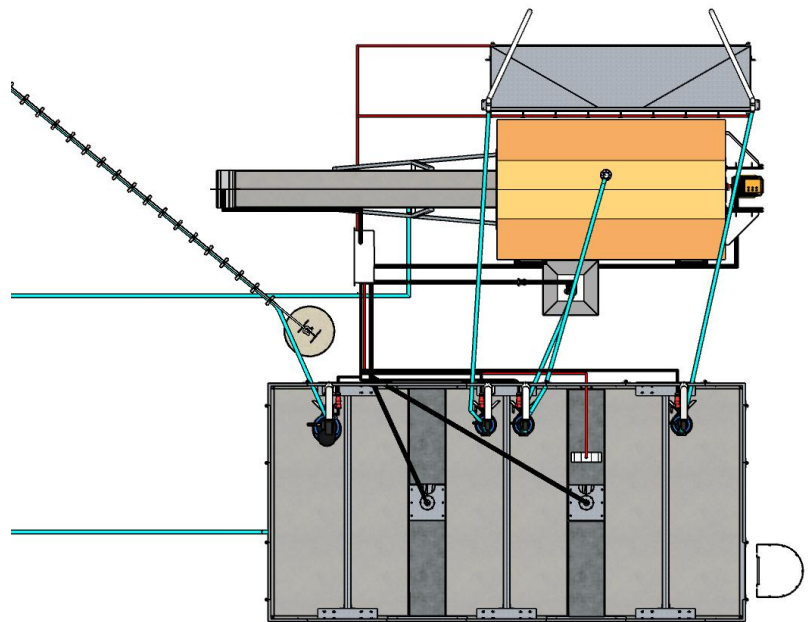
Fresh water and city water connections must be available at the machine location. The yard water line is 2"; slurry pump lines are 3" and must be laid with a continuous gradient so lines can drain.

Minimum 60 PSI water pressure required at the machine.

5. Unloading

5.1 Before Unloading

Confirm all site preparation per Section 4 is complete. Confirm all lifting equipment, slings, and rigging have been selected and rated for the machine weight (see Section 3.1). Verify the unloading site is clear of personnel not involved in the lift. Designate a signal person before any crane or forklift operation begins.

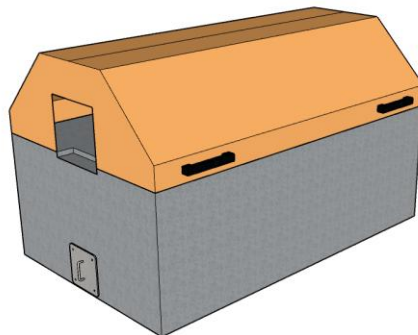


⚠ NEVER walk or stand beneath a suspended load. All personnel not directly involved in the lift must stay clear of the drop zone.



5.2 Lifting and Positioning the Reclaimer

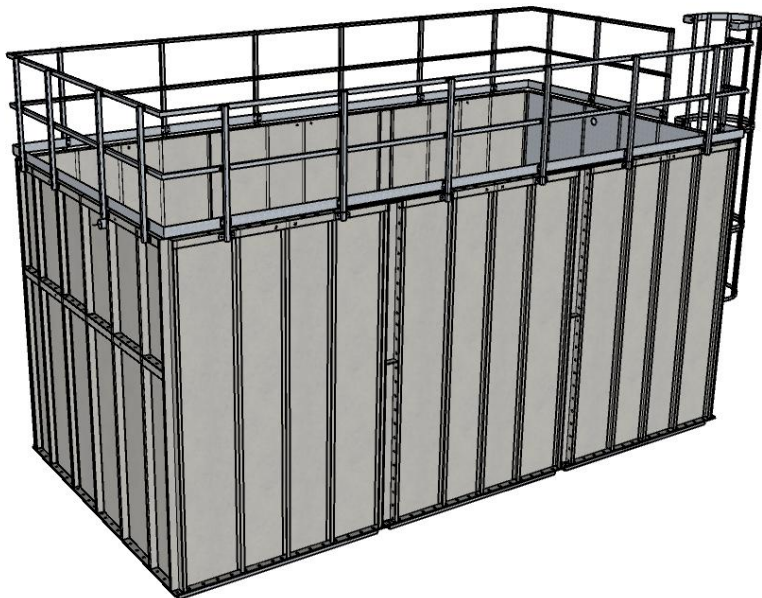
1. Identify the designated load-carrying points on the Reclaimer frame. The machine must only be lifted or attached at these points.
2. Attach slings or chains to the load-carrying points. Do not attach rigging to any other part of the frame, gearbox, or cover.
3. Perform a controlled lift — raise the machine slowly and keep it level.
4. Move the Reclaimer to the installation position. Lower slowly and confirm position before releasing the load.
5. With the machine resting on the foundation, level it using the adjustment bolts. Verify level before releasing the rigging.



5.3 Unloading Slurry Tank

The Slurry Tank is a large, heavy component and requires a crane for unloading and placement. Coordinate with the DHE Inc. installation team to confirm lift points and rigging before delivery.

1. Identify the designated load-carrying points on the Slurry Tank. Do not rig to any other part of the tank structure.
2. Attach crane slings or chains to the load-carrying points.
3. Perform a controlled lift — raise slowly and confirm the tank is level before moving.
4. Move the tank to the installation area. Lower slowly into position per the planning drawing.
5. Do not release the crane until the tank is confirmed in the correct position and stable.



Slurry Tank lift points painted red.

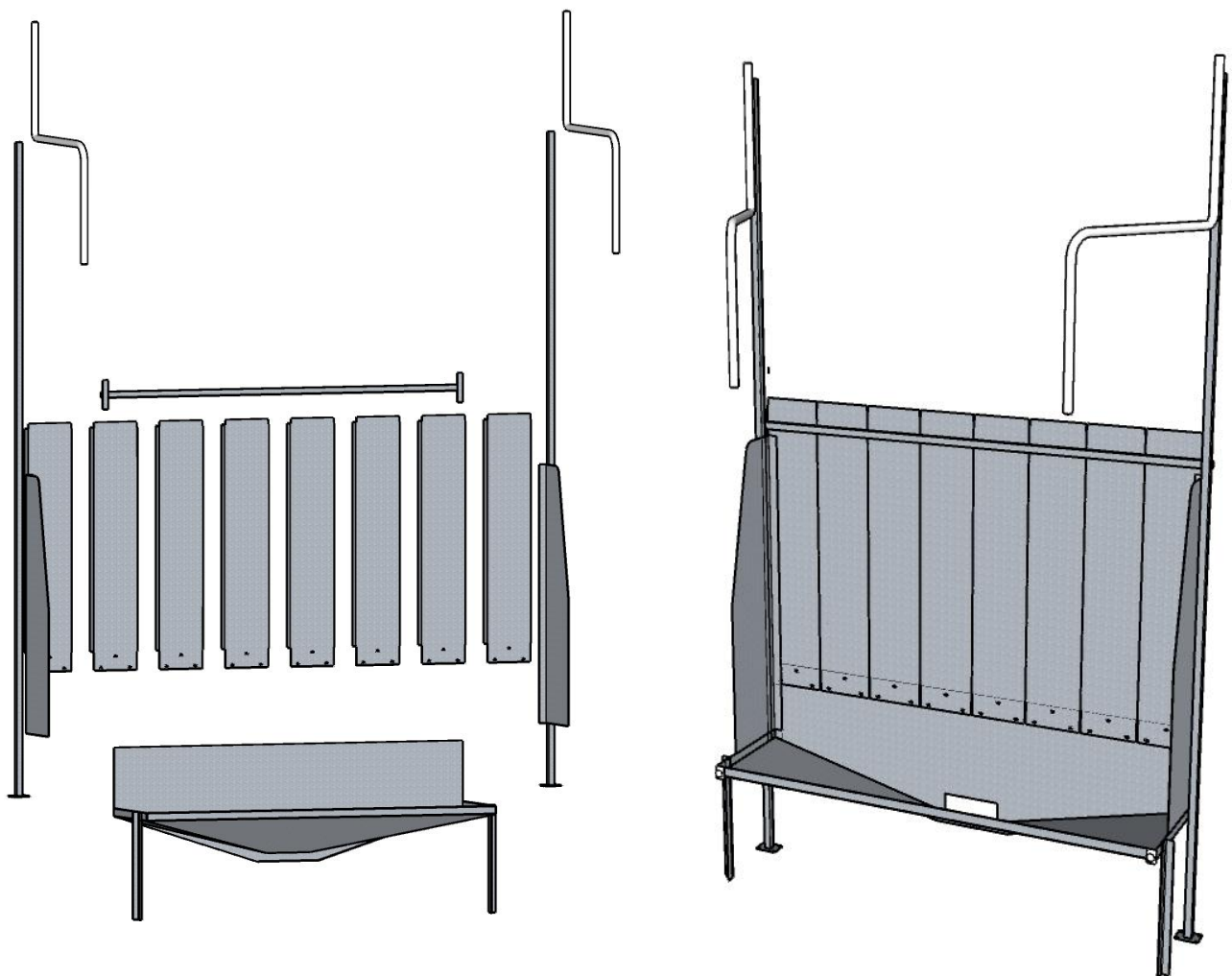
6. Installation

i All applicable safety regulations must be observed during the entire installation procedure. PPE must be worn at all times on site.



6.1 Feed Tray and Discharge Tray

1. Mount the Feed Tray to the Reclaimer inlet. Apply silicone to seal the transition connection between the tray and the machine.
2. Install the vertical supports to the Feed Tray frame.
3. Install the horizontal cross member across the vertical supports.
4. Fit the back splash panels to complete the assembly.



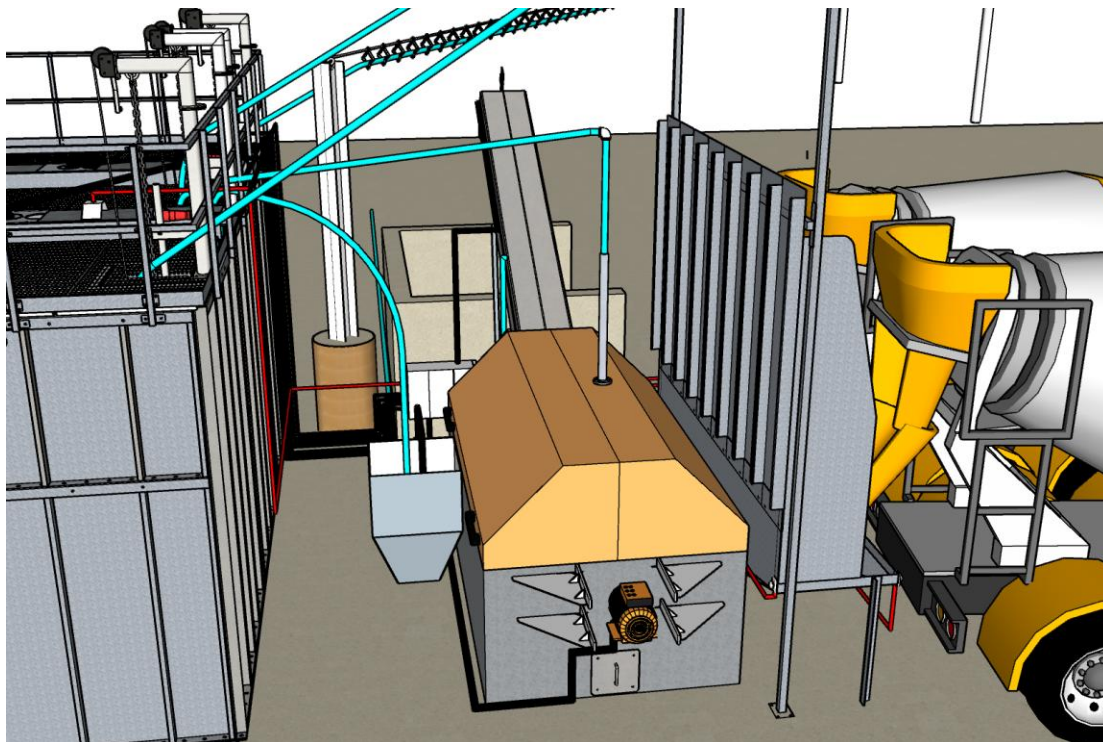


6.2 Main Reclaimer

After lowering the Reclaimer onto the concrete foundation (see Section 5.2), complete the following connections:

If a Dosing Buffer is installed, do not connect the Feed Tray discharge directly to the Reclaimer. The Feed Tray routes through the Dosing Buffer first. See Section 6.5 Dosing Buffer (If Equipped).

1. Verify the Feed Tray is fitted and sealed per Section 6.1.
2. Connect the Reclaimer overflow to the Slurry Tank using the appropriate method for the installation:
 - Gravity drain (boat ramp or buried tank): fit the overflow gutter from the Reclaimer to the Slurry Tank. Bolt and seal the transition connection with silicone.
 - Pumped system (elevated Slurry Tank): fit the overflow gutter to the sump pump basin. The sump pump transfers overflow water up to the Slurry Tank and is operated by float switches.
3. Install the machine to the foundation using anchor bolts.





6.3 Screw Conveyor

1. Open the Reclaimer Hood
2. Remove splash plates from screw
3. On the Screw conveyor side of the reclaimer helix, there typically is a gap in the buckets.
4. Rotate Reclaimer Helix so this gap is at the top.
5. Position the Screw Conveyor at the Reclaimer tub outlet. Align the inlet flange to the tub discharge opening.
6. Mount the Screw Conveyor to the Reclaimer using the hardware provided. Do not fully tighten until alignment is confirmed.
7. Mount the Screw Bracing to the Reclaimer and Screw using the hardware provided. Ensure the angle iron welded on the screw is on the downhill side of the mounting bar on the Brace.
8. Check for gaps where the screw conveyor enters the reclaimer.
9. Adjust the angle of the Screw Conveyor per the planning drawing and confirm the discharge end is at the correct height over the stockpile or material box.
10. Apply silicone around where the screw conveyor enters the reclaimer to create a seal
11. Tighten all fasteners to spec.
12. Check the clearance between the screw flights and the Elastomer Blanket along the full length of the conveyor. The correct gap is $\frac{1}{2}$ " (12 mm). If the gap is less than $\frac{1}{2}$ ", material will discharge too wet as there is no internal drainage. If the gap is more than $\frac{3}{4}$ ", the conveyor will not move material efficiently. Adjust the blanket position using the adjustable bolts at the top and bottom of the Screw Conveyor — all bolts must be moved together to maintain even clearance.
13. Confirm the Screw Conveyor is secure and does not contact any surrounding structure throughout its full range of motion.
14. Fit the solenoid valve and connect the fresh water supply line to the Screw Conveyor.

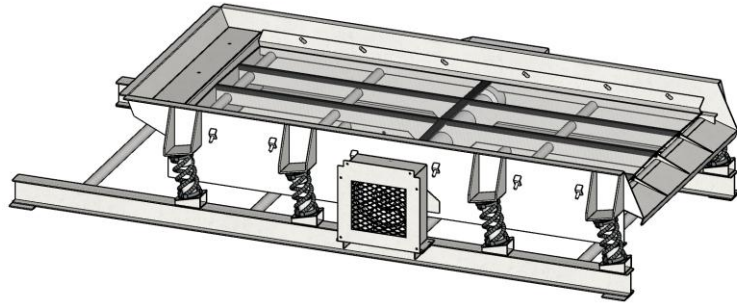




6.4 Shaker Screen (If Equipped)

The Shaker Screen is an optional accessory that separates fine sand from larger aggregate at the Screw Conveyor discharge point.

