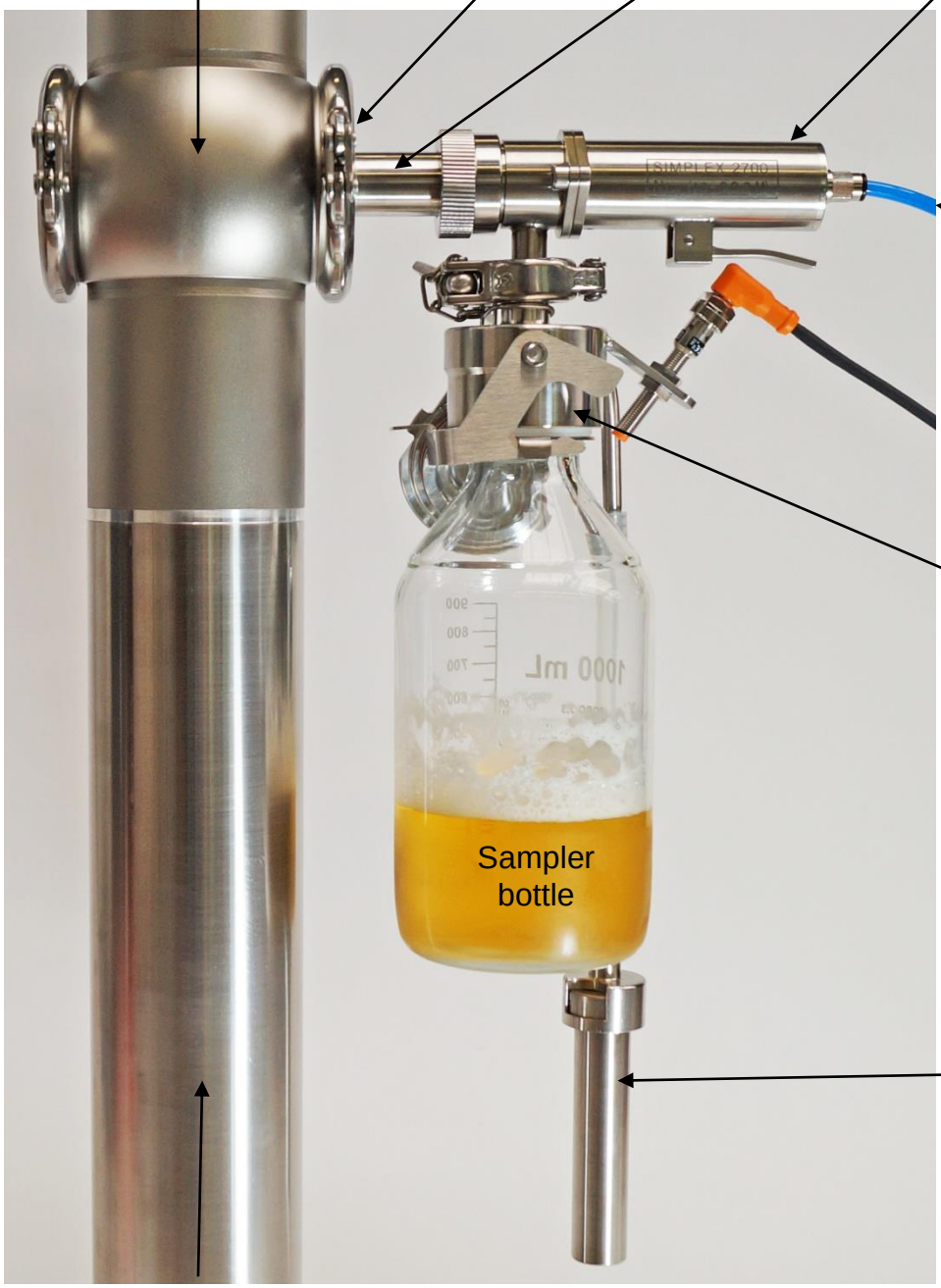
Installation and maintenance instructions for Simplex 2700 sampling system

