Milk sampler

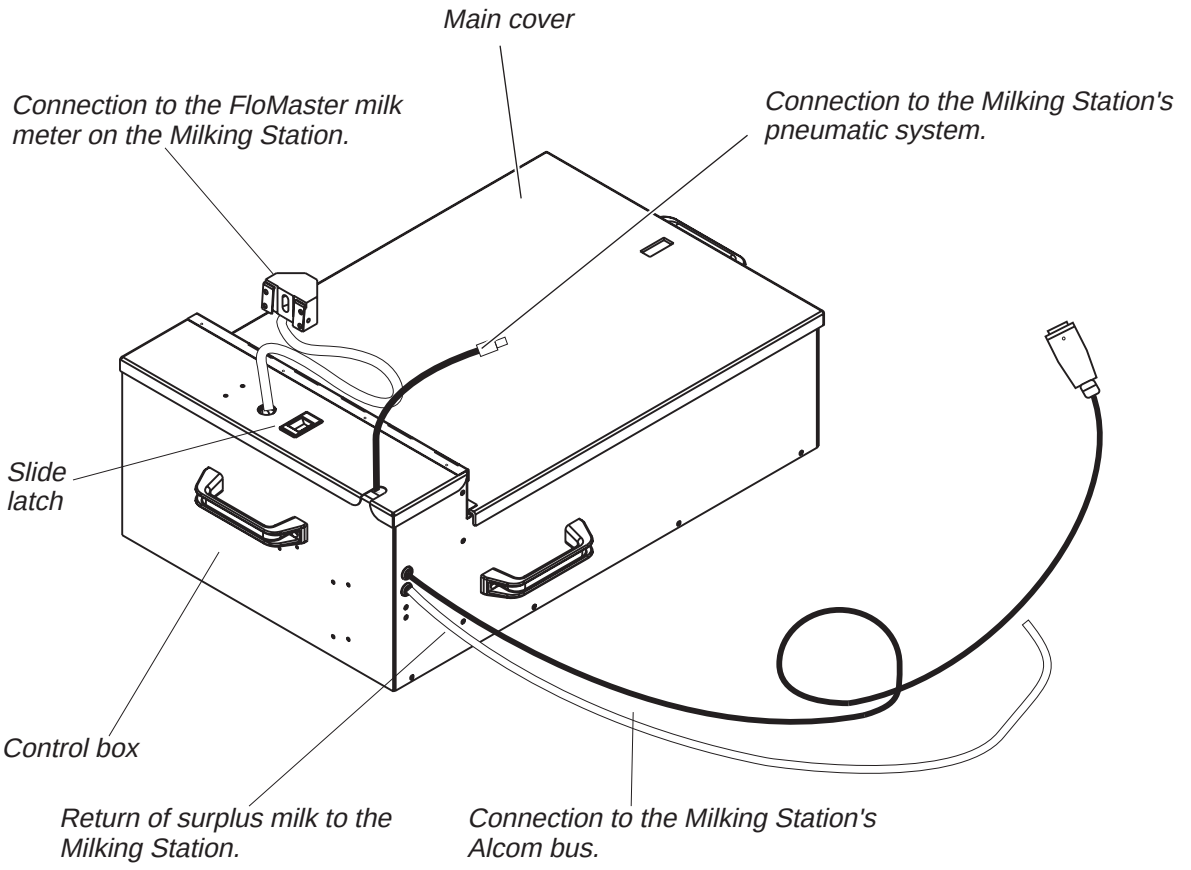
Product data

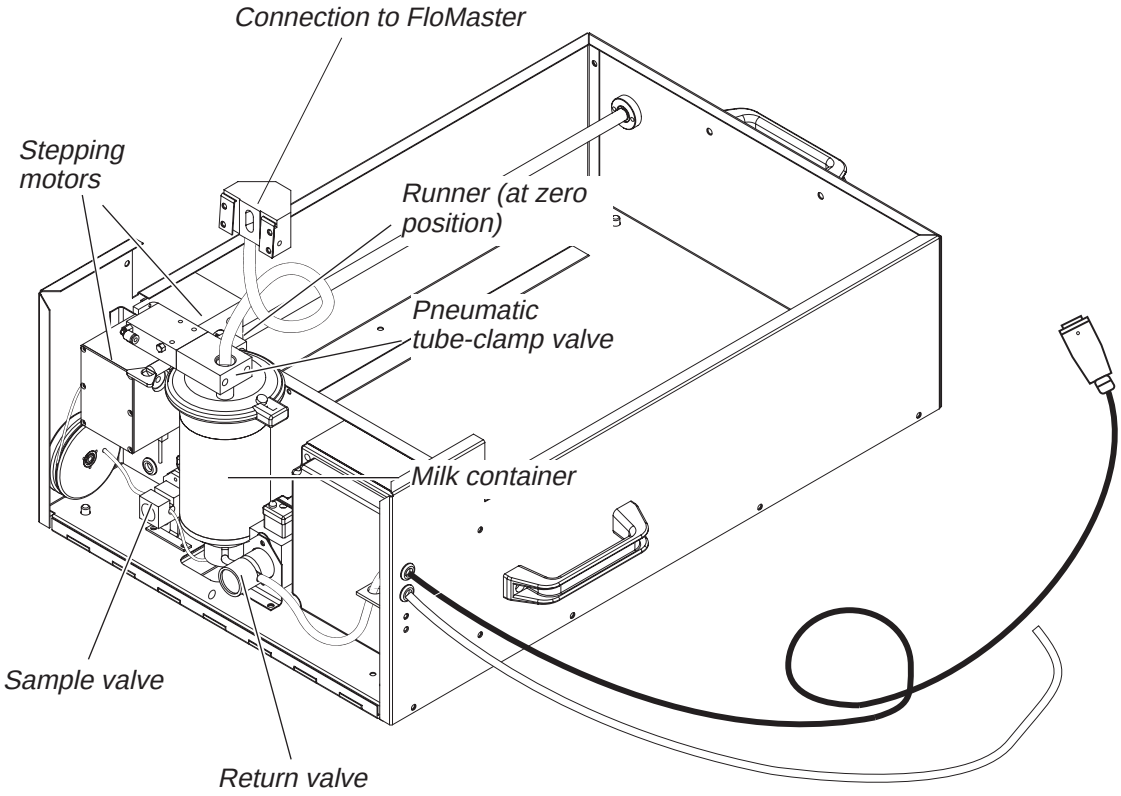
Introduction

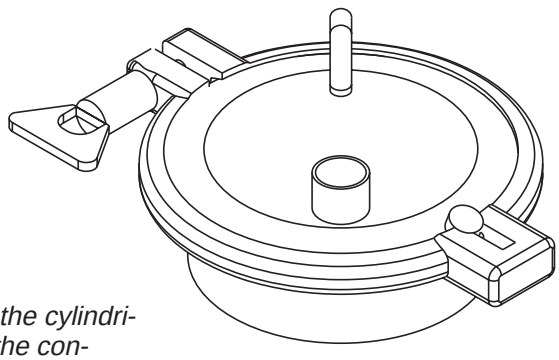
The Milk sampler is designed to be used with the Voluntary Milking System. Typically, the sampler is connected to the Milking Station once a month to obtain samples. Connections are made to the FloMaster milk meter, the pneumatic system and the Alcom bus. The Alcom bus enables data communication with the Milking Station. Surplus milk is returned to the station.

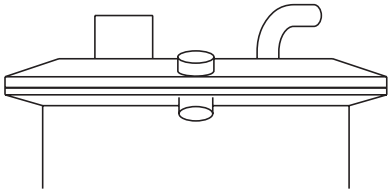
The sampler can handle many different kinds of bottles just by changing the sample holder. In addition, the transparent main cover enables monitoring of the sampling process.

