

## 9 CLEANING

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## 9.1 Introduction

Cleaning is necessary to keep the unit in good working order. It also helps to detect problems ahead of time. The required cleaning steps depend on the unit application. For example, cleaning a unit after a sewer water test is different from cleaning after algae harvesting.



### CAUTION

#### SAFETY FIRST

Wear Personal Protective Equipment PPE and follow Basic Hygiene Practices for Workers

## 9.2 General cleaning recommendations

- Always flush and rinse the unit with fresh water after it has been exposed to salt water. *The rotor is built from stainless steel 316, which by itself has good corrosion properties. However, salt water may cause pitting corrosion and split corrosion in combination with stainless steel. The biggest risk of corrosion is where salt water is stationary; in other words, between small gaps and in an unused unit with salt water remaining inside.*
- Do not use high water pressure to clean this unit. *Cleaning the unit with high water pressure may cause water to enter the motor enclosure. This, in turn, may cause serious damage to the motor. Normally the motor is protected from water ingress, but the seal from the electrical motor shaft may wear out over time. Cleaning the unit with high water pressure may damage the carbon fiber on the drum.*
- When using cleaning agents to clean the unit, it is essential to flush and rinse with fresh water. O-rings will need to be greased.
- Ensure that the fluid temperature never exceeds the maximum temperature of 60°C (140°F).
- Connect a 1" hose to the drain of the effluent tank to ensure that all cleaning agents are flushed from the effluent tank.
- As a last step, flushing and rinsing with hot water is effective.

## 9.3 Cleaning procedure for the unit

1. Press **.../C50.x/Run Production** [STOP] on the operator-display or push [STOP] on the operator panel.
2. Wait until the discharge has finished.
3. Remove the product from the paste/solids collecting tray.
4. Connect a drain hose to the outlet of the paste/solids collecting tray. Water used to clean and flush the unit can be handled separately.
5. Switch to SERVICE MODE with the service key switch on the operator panel.
6. Press **.../C50.x/Door** [OPEN] on the operator-display or push [DOOR] on the operator panel and open the door.
7. Push and hold [LIFT ↑] on the operator panel.
8. Let the lift ascend approx. 30cm (12 inches).

9. Release [LIFT ↑] on the operator panel.
10. Use low pressure freshwater (see ) to rinse the inside of the drum and locking mechanism, the top/outside of the roller-holding ring and the lift plate. The hose enters the drum between the shaft and the roller-holding ring.