July 2021

Overview complete sampler place



Overview

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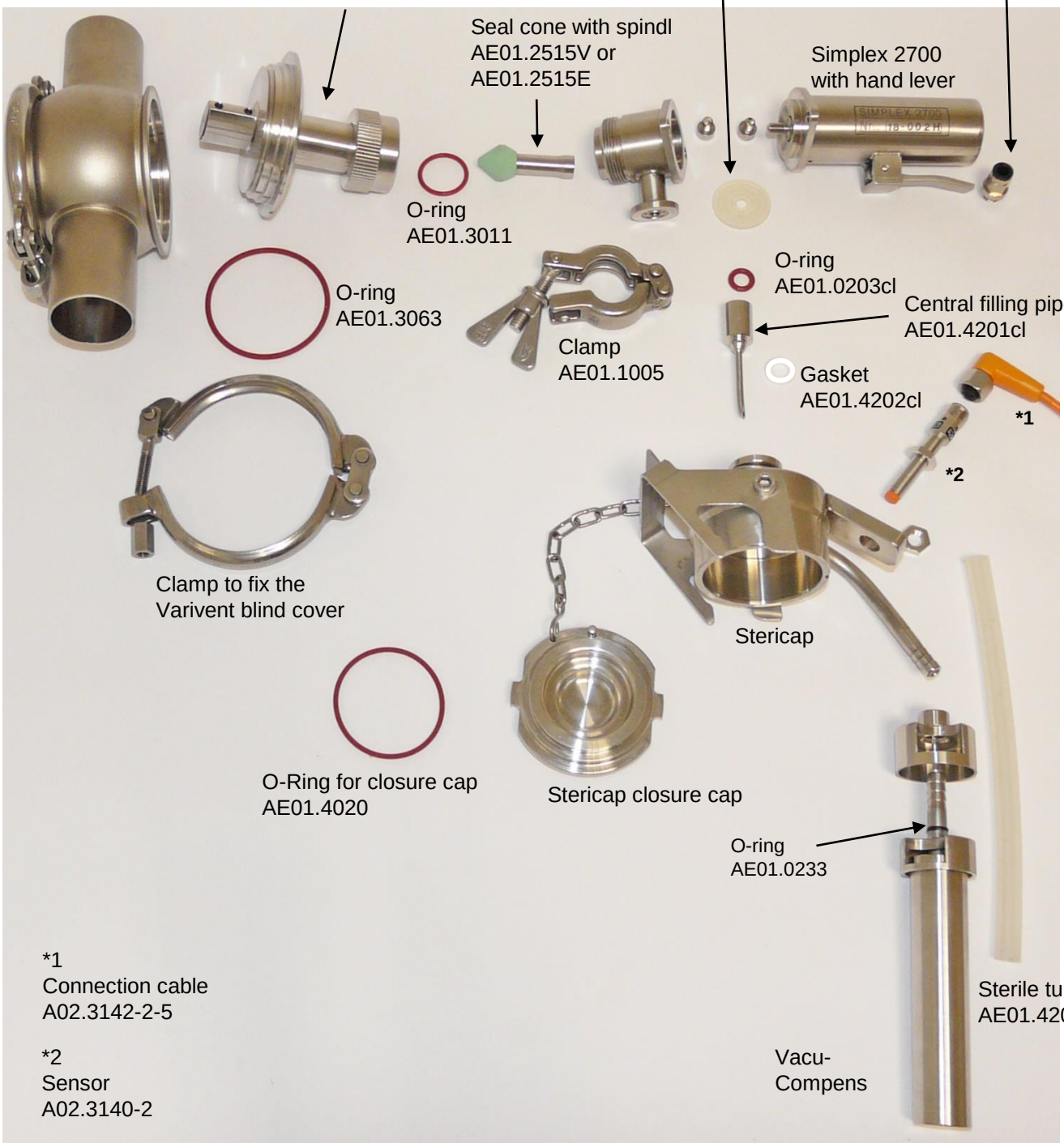
Overview of connection and component parts



*1
Connection cable
A02.3142-2-5

*2
Sensor
A02.3140-2

Connection to pipeline

Connection is understood here as the elements which establish a connection between the product and the sampler.
Two alternatives are offered for this.

The welded connection

The welded connection is welded at the sampling point to the product line and is drilled out to 8 mm.

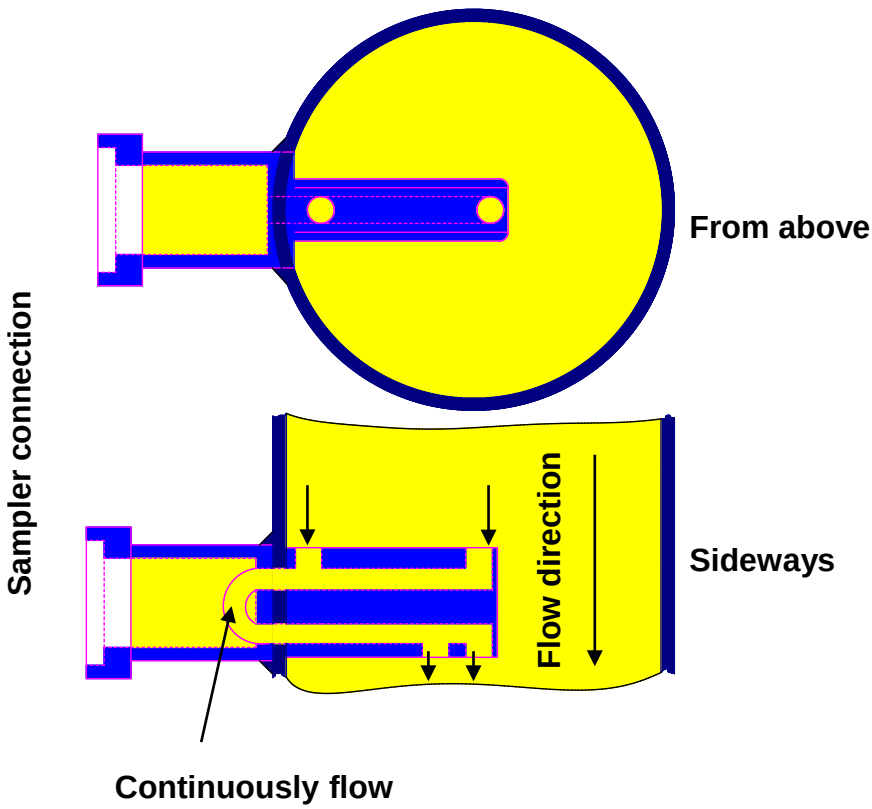
The Bio-Con

The Bio-Con is inserted in a hole of ø25 mm in the product line and welded in position.