To simplify maintenance and service, the control box is opened with a slide latch.









Note: *It is of utmost importance that the cylindrical cones on the milk container and the container lid are facing each other and that they are properly inserted in the clamp when assembled.*

Function and handling

Zero point calibration

At start-up, the stepping motors move the runner to the zero point. The runner holds the flexible tube that conveys milk to the sample bottles. The positions of the sample bottles are calculated using the zero point as reference.

Positioning

When a cow is starting to be milked, the runner is moved to a designated sample bottle. At the same time, the pneumatic tube-clamp valve opens the inlet to the milk container to allow passage of milk from the FloMaster milk meter. There is vacuum in the container at this point.

Sampling

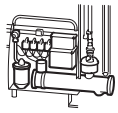
Once the milking is complete, the sample valve is opened 5 times to admit air into the container and thereby mixing the milk. The inlet valve then closes and the container is pressurised; the return valve is opened and surplus milk is returned to the Milking Station. The return valve closes and pressurisation stops. The container is then pressurised again and the sample valve is opened to convey the remaining milk to the sample bottle.

Cleaning

The Milk sampler can be cleaned at the same as the Milking Station, provided that it is connected to the station. The cleaning water takes the same route as the milk. The runner is positioned at the zero point and water is drained through a duct at the bottom of the Milk sampler.

Transportation

When the Milk sampler is transported between different locations, the runner must be positioned at the zero point.



Technical data

Max air overpressure	8 bar.
Min air overpressure	6 bar.

Max air pressure after the pressure regulator: 0.8 bar.

Min air pressure after the pressure regulator: 0.6 bar.

Max voltage	24 VDC.

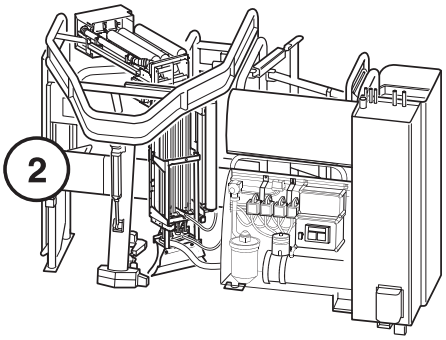
Max power consumption:

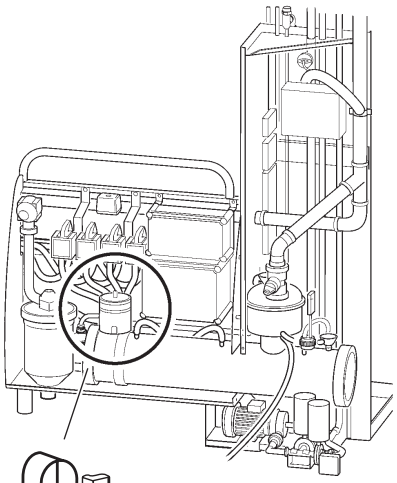
Milk valves	8 W/ valve.
Control valves	2.5 W/valve.

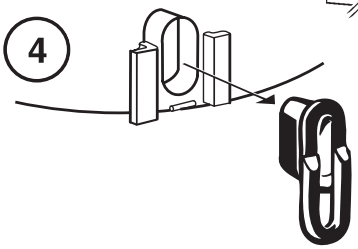
Weight	20 kg.

