

# QUICK GUIDE

## COBOD Piston Pump - Cleaning



### GUIDE OBJECTIVE

The objective of this guide is to provide clear and comprehensive guidance on proper cleaning practices and procedures for the COBOD piston pump. These practices are intended to extend the service life of pump components, improve operational reliability, and prevent premature wear of parts that would otherwise last significantly longer if cleaned correctly and at regular intervals.

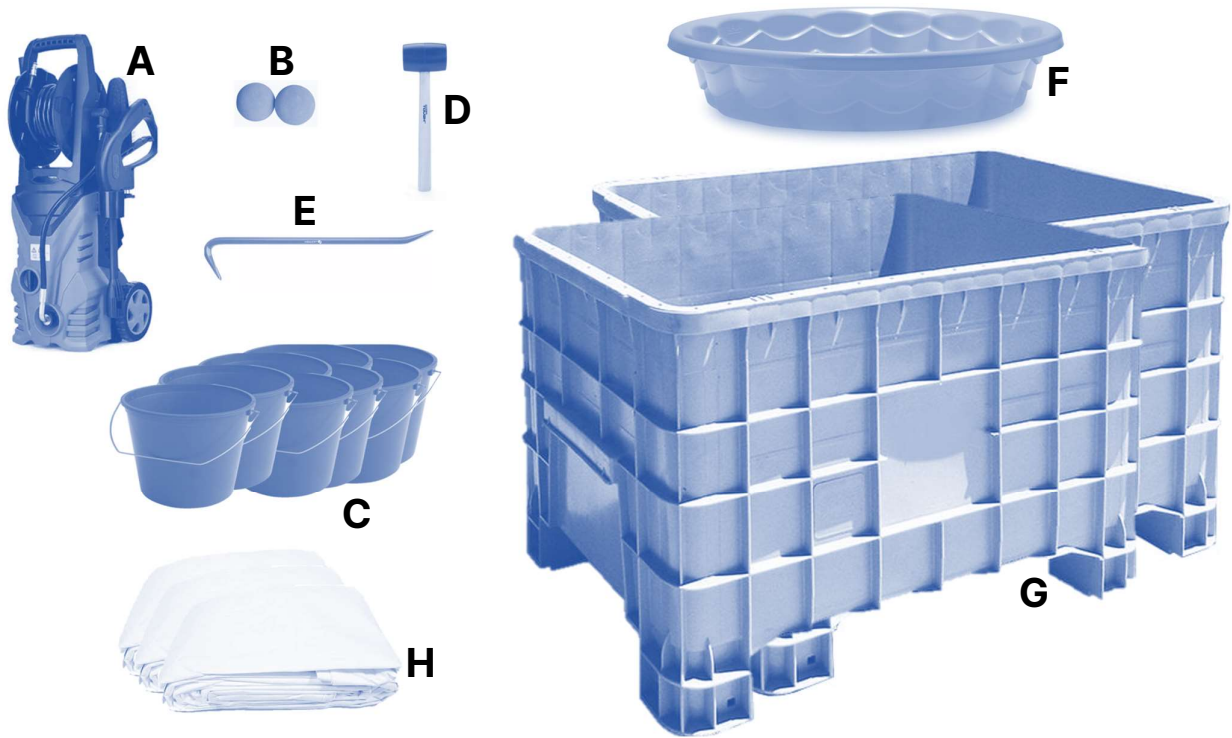
### SAFETY DISCLAIMER

Cleaning procedures for a piston pump involve exposure to moving components, pressurized systems, electrical and hydraulic energy, and residual concrete material that may pose serious safety risks. **All cleaning tasks must be performed by trained and authorized personnel only.** Before beginning any cleaning activity, ensure the pump is completely shut down, de-energized, depressurized, and secured against accidental start-up. Never place hands, tools, or any part of the body near moving components unless all motion has fully stopped. Clear communication between operators, maintenance personnel, and spotters must be maintained at all times to confirm the operational status of the pump. Appropriate personal protective equipment (PPE), including gloves, eye and face protection, safety footwear, and any site-



specific requirements, must be worn throughout the cleaning process. Failure to follow these precautions may result in serious injury or equipment damage.