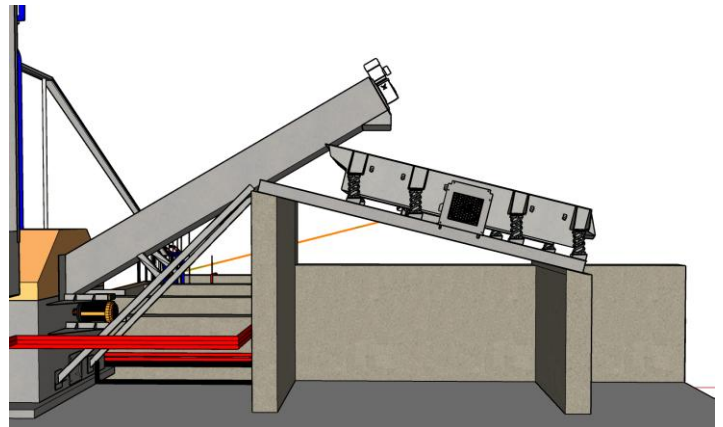
Aggregate passes over the screen to the stockpile. Sand falls through the mesh to a separate collection area below.



Prerequisites

- The concrete walls at the Shaker Screen installation location must be cast at the specified slant angle before the screen is installed. Refer to the planning drawing for wall angle, dimensions, and anchor bolt layout.
- Confirm anchor bolts are set in the concrete walls and cured before proceeding.
- Screw Conveyor must be installed and positioned (Section 6.3) before placing the Shaker Screen.

1. Review the planning drawing. Confirm the slanted wall angle (15° standard), anchor bolt pattern, and screen position relative to the Screw Conveyor discharge match the drawing.
2. Using a crane and the screen's designated lift points, lower the Shaker Screen onto the slanted concrete walls. Align the mounting holes to the anchor bolts.
3. Install anchor bolt hardware (washers and nuts) and torque to specification per the planning drawing. Confirm the screen sits flat on both walls without rocking.



4. Verify the Screw Conveyor discharge is centered over the screen inlet. Material must drop onto the screen surface, not onto the frame or walls.
5. Connect the vibrator motor power supply per the electrical wiring diagram in Appendix B. Confirm motor voltage and amperage match the site power supply.
 - ⚠ Do not energize the vibrator motor until the Shaker Screen is fully mounted and all hardware is tightened.
6. Run a brief function test: start the vibrator motor and observe that the screen vibrates freely with no abnormal noise or contact with surrounding structure.
7. Confirm that the sand collection area below the screen is clear and accessible for removal, and that the aggregate discharge path to the stockpile is unobstructed.

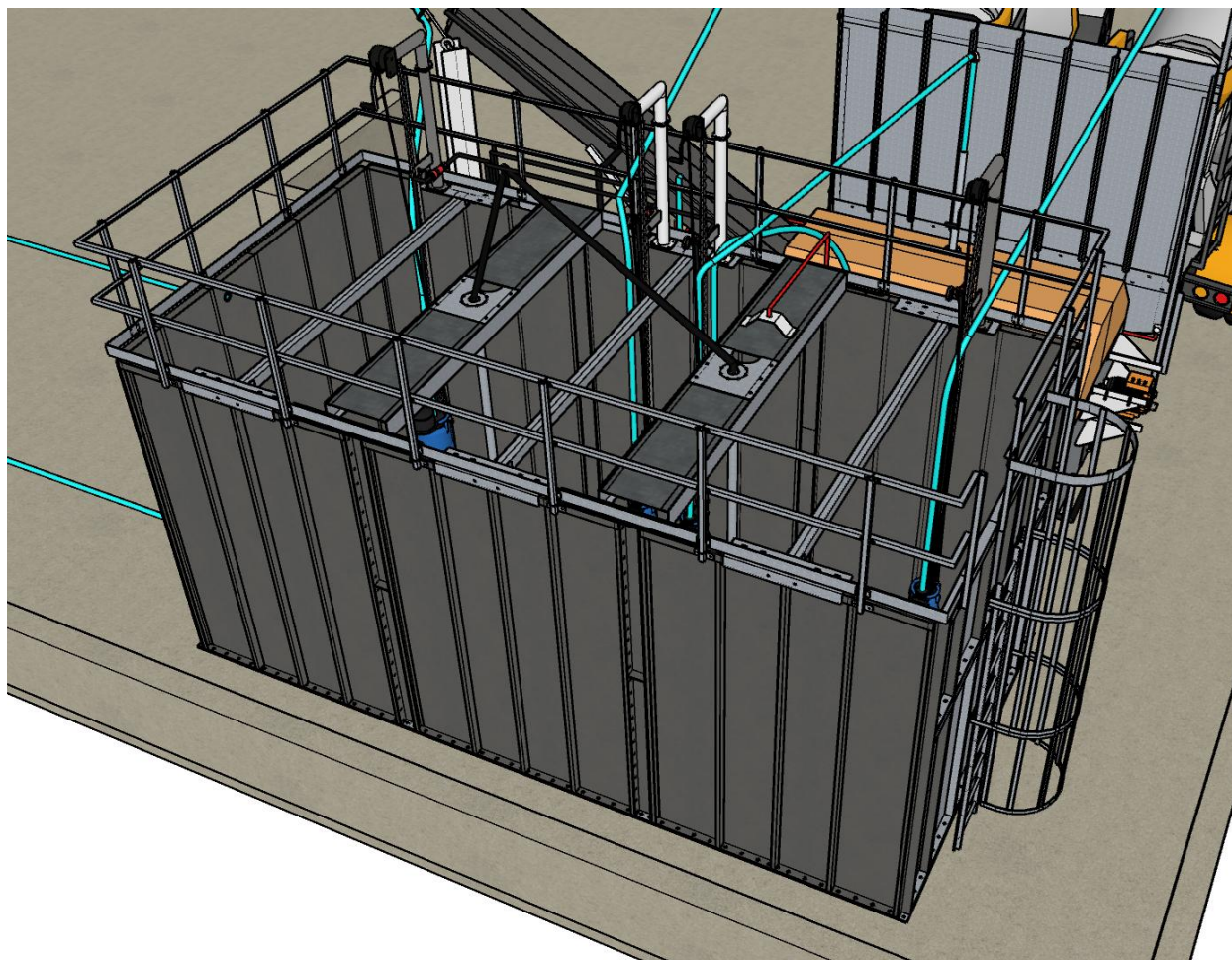


6.5 Dosing Buffer (If Equipped)

1. Unload and position the Dosing Buffer using designated load-carrying points and crane.
2. Lower into position, then level using the adjustment bolts.
3. Fit the Feed Tray to the Dosing Buffer. Seal the transition connection with silicone.
4. Install the Dosing Buffer to the foundation using anchor bolts.

6.6 Slurry Tank

Install the Slurry Tank and all associated components before connecting to the main Reclaimer.



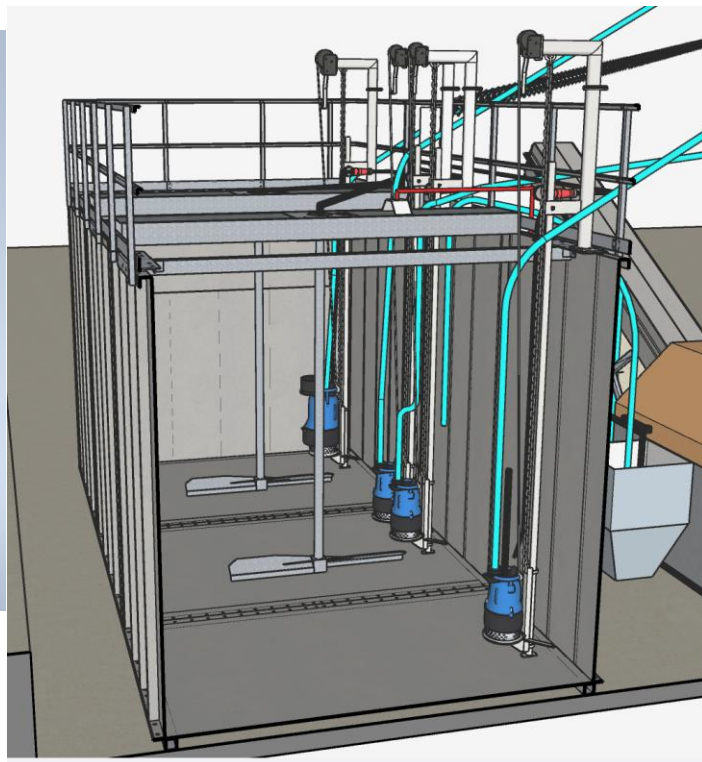
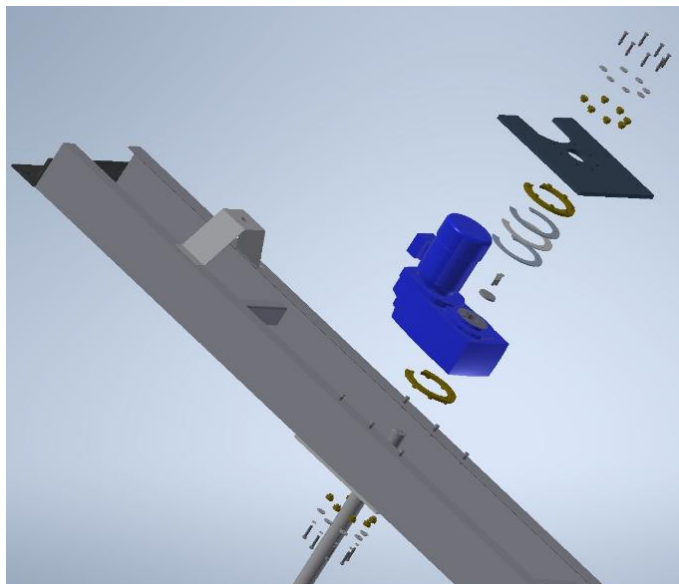
6.6.1 Tank Placement

1. Tank must be located on a level pad.
2. Confirm tank dimensions, position, and orientation per the planning drawing before any concrete work.
2. Verify basin depth matches the agitator shaft lengths specified in the Field Installation Form (Appendix C).
3. Confirm the overflow connection point aligns with the Reclaimer overflow gutter outlet.



6.6.2 Agitator Bridge and Agitator Assembly

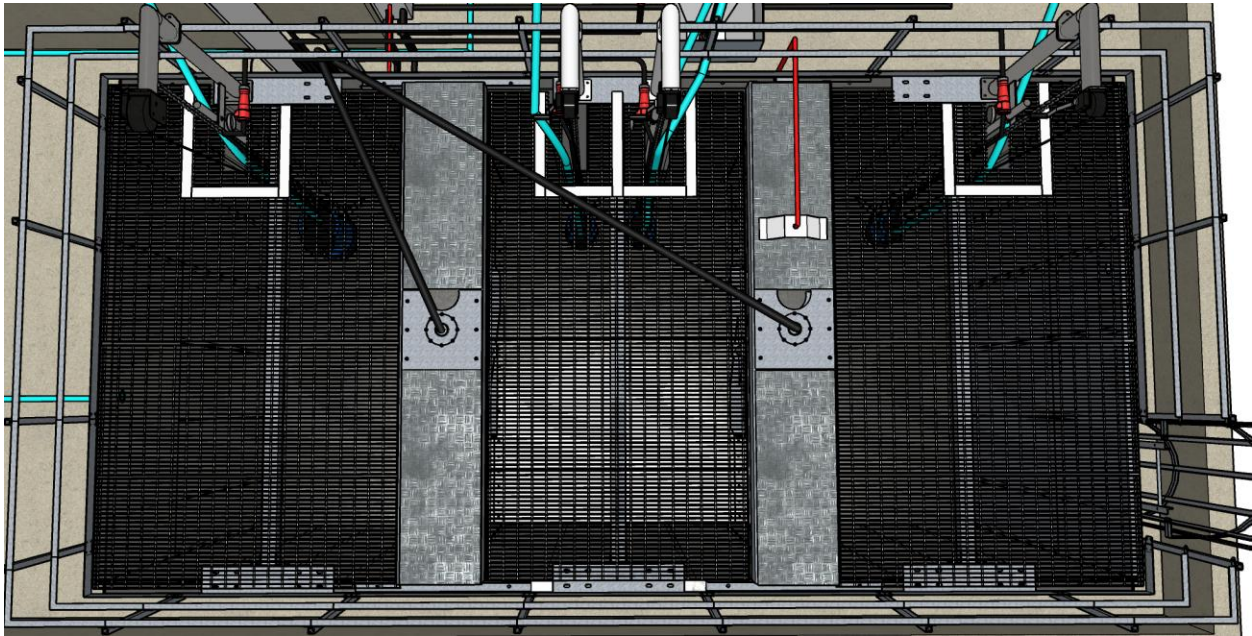
⚠ FALL PROTECTION REQUIRED — All personnel must be secured against falling for all steps in this section.



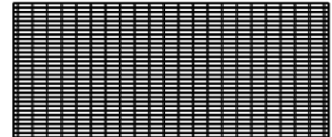
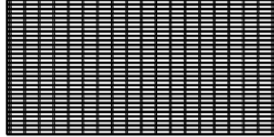
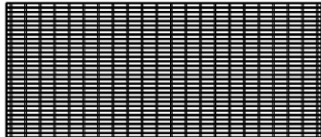
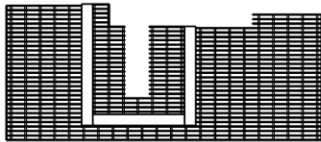
1. Stand the agitator vertically on the ground in a clear, level area near the tank.
2. Using a crane, lower the agitator bridge down over the agitator shaft until the shaft seats into the gearbox.
3. Bolt the agitator to the gearbox. Tighten all fasteners to spec before lifting.
4. With the crane still rigged to the bridge, lift the complete bridge-and-agitator assembly.
5. Move the assembly over the Slurry Tank and lower it into the correct position per the planning drawing.
6. Secure the bridge to the foundation using anchor bolts. Verify the assembly is level and the agitator shaft hangs plumb before releasing the crane.
7. Repeat for each additional agitator bridge and agitator.



6.6.3 Catwalk



1. Position catwalk sections over the Slurry Tank per the planning drawing.
2. Align and level the catwalk.
3. Install catwalk to the foundation or structural supports using the hardware provided.

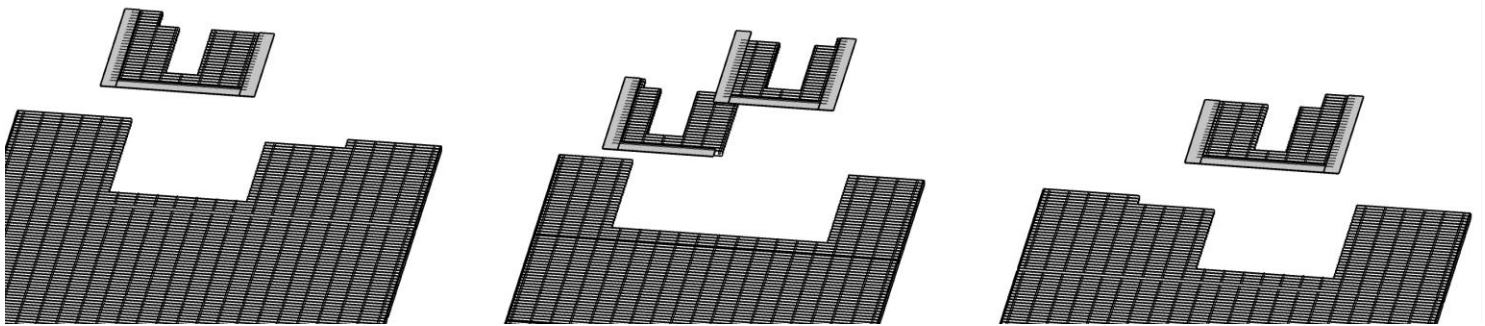




Catwalk Floor Notching

Catwalk floor panels require notching in two locations to maintain full coverage while allowing pump access and accommodating fixed structure:

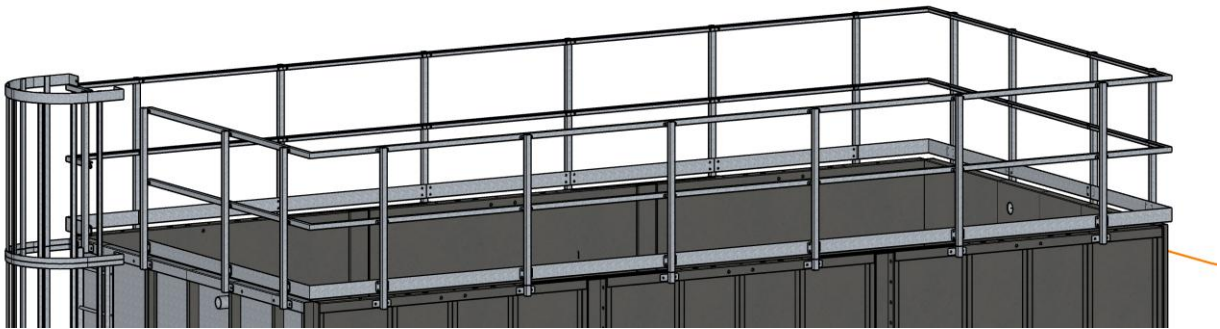
4. Pump cable and chain notches — Notch the floor panels at each pump location to allow pump cables, lifting chains, and standoff pipe poles to pass through. Notches must be sized so the panels can be closed around the cable or chain when not in use, eliminating open holes in the walking surface. Layout the notch pairs so the two adjacent panels meet around the cable when closed.
5. Verify pumps can be raised and lowered freely through the notched opening without removing the floor panels.
6. Agitator bridge notches — Notch the floor panels around each agitator bridge to allow the panels to fit tight against the bridge structure on all sides. Gaps around agitator bridges should be kept as small as practical.
7. Trial-fit all notched panels before final installation. Confirm panels sit flat, close fully around cables and bridges, and can be removed and replaced by one person for pump service access.
8. Verify all fasteners are tight and catwalk is stable before installing railing.