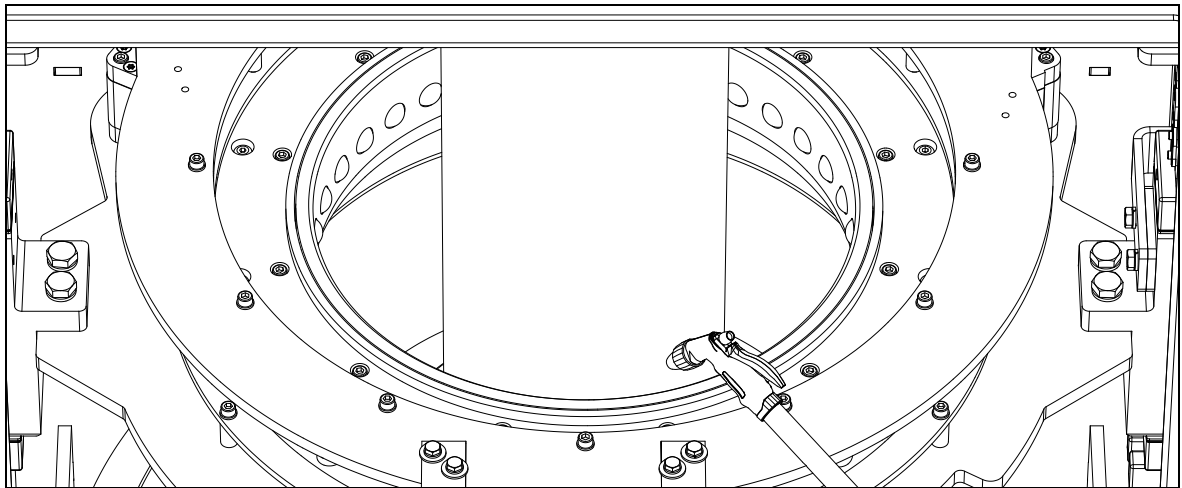


Figure 9.1 Rinsing with low pressure water

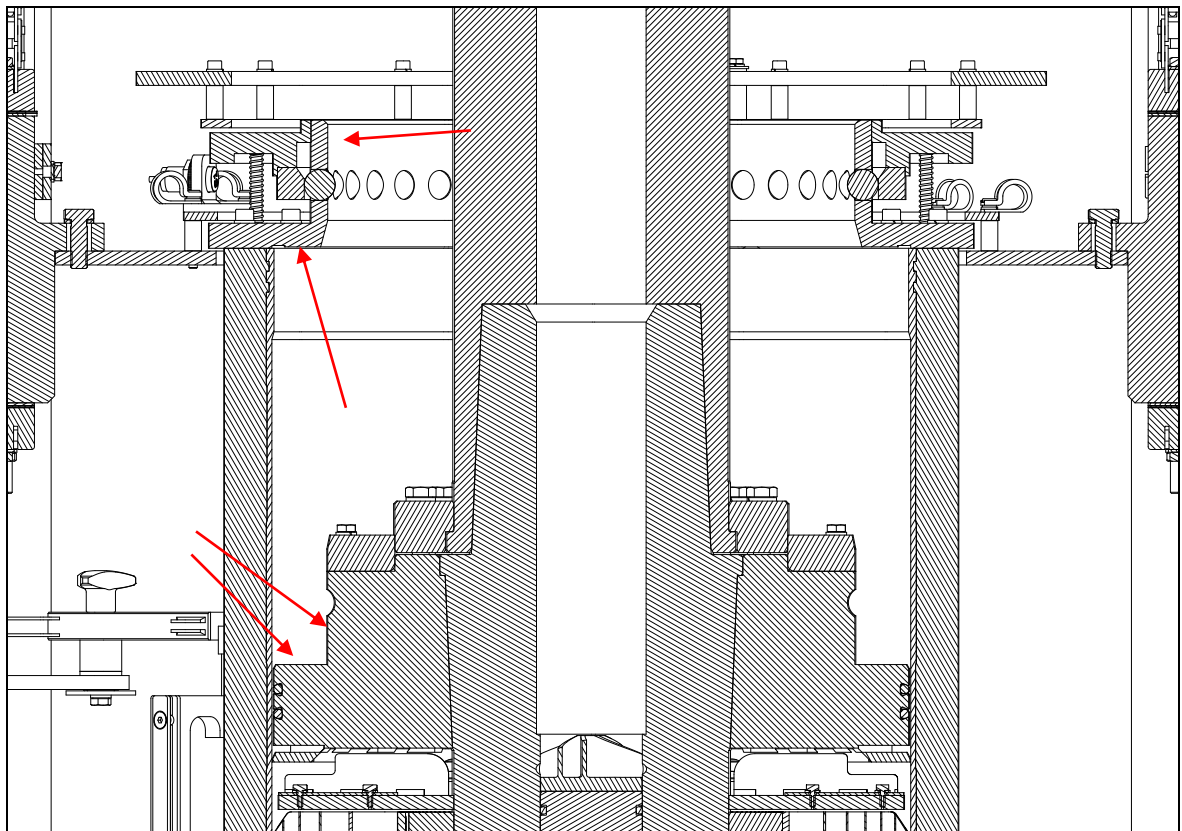


Figure 9.2 Important surfaces to clean thoroughly

11. Connect the pump inlet hose to a buffer of fresh water.
12. Press **.../C50.x/Service/Control/Feed pump** [FORWARD] on the operator-display.
13. Run approximately 60 liters of fresh water through the unit.
14. Press **.../C50.x/Service/Control/Feed pump** [STOP] on the operator-display.
15. Push and hold [LIFT ↑] on the operator panel.
16. Let the lift ascend until it stops automatically.
17. Take out the scraper and remove rotating splash screen.
18. Use high-pressure or low-pressure fresh water to rinse or clean the plate-pack plates.  
If more persistent remains need to be removed manually, *put on cutting-resilient gloves.*