## TOOLS NEEDED

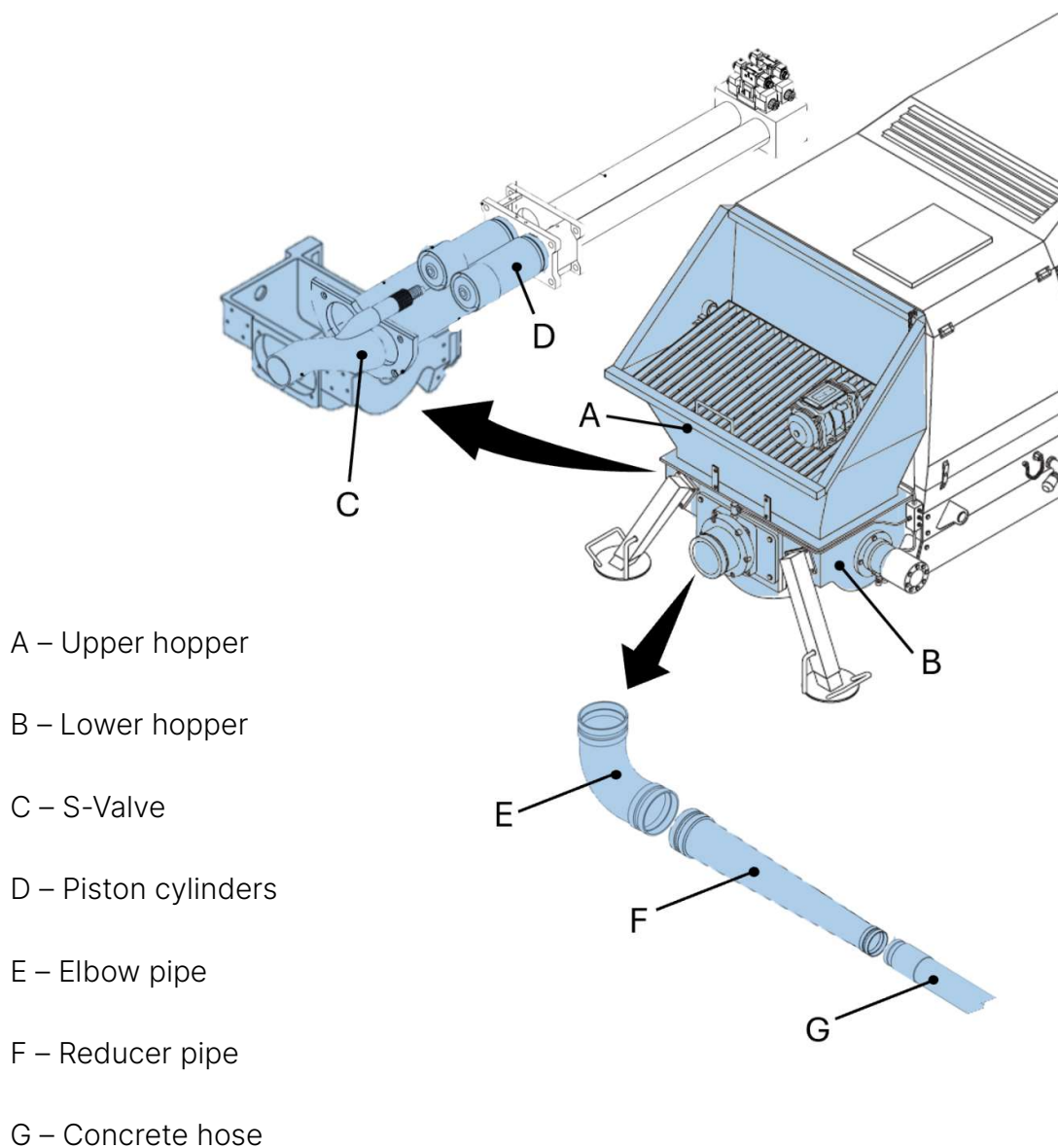


- (A) High pressure washer
- (B) Cleaning balls (1 soft & 1 hard)
- (C) 8-10 5L Buckets
- (D) Mallet
- (E) Crowbar
- (F) Shallow pool
- (G) 2 Large Waste containers
- (H) 2 Super sacks (Per printing session)



## SYSTEM OVERVIEW

The components highlighted in blue are the piston pump parts that come into direct contact with concrete during normal operation; therefore, they must be thoroughly cleaned at the end of every shift.