6.6.4 Railing

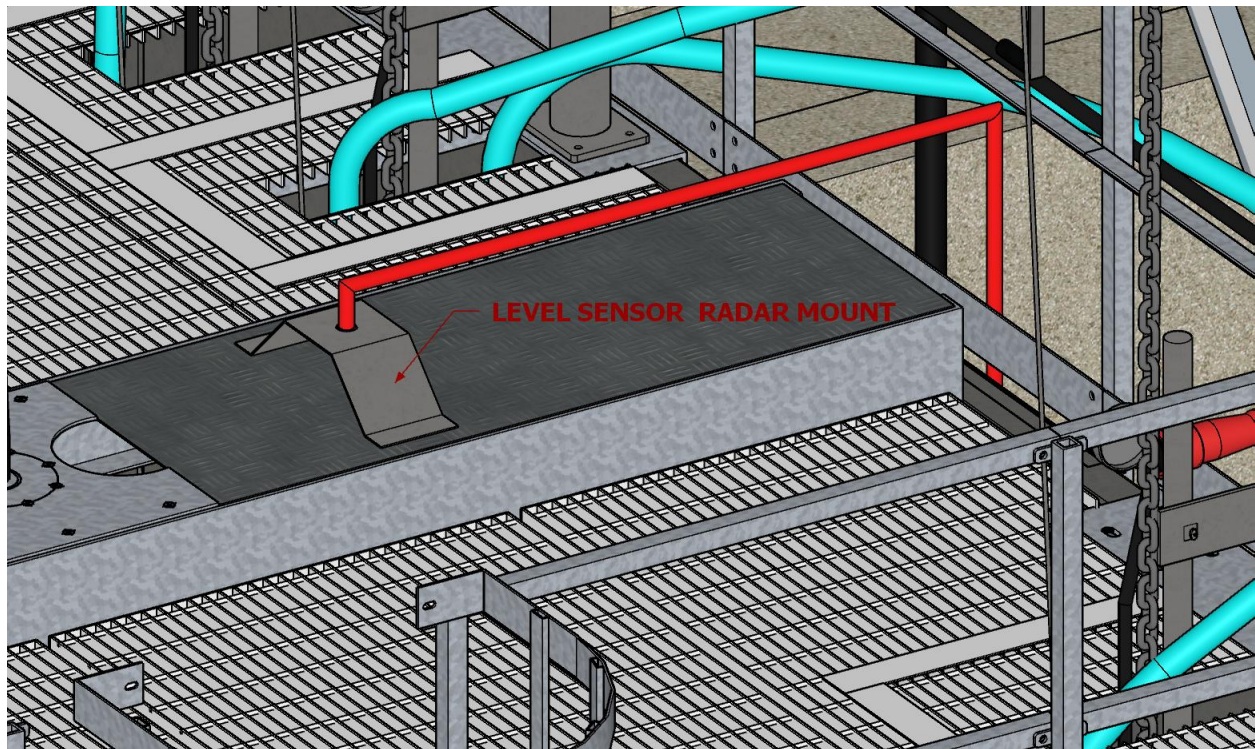
1. Install railing posts to the catwalk per the planning drawing. Do not fully tighten until alignment is confirmed.
2. Install top rail and mid rail sections. Do not fully tighten until alignment is confirmed.
3. Install toe boards along all open sides above the basin.
4. Verify all railing connections are tight. Railing must meet applicable safety standards before anyone accesses the catwalk.





6.6.5 Radar Level Sensor

The radar level sensor monitors the water level in the Slurry Tank and signals the PLC to control auto-fill. When the level drops to the Normal set point, the PLC opens the fresh water solenoid valve on the Screw Conveyor. Water flows under the blanket and into the Reclaimer, then exits through the overflow and into the Slurry Tank via the overflow gutter or sump pump basin. Install the sensor before running any electrical connections or performing calibration. The system uses a radar level sensor with a 4–20 mA analog output and a maximum measuring range of 10 m (approx. 33 ft)



1. Identify the sensor mounting location on the tank structure per the planning drawing. The sensor must have a clear, unobstructed line of sight straight down to the water surface.
2. Install the sensor mounting bracket to the tank structure.
3. Mount the radar sensor to the bracket. Confirm the sensor face is aimed straight down and level.
4. Run signal and power cable from the sensor to the control panel. See Section 6.8 Electrical Connections.
5. Do not calibrate the sensor until the Slurry Tank contains water and the system is powered. See Section 6.9 Level Sensor Calibration for the full calibration procedure.



6.7 Water Pumps and Water Lines

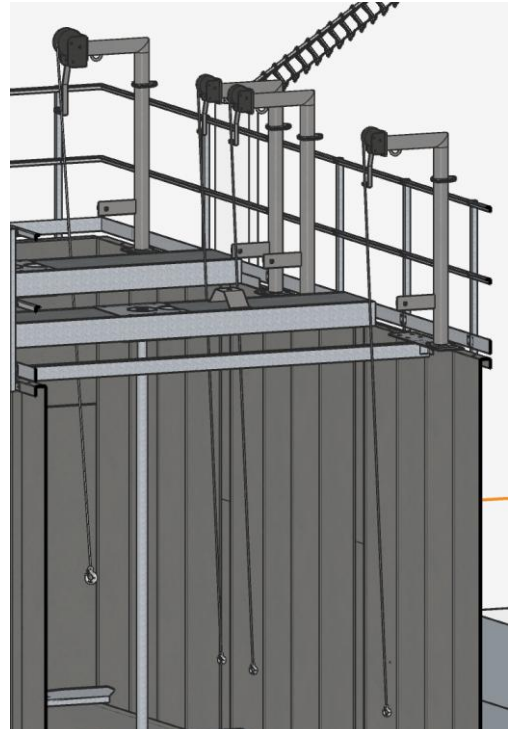
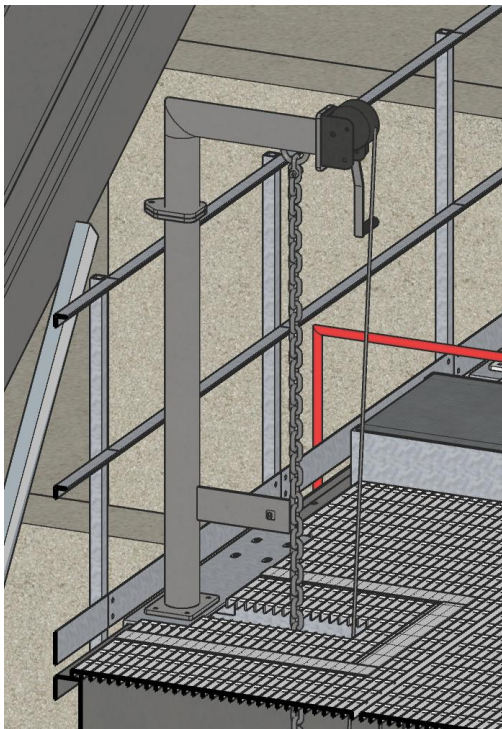
Install all pumps, water lines, and associated plumbing after the Slurry Tank components are in place. Ensure all lines maintain a continuous gradient to allow full drainage when pumps are not running.

6.7.1 Yard Water Pump

1. Position the yard water pump in the yard water basin.
2. Attach the float switch in the yard water basin.
3. Lay 2" line from the yard water basin to the Reclaimer with a continuous gradient (slope toward the Reclaimer so the line drains when the pump stops).
4. Connect the hose to the pump.
5. Connect the 2" pipe to the Reclaimer using the hose.

6.7.2 Slurry Tank Pump Boom and Winch

1. Position the pump boom.
 - Tsurumi KRS2 A3 Pumps – 650kg Winch
 - Tsurumi KRS 815 Pump (LRG Plant Pump) – 1300kg Winch
2. Align, lower into position, and install using anchor bolts.





6.7.3 Mount Pumps to Standoff Pipe Pump Mounts

1. Remove the 3 bolts from the bottom of the pumps and replace them with all-thread rod.

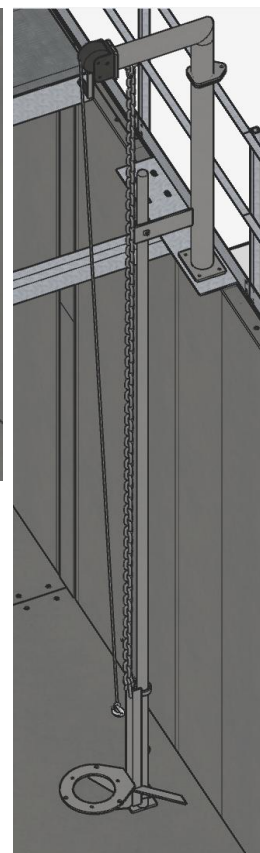
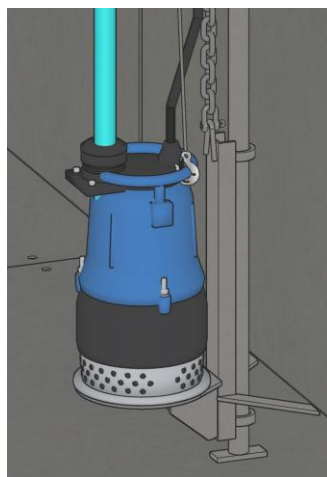
All Thread Sizing

- Tsurumi KRS2 A3 Pumps – 12mm 1.75 Thread Pitch
- Tsurumi KRS 815 Pump (LRG Plant Pump) -

2. Insert the all-thread into the Standoff Pipe Pump Mounts and use nuts to mount the pump to the standoff pipe.

- Tsurumi KRS2 A3 Pumps will fit on the 3 small inner holes on the Pump Mounts

- Tsurumi 815



6.7.4 Standoff Pipes, Pump Mounts, and Pumps

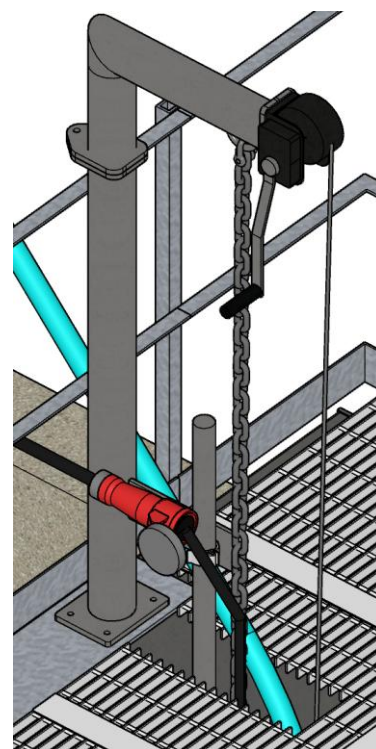
Standoff pipe poles are welded to the bottom of the tank — this is the final step of the assembly. Complete steps 1–10 before welding.

1. Mount pump winches to the Slurry Tank edge. See Section 6.7.2.
2. Mount pumps. See Section 6.7.3.
3. Clamp the standoff pipes to the pump boom.
4. Position the base of the standoff pipe

-Tsurumi KRS2 A3 – Standoff pipe base 12" from tank wall

-Tsurumi KRS 815 – Standoff pipe base 16" from tank wall

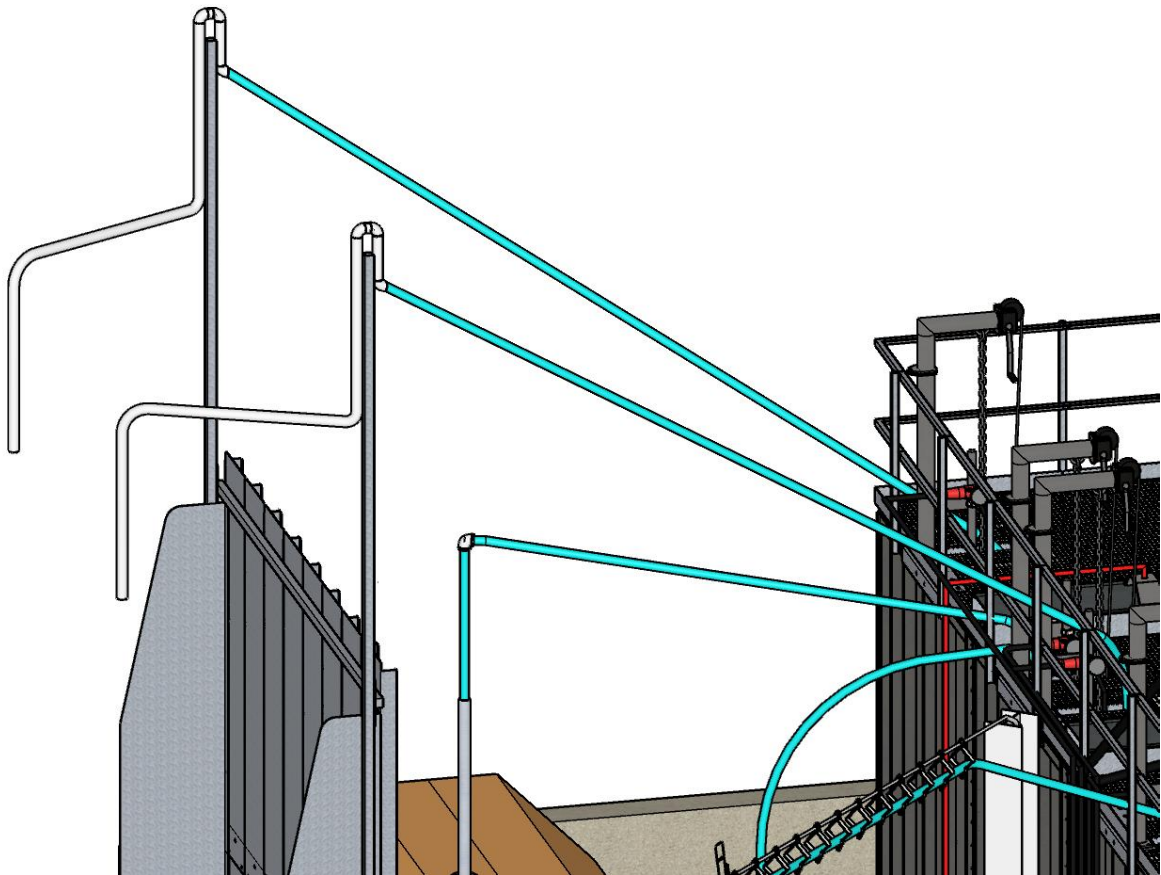
5. Connect winch cable to pump
6. Connect Safety Chain to Pump Mount
7. Zip tie pump power cable to safety Chain
8. Red Quick Disconnects are installed near the pump winch.
 - This allows operators to disconnect power to individual pumps without shutting off the main power
9. Lower Standoff Pump Mount and Pump down the standoff pipe.
10. Ensure the pump and standoff pipe assembly move freely up and down the standoff pipe pole, and the safety chain and power cord cannot contact the agitators.
11. Weld the bottom of the standoff pipe pole to the base of the slurry tank.





