



Aspirator N2400-9000

Hand controller N2400-9001

Decontamination



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ⓘ WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.



NOTICE is used to address practices not related to personal injury.

Safety information!

IMPORTANT

In case of devices which have been in contact with biological substances of risk level 2, contact the STARLAB service BEFORE shipping the device. These devices have to be completely disassembled and decontaminated by the user prior to shipment.

DO NOT return devices which have been in contact with biological substances of risk level 3 or 4. These devices cannot be checked, maintained or repaired and even decontaminated devices must not be returned to STARLAB due to a residual risk.

The same conditions apply to on-site work.

This manual describes the decontamination of the Aspirator and the Hand Controller. **The applicability of the decontamination method and the selection of the appropriate disinfectants have to be ensured by the user.**

Ensure that work is carried out only by trained personnel. Obey local and national safety requirements. Ensure that the person is familiar with the safety procedures which relate to the products processed by the pumping system. Ensure that the device is decontaminated before repair and that you take adequate precautions to protect people from the effects of hazardous substances if contamination has occurred.

WARNING



Take adequate precautions to protect people from the effects of dangerous substances. Wear appropriate personal protective equipment (e. g., protective clothing, safety glasses, protective gloves) and perform work in a hood.

Prior to decontamination **isolate equipment from mains**. Allow sufficient cooling. **Ensure that the device cannot be operated accidentally.** **Wait 5 seconds** before starting work to allow the capacitors to discharge.

NOTICE

Before starting check that the required parts (e. g. tools, disinfectants) are available and of the correct type.

Check the operating sequence mentally on feasibility, safety requirements and consequences on safety and function of the equipment.

Obey regulations when disposing of solvents and **chemicals**.

In order to comply with law (occupational, health and safety regulations, safety at work law and regulations for environmental protection) vacuum pumps, components and measuring instruments returned to the manufacturer can be repaired only when certain procedures (see section **"Repair - Maintenance - Return - Calibration"**) are followed.

Scrapping and waste disposal

Dispose of the pump and any components removed from it safely in accordance with all local and national safety and environmental requirements.

Materials

NOTICE

To facilitate the selection of a compatible disinfectant the materials of the devices are listed.

For information about the compatibility with the materials, ask the manufacturer of the disinfectant.

Surfaces	Material*
Aspirator	
Support, cover pump	PBT
Pump housing, base plate	aluminium alloy
On / off switch	PC, silicone
IEC plug	PET
Feet	PU
Screws	stainless steel
Touchpanel	glass

* see also section materials "**Filter and bottles**"

Filter and bottles	Material
Filter	
Diaphragm	PTFE
Housing	PP
Tubing	silicone rubber
Collection bottle 4l	
Bottle / screw cap	PP
Hose nozzle at bottle head (connection Hand Controller)	PP
Hose in bottle	PTFE
Hose nozzle (connection filter)	PPS, glass fibre reinforced
Counter nut	PP
Closing screw	PPS, glass fibre reinforced

We reserve the right to change technical specifications without prior notice!

Documents are only to be used and distributed completely and unchanged. It is strictly the user's responsibility to check carefully the validity of this document with respect to this product. 10/10/2016

continued **"Filter and bottles"**

Collection bottle 2l	
Bottle	borosilicate glass
Cap insert	PP
Flat seal	EPDM
Hose nozzle at bottle head (connection Hand Controller)	PP
Hose in bottle	PTFE
Hose nozzle (connection filter)	PPS, glass fibre reinforced
Closing screw	PPS, glass fibre reinforced

Vacuum pump	Material
Pump	
Cover	PBT
Housing cover insert	PTFE, carbon reinforced
Head cover	ETFE, carbon fibre reinforced
Diaphragm clamping disc	ETFE, carbon fibre reinforced
Diaphragm	PTFE
Valve	PTFE / FFKM
Inlet	ETFE
Outlet	ETFE
Silencer	silicone rubber
Sensor	PPS / fuorosilicone
Sensor tube	PTFE / PVC

Hand Controller	Material
Aspiration hose	Silicone rubber
Adapter pipettes	TPE / PP
Adapter pipette tips	PP
Screw cap, adjusting knob, operating lever	PPS, glass fibre reinforced
Housing	PP, glass fibre reinforced

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Decontamination of the vacuum pump

Important information

IMPORTANT

Devices may be contaminated due to operation.