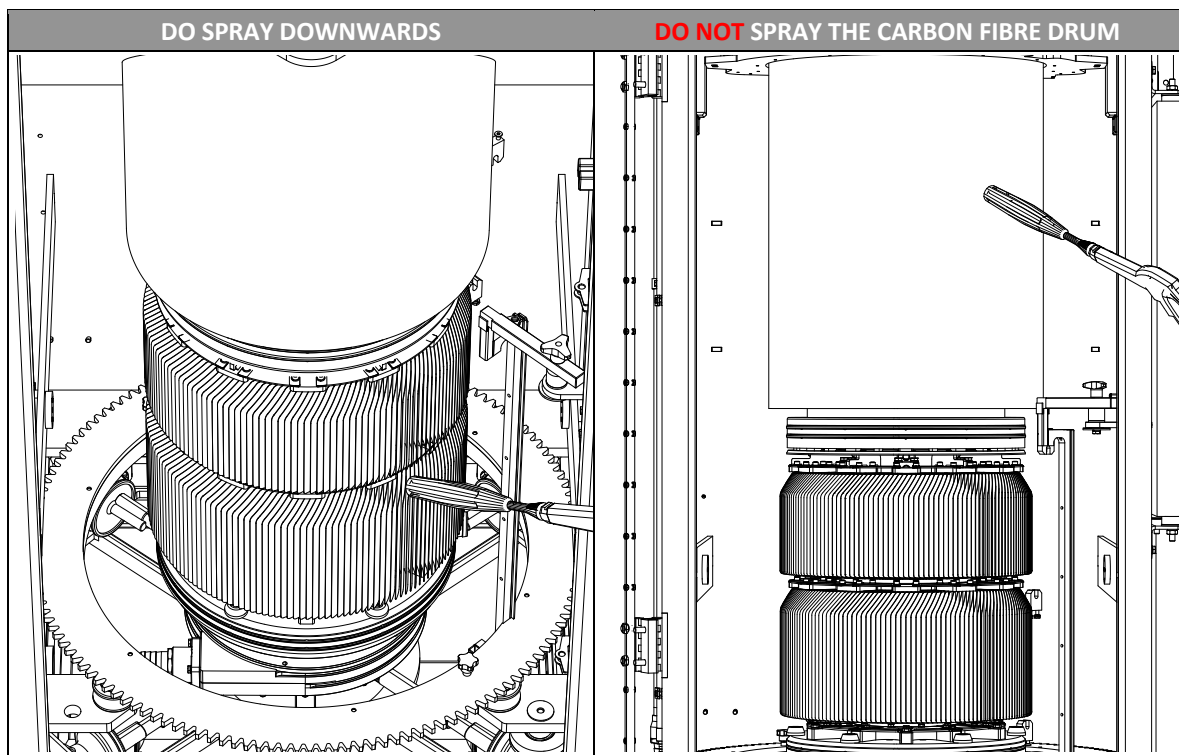


**CAUTION**

**EQUIPMENT DAMAGE**

Water could enter the motor compartment!

If high water pressure is used, do not point it higher than two thirds of the rotor compartment.