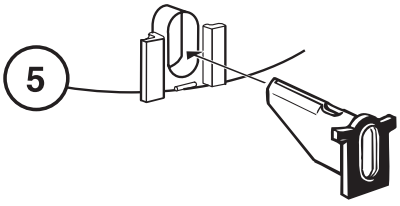
Milk sampler

Operation









Connecting the Milk sampler

1. Stop the cow traffic through the Milking Station. Milking must not take place when steps 1 to 10 below are carried out.
2. Remove the cover on the milking module and place the sampler in front of the station.
3. Shut off the vacuum by turning the manual valve on the sanitary trap.
4. Remove the plug from the FloMaster milk meter.
5. Insert the inlet into the milk meter.
   It might be necessary to check this connection for air leakages once the sampling has started.
6. Connect the sampler tube by sliding the connector over holder on the milk meter. Use the hook to secure the position. See figure 6 on the next page.
7. Connect the pneumatic hose to the socket placed above the FF meters. See figure 7 below.
8. Connect the electrical cable to the Alcom bus. See figure 8 below.
9. Connect the return line to the Milking Station. See figure 9 below.

Note: *For proper operation, the return line must be arranged as in figure 9.*

10. Turn on the vacuum again.

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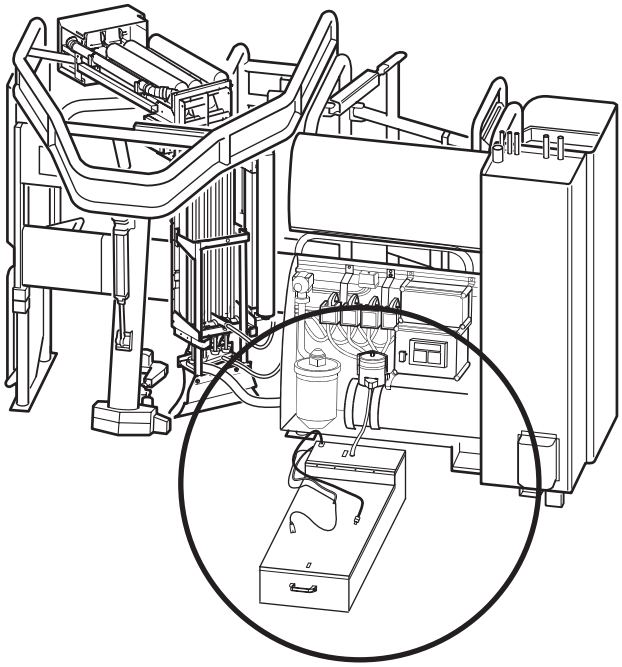
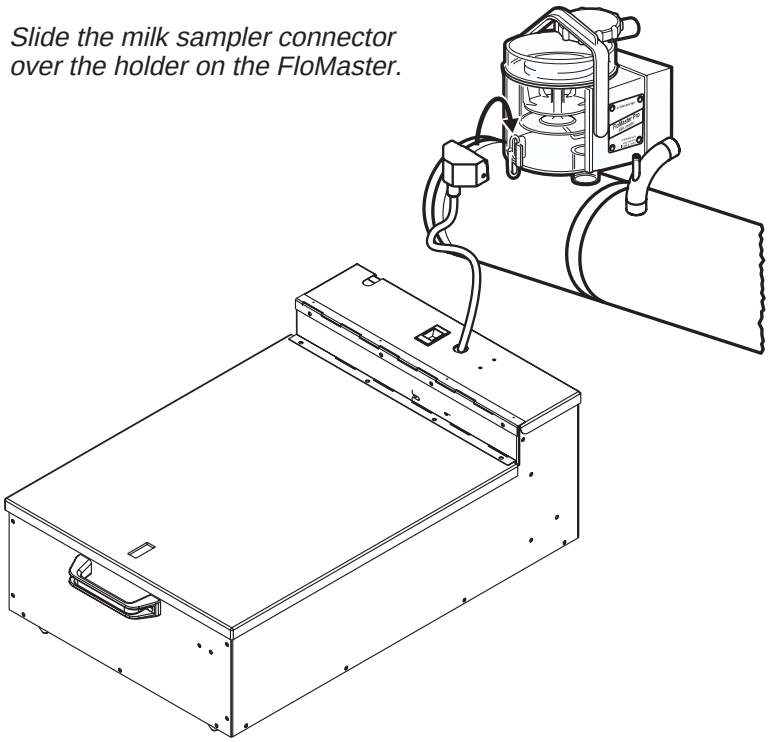
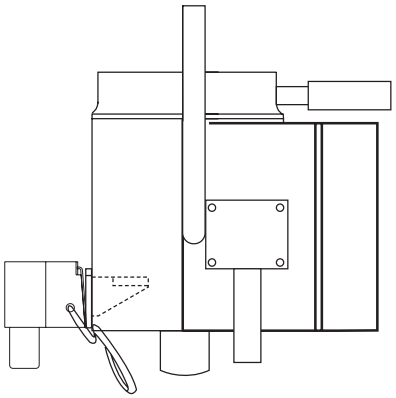