The vacuum pump of the Aspirator may be contaminated as well. The protective filter with a pore size of 0.2 µm does not safely avoid contamination of the vacuum pump in all cases.

Also, in case of a defect of the filter or operation of the Aspirator without filter, pathogenic germs (e. g., bacteria, viruses, prions, fungi) may enter the pump.

Prior to decontamination the devices have to be disassembled.

When disassembling the devices avoid contact of contaminated parts with non-contaminated parts.

Adopt suitable measures to prevent the release of dangerous, toxic, explosive, corrosive, noxious or polluting fluids, vapors and gases, and a possible contamination of personnel and environment.

Prior to decontamination clean with a damp cloth if necessary. Use water or a mild detergent as cleaning agent.

Decontaminate all disassembled parts and any tools used using an appropriate degassing method. Comply with exposure time.

The applicability of the decontamination method and the selection of the appropriate disinfectant have to be ensured by the user.

After decontamination perform an **appropriate verification procedure**, e. g., use contact plates in order to control disinfecting measures.

Enclose with the device an evidence of verification of the decontamination, stating the detection method.

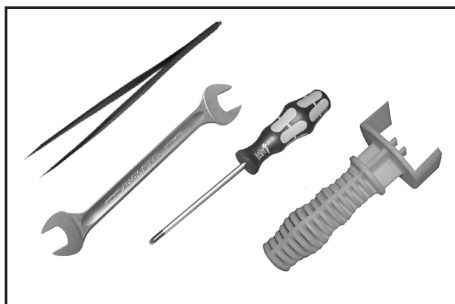
**After decontamination, return the disassembled device for repair.
Ensure that all parts are packed safely.**

Disassembling the Aspirator



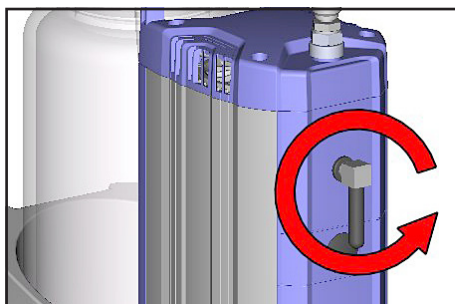
IMPORTANT

Connect person to ground before coming in contact with electronic parts.

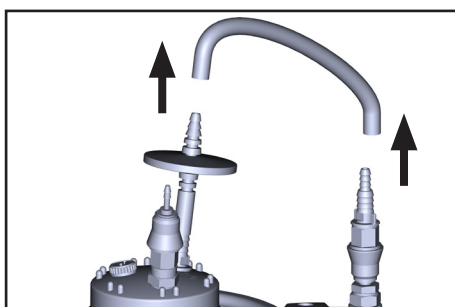


Tools required (metric):

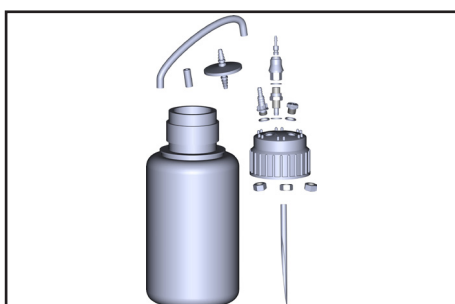
- Tweezers
- Open-ended wrench SW 19
- Screw driver Torx TX20
- Tool for diaphragm change (order no.: N2400-9015)



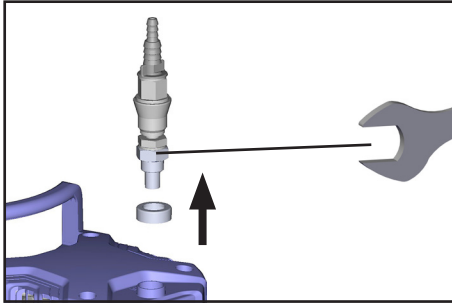
- ➔ Unscrew elbow fitting with silencer at the outlet of the pump.



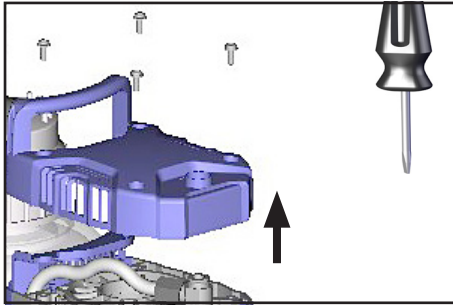
- ➔ Depending on Aspirator version, remove connection tubing at the hose nozzle or detach quick coupling.
- ➔ Remove bottle from support.