6.7.5 Rinse Out Boom

1. Position the Rinse Out Boom per the planning drawing.
2. Lay the pipe to the Slurry Tank.
3. Make the hose connection between the pipe and pump.
4. Attach the hose to the support chain using clamps.
5. Attach the pump cable to the chain.
6. Ensure the hose is slanted downhill with no dips to prevent slurry solids from settling potentially clogging hoses.
7. The high point allows the pumps to automatically bump to clean out the lines on a set interval, with out discharging water out the booms.



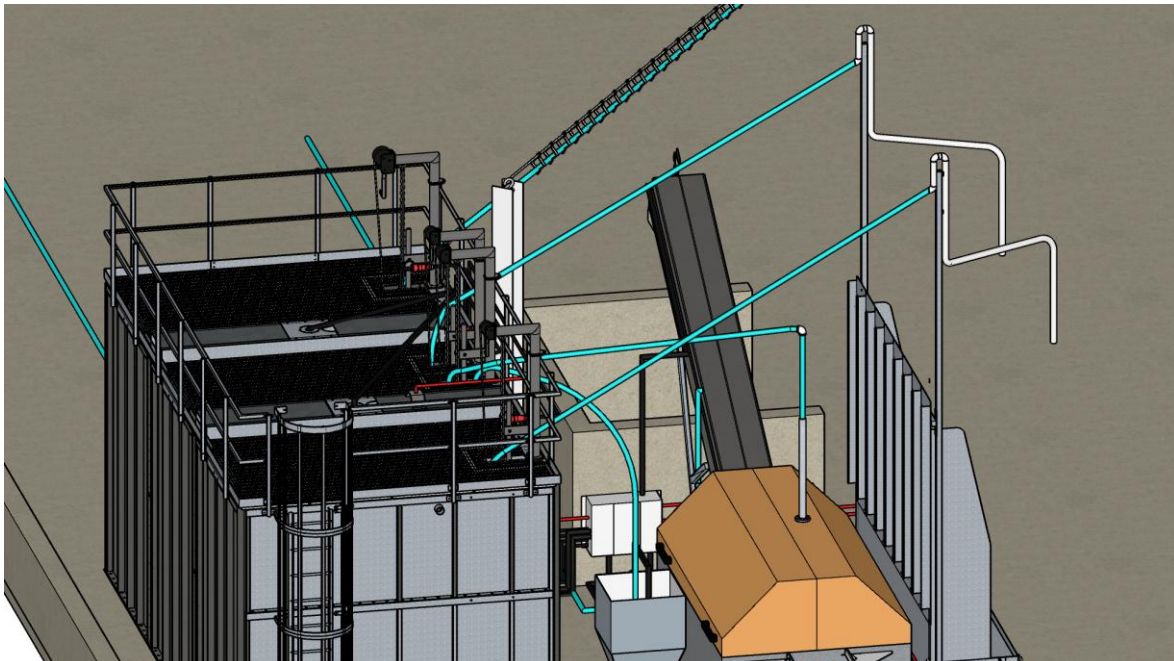


6.7.6 Water Lines

After all pumps, booms, and standoff pipes are installed, run the fresh water supply line from the yard water pump to the Screw Conveyor inlet. Fresh water added through the Screw Conveyor flows into the Reclaimer, overflows into the overflow basin, and is pumped up to the Slurry Tank via the sump pump.

NOTE: Route all water lines with a continuous slope back toward the Slurry Tank — no dip points or low spots. Slurry settling in a low point will harden and clog the line.

1. Run a 2" supply line from the yard water pump discharge to the Screw Conveyor fresh water inlet.
2. Run a branch line from the supply to the rinse out boom inlet. Match the line size to the boom inlet fitting.
3. Mount the slurry return chimney assembly to the non-hinged side of the top of the Reclaimer: attach the flange to the Reclaimer, then connect 3" rigid pipe sections to build the chimney to the required height.
4. Insert the 2" slurry hose from the Slurry Tank sump pump into the open top of the chimney. Do not connect the hose directly to the pipe — the air gap between the hose end and the pipe breaks any siphon that would form with a direct connection, and allows solids in the slurry water an additional opportunity to settle out into the aggregate discharge.
5. Run 3" pipe from the batch plant connection point to the Slurry Tank. Secure the pipe to structural supports.
6. Connect 3" hose from the pipe to the service water pump. Secure the hose to prevent movement during operation.
7. Secure all water lines to the machine frame or structural steel using pipe clamps or straps at a maximum 4 ft (1.2 m) spacing.
8. Install a shutoff valve on each branch line at an accessible location to allow isolation during maintenance.
9. Flush all lines before connecting to equipment to remove installation debris.
10. Pressure-test the completed water system before placing the reclaimer into service.





6.8 Electrical Connections

⚡ All electrical work must be performed by a qualified electrician. A lifting platform and fall protection must be used during overhead cable installation.

1. Position the switch cabinet per the planning drawing and install using anchor bolts.
2. Attach cable channels and cable pipe to each individual drive. Lay cables neatly to avoid unnecessary hazard.
3. Lay cables to all drives. Select cable cross-sections per the electrical requirements (see Appendix B).
4. Connect buttons, limit switches, repair switches, and drives.
5. Lay all cables to the switch cabinet.
6. Install bracket/support at the catwalk grating attachment point at the Slurry Tank per the planning drawing. See Section 6.6.3 for catwalk installation.



6.9 Level Sensor Calibration

Calibrate the radar level sensor after the Slurry Tank contains water and all electrical connections are complete. All settings are entered through the PLC touchscreen — there is no need to access the sensor's own menu.

Required measurement: distance from the bottom of the tank to the face of the radar sensor (in centimeters).

⚠ CAUTION — The distance entry field uses centimeters (cm), not inches. Convert all measurements before entry. 1 inch = 2.54 cm.

Step 1 — Enter Sensor Distance

1. From the PLC main menu, select the "Niveau" field.
2. Enter the distance from the bottom of the tank to the radar sensor face. Enter in centimeters (cm).

Example: if the distance is 60 inches, enter 152 cm ($60 \times 2.54 = 152.4$ cm).

Step 2 — Enter Switch Points

Switch points control pump and fill behavior. All values are entered as a percentage (%) of the total sensor range.

3. Enter the Minimum switch point — dry-run protection. When the water level drops to this point, all pumps and the agitator stop immediately.
4. Enter the Normal switch point — auto-fill trigger. When the water level drops to this point, the PLC begins refilling the tank with city water.
5. Enter the Maximum switch point — fill cutoff. When the water level reaches this point, all external water supply stops.

Step 3 — Verify Operation

6. With the tank filled, confirm the sensor reads a stable level on the PLC display.
7. Verify auto-fill activates at the Normal switch point and stops at the Maximum switch point.
8. Verify pump/agitator shutdown activates if the level drops to the Minimum switch point.

Sensor Bluetooth Access (if needed): Both the Endress+Hauser and VEGA sensor types include a Bluetooth interface. If advanced sensor configuration is required, download the "SmartBlue" app (Endress+Hauser) or "VEGA Tools" app (VEGA) from your device's app store. This is not required for standard commissioning.



6.10 Function Test

1. Check the rotation direction of all drives. Never reach into the danger area while checking drive rotation.
2. Test all controls — verify each button, limit switch, and indicator responds correctly.

⚠ Ensure no personnel are inside the Slurry Tank basin before filling with water.

3. Make sure tank access ways are closed and sealed.
4. Fill the Slurry Tank with water.
5. Carry out a full function test: start the machine, verify all cycles (wash, rest, agitator), verify level control, and confirm all alarms and emergency stops function.



7. Commissioning

7.1 Pre-Commissioning Checklist

Complete all items below before calling DHE Inc. to schedule final commissioning:

Item	Verified
All mechanical installation complete per Section 6	☐
All electrical connections complete and checked by electrician	☐
Cable cross-sections verified per electrical requirements (Appendix B)	☐
Level sensor installed and calibrated	☐
All guards and protective covers installed	☐
Slurry Tank filled with water — no personnel inside basin	☐
Drive rotation direction checked on all drives	☐
All controls tested and responding correctly	☐
All emergency stops tested and confirmed operational	☐
All limit switches and repair switches confirmed functional	☐
Function test complete — all cycles verified	☐
Site voltage confirmed matches machine nameplate	☐
Field Installation Form completed and on file (see Appendix C)	☐
Water lines flushed and pressure-tested (Section 6.7.6)	☐
Elastomer Blanket clearance set to ½ in (Section 6.3)	☐
Pumps raise and lower freely on standoff pipe poles (Section 6.7.4)	☐

7.2 Final Commissioning

⚠ FINAL COMMISSIONING — BIBKO SERVICE TECHNICIAN EMPLOYEE REQUIRED

Final commissioning must be carried out by a BIBKO Service Technician employee. No warranty or guarantee for proper function of the system can be assumed unless BIBKO Service Technician performs final commissioning.

Contact DHE Inc. at 209-835-2222 to schedule commissioning.



Do not operate the Reclaimer in production mode until BIBKO Service Technician has completed final commissioning. Startup testing and function verification performed in Section 6.10 are pre-commissioning checks only and do not constitute commissioning.



Appendix

The following documents are part of this manual. Physical copies should be kept on site with this manual. Digital copies are available from DHE Inc..

Appendix A — Planning Drawing

Site-specific planning drawing provided by BIBKO / DHE Inc. at time of sale. Shows overall site layout, footprint dimensions, machine positioning, and water line routing. Required before any concrete or civil work begins.

Appendix B — Electrical Requirements

Review BIBKO electrical requirements. Reference electrical installation work (see Section 6.8).

 **INSERT electrical power requirements.**

Appendix C — Field Installation Form

Complete this form during installation and retain on file. Required before scheduling final commissioning. A copy must be submitted to DHE Inc. Contact DHE Inc. at 209-835-2222 to submit the completed form.

Customer Name	
Site Address	
Dealer Name	
Machine Model	☐ BIBKO 2000 ☐ BIBKO 4000 ☐ With Dosing Buffer
Serial Number	
Installation Date	
Plant Voltage	
Installed By	
Conveyor Length	☐ 6'7" (2m) ☐ 9'10" (3m) ☐ 13'1" (4m) ☐ 16'5" (5m) ☐ 19'8" (6m)
Conveyor Discharge (L/R)	☐ Left ☐ Right
Discharge Height	
Slurry Pit Dimensions	L: _____ W: _____ D: _____
Agitator Shaft Length(s)	#1: _____ #2: _____ #3: _____ #4: _____ #5: _____



I-Beam Height	
Feed Tray Type	
Machine Heating Installed	☐ Yes ☐ No
Notes	



PART II — OPERATION

Daily operation of the Reclaimer: system overview, controls, truck rinse out, automatic cycles, operator checks, and emergency emptying. For truck drivers and plant operators.

3. System Overview

3.1 What the Reclaimer Does

The BIBKO Reclaimer separates returned concrete from mixer trucks into two reusable components:

- Aggregate and sand — separated and discharged via the Screw Conveyor into the aggregate bin for reuse
- Slurry water — cement and sand fines suspended in water, collected in the Slurry Tank for reuse in fresh batch mixing. Particles smaller than 0.2mm (Separation Cut) pass through to the Slurry Tank. Particles 0.2mm and larger are separated as aggregate.

Using the reclaimer eliminates concrete waste and reduces the amount of fresh water needed for batch production. Slurry Tank water must be accounted for in mix design calculations when used in fresh mixes.

3.2 Major Components

Feed Tray

The entry point for returned concrete. The mixer truck discharges directly into the Feed Tray. Check daily for blockages at the fresh water inlet, city water inlet, and internal chute.

Reclaimer (BIBKO 2000 / BIBKO 4000)

The main wash-out unit. Returned concrete enters through the Feed Tray and is processed by the Interior Spiral, Bucket Wheel, and Buckets. The Reclaimer separates aggregate from slurry water and discharges each to its respective destination.

Reclaimer Helix

The Reclaimer Helix is the main rotating assembly inside the Reclaimer. It is made up of the Interior Spiral and Bucket Wheel working together to move, wash, and lift aggregate out of the water bath.

Interior Spiral

The rotating assembly inside the Reclaimer tub. Moves material through the water bath and carries washed aggregate up to the Bucket Wheel.



Bucket Wheel

The rotating wheel inside the Reclaimer fitted with Buckets. Scoops washed aggregate out of the water bath and transfers it to the Screw Conveyor.

Buckets

The individual scoops mounted on the Bucket Wheel. Subject to wear over time — report visible wear or reduced output to maintenance.

Slurry Weir (Sump Pump Basin)

Controls the flow of slurry water out of the Reclaimer and into the Slurry Tank. Keep clear of fiber buildup — report any buildup to maintenance.

Screw Conveyor

Receives washed aggregate from the Bucket Wheel and conveys it up to the aggregate discharge point. The Elastomer Blanket inside the Screw Conveyor drains excess water from the aggregate as it travels up. Normal gap between the Screw Flites and Elastomer Blanket is ½" — do not adjust without authorization from maintenance.

Slurry Tank

Collects slurry water from the Reclaimer. Agitators keep cement fines suspended in the water so they do not settle. Slurry Tank water is pumped back to the batch plant for use in fresh concrete mixes. The tank runs 24/7 — stay clear of agitators at all times.

Sump

Attached to the Reclaimer. Contains float valves that regulate water levels. Check all float valves daily to confirm they are floating freely.

Rinse Out Boom

The overhead water delivery pipe positioned above the mixer truck. Delivers rinse water into the mixer drum and washing water into the Reclaimer when the Rinse Out Boom button is pressed.

Pump Discharge Conveyor (PDC)

If equipped. An additional conveyor that assists with aggregate discharge. Operates on its own timed cycle linked to the main wash cycle.

Dosing Buffer

If equipped — BIBKO 4000 with internal buffer configuration only. A pre-dosing chamber that controls the rate at which returned concrete enters the Reclaimer. Prevents overloading during high-volume truck discharges.

3.3 Water Sources and Priority

The system uses two water sources: Yard Water (first priority) and Fresh Water (backup). Yard Water includes slurry water from the Slurry Tank and, if installed, water from the yard water settling reservoir (boat ramp basin). The system selects the water source automatically.



3.4 Specific Gravity and Residual Water Reuse

Specific gravity is the weight of slurry water compared to the weight of an equal volume of pure water. Pure water = 1.0 S.G. The more cement and sand fines suspended in the water, the higher the reading.

Check the Slurry Tank specific gravity every morning before operations begin using a hydrometer. Specific gravity is temperature dependent — check at the same time each morning for consistent readings.

Diluting the Slurry Tank

Customers need to determine acceptable slurry water S.G. and dilute if needed by adding fresh water directly to the Slurry Tank, then retest. Continue adding water and retesting until SG is at an acceptable level.

Note: Maximum Specific Gravity for NOBLE above ground Slurry Tanks is 1.30sg.

Using Slurry Water in Mix Designs

By monitoring the Slurry Tank specific gravity, operators can control how much slurry water is reused in fresh concrete. The chart below shows the correct slurry-to-fresh water ratio based on two values:

- **Actual SG** — what your hydrometer reads in the Slurry Tank today (columns across the top)
- **Target Batch SG** — the maximum SG your mix design allows for batch water (rows on the left)

Find your actual SG across the top and your target batch SG on the left. The number shown is the percentage of batch water that can come from the Slurry Tank. The remainder is fresh water.