IMPORTANT :
The installation of a welded connection or a Bio-Con can be in a vertical or in horizontal pipe.
By installation you have to look on the flow direction (Fließrichtung) -(*printed on the Bio-Con*) it´s very importend for the function.
Before the Bio-Con is welded, the sleeve nut must be installed.

These two parts can also be installed in a blind cover of a Varivent case. This increases the flexibility of the sampling point and it´s the best hygienic version.

schematic layout of Bio-Con



After the Bio-Con has been installed in the pipe, the first step is to insert the O-ring in the Bio-Con.

The sampler is now slid with the cone-seal side into the Bio-Con.

Great care must be taken to ensure that the O-ring does not slip.

The sampler is firmly screwed to the Bio-Con with union nut. It is sufficient if the sleeve nut is tightened by hand.

The fitting procedure for the sampler at the welded connection is identical to that for the Bio-Con.

Maintenance of the dismantled Simplex 2700

The maintenance of the Simplex 2700 is feasible in 2-3 minutes.

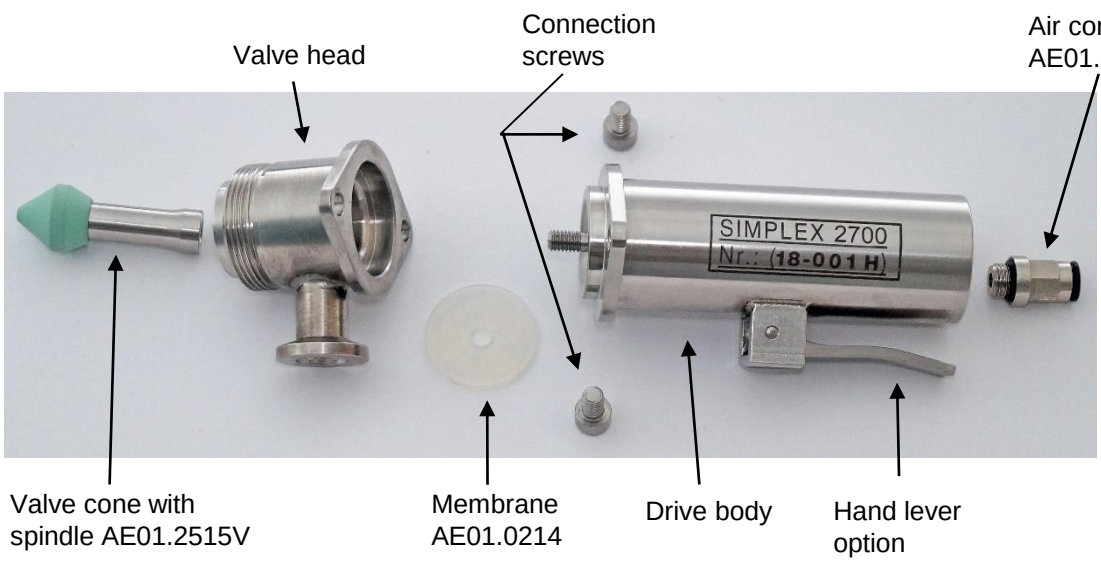
1. Open Sampler by compressed air (of least 4 bar) or with the hand lever
2. Screw out the valve cone with the spindle
3. **Close** compressed air and the spindle returns

Attention:The Spindle must be behind for the next 3 steps (4th to 6th step)

4. Open the clamp-connection with a hexagon socket key and take away the valve head
5. Take the old membrane away and insert a new membrane above the thread M6
6. Take the valve head back to its place and close the clamp connection
7. Open the sampler by pressure air again (of least 4 bar) or with the hand lever

Attention: Spindle must be in front for the next step

8. Screw on the valve cone onto the spindle again
9. Close the compressed air and the sampler closes. The maintenance is finished now.