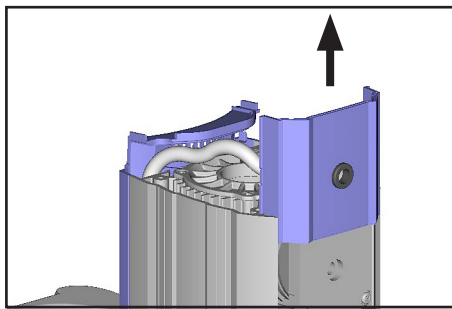
- ➔ Dismantle bottle into individual components.



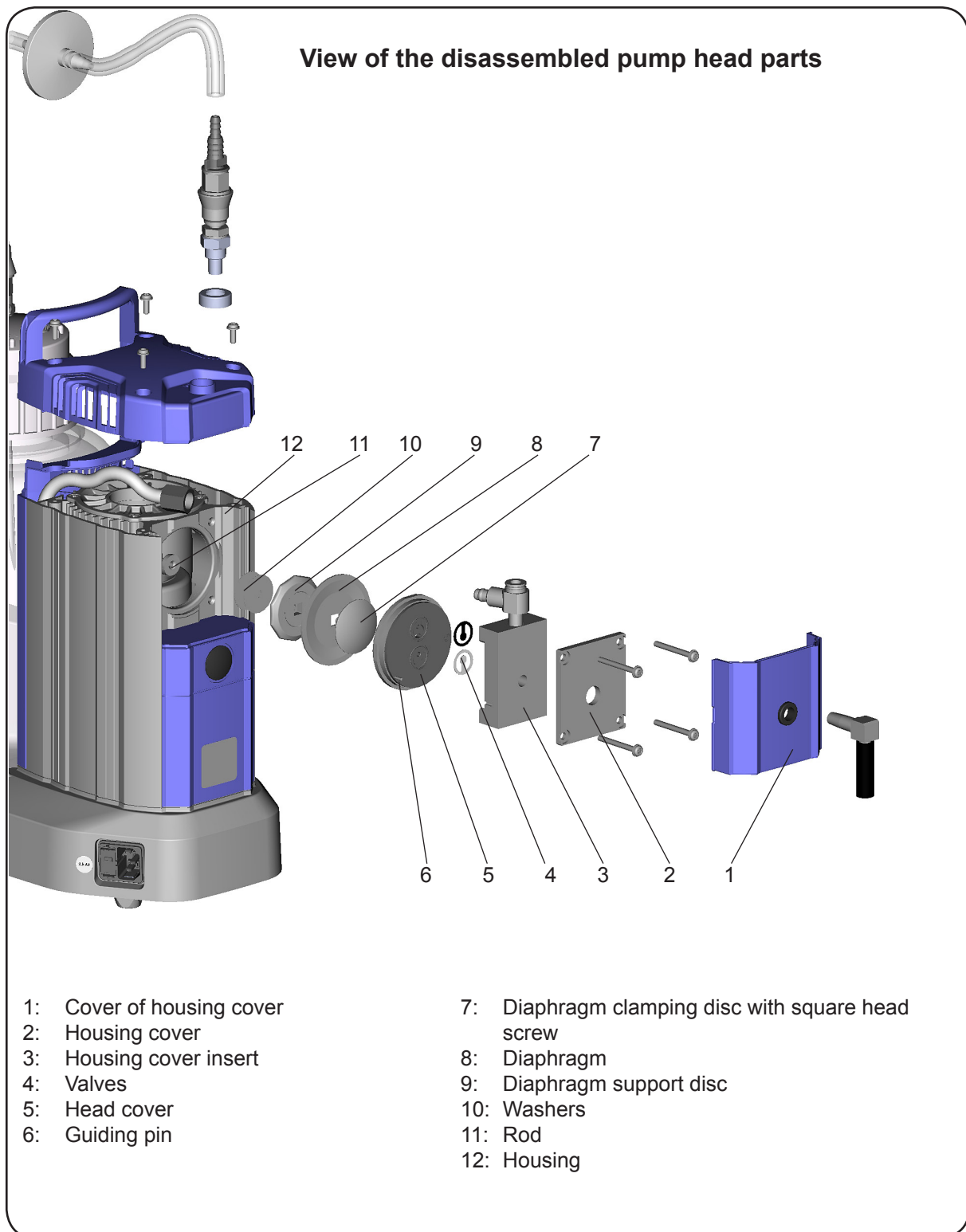
- ➡ Unscrew hose nozzle, or hose nozzle with coupling, using an open-ended wrench.

