11 Biofilm removal

11.1 Approved resources for biofilm removal

The following products from ALPRO MEDICAL GmbH are approved for biofilm removal:

**Cleaning agent:**
- REF 3179-N or REF 3179-PM
- REF 3204-N or REF 3204-PM

**Tools:**
- REF 8591 (Oscillating piston pump with tank and accessories)
- REF 8592 (Rinse hose for external device connection)

**Parts to be replaced:**
- AF2: 1443436 replacement filter
- AF6: 1443436 replacement filter (Intego Pro only)
- AF5: 2257897 filters and 7047251 O-ring (if central water heater assembled)
- 543498 fresh water bottle (if treatment center fitted with fresh water bottle)

⚠️ **WARNING**

Cleaning solutions must be mixed in accordance with the usage instructions from the manufacturer of the cleaning agent!
11.2 Preparation

**IMPORTANT**
External devices must be disconnected.

**WARNING**
Wear gloves when performing the following work.

- The treatment center is switched on.
- Set all of the hose couplings to their maximum water flow rate and check this at all instruments.
- Remove the turbines, straight and contra-angle handpieces (not the ultrasound handpiece).
- Remove the cover parts from the water unit (see Comfort water unit [→ 116] or Compact water unit [→ 118]).
- If available: Empty the mixing tank (see Mixing tank [→ 134]).
- Switch the treatment center off.
- Reduce the water and air pressure in the treatment center, by removing the Sprayvit and operating it (air and water) until no more media emerges.
7. Remove the filter and the sealing washer from AF2 (A).
8. Remove the filter and the sealing washer from AF6 (B) if this is present.
9. Remove the surface filter from AF5 (C) on the water heater if present.
10. Remove the connection box cover (see Removing the connection box cover [→ 101]).
11. Close the corner valve.
12. Loosen the sanitary hose with an open-end wrench (SW19).
   If required, have a container ready to catch any water that may run out.

**IMPORTANT**

With older treatment centers there may still be cardboard gaskets on the sanitary hose. Replace these or replace the entire hose.

13. Connect the biofilm removal device (pump) to the sanitary hose.
14. Connect a hose with valve on the external device port if there is one present.
11.3 Execution

Preparation / cleaning solution 1

**WARNING**
Wear safety gloves, safety goggles and mouth and nose protection when performing the following work.

1. Mix cleaning solution 1 in accordance with the manufacturer’s instructions.
2. **If there is a fresh water bottle present:** Pour 1.5 liters of the solution into the fresh water bottle.
3. Pour the rest of the solution or the entire solution into the biofilm removal system tank.
4. Switch the treatment center and the biofilm removal system pump on.

Rinsing / cleaning solution 1

1. **If there is a fresh water bottle present:** Switch to the general water connection with the lever.
2. Rinse all instrument hoses carrying water for approx. 10 seconds by activating the relevant instrument multiple times. Switching the water flow on and off supports the process for removing deposits.

**IMPORTANT**
Collect the colored cleaning liquid as applicable in a suitable container for subsequent inspection.

3. Activate the tumbler filler 1x.
4. Activate the flushing 1x.
5. Activate the suction hose cleaning 1x (if present).
6. Rinse the external device connection (if present) by connecting the tool described above and opening and closing its valve multiple times until cleaning solution flows out of the hose. Switching the water flow on and off supports the process for removing deposits. Close the valve again.
7. **If there is a fresh water bottle present:** Switch to the fresh water bottle and carry out steps 2-6.
8. Let cleaning solution 1 take effect in accordance with the instructions from the manufacturer of the cleaning agent.
9. Complete steps 1-7 until the tanks are empty of all solution. Ensure that the mixing tank is also empty.
10. Switch off the pump on the biofilm removing system.

**IMPORTANT**
The solution in the collection container must be clear following the rinsing process. If the solution is still cloudy, fill the tanks with a new cleaning solution 1 again and complete cleaning steps once again. The cleaning liquid can then be removed via the cuspidor.
## Preparation / cleaning solution 2

1. Mix cleaning solution 2 in accordance with the manufacturer’s instructions.

2. **If there is a fresh water bottle present:** Pour 1.5 liters of the solution into the fresh water bottle.

3. Pour the rest of the solution or the entire solution into the biofilm removal system tank.

4. Switch on the pump on the biofilm removing system.

## Rinsing / cleaning solution 2

1. Rinse all instrument hoses carrying water for approx. 10 seconds by activating the relevant instrument multiple times. Switching the water flow on and off supports the process for removing deposits.

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<th>IMPORTANT</th>
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<tbody>
<tr>
<td>Collect the colored cleaning liquid as applicable in a suitable container for subsequent inspection.</td>
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2. Activate the tumbler filler 1x.