Flowable fill: Some mix designs such as flowable fill can accept 100% slurry water regardless of the current specific gravity. Confirm with your mix design specifications before using 100%.

		Actual Specific Gravity																	
		1.01	1.02	1.03	1.04	1.05	1.06	1.07	1.08	1.09	1.10	1.11	1.12	1.13	1.14	1.15	1.16	1.17	1.18
Target Batch SG	1.03	100%	100%	100%	75%	60%	50%	43%	38%	33%	30%	27%	25%	23%	21%	20%	19%	18%	17%
	1.05	100%	100%	100%	100%	100%	83%	71%	63%	56%	50%	45%	42%	38%	36%	33%	31%	29%	28%
	1.08	100%	100%	100%	100%	100%	100%	100%	100%	89%	80%	73%	67%	62%	57%	53%	50%	47%	44%
	1.10	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	90%	83%	77%	71%	67%	63%	59%	55%

Percentage of slurry water to use in batch mix. Remainder is fresh water.

Full chart: dhenoble.com/Specific-Gravity-Chart-for-Concrete-Slurry-Water

Contact DHE INC. at 209-835-2222 if you have questions about specific gravity management or mix design calculations.



3.5 Automatic Cycles Overview

The machine manages itself automatically. Operators do not need to start or stop any cycles other than the truck rinse out procedure. The following cycles run without operator input:

Active Wash Cycle

Triggered when the Rinse Out Boom button or New Start button is pressed. Runs for 40 minutes to fully process and empty the Reclaimer after the last truck discharge. Returns to Rest Period automatically when complete.

Rest Period Cycle

Runs continuously 24/7 whenever the machine is not actively washing. The machine rests for a set period then runs a brief wash to prevent cement from hardening inside. DHE INC. recommends 1,200 seconds (20 minutes) rest followed by 120 seconds (2 minutes) wash. These timings are adjustable at the control panel — do not switch off main power at any time.

Agitator Cycle

Agitators in the Slurry Tank run on their own independent timed cycle regardless of whether the Reclaimer is washing or at rest. They start automatically whenever Slurry Tank water is requested by the batch plant. The Slurry Tank is always active — stay clear of agitators.

Slurry Tank Auto-Fill

If the Slurry Tank water level drops below the minimum threshold, the system automatically draws from the Yard Water pump. If Yard Water is unavailable, the fresh water solenoid valve opens automatically. This process continues until the tank reaches the normal level.

Circulating Pump

Runs briefly during the Rest Period to prevent solids from settling and clogging the pump. This is fully automatic.

Pump Bump Cycle

All Water Pumps are automatically “bumped” for a few seconds to reduce pipe/hose build-up.



4. Controls and Indicators

4.1 PLC Touchscreen Overview

The machine is controlled through a touchscreen PLC display panel. The main screen shows two fields:

- **Field 1:** Current wash time or break time countdown.
- **Field 2:** Slurry Tank fill level in % (if level sensor is installed — optional accessory).

Touch the screen icons to navigate to sub-menus and settings. If an error occurs, an error message screen will appear over the current display.



BIBKO PLC Control Unit



PLC Main Screen — Status display



4.1.1 Typical PLC Timer Settings

The PLC controls the timing of all automatic cycles.

PLC Display Name	Default (s)	Description
Restart	900.0 s	Washing time after activating Restart button
Rest Period	1,200 s	Rest Period length after washing time
Wash Briefly	120.0 s	Brief washing time during Rest Period
Rinse Water Pipe 1	120.0 s	Run time for rinse water pipe after activating button
Rinse Water Pipe 2	120.0 s	Run time for rinse water pipe after activating button
Fresh Water Restart	60.0 s	Opening time for fresh water valve after activating Restart button
Fresh Water Cycle — Circulating Pump	60.0 s	Run/open time for Yard Water pump or fresh water valve after rinse count is reached
Agitator On	90.0 s	Running time for agitator
Agitator Rest	300.0 s	Rest period for agitator
Yard Water	60.0 s	Run time for Yard Water pump after activating Restart button (alternative to fresh water valve)
Circulating Pump Rest	900.0 s	Pause time for circulating pump during Rest Period
Circulating Pump On	2	Number of on/off cycles for circulating pump during Rest Period
Rinse Valve Off	60.0 s	Rest period for rinse valve during active washing
Rinse Valve On	30.0 s	Running time for rinse valve during active washing
PDC Restart	1,500.0 s	Run time for Pump Discharge Conveyor (PDC) after activating Restart button
PDC Short	10.0 s	Short washing time for PDC during Rest Period
Silting Cycle	900.0 s	Rest period for Silting Cycle pumps
Silting Cycle Impulse	1.0 s	Running time for Silting Cycle pumps
Screw Conveyor Rest — Concrete	1.0 s	Rest period for Screw Conveyor I during active washing
Screw Conveyor On — Concrete	1,800.0 s	Running time for Screw Conveyor I during active washing
Screw Conveyor Rest — Water	1.0 s	Rest period for Screw Conveyor II during active washing
Screw Conveyor On — Water	1,800.0 s	Running time for Screw Conveyor II during active washing
Fresh Water During Washing	9.0 s	Opening time for fresh water valve during active washing

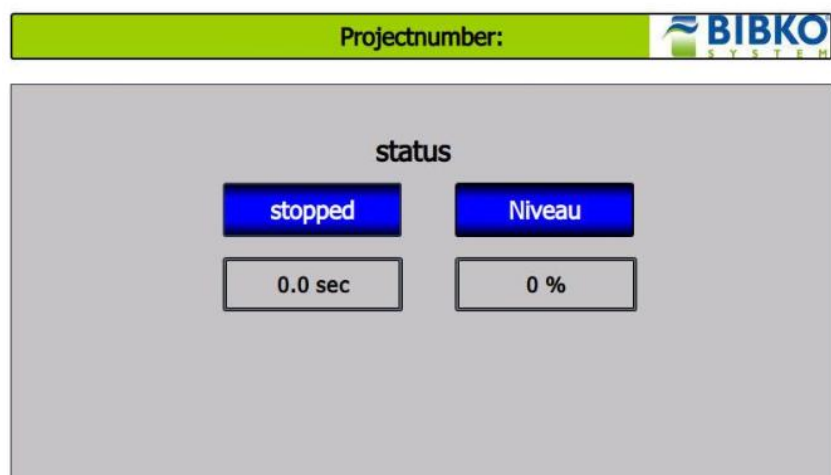


Fresh Water During Washing 0	150	Closing time for fresh water valve during active washing
Fresh Water Not	30.0 s	Not used
Fresh Water R0 Used	600.0 s	Not used
Rinse Water Pipe 3	120.0 s	Run time for rinse water pipe after activating button
Rinse Water Pipe 4	120.0 s	Run time for rinse water pipe after activating button
Dosing Buffer Delayed	45.0 s	Delayed start time for Dosing Buffer after activating Restart button
Sump Pump Max	5.0 s	Delayed start time for sump pump when max. level reached
Sump Pump Min	3.0 s	Delayed stop time for sump pump when below min. level
Rinse Number	5	Number of circulating pump on/off cycles
Fresh Water Cycle	0	Activate circulating pump — Off = 1, On = 0

4.1.2 Main Screen

The main screen is displayed whenever the machine is powered on. It shows the current operating status at a glance.

- **Status** — Shows the current machine state: Stopped, Washing, Rest Period, etc.
- **Timer (sec)** — Elapsed time of the current cycle in seconds.
- **Niveau (%)** — Fill level of the Slurry Tank as a percentage.



PLC Main Screen — Status display. "Niveau" is German for level.



4.2 Function Keys (F1–F8)

Eight function keys on the touchscreen provide quick access to key machine functions. During normal truck operations, operators will primarily use F1 (Start) and F7 (Stop).

Key	Function	Description
F1	Start	Restart the machine and begin the wash cycle.
F2		Return to the main screen.
F3		Jump back one level in the menu.
F4		Silence the alarm horn.
F5		Clear an error message after the cause has been resolved.
F6		Access machine settings. Authorized personnel only.
F7		Stop the machine.
F8	—	Not used.

4.3 Rinse Out Boom Buttons

The Rinse Out Boom has two buttons used to start the wash cycle:

- **Rinse Out Boom Button** — Press once per cubic yard (m³) of returned material in the drum. Wait for the pump to stop delivering before pressing again.
- **Restart Button (New Start)** — Press if there is already water in the drum. Starts the feed screw immediately without running the rinse cycle first.

4.4 Warning Indicators

The following indicators signal conditions that require immediate operator attention:

- **Red Flash Lamp** — The machine is overloaded. Stop charging material immediately. Do not push more material until the machine has cleared.
- **Alarm Horn** — An alarm condition exists. Press F4 to silence the horn, resolve the cause, then press F5 to acknowledge the error.
- **Error Message on Display** — A fault has been detected. The error message will appear on the touchscreen. Resolve the cause, then press F5 to acknowledge.



4.5 Emergency Stop (E-Stop)

The machine is equipped with two emergency stop (E-stop) buttons. Press either button to immediately shut down all machine functions.

- **Control Panel E-Stop** — Located at the main control panel.
- **Feed Tray E-Stop** — Located at the truck rinse out Feed Tray.

To reset after an E-stop: resolve the cause of the shutdown, twist the E-stop button clockwise to release it, then press Restart on the PLC touchscreen. If the cause is unclear, contact maintenance before restarting.



5. Truck Rinse Out Procedure

5.1 Before You Begin

Confirm the machine is powered on and the main screen shows a status (Stopped, Washing, or Rest Period). Do not operate the machine if there is an active alarm or error message on the display. Review Section 4.4 for warning indicator meanings before proceeding.

5.2 Positioning the Truck

1. Locate the Mixer Truck so the Mixer Hopper is under the Rinse Out Boom.
2. Position the discharge chute to the Feed Tray opening.
3. Set the mixer drum to feed speed.

5.3 Starting the Rinse Cycle

Press the Rinse Out Boom button once per cubic yard (m^3) of returned material in the drum. Each press delivers approximately 600 gallons (120 Sec) of rinse water into the drum and 100 gallons into the Reclaimer.

Button press guide:

1. Up to 3 yd^3 (2.3 m^3) — press once.
2. More than 3 yd^3 — press a second time.
3. More than 5 yd^3 (3.8 m^3) — press a third time.

Always wait for the pump to stop delivering water before pressing the button again.

5.4 Discharging Material

1. Let the mixer drum run at high speed for at least 1 minute.
2. Reverse the drum to discharge mode and feed the material slowly and uniformly into the Feed Tray.
3. Control the discharge rate to prevent overflowing the Feed Tray.

⚠ OVERLOAD HAZARD — If the red flash lamp illuminates, stop discharging immediately. Do not push more material into the Feed Tray until the lamp goes out. If the machine stops, see Section 5.8.



5.5 Completing the Rinse Out

1. When the Mixer drum is empty, rinse the discharge chute into the Feed Tray.
2. Flush any remaining material from the Feed Tray into the Reclaimer.

The Reclaimer will continue running for 40 minutes after the Rinse Out Boom button is pressed, then automatically enter the Rest Period cycle (20-minute rest / 2-minute brief wash). Do not switch off the main power switch.

5.6 Trucks Washing Down Without Needing Rinse Water

If a truck is washing down into the Reclaimer but does not need rinse water added to the drum, press the Restart button (F1 on the PLC touchscreen or the button near the Feed Tray). This starts a new cycle without delivering water through the Rinse Out Boom.

5.7 If Drum Is Not Empty at End of Cycle

If material remains in the drum when the wash cycle ends, press the Restart button to begin a new cycle. No additional rinse water is delivered via the Rinse Out Boom when using Restart.

5.8 If Machine Stops Due to Overload

If the Reclaimer stops due to overloading:

1. Stop discharging material immediately.
2. Wait for the red flash lamp to go out.
3. If the machine does not restart automatically, contact maintenance to perform Emergency Emptying (Section 9).

⚠ The Reclaimer must remain powered to complete its 24-Hour automatic rest and wash cycles. Switching off main power can cause cement to harden inside the machine.



6. Automatic Cycles

The Reclaimer operates automatically once started. All cycles below run without operator input. Understanding these cycles helps operators recognize normal machine behavior and identify problems early.

6.1 Active Wash Cycle

The active wash cycle begins when the Rinse Out Boom button or Restart button is pressed. The machine runs for 900 seconds (15 minutes) of washing time, processing material through the Reclaimer Helix and Screw Conveyor. Washed aggregate exits through the Screw Conveyor into the material collection area. Fine particles smaller than 0.2mm pass through to the Slurry Tank.

The machine continues washing until the timer expires, then automatically transitions to the Rest Period.

6.2 Rest Period Cycle

The Rest Period activates automatically when no wash cycle is running. Its purpose is to prevent cement from hardening inside the machine between truck washouts.

Typical default Rest Period settings:

Rest duration: 1,200 seconds (20 minutes)

Brief wash during rest: 120 seconds (2 minutes)

During the Rest Period, the machine briefly runs a wash cycle every 20 minutes to keep cement from setting inside the tub. This cycle runs 24 hours a day, 7 days a week — including nights and weekends.

⚠ The Rest Period cycle must run continuously 24-hours when trucks are not washing out. Cutting power will cause cement to harden inside the machine.

6.3 Agitator Cycle

The agitator inside the Slurry Tank runs on its own independent timer to keep fine particles in suspension and prevent them from settling to the bottom of the tank.

Default agitator settings:

Agitator on: 90 seconds

Agitator rest: 300 seconds (5 minutes)



The agitator also starts automatically whenever the slurry water pump is requested, ensuring the water delivered to the batch plant is as homogeneous as possible. This cycle runs independently of the active wash cycle.

6.4 Slurry Tank Auto-Fill

The Slurry Tank level is monitored by a radar level sensor. The sensor measures the distance from the sensor to the bottom of the tank and reports the level in centimeters, displayed as a percentage (%) on the PLC main screen. When the level drops below the minimum threshold (typically 40%), the machine automatically adds water using the following priority order:

Priority 1 — Yard Water pump (if a yard water collection basin is installed and contains water)

Priority 2 — Fresh water solenoid valve (if no Yard Water is available)

Water is added until the level sensor reports that the normal level (typical 70% slurry tank capacity) has been reached. No operator action is required for routine auto-fill. If the tank level reads 0% and does not recover, check the Yard Water source and the level sensor.

6.5 Circulating Pump

The circulating pump runs during the wash cycle to circulate water through the system. During the Rest Period it cycles on and off to prevent the impeller from sticking.

Default circulating pump settings (Rest Period):

Pump rest: 900 seconds (15 minutes)

Pump on: 2 cycles

The Silting Cycle also runs automatically to prevent the pump impeller from seizing during extended idle periods. This cycle operates on its own timer (900-second rest / 1-second impulse) and requires no operator action.

6.6 Material Box

Washed aggregates discharge from the Screw Conveyor into the aggregate pile. Monitor the aggregate pile and empty before overfilling.

* NOTE: Sand is the last material to discharge from the reclaimer, and should be a cap over the aggregate each day. This confirms the reclaimer is cleaned out.



7. Daily Operator Checks

Perform the following checks at the start of each shift. These checks take a few minutes and help catch problems before they affect production or damage the machine. Report anything unusual to maintenance.

7.1 Specific Gravity Check

Check the specific gravity (SG) of the Slurry Tank water every morning at the same time before operations begin. Use a hydrometer and a common 5 gallon bucket of water. Check the specific gravity as soon as the bucket is full; do not delay or walk across the yard before checking, because gravity will cause fines to fall to the bottom of the bucket and give a false test result.

- **Target SG:** Below 1.15
- **If SG is at or above 1.15:** Add Yard Water to the Slurry Tank and retest until SG is below 1.15. See Section 3.4 for dilution guidance.
- **Record the SG reading** and report consistently high readings to maintenance.

High SG increases daily maintenance requirements and causes cement fines to discharge with the aggregate. Use slurry water in batch mixes whenever possible to help manage SG levels.