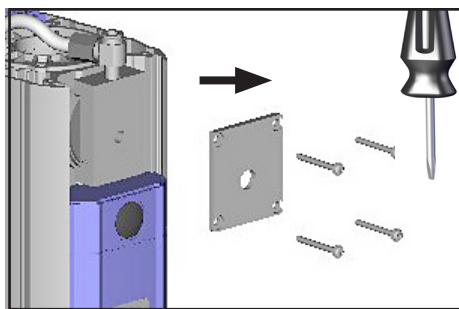


- ➡ Unscrew cover, paying attention to washers.

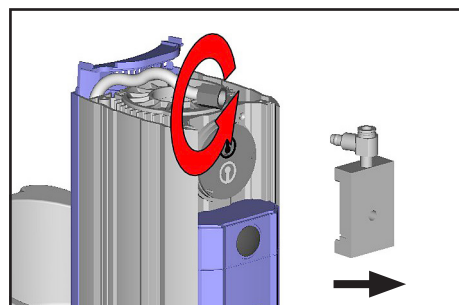


- ➡ Remove the cover of the housing cover.

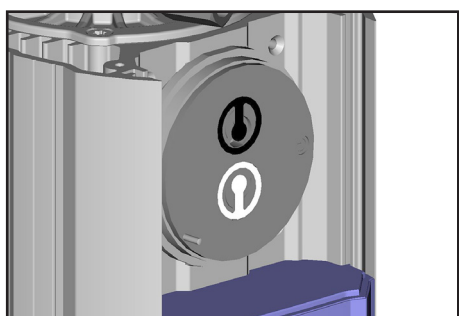




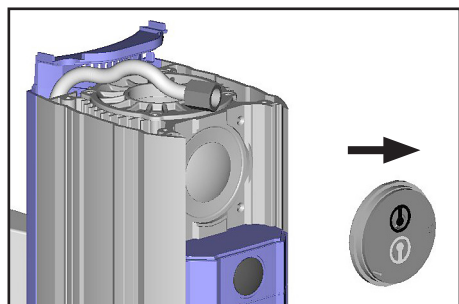
- Unscrew four screws at the pump head, paying attention to washers.
Remove housing cover.



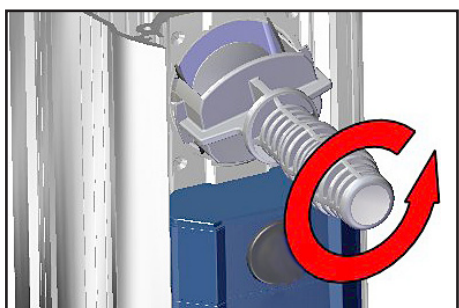
- Unscrew union nut and remove hose from elbow fitting.
- Remove housing cover insert with elbow fitting.



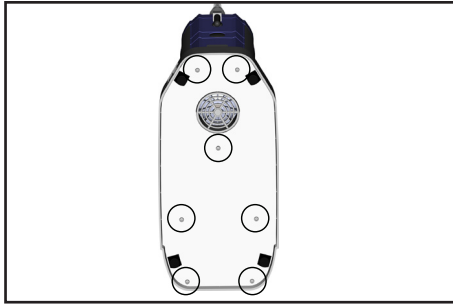
- Note position of valves.



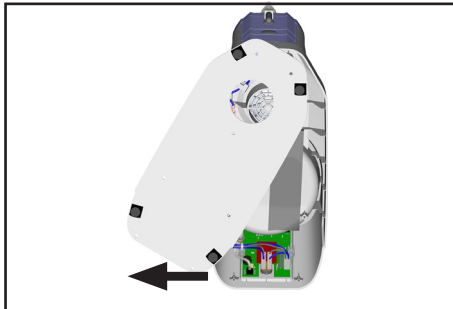
- Remove head cover and valves.
- ⚠ Never remove parts by using a pointed or sharp-edged tool (e.g., screw driver), we recommend to use a rubber mallet or compressed air (to be blown carefully into port).