3. Activate the flushing 1x.

4. Activate the suction hose cleaning 1x (if present).

5. Rinse the external device connection (if present) by opening the valve until water flows out of the hose. Close the valve again.

6. **If there is a fresh water bottle present:** Switch to the fresh water bottle and carry out steps 2-6.

7. Let cleaning solution 2 take effect in accordance with the instructions from the manufacturer of the cleaning agent.

8. Complete steps 1-7 until the tanks are empty of all solution.

9. Switch off the pump on the biofilm removing system.

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<tbody>
<tr>
<td>The solution in the collection container must be clear following the rinsing process. If the solution is still cloudy, fill the tanks with a new cleaning solution 2 again and complete cleaning steps once again. The cleaning liquid can then be removed via the cuspidor.</td>
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11.4 Re-processing

1. Switch the treatment center off.
2. Reduce the water and air pressure in the treatment center, by removing the Sprayvit and operating it (air and water) until no more media emerges.
3. Remove the biofilm removal device.

⚠️ WARNING

Drops of the cleaning solution contain acids / alkalines and may affect surrounding parts.

Carefully loosen the adapter from the sanitary hose.
4. Insert the new filter at the removed points.
5. Install the corner valve with the gaskets onto the sanitary hose and open it.
6. **If there is a fresh water bottle present:** Fill the new fresh water bottle with water and install a new hose into it.
7. **If there is a fresh water bottle present:** Switch to the general water connection with the lever.

8. Rinse all instrument hoses carrying water for approx. 30 seconds by activating multiple times.

9. Activate the tumbler filler 1x.

10. Activate the flushing 1x.

11. Activate the suction hose cleaning 1x (if present).

12. Rinse the external device connection (if present) by opening the valve until water flows out of the hose. Close the valve again.

13. **If there is a fresh water bottle present:** Switch to the fresh water bottle and carry out steps 8-12.

14. Repeat steps 7-13 until the only water coming out of all channels carrying water is clear.

**General functional check**

1. Check the flow rate for all instruments carrying water.

2. Check the tumbler filler and the flushing.

3. Check the suction hose cleaning (if present).

4. Check the external device connection (if present).

5. Check all water channels for leaks (filter cover, corner valve, etc.)

**Sanitation procedure**

1. Switch the treatment center off.

2. Close the corner valve.

3. Loosen the sanitary hose with an open-end wrench (SW19).

4. Connect the biofilm removal device (pump) to the sanitary hose.

5. Connect a hose with valve on the external device port if there is one present.

6. Pour disinfectant (Dentosept P, Bilpron) into the biofilm removal device tank.

7. **If there is a fresh water bottle present:** Fill the new fresh water bottle with disinfectant (Dentosept P, Bilpron).

8. **If there is a disinfection system installed:** Fill the disinfection tank with disinfectant (Dentosept P, Bilpron).

9. **If there is a fresh water bottle present:** Switch to the general water connection with the lever.

10. Rinse all instrument hoses carrying water for approx. 30 seconds by activating multiple times.

11. Activate the tumbler filler 1x.

12. Activate the flushing 1x.

13. Activate the suction hose cleaning 1x (if present).

14. Rinse the external device connection (if present) by opening the valve until disinfectant flows out of the hose. Close the valve again.

15. **If there is a fresh water bottle present:** Switch to the fresh water bottle and carry out steps 11-15.

16. Repeat steps 11-15 until the disinfectant is visibly coming out of all channels carrying water.
Application phase

1. Switch the treatment center and the biofilm removal device off.
2. Reduce the water and air pressure in the treatment center, by removing the Sprayvit and operating it (air and water) until no more media emerges.
3. Remove the biofilm removal device.

⚠️ WARNING
Drops of the disinfectant can affect surrounding parts.
Carefully loosen the adapter from the sanitary hose.

4. Install the corner valve onto the sanitary hose and open it.
5. Install the turbine connections.
6. Install the cover parts.
7. The disinfectant must be allowed to react for at least 24 hours and not longer than 3 days (maximum sanitation time).
8. Switch the treatment center on.
9. **If there is a fresh water bottle present:** Switch to the general water connection with the lever.
10. Rinse all instrument hoses carrying water for approx. 30 seconds by activating multiple times.
11. Activate the tumbler filler 1x.
12. Activate the flushing 1x.
13. Activate the suction hose cleaning 1x (if present).
14. Rinse the external device connection (if present) by opening the valve until water flows out of the hose. Close the valve again.
15. Repeat steps 9-13 until uncolored water is visibly coming out of all channels carrying water.
16. **If there is a fresh water bottle present:** Switch to the fresh water bottle and carry out steps 9-13.
17. Repeat steps 9-13 until the disinfectant is visibly coming out of all channels carrying water.

**IMPORTANT**
The biofilm removal is now complete.