7.2 Float Valve Check

Check all float valves attached to the machine daily. Ensure each float is moving freely and is not stuck or submerged. A stuck float valve can cause the machine to run dry or overflow.

7.3 Aggregate Pile

Check the aggregate pile at the Screw Conveyor discharge. Remove aggregate before the pile backs up into the Screw Conveyor. Overfilling can cause overload and machine shutdown.

* NOTE: Sand is the last material to discharge from the reclaimer, and should be a cap over the aggregate each day. This confirms the reclaimer is cleaned out.

7.4 Feed Tray

Inspect the Feed Tray for buildup of hardened material or debris. Clear any blockages from the tray opening and the internal chute. Check that fresh water and city water inlets at the Feed Tray are clear.



7.5 Report to Maintenance If You Observe

Do not attempt to diagnose or repair the following — notify maintenance immediately:

- **Red flash lamp** that stays on or returns quickly after clearing
- **Machine not starting** after pressing the Rinse Out Boom or Restart button
- **Aggregate discharging wet or overly soupy** — may indicate Screw Conveyor flite gap issue
- **Aggregate not discharging** or Screw Conveyor appears jammed
- **Slurry Tank level reading 0%** and not recovering after auto-fill
- **Unusual noises** — grinding, banging, or squealing from any component
- **Visible wear or damage** to buckets, paddles, or the Reclaimer Helix
- **Fiber or concrete buildup** on the bucket wheel or slurry weir
- **Error messages on the PLC display** that do not clear after pressing F5

8. Winter Operation

Cold weather requires additional precautions to prevent ice damage to the machine. Contact maintenance before the first frost of the season to confirm winter procedures are in place.

⚠ Do not start the machine if ice is present inside the Reclaimer or Screw Conveyor. Starting under icy conditions will cause mechanical damage. Confirm the machine is free of ice before restarting.

All winter procedures — frost precautions, optional machine heating, shutdown for winter, and restarting after freezing weather — are consolidated in Part III, Section 5 (Winter Operation).

9. Emergency Emptying

9.1 When to Use Emergency Emptying

Emergency Emptying is used in the following situations:

- Machine stops due to overload and cannot be cleared by normal operation
- Before winterizing the machine when temperatures will drop below 32°F (0°C)
- When shutting down the machine for extended periods
- When the Interior Spiral is frozen and the machine cannot start



9.2 Emergency Emptying Control

The Emergency Emptying Door is located on the machine body. Opening this door drains material from the Reclaimer tub.



9.3 After Emergency Emptying

After completing Emergency Emptying:

- Confirm the Emergency Emptying control is fully closed before restarting the machine.
- If emptying was due to overload, identify and remove the cause before restarting.
- If emptying was due to frost, confirm the machine is clear of ice (Section 8.2) before restarting.
- Restart normally per Section 5.



10. Glossary

Active Wash Cycle — The 15-minute washing cycle that begins when the Rinse Out Boom button or Restart button is pressed.

Aggregate — Sand and gravel separated from returned concrete by the Reclaimer. Particles 0.2mm and larger are classified as aggregate.

Agitator — The mixing unit inside the Slurry Tank that keeps fine particles in suspension and prevents them from settling.

Bucket — One of the scoops on the Bucket Wheel that lifts material through the washing chamber inside the Reclaimer.

Bucket Wheel — The rotating wheel assembly inside the Reclaimer Helix fitted with Buckets that move material through the wash chambers.

Circulating Pump — The pump that circulates water through the system during washing and cycles on and off during the Rest Period to prevent impeller seizing.

Dosing Buffer — An optional pre-dosing chamber inside some Reclaimer models (BIBKO 4000) that controls the rate of material entering the main wash chamber.

Elastomer Blanket — The flexible rubber liner inside the Screw Conveyor trough that forms a seal against the Screw Flites. Gap between blanket and flite should be ½" at startup.

Emergency Emptying — A procedure to manually drain the Reclaimer tub. Used when the machine is overloaded, before winterizing, or during extended shutdown.

Feed Tray — The opening at the base of the Reclaimer where truck drivers discharge returned concrete from the mixer drum.

Interior Spiral — The rotating spiral inside the Reclaimer tub that moves material through the water bath and toward the Bucket Wheel. A sub-component of the Reclaimer Helix.

Niveau — German for "level." Refers to the Slurry Tank fill level displayed as a percentage (%) on the PLC main screen.

Paddles — Wear components mounted on the internal rotating unit (Reclaimer Helix) alongside the Buckets that help wash and move material through the washing chamber. Worn paddles reduce the production rate of the Reclaimer — replace as necessary.

PDC (Pump Discharge Conveyor) — The conveyor that pumps or moves material discharged from the system. Also referred to as PDC.

PLC — Programmable Logic Controller. The computer that controls all automatic functions of the Reclaimer. Operated via a touchscreen panel.

Reclaimer — The BIBKO concrete reclaimer machine. Available as BIBKO 2000 (20 m³/hour) or BIBKO 4000 (30 m³/hour). Also referred to as the wash-out machine in source documentation.

Reclaimer Helix — The larger rotating assembly inside the Reclaimer made up of the Interior Spiral and Bucket Wheel.

Rest Period — The automatic idle cycle that runs brief wash cycles every 20 minutes to prevent cement from hardening inside the machine. Runs 24/7 when the machine is powered on.



Rinse Out Boom — The water delivery boom positioned over the truck mixer drum. Pressing the Rinse Out Boom button delivers rinse water into the drum and starts the wash cycle.

Screw Conveyor — The inclined conveyor that moves washed aggregate from the Reclaimer tub up to the discharge point. Also called the spiral conveyor in source documentation.

Screw Flite — The helical blade of the Screw Conveyor auger that moves aggregate up the trough. Gap between flite and Elastomer Blanket should be $\frac{1}{2}$ "– $\frac{3}{4}$ ".

Separation Cut — The 0.2mm particle size threshold. Particles smaller than 0.2mm pass through to the Slurry Tank; particles 0.2mm and larger are separated as aggregate.

Silting Cycle — An automatic cycle that briefly runs the pump impellers to prevent them from seizing during extended idle periods.

Slurry Tank — The tank that collects fine particles (<0.2mm) and water discharged from the Reclaimer. Also called stirrer basin, stirrer reservoir, or agitator tank in source documentation.

Specific Gravity (SG) — The density of slurry water relative to fresh water. At SG 1.0 the water is fresh. DHE target maximum is 1.15. At SG 1.15, 1 gallon of slurry water contains the equivalent of 0.78 gallons of mix water.

Yard Water — Water used by the Reclaimer sourced from the yard water settling reservoir (boat ramp basin), if installed. Used in preference to fresh water when available.



PART III — MAINTENANCE

*Scheduled maintenance, PLC settings, winter operation, fault diagnosis, repair procedures, and spare parts.
For qualified maintenance personnel.*

3. Maintenance Schedule

Complete all scheduled maintenance at the intervals shown below. Always follow the Lockout / Disconnect Procedure in Section 2.4 before starting any maintenance task.

i For the main motor drive and gear motor, comply with the original motor drive operating instructions (see Appendix A and B). Items marked * must be serviced at the listed interval or latest every 2 years.



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3.1 Maintenance Schedule

Key: K = Visual check R = Clean A = Lubricate F = Add grease Ö = Change oil

Component / Task	Daily	Weekly	Monthly	½ Year	Annual	Op. Hrs.
GENERAL — Check emergency stop chain function			K			
GENERAL — Empty the material box	R					
GENERAL — Check / clean fresh water feeds		K/R				
RECLAIMER — Flange bearing / shaft seals (lubricate)		A				
RECLAIMER — Flange bearing / shaft seals (visual check)			K			
RECLAIMER — Main motor drive ¹ (visual check)				K		
RECLAIMER — Main motor drive ¹ (clean)					R	
RECLAIMER — Main motor drive ¹ (oil change)						5000 / Ö *
RECLAIMER — Main motor drive ^{1 2} (check oil level)			K			
RECLAIMER — Gear bearing ¹ (visual check)				K		
RECLAIMER — Gear bearing ¹ (clean)					R	
RECLAIMER — Gear bearing ¹ (add grease)						5000 / F *
RECLAIMER — Machine trough with Interior Spiral (clean)			R			
RECLAIMER — Scoop (wear)			K			
RECLAIMER — Buckets (wear)			K			
RECLAIMER — Paddles (wear)			K			
RECLAIMER — Feed Tray (check / clean)	K/R					
RECLAIMER — Replace main-shaft seal set (P/N 1016009) ²					Replace	
SCREW CONVEYOR — Motor drive ¹ (visual check)				K		
SCREW CONVEYOR — Motor drive ¹ (clean)					R	
SCREW CONVEYOR — Motor drive ¹ (oil change)						5000 / Ö *
SCREW CONVEYOR — Motor drive ^{1 2} (check oil level)			K			
SCREW CONVEYOR — Gear bearing ¹ (visual check)				K		
SCREW CONVEYOR — Gear bearing ¹ (clean)					R	
SCREW CONVEYOR — Gear bearing ¹ (add grease)						5000 / F *
SCREW CONVEYOR — Screw Flites (wear)			K			
SCREW CONVEYOR — Elastomer Blanket height adjustment		K				
AGITATOR — Gearbox ² (check oil level — black or thin oil: change immediately)			K			
AGITATOR — Clean shafts of cement buildup		R				
SLURRY TANK — Power-wash pumps		R				
SLURRY TANK — Float switches move freely	K					

¹ Comply with original motor drive operating instructions in Appendix A and B.



3.2 Lubrication Points

Location	Task	Interval
Flange bearing (Reclaimer)	Lubricate — 10 strokes	Once per week
Shaft seal (Reclaimer)	Lubricate — 20 strokes	Once per week

3.3 Approved Lubricants

Use only approved lubricants as listed below. Substitutions must be approved by DHE Inc..

Component	ARAL	ESSO	Shell	BP	Oil Volume
Reclaimer — Flange bearing (grease)	HL3 grease (or equivalent) — see lubrication chart, Section 3.2				—
Reclaimer — Main motor drive ¹	Degol BG220	Spartan EP220	Omala Oil 220	Energol GR-XP220	28 L (7.4 gal)
Screw Conveyor — Motor drive ¹	Degol GS220	Umlauföl 220	Tivela Oel WB	Energol SG-XP460	5.3 L (1.4 gal)

¹ Comply with original motor drive operating instructions in Appendix A and B.

⚠ OIL TYPES ARE NOT COMPATIBLE — The Reclaimer main drive uses mineral gear oil. The Screw Conveyor drive uses polyglycol (PG) gear oil. Never mix oil types or top off one drive with the other's oil — mixing mineral and polyglycol oil will destroy the gearbox.



4. PLC Settings

i PLC settings changes should only be made by authorized and trained personnel. Incorrect timer or level settings can damage the machine or affect wash quality.

The PLC touchscreen is the control interface for all machine functions. Settings are accessed via the F6 key (Settings) from the main screen. The main screen displays the current wash time or rest period countdown in the first field, and the Slurry Tank fill level (if level sensor is installed) in the second field.

4.1 Function Keys

Key	Function
F1	Restart — restarts the machine wash cycle
F2	Back to main screen
F3	Jump back one level
F4	Horn off
F5	Acknowledge error
F6	Open Settings menu
F7	Stop the machine
F8	No function assigned



4.2 Timer Settings

Accessed via Settings → Submenu 1.1. These timers control all wash and pause cycles. The wash time (Restart) runs after the restart button is pressed. The rest period follows immediately after the wash time and is interrupted by the short wash cycle.

Timer	Default (s)	Description
Restart (wash time)	900	Machine wash time after activating restart button
Rest period	1200	Machine rest period after wash time — DHE recommends 1,200 s (20 min)
Wash briefly	120	Brief wash time during rest period — DHE recommends 120 s (2 min)
Rinse water pipe 1	120	Running time — Rinse Out Boom after button press
Rinse water pipe 2	120	Running time — Rinse Out Boom after button press (second boom)
Fresh water restart	60	Opening time of fresh water valve after restart
Fresh water cycle / circulating pump	60	Running time of yard water pump or fresh water valve after rinse number
Agitator on	90	Agitator running time
Agitator rest	300	Agitator pause time
Surface water	60	Running time of yard water pump after restart
Circulating pump rest	900	Pause time of circulating pump during rest period
Circulating pump on	2	Running time of circulating pump during rest period
Rinse valve off	60	Rest period of rinse valve during wash time
Rinse valve on	30	Running time of rinse valve during wash time
PDC restart	1500	Running time of Pump Discharge Conveyor after restart button
PDC short	10	Short wash time of PDC during rest period — must not exceed brief wash time



Silting cycle rest	900	Pause time of silting cycle pumps
Silting cycle on	1	Running time of silting cycle pumps
Dosing buffer delayed	45	Delayed start of Dosing Buffer after restart
Sump pump max	5	Delayed start of sump pump at max level
Sump pump min	3	Delayed stop of sump pump below min level
Rinse number	5	Number of circulating pump on/off cycles
Fresh water cycle	0	Activate circulating pump — Off = 1 / On = 0
Rinse water pipe 3	120	Running time — Rinse Out Boom 3 after button press (if installed)
Rinse water pipe 4	120	Running time — Rinse Out Boom 4 after button press (if installed)
Fresh water during washing 1	9	Opening time of fresh water valve during wash cycle (pulse mode)
Fresh water during washing 0	150	Closing time of fresh water valve during wash cycle (pulse mode)
Special conveyor rest — concrete	1	Rest period of optional special conveyor during washing time (if installed)
Special conveyor on — cement	1800	Running time of optional special conveyor during washing time (if installed)
Special conveyor rest — water	1	Rest period of optional special conveyor II during washing time (if installed)
Special conveyor on — water	1800	Running time of optional special conveyor II during washing time (if installed)



4.3 Water Settings

Accessed via Settings → Water. Controls rinse boom timing, water source priority, float switch delays, and circulating pump.

Water source priority (automatic):

1. Slurry Tank Water
2. Yard water
3. Fresh water (mains supply via solenoid valve) — only used if yard water is unavailable

Key water settings:

Setting	Description
Rinse boom run time	Time the Rinse Out Boom delivers water after button press. Adjusted per boom independently.
Fresh water / restart	Controls fresh water solenoid valve at restart. Only active if no yard water is available.
Yard water / restart	Controls yard water pump at restart. Only active if yard water basin float switch detects water.
Clock on / washing	Pulsed water addition during wash time. Yard water has priority over fresh water.
Float switch delay — on	Pump delay in seconds as level rises (Swimmer on)
Float switch delay — off	Delay for switching off pump when level drops (Swimmer off)
Supermax	Switch-off point for pump sump flushing (external pump sump installations only)
Circulating pump start delay	Delay before circulating pump starts after restart
UWP Pause / UWP on	Pause and run time of circulating pump during wash cycle
Silting cycle	Prevents pump impeller from seizing — cycles all pumps at adjustable intervals
Timer (holiday / weekend)	Temporarily deactivates horn, aggregate separation, or other functions over weekends and holidays



4.4 Level Adjustment

Accessed via Settings → Level. Controls the Slurry Tank level sensor switching points. Enter the distance from the lower edge of the sensor to the bottom of the Slurry Tank in the "Distance empty" field. The current water level (cm from basin bottom) is shown in the Filling Level field.

Switching Point	Function
Min (20%)	Below this level: pumps and agitators are disabled (dry run protection). Visual and acoustic alarm is triggered.
Norm (40%)	Below this level: solenoid valve opens to refill to the set point (typically 60%). Yard water pump has priority over fresh water. Below this level: an installed BIBKO filter press stops after the current cycle completes. (Only shown if a filter press is installed.)
Max (90%)	Above this level: external fresh water supply is shut off immediately. If a BIBKO filter press is installed, it starts when this point is exceeded.

4.5 System Settings / Date / Time / Language

Accessed via Settings → System. Normally only required during commissioning. This screen displays and allows correction of the system date and time. Accept changes by pressing "Write to PLC". Language can be changed by tapping the flag icon for the desired language.



