

Cleaning and Disinfecting the Vitalograph ALPHA

A new mouthpiece (either *SafeTway* or *BVF*) should be used for each subject. A delay of at least 5 minutes should be allowed between subjects to allow settling of previously aerosolized particles in the measuring device.

It is recommended that the flowhead be regularly cleaned according to the guidelines of the user's facility.

In the event of visible contamination of the flowhead cones or flowhead element, they should be cleaned or disinfected as described in the accompanying table. The flowhead conditioning meshes should also be replaced in the event of damage, or if visibly contaminated.

The frequency of cleaning and disinfecting is dependent on the Facility's Risk Assessment, usage, and test environment, but it should be at least monthly or every 100 subjects (500 blows).

It is recommended that the flowhead—flowhead complete and flowhead connection tube—be replaced annually.

Table of Materials Used & Cleaning/Disinfection Methods

This listing of materials used is given to provide users with information to allow the assessment of other cleaning and disinfecting procedures available in the facility on this device.

Part	Material	Clean/Disinfect	Autoclave Possible?	Recommended Disinfectants
Case Exterior	ABS	Clean	No	Wiping with a 70% isopropyl alcohol impregnated cloth provides a suitable form of cleaning and low-level disinfection. This may be preceded by cleaning with an anti-static foam cleaner if necessary. Note: Ensure isopropyl alcohol does not come in contact with the screen. <i>Warning: Paper tear bar contains sharp edges. Users should take care not to cut/scrap their fingers.</i>
White Flowhead Tube	Silicone Rubber	Clean	Viable	
Screen	Electrode with Anti-Newton-Ring Treatment	Clean	No	Lightly wipe the surface with cotton pad or other soft material. NOTE: DO NOT use chemicals such as acetone, toluene, ethanol or isopropyl alcohol. DO NOT wipe in a circular motion. Strokes should be either up/down or over/back.
Fleisch Element	Aluminium, Stainless Steel	Clean	Viable	Disinfect by immersion in sodium dichloroisocyanurate solution at 1000 ppm concentration of free chlorine for 15 minutes (see following section for recommended)
Flowhead Body	Aluminium & Acetyl	Clean & Disinfect	No	
Flowhead Cone	TPX	Clean & Disinfect	Viable	

Flowhead End Cap	TPX	Clean & Disinfect	Viable	cleaning/disinfection method for the Vitalograph ALPHA Flowhead) The flowhead may also be disinfected by autoclaving at 134°C for 3 minutes or 120°C for 20 minutes.
Flow Conditioning Meshes	Acetyl and Polyester	Dispose & Replace	No	

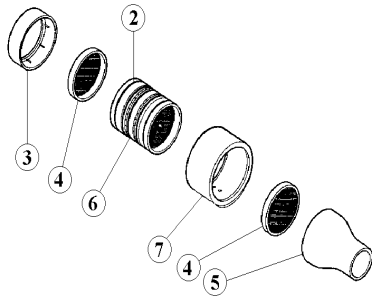
All external parts of the Vitalograph ALPHA require **cleaning**, i.e. the removal of visible particulate contamination. The parts of the Vitalograph ALPHA that make up the flowhead, which comes into contact with subjects being tested, also require **disinfecting**. A spirometer is not designed as a 'sterile' device.

Definitions of cleaning and disinfection are as defined in "Sterilization, Disinfection and Cleaning of Medical Equipment: Guidance on Decontamination from the Microbiology Committee to Department of Health Medical Devices Directorate, 1996".

Recommendations for chemical disinfectants are derived from the PHLS publication "Chemical Disinfection In Hospitals 1993".

Disassembling the Fleisch Flowhead

1. Remove the cone and the end cap from the flowhead.
2. Remove the flow conditioning meshes from inside the cone and the end cap, and discard them.
3. To remove the flowhead body from the Fleisch element, place the Fleisch element on a hard, flat surface with the largest diameter at the top. Push down on the flowhead body with thumbs and forefingers until it reaches the flat surface. A final pulling and twisting action will separate the parts.



1. Flowhead Complete – 61030
2. 'O' rings - 2120013
3. Flowhead End Cap -62006SPR
4. Flow Conditioning Meshes - 42084
5. Flowhead Cone - 62019SPR
6. Fleisch Element - 62055SPR
7. Flowhead Body – 61020
8. Lubrication: Silicone Grease – 30961SPR

Flowhead Assembly

4. Clean each separate part of the flowhead by washing in a mild detergent and removing particulate contamination. To clean the Fleisch element, swill vigorously in water with mild detergent or use an ultrasonic bath. Do not attempt to "rub" or "scrub" at capillaries. The flowhead body (7) does not require disinfection, but may be cleaned/disinfected with the rest of the flowhead for convenience.
5. Rinse all parts in clean water.

6. Disinfect by immersion in sodium dichloroisocyanurate (NaDCC) solution at 1,000 ppm concentration of free chlorine for 15 minutes. Prepare disinfectant solution as directed in the manufacturer's guidelines.
7. Rinse with very hot water to aid later drying.
8. Leave to dry completely before reassembling. Drying the Fleisch element components may require placing them in a warm place overnight. A drying cabinet is ideal.

Always follow the safety guidelines given by the manufacturer of cleaning and disinfectant chemicals.

Reassembling the Fleisch Flowhead

1. Examine the Fleisch element to ensure that no liquid or particles remain in the holes, grooves or pressure tappings.
2. Check the 'O' rings for damage and ensure that they are correctly positioned within the grooves.
3. Apply a very small amount of silicone grease to 'O' Rings and inside the surfaces of the flowhead body. Wipe off any visible amounts of grease. Ensure that the tiny annular holes on the outside of the Fleisch element are not blocked.
4. When re-assembling the flowhead, ensure that the blue pressure tapping is nearest to the largest diameter of the Fleisch element.
5. Ensure that the flowhead body is pushed fully home and rotate it so that the pressure ports are approximately 180° opposite the end of the Fleisch element coil.
6. Fit new flow conditioning meshes to both the flowhead cone and the flowhead end cap.
7. Push the flowhead end cap onto the larger diameter of the Fleisch element and push the flowhead cone onto the smaller diameter.
8. When attaching the flowhead connection tube ensure that the matching coloured/serrated edge pressure tappings on the flowhead and the Vitalograph ALPHA are connected to each other.
9. It is recommended that an accuracy check is carried out following reassembly to verify correct operation and accuracy.

--oo00oo--