## CLEANING PROCEDURE OVERVIEW

The most critical component to address during cleaning of the pumping system is the concrete hose, as concrete within the hose is more prone to drying and causing blockages if not properly removed. A timer should be set once an official printing stop is made to keep track of the minutes the mix has been seating in the hose and act accordingly to the open time results. All team members should be aware this is a priority. Once the hose has been thoroughly cleaned, the remaining pump components—such as the piston cylinders and upper hopper—can be effectively cleaned using a pressure washer.

### 1. HOSE AND PISTON PUMP CLEANING PROCEDURE

| Step | Instruction                                                                                                                                                                                                  | Image                                                                                |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 1    | Pump all the material out of the lower hopper until the agitators are visible.                                                                                                                               |   |
| 2    | Reverse pump for at least 4 piston switches to release the pressure in the hose.<br><br>Note: Control panel on European versions of the pump have a different interface, but the procedure remains the same. |  |
| 3    | Open lower hopper gate and get as much material out as possible. With the help of the pressure washer, clean the inside of the hopper.                                                                       |  |



|   |                                                                                                                                                                                                |                                                                                      |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 4 | Lower the pumping speed close to zero and reverse pump. Let this run for some cycles and roughly count the number of seconds it takes in between piston switches.                              |    |
| 5 | Once you have a hang of the time between switches, insert the pressure washer into the outlet flange, spray the inside of the piston cylinder and remove it before the S-valve switches again. |    |
| 6 | Repeat this process a few times on each piston cylinder until water coming out looks clear.                                                                                                    |   |
| 7 | Close lower hopper gate and fill the entirety of the lower and upper hopper with clean water.                                                                                                  |  |



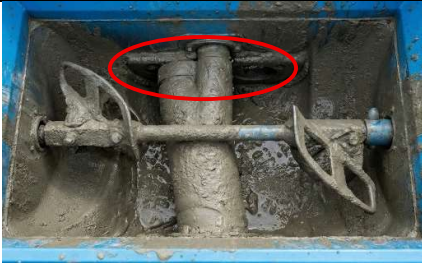
|    |                                                                                                       |                                                                                      |
|----|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 8  | Disconnect the elbow and reducer pipe and clean thoroughly with water.                                |    |
| 9  | Insert 2 cleaning balls into the hose filled with concrete.                                           |    |
| 10 | Re-assemble the reducer and elbow pipes back.                                                         |   |
| 11 | Start pumping until the cleaning balls come out of the other side of the hose on the print head side. |  |



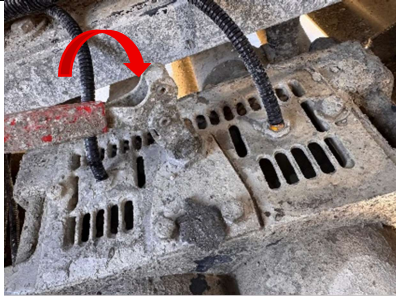
|    |                                                                                                          |                                                                                    |
|----|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 12 | Repeat this process until water coming out of the hose looks completely clear. 2 times should be enough. |  |
|----|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|

|    |                                                                                                                                               |                                                                                      |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 13 | Once the hose is clean, reverse pump one more time to release the pressure in the hose.                                                       |   |
| 14 | Disconnect the elbow and reducer pipe and clean with pressure water.                                                                          |  |
| 15 | Open the vibrator grid at the top of the hopper, as well as the gate at the lower hopper and spray the inside of the pump hoppers thoroughly. |  |



|    |                                                                                                                                                                                                |                                                                                      |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 16 | Place special attention to the grid hinges, the area underneath the agitators and the plate in the back of the outdoor flange.                                                                 |    |
| 17 | Once insides of both upper and lower hopper are completely clean, focus your attention on the pistons.                                                                                         |    |
| 18 | Lower the pumping speed close to zero and reverse pump. Let this run for some cycles (at least 4) and roughly count the number of seconds it takes in between piston switches.                 |   |
| 19 | Once you have a hang of the time between switches, insert the pressure washer into the outlet flange, spray the inside of the piston cylinder and remove it before the S-valve switches again. |  |