5. Winter Operation

5.1 Frost Precautions

⚠ If temperatures fall below 32°F (0°C), empty the Screw Conveyor using Emergency Emptying (see Part II, Section 9) before the machine is left unattended.

When frost conditions begin, take the following precautions:

- Cover the Feed Tray and drain area with styrofoam insulation during periods when the machine is not in use (nights, weekends) to reduce heat loss.

5.2 Machine Heating (Optional)

If equipped with optional machine heating, the heater allows short-term operation down to 23°F (-5°C).

When frost conditions begin:

Step	Action
1	Check heating function — verify the fuse in the switch cabinet is in the ON position
2	Set heating to maximum power
3	Shorten machine rest period (reduce rest time in PLC timer settings)
4	Increase wash time during pulse mode

5.3 Shutdown for Winter (Optional)

1. Empty the Screw Conveyor using Emergency Emptying (see Part II, Section 9).

In addition to the step above, DHE Inc. recommends the following for any extended shutdown in freezing conditions:

2. Shut off the fresh water supply to the machine at the plant source.
3. Drain the fresh water supply line and the fresh water solenoid valve. Water trapped in the valve body will freeze and crack the valve.
4. Drain water-holding low points: rinse boom lines, circulating pump, and yard/sump pumps as applicable to your installation.
5. Protect float switches and the level sensor from ice formation.
6. Cover the Feed Tray and drain area with styrofoam insulation (see Section 5.1).

Site configurations vary. If you are unsure which components hold water on your installation, contact DHE Inc. at (209) 835-2222 before winter shutdown.



5.4 Restarting After Winter / Cold Weather

⚠ Do not start the Reclaimer if any part of the machine is frozen. Starting the machine under icy conditions will cause damage.

1. Before switching on, confirm the Reclaimer is completely free of ice.
2. If ice is present, allow the machine to thaw fully before starting.
3. Once ice-free, restore power and start normally.

Operators must not restart the machine until maintenance has confirmed it is completely clear of ice.



6. Fault Diagnosis and Repair

6.1 Before All Maintenance Work

⚠ LOCKOUT REQUIRED — Switch off the main power switch and secure against reconnection before performing any maintenance or repair. See Section 2.4.

6.2 Reclaimer Faults

Fault	Cause	Action
Machine does not start	Limit switch activated (dampers/openings)	Re-engage limit switch. Acknowledge on switch cabinet.
Machine does not start	Interior Spiral frozen	Open machine cover (unscrew bolt on longitudinal side). If required, open Emergency Emptying and empty machine. Free Interior Spiral. Close cover.
Machine does not start	Limit switch on machine cover triggered	Close the machine cover fully.
Machine does not start	No voltage on motor drive	Restore power supply.
Machine does not start	Motor winding defective	Contact DHE Inc..
Motor contactor has tripped	Motor defective	Contact DHE Inc..
Motor contactor has tripped	Machine overfilled	Feed material into machine slowly.
Water leaking from main bearing	Drain clogged	Clear the drain.
Low wash-out power (volume)	Scoop (bucket) maladjusted	Open machine cover (unscrew bolt on longitudinal side). Correct the scoop setting.
Low wash-out power (volume)	Scoop (bucket) deformed	Open machine cover. Align or replace the scoop (Section 7.3).
Low wash-out power (volume)	Machine overfilled	Feed material into machine slowly.
Ice formation in machine	Heating thermostat set too low	Remove protective hood from machine heating. Increase thermostat setting.
Ice formation in machine	Machine heating defective	Contact DHE Inc..
Ice formation in machine	Plant cycle runtime set too low	Increase cycle runtime (PLC timer settings).



6.3 Screw Conveyor Faults

Fault	Cause	Action
Conveyor discharges wet material	Elastomer Blanket set too close to Screw Flites	Widen gap: adjust the set screw on the Screw Conveyor cloth-clearance adjuster.
Conveyor discharges wet material	Material build-up under Elastomer Blanket	Open machine cover and Screw Conveyor cover. Clear the space between the conveyor trough and the Elastomer Blanket.
Conveyor discharges wet material	Gap between Feed Tray, Screw Conveyor, and Elastomer Blanket is blocked	Open machine cover and Screw Conveyor cover. Clear the blockage.
Conveyor does not move material	Elastomer Blanket torn	Open machine cover and Screw Conveyor cover. Remove and replace Elastomer Blanket (Section 7.5).
Conveyor does not move material	Screw Flites slightly worn	Widen clearance via set screw adjustment.
Conveyor does not move material	Screw Flites heavily worn	Open Screw Conveyor cover. Weld on new Screw Flite (Section 7.6).
Conveyor does not move material	Screw shaft seated too tight	Open Screw Conveyor cover. Free the shaft.
Conveyor does not move material	Gear motor defective	Contact DHE Inc. (replacement procedure: Section 7.8).
Conveyor does not move material	Emergency stop activated	Unlock emergency stop. Acknowledge on switch cabinet (ENTER key). Restore power supply.
Conveyor does not move material	No voltage on motor drive	Restore power supply. If fault repeats, contact DHE Inc..
Increased wear on Screw Flites	Material build-up under Elastomer Blanket	Open Screw Conveyor cover. Clear the space between the conveyor trough and the Elastomer Blanket.
Increased wear on Screw Flites	Gap between Feed Tray and Elastomer Blanket blocked	Open Screw Conveyor cover. Clear the gap.



7. Repair Procedures

⚠ LOCKOUT REQUIRED — Before any repair in this section: switch off the main power switch, apply a lockout device, and verify the machine is de-energized (Section 2.4). The machine restarts automatically without warning. Use only genuine BIBKO spare parts (Section 8).

Procedures marked with a flag are DHE Inc. drafts pending review — verify against BIBKO guidance before first use. All other procedures are adapted from BIBKO factory documentation.

7.1 Removing the Main Gearbox (Puller Method)

Source: BIBKO dismantling tool instruction (C. Neumaier, 2018). Tools required: BIBKO dismantling tool (puller), gripper pliers, threaded bar, lock ring, open-end wrench.

1. Lock out the machine (Section 2.4).
2. Remove the feather key from the shaft: drill a hole into the key, cut a thread into the hole, and pull the key out. Do NOT weld anything to the key or shaft.
3. Insert the dismantling tool into the gearbox hub.



4. Insert the lock ring using the gripper pliers.



5. Screw the dismantling tool against the lock ring. The gearbox slowly separates from the shaft.



6. Secure the gearbox against falling before final separation, then lift it away.

7. With the gearbox removed, the bearing can be replaced.

7.2 Replacing the Full Helix (Interior Spiral / Inner Shaft)

Source: BIBKO step-by-step instruction. A crane is required. Two persons minimum.

1. Lock out the machine (Section 2.4).
2. Unlock the screw for the steel frame cover and the chute.



3. Cut the silicone glued between the steel frame cover and the machine.



4. Lift off the steel frame cover with a crane.



5. Unlock the gearbox screws and remove the gearbox (see Section 7.1).

6. Unlock the flange bearing screws.



7. Cut off the disc next to the sealing that prevents the shaft from moving.



8. Secure the spiral to prevent it from falling down.

9. Unlock the sealing plate on both sides (glued with silicone).



10. Lift out the complete spiral with the crane.
11. Mount the new spiral by performing the steps above in reverse order. Re-seal all silicone joints.

■ **NOTE** — The retaining disc cut off in step 7 must be replaced during reassembly. Confirm the replacement disc part and fastening method with BIBKO before starting this repair.

7.3 Replacing Buckets and Paddles

■ **DRAFT** — DHE Inc. procedure pending review. The BIBKO manual heading "Changing buckets, paddles and shovels" is misprinted (it contains agitator gearbox steps). Request the correct factory procedure from BIBKO.

Parts: Bucket closed 10160012, Bucket slotted 10160011, Bucket (wash area) 10160010, Paddle 10160005.

1. Lock out the machine (Section 2.4).
2. Remove the two cap screws and open the reclaimer cover.
3. Rotate the bucket wheel by hand to bring the worn bucket or paddle into an accessible position. Never rotate under power.
4. Note the orientation of the worn part, then unbolt it.
5. Fit the new bucket or paddle with new hardware in the same orientation. Tighten evenly.
6. Rotate the wheel one full revolution by hand to verify clearance.
7. Close the cover and restore power.

7.4 Replacing Spiral Blades

■ **DRAFT** — DHE Inc. procedure pending review.

Parts: Blade 10160128 (BIBKO 2000) / 10300128 (BIBKO 4000).

1. Lock out the machine (Section 2.4).
2. Open the reclaimer cover (two cap screws).



3. Rotate the internal unit by hand to access the worn blade segment.
4. Mark the position of the worn blade, then cut or grind out the old blade at its welds. Do not cut into the parent structure.
5. Position the new blade to match the original location and pitch, and weld in place. Welding must be performed by a qualified welder. Components are galvanized — grind the coating back from the weld zone, ensure ventilation, and re-coat the finished weld with zinc-rich primer.
6. Rotate one full revolution by hand to verify clearance, then close the cover.

7.5 Replacing the Elastomer Blanket

■ **DRAFT — DHE Inc. procedure pending review. Gap specification is from DHE maintenance documentation.**

Parts: Elastomer Blanket by conveyor length — 2 m 10161030, 3 m 10161032, 4 m 10161034, 5 m 10161036, 6 m 10161038. Clamp system 13020040A.

1. Lock out the machine (Section 2.4).
2. Open the machine cover and the Screw Conveyor cover.
3. Release the clamp system securing the blanket.
4. Remove the old blanket and clean the conveyor trough of built-up material.
5. Fit the new blanket into the clamp system. Do not stretch it during installation.
6. Set the gap between Screw Flites and blanket to $\frac{1}{2}$ in using the adjustable bolts at the top and lower end of the conveyor. Move all bolts together. Gap under $\frac{1}{2}$ in: material discharges too wet (no internal drainage). Gap over $\frac{3}{4}$ in: conveyor moves material inefficiently.
7. Rotate the screw by hand to verify it does not contact the blanket, then close the covers.

7.6 Replacing Screw Flites

■ **DRAFT — DHE Inc. procedure pending review. Welding specification not published by BIBKO — confirm filler material and procedure with BIBKO before repair. Welding must be performed by a qualified welder.**

Parts: Screw flight 10161025 (325 conveyor — see Section 8.2 note ³). Replace flites when wear exceeds the blanket adjustment range (Section 7.5, step 6).

1. Lock out the machine (Section 2.4).
2. Open the Screw Conveyor cover.
3. Mark and grind off the worn flite section.
4. Position the new flite segment against the screw shaft, matching the existing pitch.
5. Weld in place. Caution: components are galvanized — grind coating back from the weld zone, ensure ventilation, and re-coat the finished weld with zinc-rich primer.
6. Verify the flite-to-blanket gap ($\frac{1}{2}$ in) along the repaired section, then close the cover.

7.7 Replacing the Screw (Worm Boom, Complete)

■ **DRAFT — DHE Inc. procedure pending review. Component weights and rigging points not published — confirm with DHE Inc. before lifting.**



Parts: Screw complete by length — 2 m 10161080ZB, 3 m 10161082ZB, 4 m 10161108ZB, 5 m 10161109ZB, 6 m 10161110ZB (see Section 8.2 note ³). Replace the complete screw when flite wear is beyond economical weld repair.

1. Lock out the machine (Section 2.4).
2. Open the machine cover and Screw Conveyor cover, and remove the Elastomer Blanket (Section 7.5).
3. Have a qualified electrician disconnect the gear motor.
4. Support the screw, then disconnect it from the drive end and the upper bearing mandrel.
5. Rig and lift the screw out of the trough.
6. Install the new screw in reverse order. Check the inner shaft / bearing mandrel condition while accessible (2 m: 10161088ZB, 3 m: 10161089ZB, 4–6 m: 10161090ZB).
7. Refit the blanket and set the gap (Section 7.5, step 6).

7.8 Replacing the Screw Conveyor Gearbox

■ **DRAFT — DHE Inc. procedure pending review. Confirm with BIBKO whether the dismantling tool (Section 7.1) applies to the conveyor gear motor.**

Parts: Gear motor 10161090, Elastomer for gear motor *20000091.

1. Lock out the machine (Section 2.4).
2. Have a qualified electrician disconnect and tag the gear motor wiring.
3. Support the screw shaft so it cannot drop when the drive is removed.
4. Unbolt the gear motor from its mount and pull it from the shaft.
5. Inspect the elastomer coupling kit; replace it while accessible (*20000091).
6. Install the new gear motor, reconnect wiring, and verify rotation direction before closing covers.

7.9 Replacing Splash Plates

■ **DRAFT — DHE Inc. procedure pending review.**

Parts: Rear splash plate 13020035A, lateral splash plate set 13020012A.

1. Lock out the machine (Section 2.4).
2. Open the Screw Conveyor covers.
3. Unbolt the worn splash plates.
4. Fit the new plates and tighten evenly.
5. Rotate the screw by hand to confirm clearance to all plates, then close the covers.

7.10 Replacing the Agitator Gearbox

Source: BIBKO mounting details, agitator gearbox / stirrer.

1. Lock out the machine (Section 2.4).
2. Remove the shaft cover.
3. Unscrew the stirrer (two screws on top of the stirrer shaft) and secure it against slipping out.



4. Remove all screws from the motor deck plate and remove the deck plate.



5. Remove all nuts from the gearbox underneath the gearbox plate (same as on the deck plate).
6. Remove the gearbox including the elastic kit.



7. Mount the elastic kit (studs) into the new gearbox — short studs on the underside (7 each), long studs on the upper side.
8. Reinstall everything in reverse order.

Mounting note (gearbox in beam): fit the rubber ring bushings facing down on the bottom plate and facing up on top; use the 1 in distance piece for 9½ in deep beams and the 1½ in piece for 10 in beams; fit bushings,

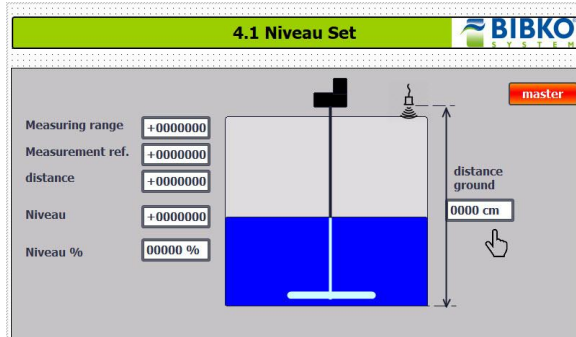
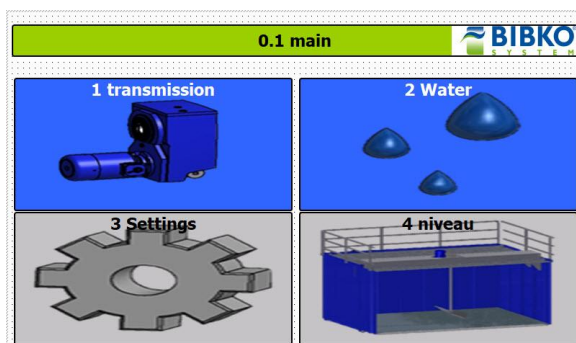


washers, and nuts, and tighten. If the agitator shaft protrudes through the gearbox there is no bearing pre-load and the shaft will wobble — see Section 7.13 before modifying shafts.

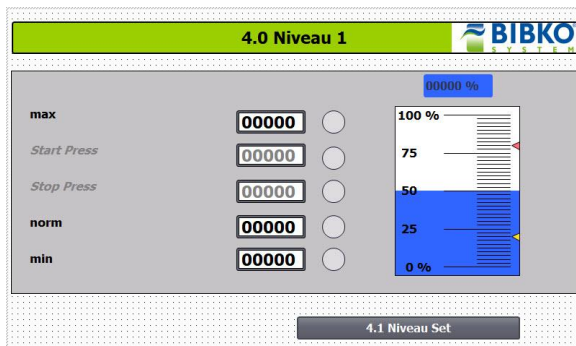
7.11 Replacing the Radar Sensor

Applies to Endress+Hauser and VEGA level sensors on the Slurry Tank.