Maintenance of the dismantled Simplex 2700 with hand operator

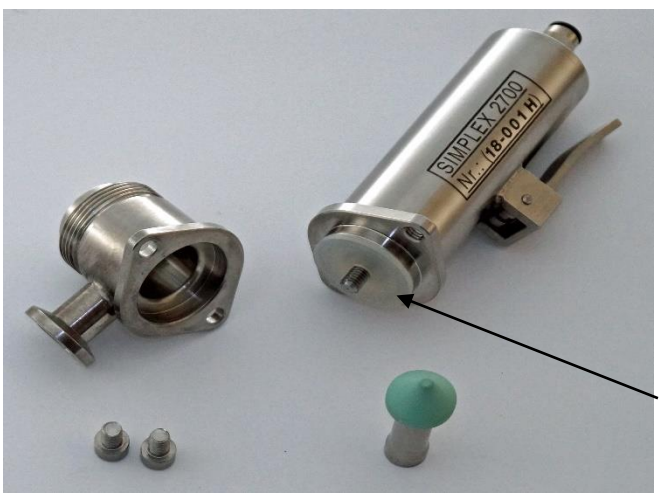
(Option)

Sampler dismantled

1. step
Push the spindle to its front position by the hand lever
(If there isn´t a hand lever please look at the instructions on page 5)

2. Step
Push the hand lever and screw out the spindle with seal cone

3. Step
Screw out both connection screws with a hexagon socket key size 6.

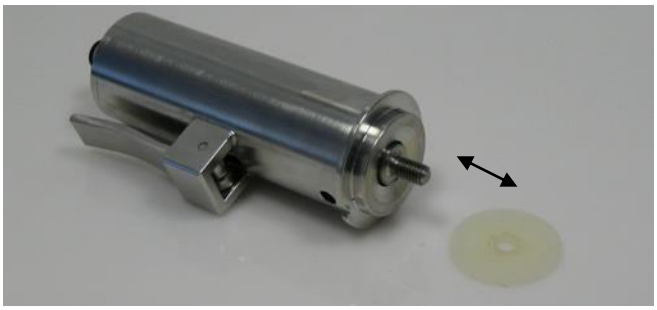


4. step
Remove the valve head from the drive body and than change the membrane.

On the picture you see all components

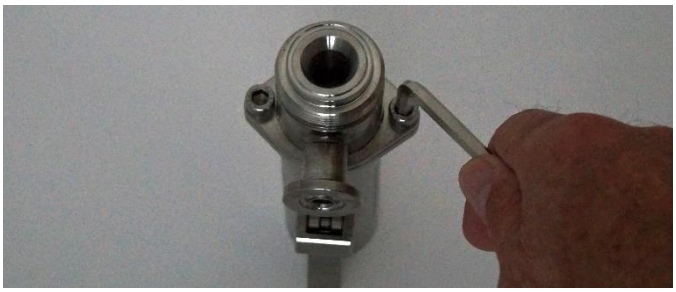
membrane

Maintenance of the dismantled Simplex 2700 with lever for hand sampling



5. step
membrane changing

Putting together in a reversed order again



6. Step

Take the valve head back to it´s old place and fix both screws with a hexagon socket key until the stop.

7. Step

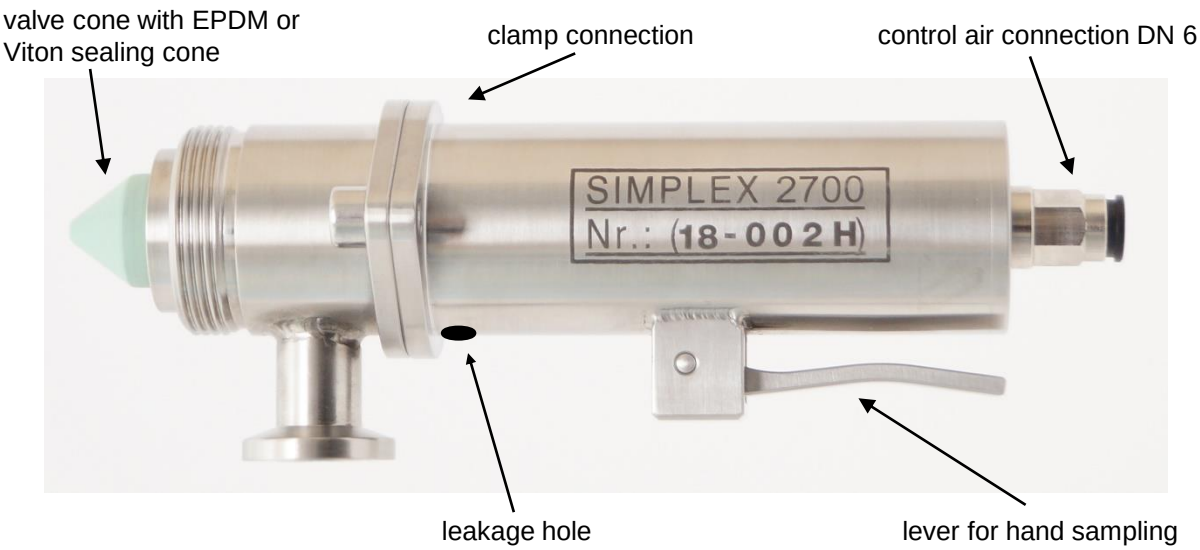
Drive the spindle forward with the hand lever. Screwing on tightly the spindle with sealing cone in the sampler head.