|    |                                                                                                                                                    |                                                                                     |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 20 | Repeat this process a few times on each piston cylinder until water coming out looks clear.                                                        |   |
| 21 | As a preventive maintenance procedure, empty the water tank at the back of the pistons and check the color of the water at the end of every shift. |   |
| 22 | Make sure there aren't any sediments at the bottom of the tank.                                                                                    |  |

## ADDITIONAL RECOMMENDATIONS

Once the cleaning procedure is completed, a visual and functional inspection of the pump should always be performed. Verify that no concrete residue remains inside the pumping system, paying special attention to the lower hopper, grid hinges and discharge areas. Inspect the interior of the water tank to ensure it is free of cement or slurry buildup, as residue may indicate sealing issues. Check the smooth and unobstructed movement of the pistons and confirm that all components operate freely before returning the pump to service. Finally, thoroughly grease all designated lubrication points after every wash to restore proper lubrication, prevent corrosion, and reduce premature wear of moving components.



## EXTREME HEAT RECOMMENDATIONS

During very hot months, concrete tends to set much faster than in colder conditions, causing material to harden more quickly in the pump's cavities and crevices. To mitigate this risk, it is strongly recommended to implement intermediate pump cleaning intervals every four hours of continuous operation when ambient temperatures exceed 28 °C. During these intervals, printing should be paused for approximately 15 minutes while certified operators open the lower gate, pressure-wash the interior of the hopper, and perform a brief cleaning of the pistons and S-valve before resuming operations.

## EXTREME COLD RECOMMENDATIONS

During very cold months, low temperatures can negatively affect both the concrete and the pump's mechanical and hydraulic systems. It is strongly recommended to allow the pump motor and hydraulic oil to fully warm up before starting operations. Operators should ensure that the water in the water tank is not frozen, as frozen water can damage lines and prevent proper cleaning. In extremely cold conditions, using warm water (heating/cooling equipment) for cleaning and flushing the system is advised to prevent concrete from freezing inside the hopper, pistons, or S-valve, ensuring reliable operation and reducing the risk of blockages or damage. However, make sure to use warm—not hot or boiling—water on the cold pump, as this can cause thermal shock to some components. At the end of each workday, the water tank should be completely drained to avoid overnight freezing.

## WASTE MANAGEMENT RECOMMENDATIONS

During the cleaning of a concrete piston pump, it is recommended to properly manage waste materials to minimize environmental impact and improve site organization.

Since the floor area beneath the MDS system is considered a wet zone during cleaning operations, it is highly recommended to implement a pooling solution around the batch plant's bottom gate and the area directly underneath the pump. This helps contain concrete slurry and wash water, preventing it from spreading or draining to uncontrolled or unknown locations on site.





The initial waste discharged from beneath the pump's lower hopper should be collected in a shallow container or temporary pooling area to capture residual concrete and slurry. The container can be lined with plastic to avoid concrete sticking.



A separate, larger container should be positioned at the discharge end of the hose to collect material expelled during hose cleaning. Below are different container options that can be used for capturing the waste from the hose:

A) Site-made compartments out of wood and tarp/supersacks



B) Telehandler scoop attachment covered by plastic to avoid concrete sticking



C) Large industrial containers that can be moved with a telehandler



To facilitate waste separation, the hose can be redirected from one container to another once concrete flow has ceased and only water and cleaning balls are being pushed through the line. This allows concrete waste to be separated from wastewater, simplifying disposal and reuse.





Whenever possible, recovered concrete waste may be repurposed by casting it into molds to produce secondary elements such as interior lintels, tabletops, pavers, or other non-structural components, contributing to more sustainable construction practices.



## END OF DOCUMENT

Follow these recommendations to extend the life expectancy of your equipment. For any additional questions, please contact [techsupport@cobod.com](mailto:techsupport@cobod.com)