Slide the milk sampler connector over the holder on the FloMaster.





Use the hook to secure the milk sampler connection to the FloMaster.

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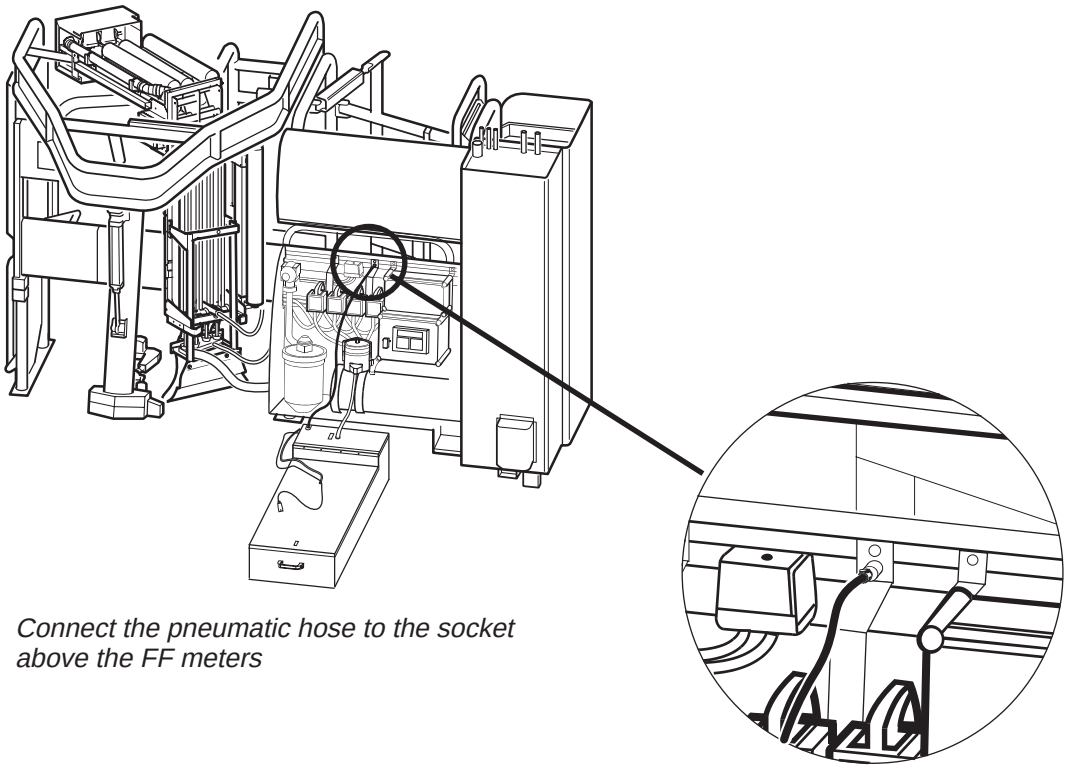