(If there isn´t a hand lever please look at the instructions on page 5)

The sampler is maintained

Technical data SIMPLEX 2700

Sealing:	metal cone with cpl. EPDM shell, closing with the line pressure
Working air pressure:	min. 6 bar, max. 8 bar
Technical data:	sealing cone with Viton or EPDM Line pressure: from 0.5 up to 12 bar
Operatability:	up to 12 bar line pressure - control air pressure 8bar
	Line pressure impact: up to max. 30 bar without opening, no damage
Opening path:	2 up to 2,5mm
Rate of flow:	medium water +6 °C; line pressure 2 bar, filling tube Ø 1 mm; approx. 300…400 ml/min
Maintenance interval:	depending on the medium, membrane consists of silicone, strongest influence by caustic and acids during the cleaning process for drinking water hot or cold 100,000 strokes
Maintenance expenditure:	max. 2 sealings, expenditure of time approx. 2…3 min
Indication of defects:	leakage hole close to bottle attachment



Bottle connection

There are currentely two alternatives for the bottle connection, on the one hand the needle adapter (an outdated method in the meantime) and the Stericap system - a modern docking system with CIP capability.

Needle adapter

The needle adapter will be fixed with the clamp by the wing screw to the lateral outlet.

Stericap-System

The Stericap will be also mounted, as the needle adapter, onto the lateral clamp connection. The centrally positioned filling tube must before be inserted from

above into the union body, with the white seal downwards; the overhead

O-ring must be placing exactely in the groove.

For cleaning, the Stericap must be closed with the VA cap. The cap is inserted so from below into the Stericap that the both "noses" of the cap are directely under the clips and now fix the cap with the two clips. During the “CIPEN” runs, the sampler have to be open so that the sampler with the Stericap and the Vacu-Compens are cleaned at the same time.
The sampler bottles have one for mannacle ring with two noses is below the screwing ring and be put in to the Stericap exactely like the Stericap cap. In this case a bottle stand is no longer necessary.

At the end of the cleaning procedure, the sterile liquid remains in the Stericap until a new sample bottle is docked.

There must be always sterile liquid in the Vacum-Compens so that a sterile venting of the sample bottle is assured and a recontamination is impossible.

(see also „Biological handling“ page 12ff).

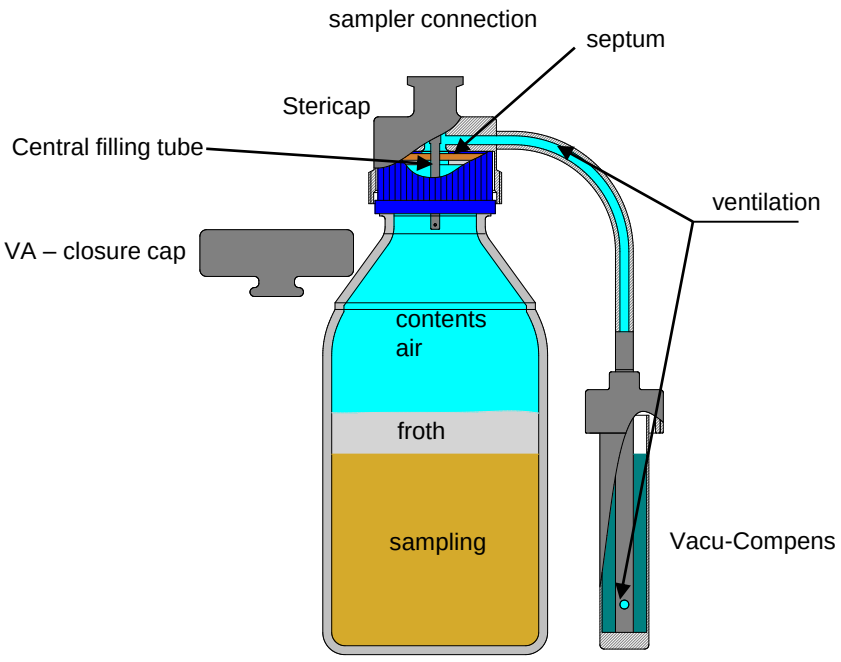
Mannacle ring connection

Clamp to fix the sampler bottle
for the closure cap for Stericap

Closure cap for Stericap

Security advice!
For safety reasons and to ensure the health of the employees it is absolutely necessary to close the stericap closure cap during CIP.
To ensure this, it is absolutely necessary to equip the Stericap with our sensor, which prevents the CIP cleaning from starting only when the closure cap is closed.