- Lift diaphragm carefully sidewise.
- ⚠ Never use a pointed or sharp-edged tool to lift the diaphragm.
- Use the diaphragm key to grip the diaphragm support disc below the diaphragm.
- Press down the diaphragm clamping disc to bring the diaphragm to its lowest oscillating position. Unscrew diaphragm support disc with diaphragm and diaphragm clamping disc.
- ⚠ If the diaphragm is difficult to separate from the diaphragm support disc, immerse assembly in naphtha or petroleum ether. Do not inhale vapors!



- ➡ Lay down the Aspirator as shown.
- ➡ Unscrew screws at the base plate.

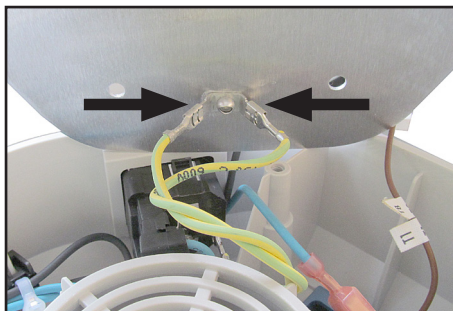


- ➡ Slide the base plate to the side.

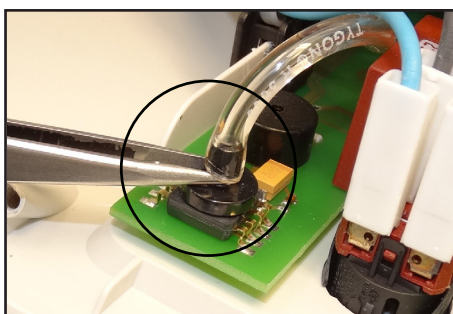


IMPORTANT

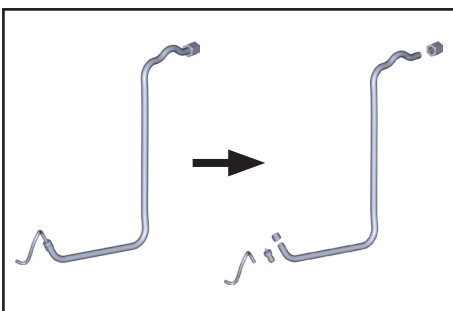
Connect person to ground before coming in contact with electronic parts.