Connect the pneumatic hose to the socket above the FF meters

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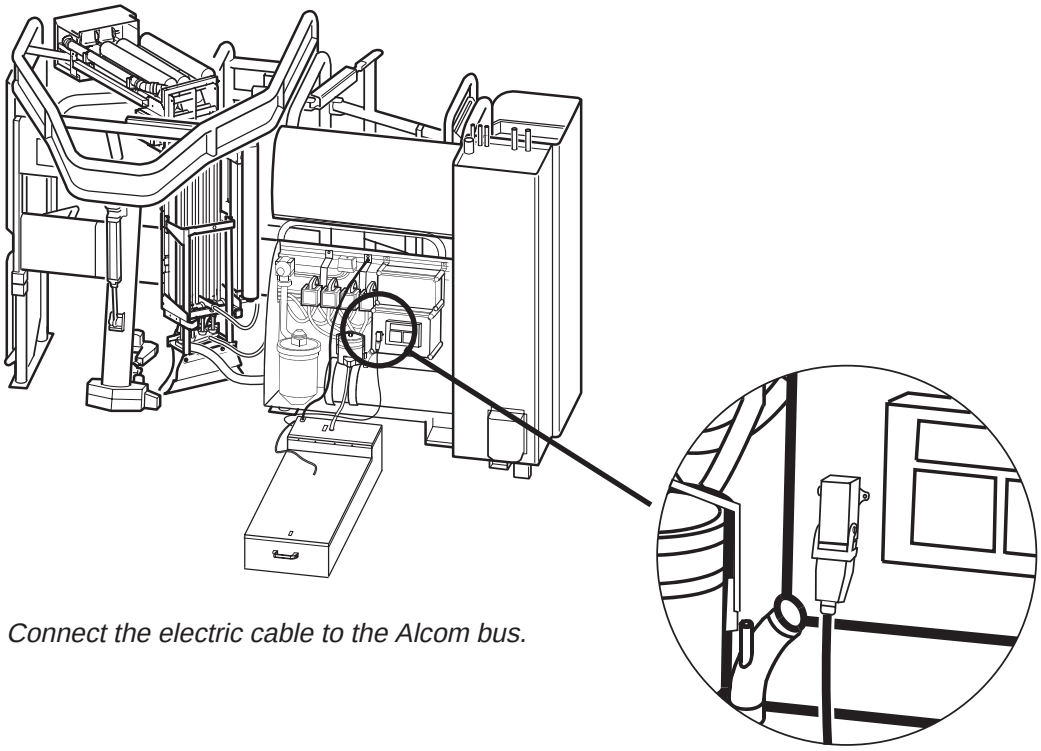

Connect the electric cable to the Alcom bus.