1. Lock out the machine (Section 2.4). Have a qualified electrician disconnect the sensor cable.
2. Unbolt the sensor from its mount above the Slurry Tank and fit the new sensor in the same position, facing straight down with a clear path to the water surface.
3. Reconnect wiring per the wiring diagram (electrician).
4. Calibrate: from the main menu select the level ("Niveau") field. Enter the distance from the bottom of the tank to the sensor in cm (1 in = 2.54 cm).



5. Enter the Min / Norm / Max switching points in % (functions per Section 4.4).

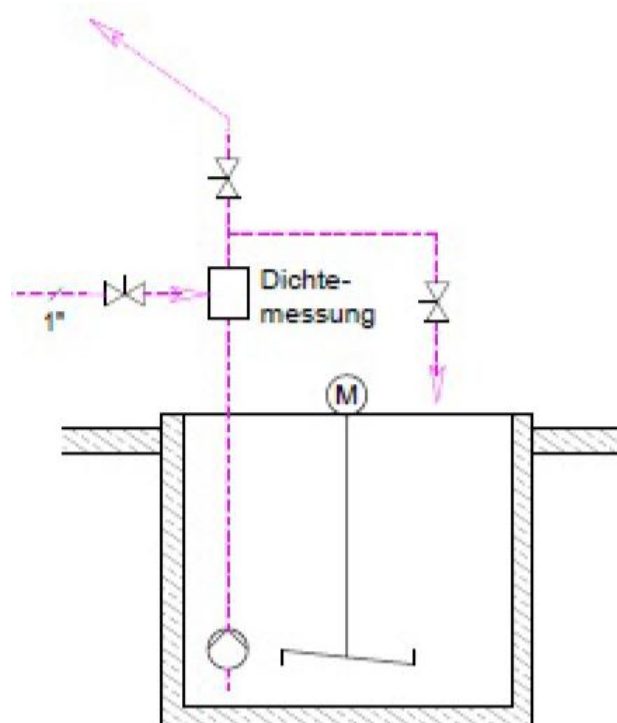


6. There is no need to enter the sensor's own menu. Both sensor types have Bluetooth (SmartBlue / VEGA Tools apps) if factory-level access is ever needed.



7.12 Replacing the Density Measuring Head

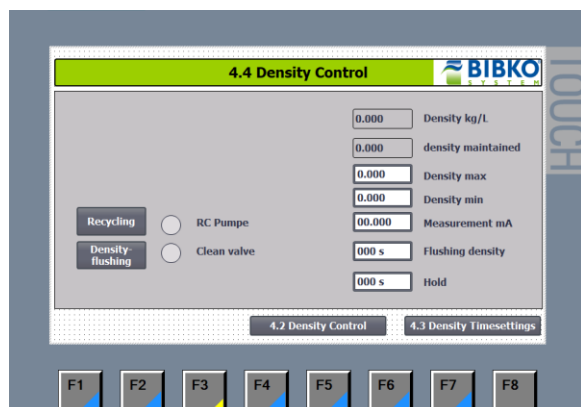
The measuring head installs in the 3 in recycled-water hose line directly after the stirrer pit, in line with the mixer. It requires a 1 in city-water connection for rinsing after each cycle. Displayed values are kg/L.



1. Lock out the machine (Section 2.4) and shut off water to the line. Drain the hose section.
2. Remove the old measuring head and install the new head straight in the line. Reconnect the 1 in rinse connection.
3. Rough adjustment: insert the 5 mm distance gauge between the two optical fibres, tighten the adjacent screws, then remove the gauge.
4. Fine adjustment: run the stirrers and take a recycling water sample; measure its exact density. Then request recycling water — measurement starts when the pump runs.



5. Compare the displayed value to the measured sample. Reading too high: bring the optical fibres slightly closer together. Too low: widen the gap.



6. Target average specific gravity is 1.15. The density measurement can be shut off over weekends/holidays to protect the water weigher in case of a malfunction.

7.13 Shortening and Installing Agitator Shafts

Source: BIBKO mounting details, agitator gearbox / stirrer. Shafts are shortened to match the basin depth. During initial installation, shortening must be done before the agitator bridge assembly is installed (see Part I, Section 6.6.2). A crane is required for installation. Two persons minimum.

Shortening the shaft:

1. Lock out the machine (Section 2.4) if working on an installed machine.
2. Measure the basin depth from the top of the gearbox shaft hole.
3. Shorten the solid 60 mm shaft to 22–24 in less than the measured depth.
4. Fit the shaft into the blade with the short angle of the blade facing down.
5. Weld the shaft securely in position.
6. Shorten the outer pipe so the distance from the top of the outer pipe collar to the end of the 60 mm shaft is exactly 8-7/8 in. This dimension is critical — if the shaft protrudes through the gearbox, the bearing pre-load is lost and severe shaft wobble will result.
7. Weld the bottom of the outer pipe in position.
8. Weld the collar to the top of the outer pipe.
9. Confirm the supplied key slides freely in the gearbox keyway, then fit the key to the shaft.

Installing the shaft into the gearbox:

10. Lift the complete shaft assembly into the basin and stand it upright on a 4 in × 4 in block directly beneath the gearbox shaft hole.
11. Apply never-seize grease to the gearbox hole, shaft, and keyway.
12. Using two 20 ft cloth straps with looped ends, place one loop on each side of the blade, approximately 6 in in from the edge.
13. Attach the other end of each strap to the crane hook, positioned directly above the 60 mm gearbox hole.



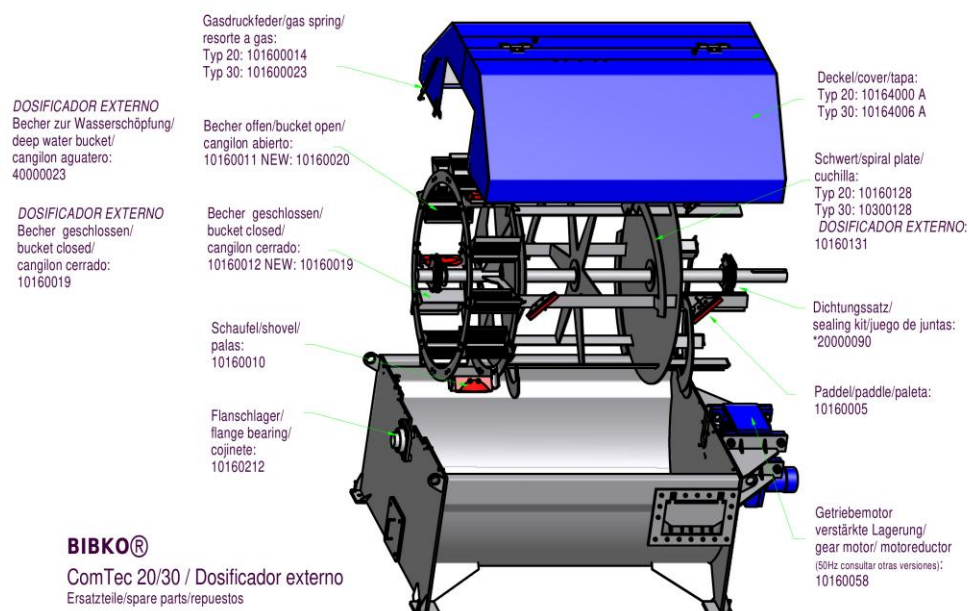
14. With two people in the basin guiding the shaft, raise the assembly into the gearbox hole, ensuring the key is aligned with the keyway. When fully seated, secure in position using the alignment plate and screws provided.

8. Spare Parts

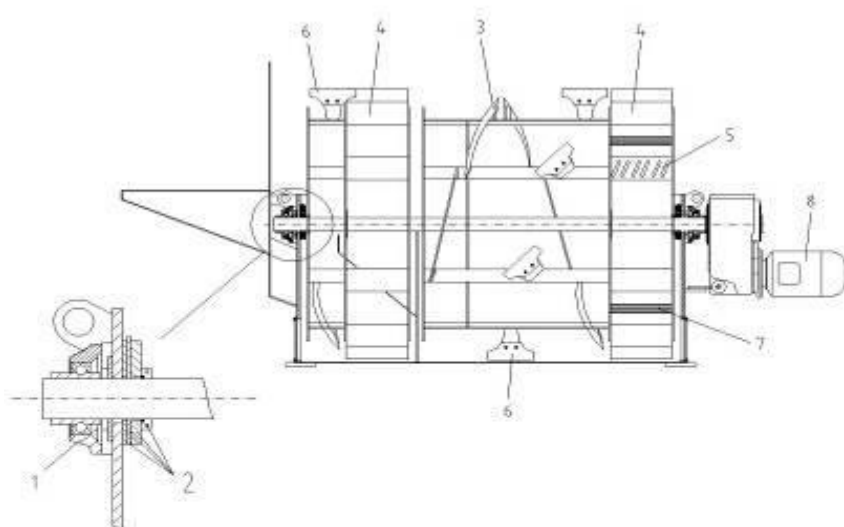
Use only genuine BIBKO spare parts. Use of non-genuine parts voids all liability and warranty. Contact DHE Inc. at 209-835-2222 to order spare parts.

8.1 Reclaimer — Main Unit

Exploded View — BIBKO 2000 / 4000 (Standard)



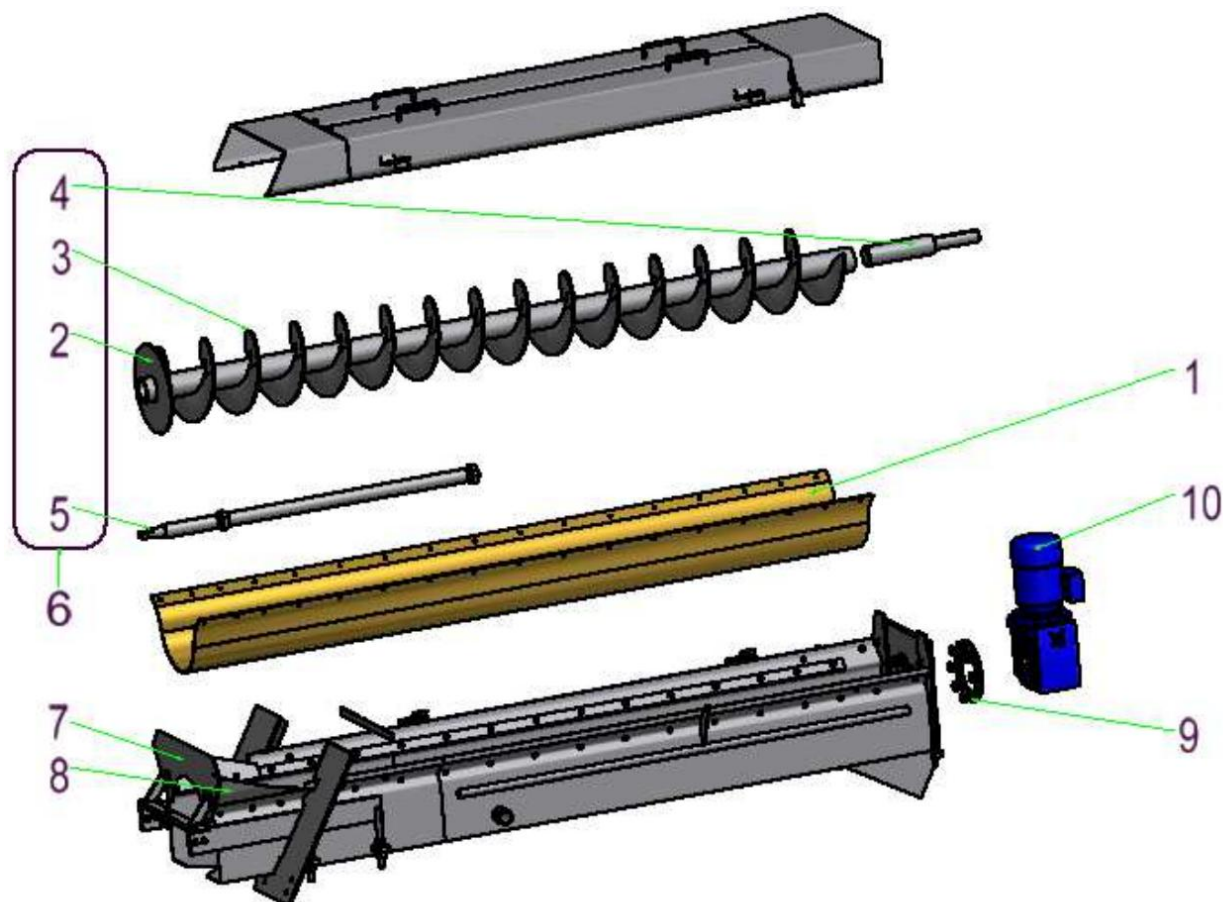
Exploded View — BIBKO 2000 / 4000 (With Internal Buffer)



Item	Description	Part Number
1	Flange bearing (normal)	10160212
1	Flange bearing (split)	10160216
2	Main shaft seal set	*10160097 ²
3	Blade	10160128 (BIBKO 2000) / 10300128 (BIBKO 4000)
4	Bucket, closed	10160012
5	Bucket, slotted	10160011
6	Paddle	10160005
7	Bucket (wash area)	10160010
8	Gear motor (standard)	10160042
8	Gear motor (reinforced bearing)	10160058

8.2 Screw Conveyor

Exploded View — Screw Conveyor (WDF)



BIBKO®

Wendelförderer WDF - Ersatzteilliste / Special Conveyor WDF - Spare-parts list
Tornillo sinfin especial WDF - Lista de repuestos

Item	Description	Part Number
—	Clamp system	13020040A
3	Screw flight (325 conveyor)	10161025 ³
2	Rotating bulkhead / plate rotation (325)	10161052
4	Shaft extension	13020032
5	Inner shaft / bearing mandrel incl. bearing (WDF 2 m)	10161088ZB
5	Inner shaft / bearing mandrel incl. bearing (WDF 3 m)	10161089ZB



5	Inner shaft / bearing mandrel incl. bearing (WDF 4–6 m)	10161090ZB
6	Screw complete (2 m)	10161080ZB
6	Screw complete (3 m)	10161082ZB
6	Screw complete (4 m)	10161108ZB
6	Screw complete (5 m)	10161109ZB
6	Screw complete (6 m)	10161110ZB
1	Elastomer Blanket / Cloth (2 m)	10161030
1	Elastomer Blanket / Cloth (3 m)	10161032
1	Elastomer Blanket / Cloth (4 m)	10161034
1	Elastomer Blanket / Cloth (5 m)	10161036
1	Elastomer Blanket / Cloth (6 m)	10161038
7	Rear splash plate	13020035A
8	Lateral splash plate set	13020012A
10	Gear motor 3 kW	10161090
9	Elastomer kit for gear motor	20000091

* *Special-order items — contact DHE Inc. for availability and lead time.*

² *BIBKO source manual prints *1016009 for this item; the number shown is DHE's record. Verify with BIBKO before ordering.*

³ *Numbers per BIBKO "Ersatzteilliste Wendelförderer" (325 conveyor). The older factory manual lists different flight, screw, and inner-shaft numbers by conveyor size (250 vs 325) — confirm your conveyor size and current numbers with BIBKO when ordering.*

Include your plant serial number with all spare parts requests.



Appendix

The following documents are part of this manual. Physical copies should be kept on site with this manual. Digital copies are available from DHE Inc..

Appendix A — Motor Drive Instructions (B1020)

Original manufacturer's operating instructions for the B1020 motor drive unit. Required for motor drive maintenance, oil-change intervals, and fault diagnosis per the Maintenance Schedule (Section 3).

 **INSERT B1020 motor drive instructions here.**

Appendix B — Motor Drive Instructions (B1030)

Original manufacturer's operating instructions for the B1030 motor drive unit. Required for motor drive maintenance, oil-change intervals, and fault diagnosis per the Maintenance Schedule (Section 3).

 **INSERT B1030 motor drive instructions here.**