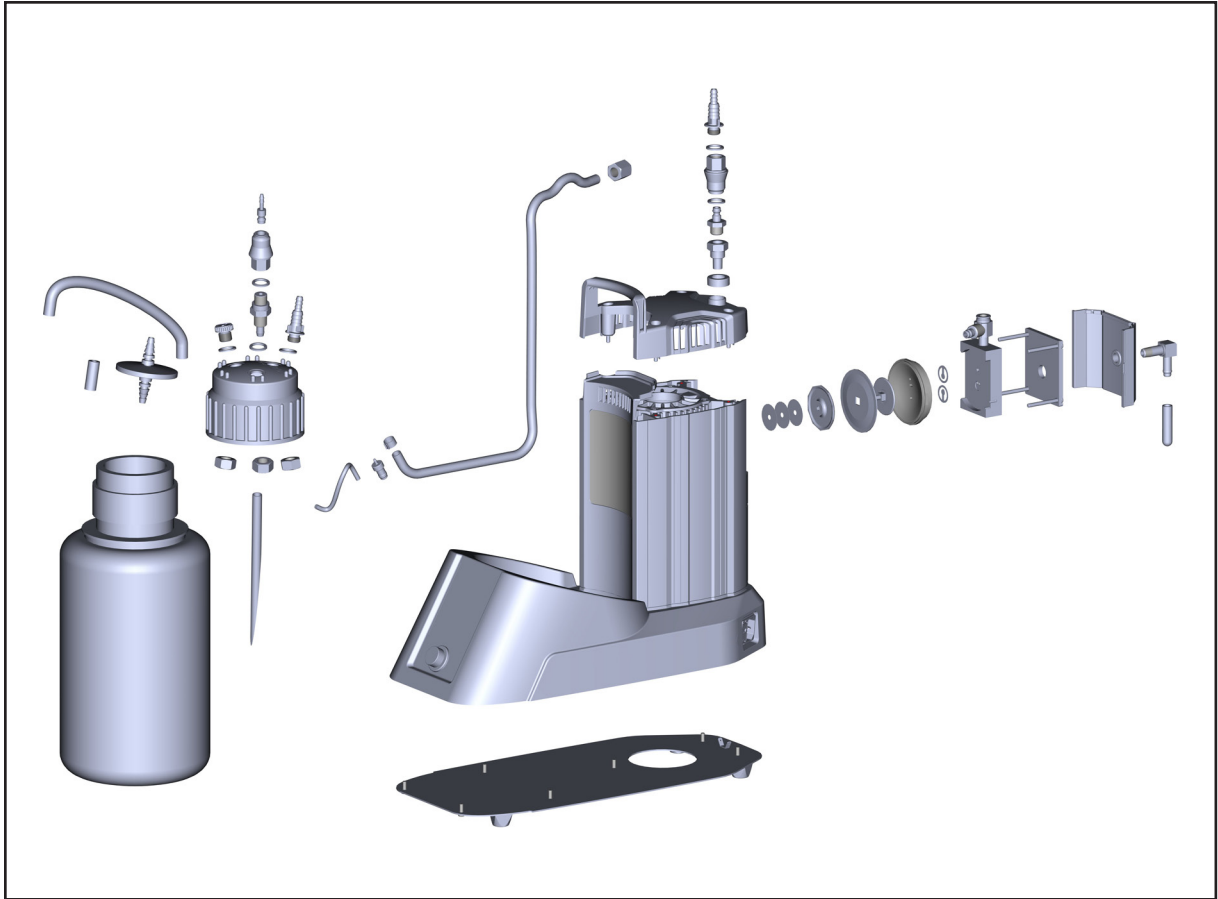
- ➡ Remove earth cables.



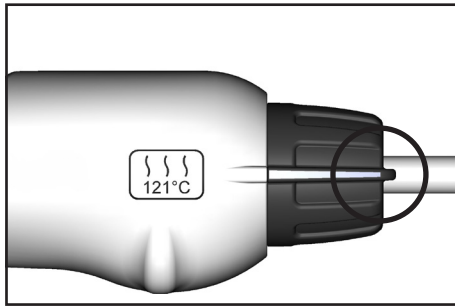
- ➡ Remove hose from pressure sensor using tweezers.



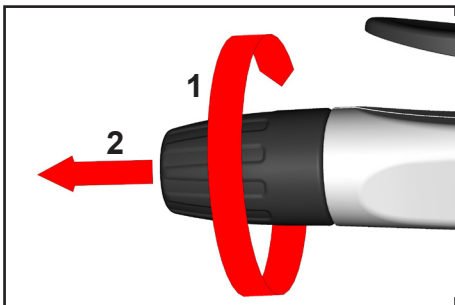
- ➡ Remove sensor hose and dismantled into individual components.



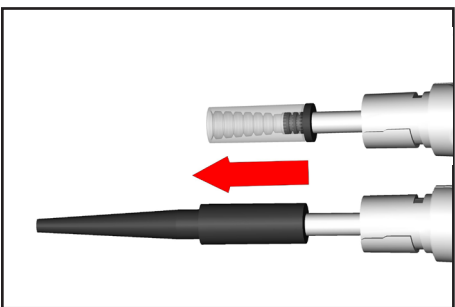
Disassembling the Hand Controller



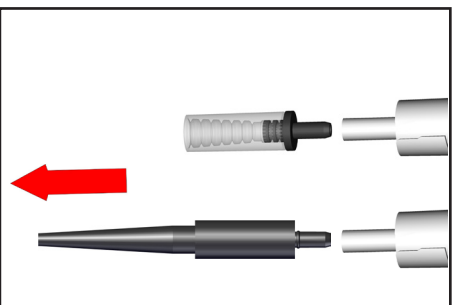
- ➡ Select continuous aspiration.



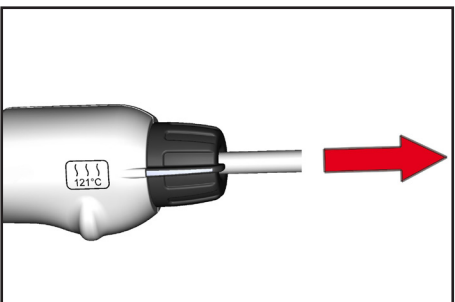
- ➡ Turn cap (1) and remove (2).