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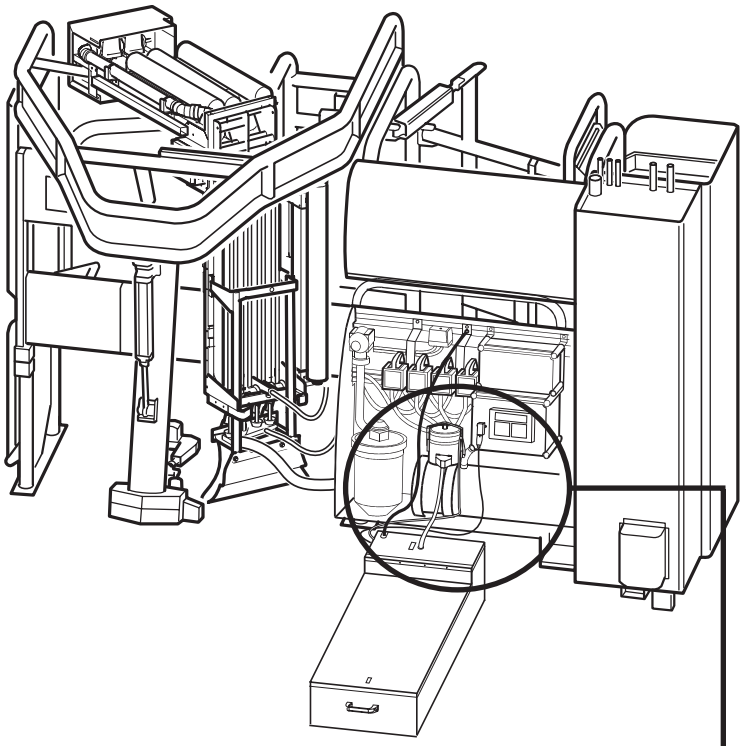
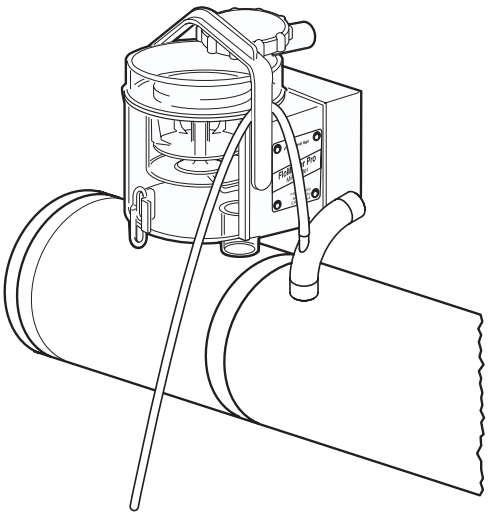
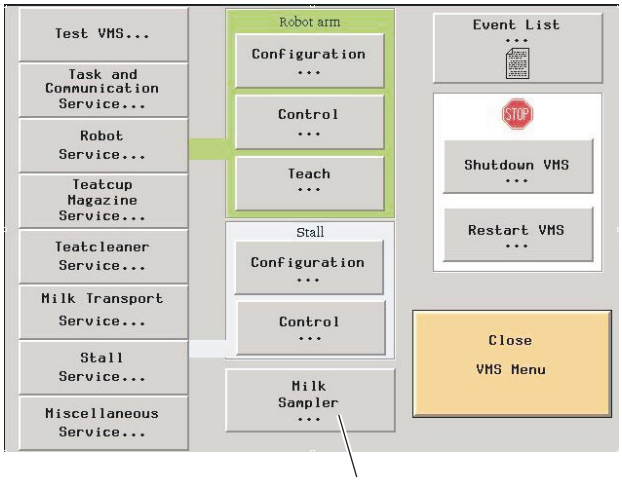


Connect the return line to the pipe on the end unit

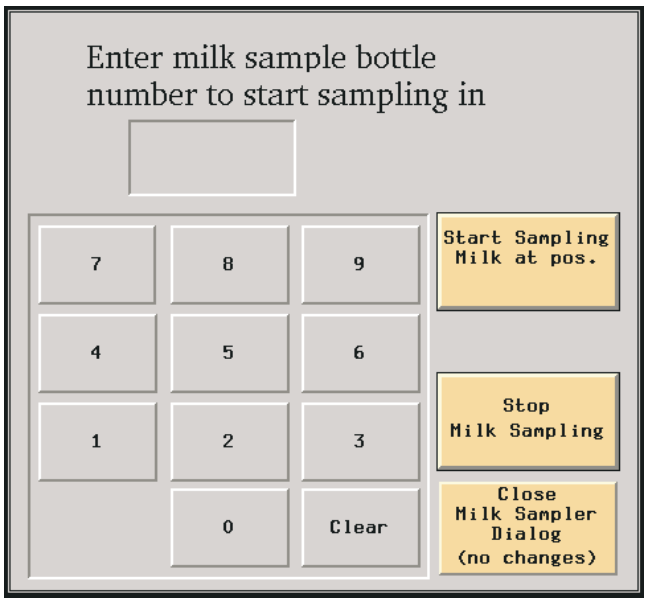


The return line must be arranged as shown in the figure above; let it pass under the lock strap and press it over the pipe end.

VMS menu



Displays the Milk sampler window.