Bottle connection principle (Stericap)



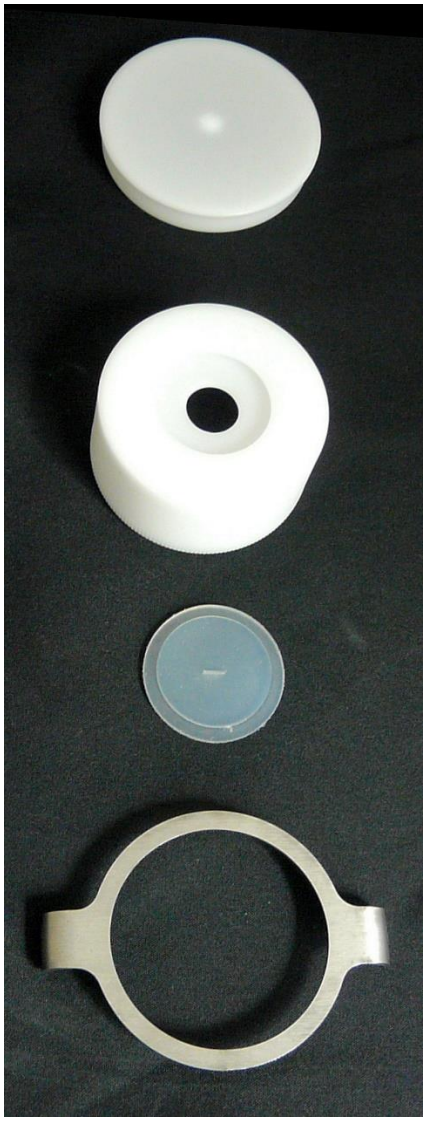
Handling of a biological sampling process with the system "SIMPLEX 2000..... "

1. Cleaning of the automatic sampler Simplex 2700 during "CIP cleaning"
The sampler remains firmly installed in the tube system. Before starting with the usual "CIP" cleaning, the sealing cap of the Stericaps is screwed on.
The Vacu-Compens has to be mounted above a drain pipe or similar because the cleaning fluid flows out of the Vacu-Compens.
Caution! This is a "lost cleaning".
Before the "CIP" cleaning process starts to run, the sampler has to be set to permanent opening. During the cleaning cycle the Bio-Con, the sampler, the Stericap as well as the Vacu-Compens are cleaned.
After the sterilization process, the sampler can be closed again.
The sterile fluid remains in the sampler, the Stericap and the Vacu-Compens until the sampling taking place.
2. Preparation of the sample bottle for the automatic sampling
After all individual parts have been cleaned, the sample bottle is closed as follows in the correct order.
First of all, the multiple membrane is inserted into the threaded ring, then the Teflon sliding ring is inserted. Now the threaded ring has to be screwed tightly onto the sample bottle.
The threaded ring should be covered with an aluminium foil or closed with the respective cap (A01.0106d and/or A01.0106f) in order to avoid contamination and/or "infection" at a later time.
Now the complete bottle can be sterilized up to +121 °C (e.g. by means of an autoclave).
After the sterilization, the bottle is transported to the sampling place.
3. Correct bottle attachment to the sampler
Unscrew the sealing cap of the Stericap.
Caution! There is still sterile fluid in the cap, approx. 0.05 cl.
The sampler has to be shortly opened until the residual fluid has been rinsed out of the sampler up to the product.
Caution! The fluid flows out of the centrally-positioned filling tube towards the side. It is recommendable to collect it in a receptacle.
Spray the Stericap including the centrally-positioned filling tube with alcohol and flame it (do not heat with a burner because the risk of overheating can result in the destruction of the centrally-positioned filling tube.)
Caution! Observe the usual safety regulations for the handling with an open flame.

Continuation page 12

Continuation biological handling

The cap or the aluminium foil must be removed from the sample bottle and the head of the bottle has to be disinfected with alcohol. (Flaming is also possible when using our threaded rings A01.0109a, A01.0109b and A01.0114b).
After the flame has been extinguished, push the sample bottle into the Stericap (the centrally-positioned filling tube immerges through the slot in the multple membrane into the bottle). Push the stand underneath the bottle and lock it.
Now the sterile fluid should be poured out of the Vacu-Compens and filled with alcohol.
Important! The Vacu-Compens must always be filled with alcohol because the breathing of the bottle is effected via the Vacu-Compens and the alcohol avoids a recontamination.
The timer of the sampling system can now be activated and the sampling can be carried out.
Excessive filling of the sample bottle has to be avoided by all means because in case of an overflowing product a contamination of the sample due to environmental influences cannot be excluded.
To this end we offer a special stand, which controls the level of the bottle and which can avoid excessive filling