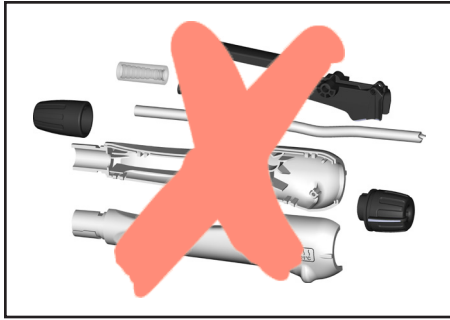
- ➡ Pull adapter with hose out of the Hand Controller.



- ➡ Remove adapter from hose.

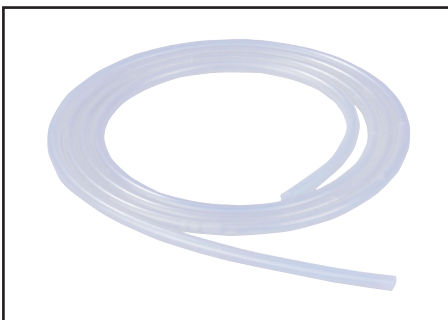


- ➡ Pull aspiration hose out of the handle.



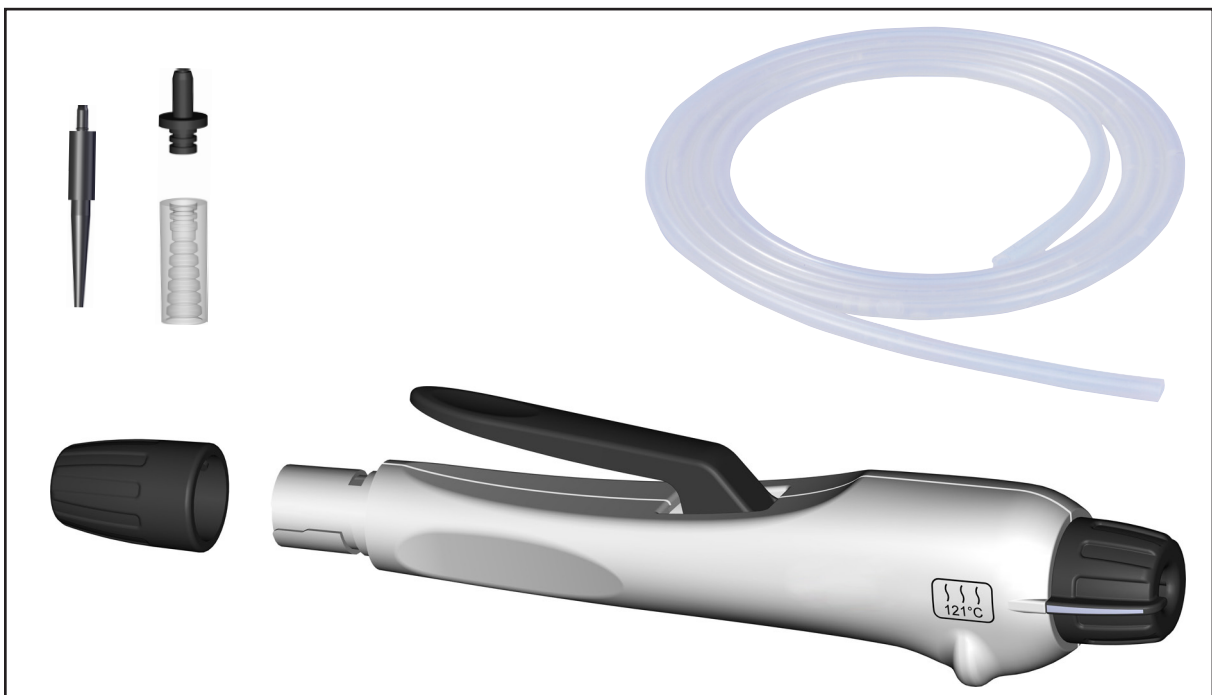
NOTICE

It is not possible to disassemble the Hand Controller completely.



IMPORTANT

Do not return the aspiration hose.