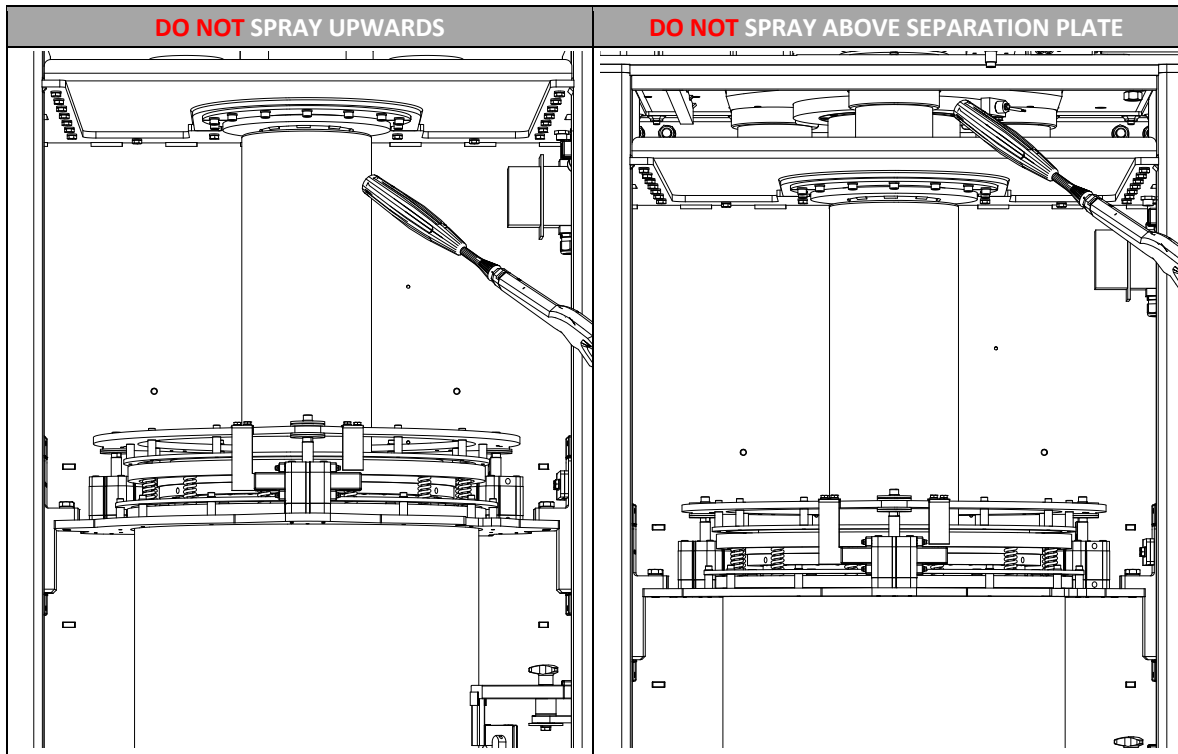


Figure 9.3 Do's and don'ts with high pressure water

19. Clean all parts from any residues.
20. Lubricate the O-rings in the rotor (upper and lower flanges) with new (food-grade) grease
21. Clean the two splash screens and the scraper.
22. Place back rotating splash screen and the scraper.
23. Push [CALIBRATE] on the operator panel.
24. Close the door.
25. Switch to PRODUCTION MODE with the service key switch on the operator panel.
26. Push [START] on the operator panel, still connected to a buffer of fresh water, to flush out the effluent unit. Push [STOP] on the operator panel when clean water leaves the unit.
27. If cleaning with a caustic/acid solution (see 9.4) and/or hot water is expedient, connect the feed pump to a buffer with the solution/water, and process it.
28. Reconnect the pump inlet hose to the buffer tank.
29. Remove the drain hose from the paste/solids collecting tray and clean the tray.

## 9.4 Use of detergents

Depending on the product ran through the unit, different cleaning steps might be necessary. Fresh water, if necessary, in combination with a caustic (organic foulants) and/or acid (calcium carbonate) solution is most commonly used.

There are four factors influencing its effectiveness: temperature, concentration, contact time and turbulence of the cleaning solution.

Our advice: use detergents within the pH range 4 to 10 with a temperature of 40°C (104°F) with a longer contact time at the maximum feed pump speed.

Example of a caustic: STPP sodium tripolyphosphate 1% solution (pH 10).

Example of an acid: citric acid 2% solution (pH 4).

Cleaning steps:

1. Run a separation sequence with clean, fresh warm water.
2. Drain the unit.

If applicable:

3. Run a separation sequence with a warm caustic.
4. Run a separation sequence with clean, fresh warm water.
5. Drain the unit.

If applicable (in case you use a caustic and an acid, always end with the acid):

6. Run a separation sequence with a warm acid.
7. Run a separation sequence with clean, fresh warm water.
8. Drain the unit.