Cup plug AE01.0106f

Screwing ring AE01.0114b

Multiple membran AE01.4105b

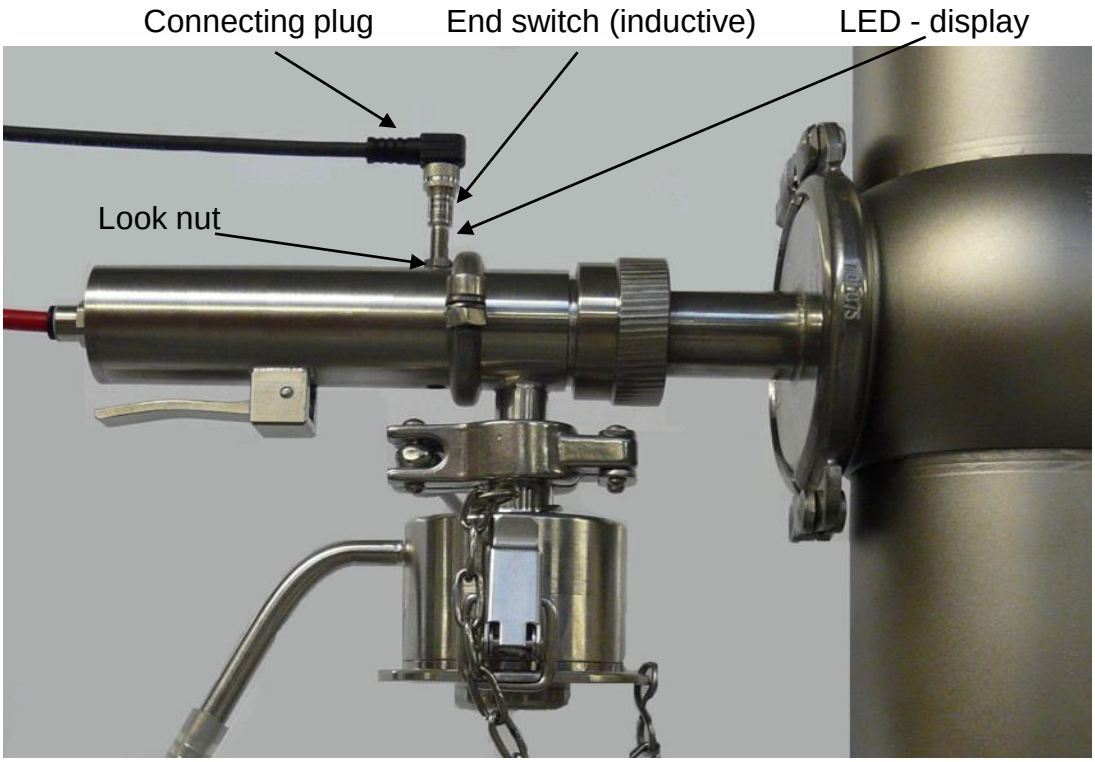
Mannacle ring AE01.4015

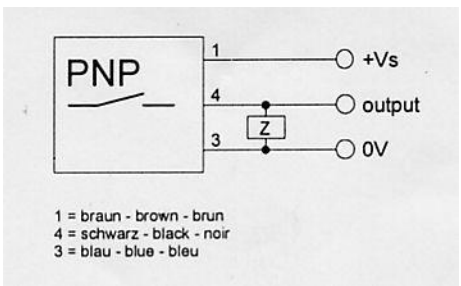
Multible membran ok and exchanging urgently

If the slit in the membran is not ok you can get a microbilogical probelm.
You can recognize it by the form of the slit.
If rips arise at the ends of the slit, it´s very importend to change the membran.

Slit is ok and damaged – slit, the ends with rips

Appendix 1:
End switch sampler; special edition





Wiring diagram :

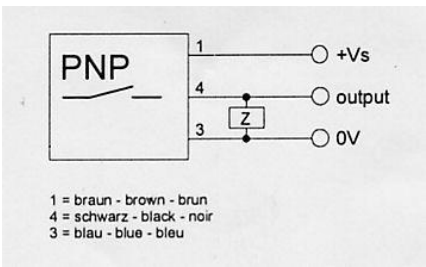
Connecting end switch

End switch (optional) is adjust optimally.

At the new installation of this end switch has to be taken into account:

1 Installation only may be carried out by authorized specialized employee
2 Unscrewing connection plug
3 Drive spindle have to be in front position, either with hand lever, if available or with compressed air
4 End switch careful in screws up to the spindle touch
5 If the end switch touch the spindle, turn the switch back about a half up to three quarter of a turn
6 Turn back the drive spindle (Hand lever let off or close compressed air)
7 Save with the look nut
8 Mount the connecting plug
9 Control the correct installing: Drive the spindle to the front and back position and control the status on LED display
10 Is it correct the installing is okay

Appendix 2: Option end switcher, Stericap and bottle



Wiring diagram :

Connecting end switch

End switch (optional) is adjust optimally.

At the new installation of this end switch has to be taken into account:

1. Installation only may be carried out by authorized specialist staff
2. Unscrewing connection plug
3. Undoing and unscrewing both nut
4. End switch change
5. Lock nuts putting and screwing in tight so that the distance between cap edge and button been approx. 2 mm

Appendix 3:
Stand for „Bags“ with or without filling-sensor

In this variation the sample is filled up in a steril bag and not in steril bottle.

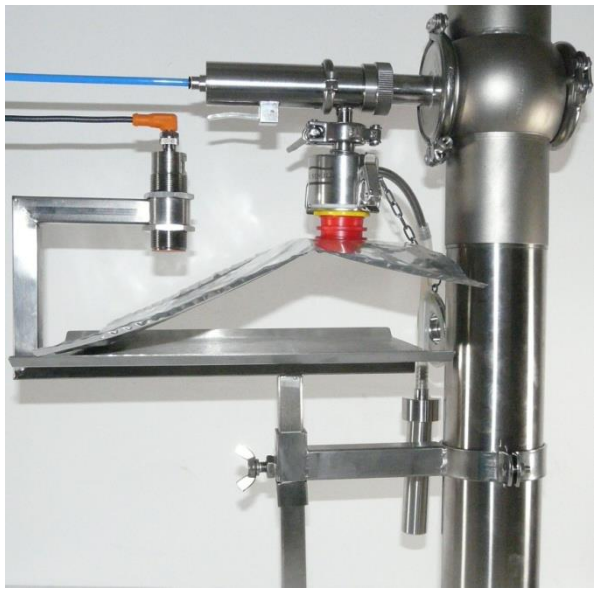
The connection to the sampler is compatible by the stericap.
The bag is delivered in a sterilized and closed condition.
Under sterilized air the bag will be open, the ring seal has to be removed and now our screwing ring with membrane and the mannacle ring will be close the bag again.