Repair - Maintenance - Return

IMPORTANT

Every employer (user) is held responsible for the health and safety of their employees. This also applies to service personnel performing repair, maintenance or return.

The **health and safety clearance form** informs the contractor about any possible contamination of the device and forms the basis for the risk assessment.

In case of devices which have been in contact with biological substances of risk level 2 contact the STARLAB service BEFORE dispatching the device. These devices have to be completely disassembled and decontaminated by the user prior to shipment. Do not return devices which have been in contact with biological substances of risk level 3 or 4. These devices cannot be checked, maintained or repaired and even decontaminated devices must not be returned to STARLAB due to a residual risk.

The same conditions apply to on-site work.

No repair, maintenance or return is possible unless a correctly completed health and safety clearance form is returned. Devices sent without a completed form will be rejected. Send a completed copy of the **health and safety clearance form** to us in advance. The declaration must arrive before the equipment. Enclose a second completed copy with the product.

Remove all components from the device that are not original STARLAB components. STARLAB will not be responsible for lost or damaged components that are not original components.

Drain the device completely of fluids and residues. Decontaminate the device. Close all openings airtight especially if using substances hazardous to health.

To expedite repair and to reduce costs, please enclose a detailed description of the problem and the product's operating conditions with every product returned.

If you do not wish a repair on the basis of our **quotation**, the device may be returned to you disassembled and at your expense.

In many cases, the components must be cleaned in the factory prior to repair. For cleaning we use an environmentally friendly water based process. Unfortunately the combination of elevated temperature, cleaning agent, ultrasonic treatment and mechanical stress (from pressurised water) may result in damage to the paint. Please mark on the health and safety clearance form if you would like a repaint (at your expense) in case such damage should occur. We will also replace parts for cosmetic reasons at your request (and at your expense).

Before returning the device

Pack the device properly, if necessary, please order original packaging materials at your costs.

Mark the package completely

Securely attach the completed health and safety clearance form to the outside of the carton.

Notify the carrier of any possible contamination if required.

Scrapping and waste disposal

Dispose of the equipment and any components removed from it safely in accordance with all local and national safety and environmental requirements. Particular care must be taken with components and waste oil which have been contaminated with dangerous substances from your processes. Do not incinerate fluoroelastomer seals and O-rings. You may authorize us to dispose of the equipment **at your expense**. Otherwise we return the device at your expense.

Health and safety clearance form

1. Device (Model):
2. Serial no.:
3. Reason for return / malfunction:
4. Has the device been used in a copper process step (e.g., semiconductor production): ☐ yes ☐ no
5. Substances (gases, liquids, solids, biological material, e. g. bacteria, viruses) in contact with the device / which have been pumped:
.....
.....
.....
6. Risk level of the used biological material: ☐ none ☐ 1 ☐ 2* ☐ 3** ☐ 4**
 * Contact the STARLAB service BEFORE dispatching the device.
 ** Devices which have been in contact with biological substances of risk level 3 or 4 cannot be checked, maintained or repaired and even decontaminated devices must not be returned to STARLAB due to a residual risk.
7. Radioactive contamination: ☐ yes ☐ no
8. I confirm that the device has been decontaminated: ☐ yes ☐ no
 Description of the decontamination method and the test / verification procedure:

9. All parts of the device are free of hazardous, harmful substances: ☐ yes ☐ no
10. Protective measures required for service staff:
.....
11. If the paint is damaged, we wish a repaint or a replacement of parts for reason of appearance (repaint and replacement at customer's expense): ☐ yes ☐ no

12. Legally binding declaration

We assure for the returned device that all substances, which have been in contact with the device are listed in section 5 and that the information is complete and that we have not withheld any information. We declare that all measures (where applicable) have been taken as listed in section "Repair - Maintenance - Return". By our signature below, we acknowledge that we accept liability for any damage caused by providing incomplete or incorrect information and that we shall indemnify STARLAB from any claims as regards damages from third parties. We are aware that as expressed in § 823 BGB (Public Law Code of Germany) we are directly liable for injuries or damages suffered by third parties, particularly STARLAB employees occupied with handling/repairing the product. Shipping of the device has/will be undertaken according to regulations.

Name: Signature:

Job title: Company's seal:

Date:

Release for repair grant by STARLAB (date / signature):.....
 Protective measures: ☐ Protective gloves, safety goggles ☐ Hood ☐ External cleaning

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