Important: Mannacle ring, srewing ring with membrane and cap has to be sterilized (e.g. autoclave)

This prepared bag is fastened to the sampler place under the usual saftey precautions in the stericap. (also see: biological handling page 12 and 13)

After this the stand has to be pushed up and fastened until the top.
For a sampler place without the filling sensor the sampling can start.
For a sampling place with a filling sensor the sensor has to be adjusting by a specialized employee.
The manual for the sensor you can download from the internet:
http://www.ifm.com/ifmde/web/dsfs!KI5085.html

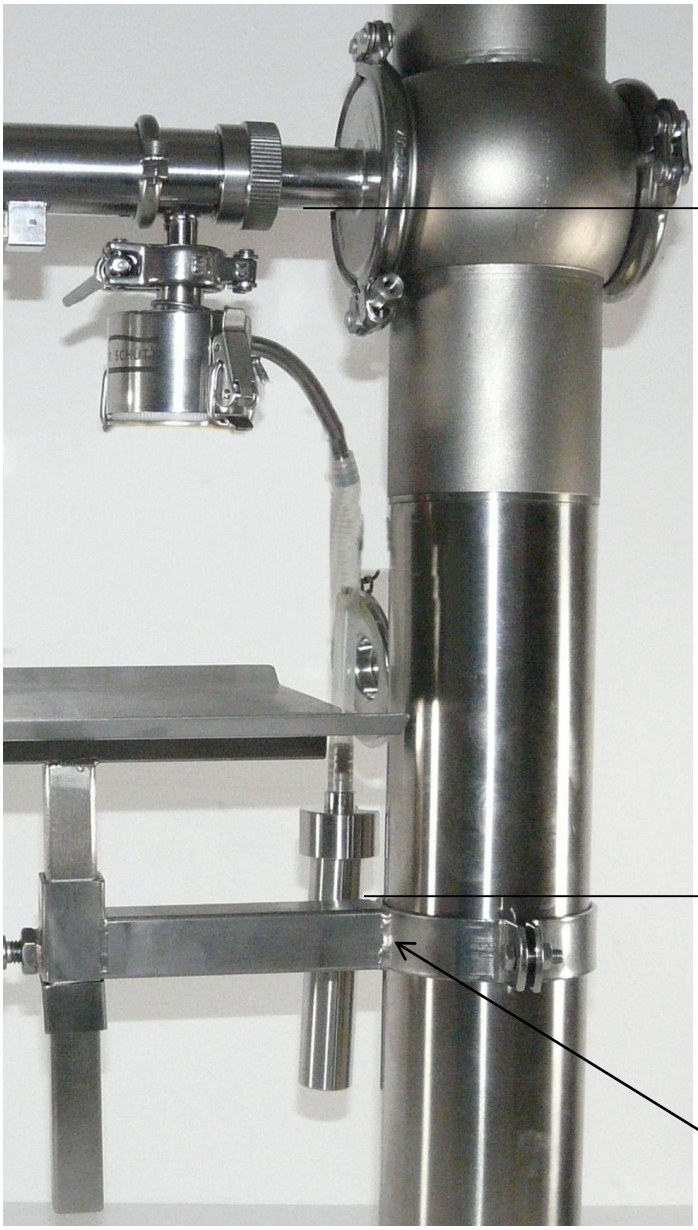
Stand with filled up switch and filled bag



Stand with filled up switch and empty bag

Appendix 3:
Stand for „Bags“ with or without filling-sensor

The fastening at the pipe from the stand has to be fastened in a distance of 280 mm between the Bio-Con and the pipe. (see the fig. below)



Important!
The screw lock from the bag has to be pushed in the final position befor using.

Appendix 4:
Stericap for sterile plastic-bottle

In this version the plastic-bottle is screwing directly in the Stericap.
By this version it´s possible in depending on bottle size a stand have to be used.

Appendix: 5
Electrically pneumatic drive

1. **Electrical connection to the controll units until 24 V-DC up to 240 V-AC**
2. **Pneumatical connection DN 6 fast cuppling at least 6 bar**

1.

2.

Appendix 6:
Cleaning valve

This additional valve is intended for cleaning outside of CIP cleaning.

The illustration shows the cleaning valve in use on a portable system.

Cleaning valve

Sampler Simplex 2700

Sampler Simplex 2700
VARIVENT® connection

Stericap with cap and sensor

Vacu compensator