The Milk sampler window.

Sampling

A sampling sequence is normally performed during a 24-hour interval and stopped after a system cleaning. In this way, the sampler will be cleaned after the sampling.

Note: *The sampler must be disconnect before milking starts again to avoid milk residues in the sampler during storage or transportation*

If milking has started anew, a system cleaning should be performed again before the milk sampler is disconnected.

If this is inconvenient or impractical, carry out the steps under "Manual cleaning" below in this chapter.

Starting a sampling sequence

Sampling is performed by using the touch screen.

– Press **VMS** in the top right corner to display the VMS menu.

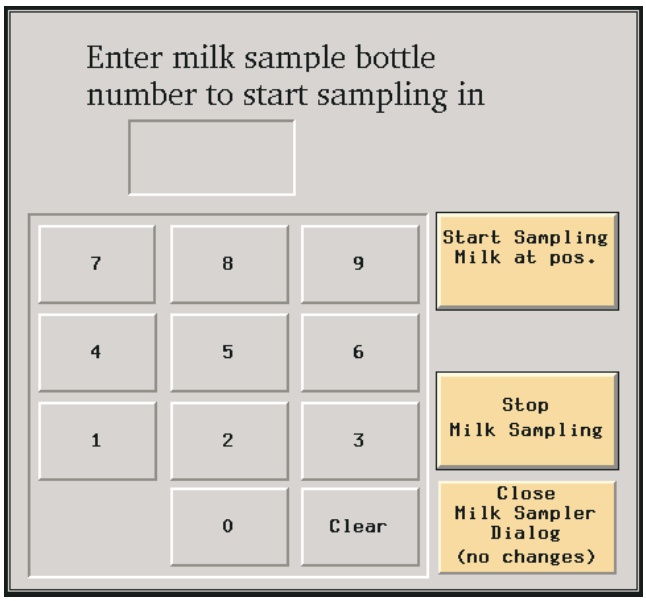
– Press **Milk Sampler** to display the Milk sampler window.

– Select a sample bottle by typing the bottle's number in the Milk sampler window. Number one is normally used as the first bottle.
Use the **Clear** button if you type the wrong number.

– Press **Start Sampling Milk at pos** to start the sampling.

Printed reports from sampling sequences are available by using *VMS Status*. A report contains such items as the date of the sampling, cow numbers and milk yields.

For further information, see *VMS Status, Program Description*.



The Milk sampler window.

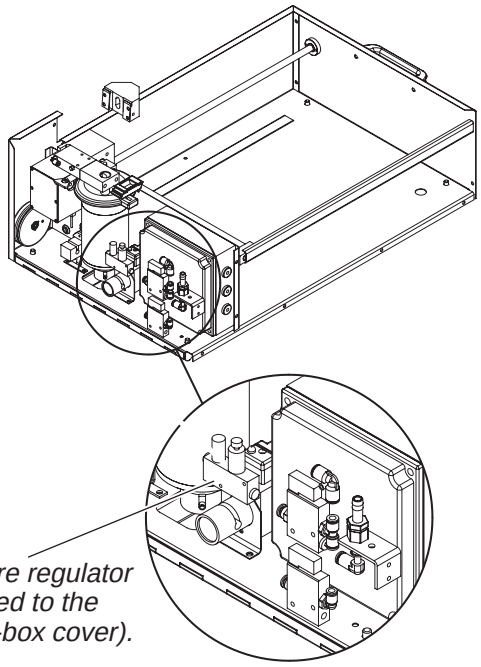
Stopping a sampling sequence

A sampling sequence is stopped manually from the touch screen.

– After the system cleaning, press **Stop Milk Sampling** on the Milk sampler window. The runner then goes to the zero point.

– When the runner is at the zero point, disconnect the Milk sampler from the Milking Station.

– Remove the sample holder and flush the inside of the Milk sampler. Make sure that the runner is clean.



Pressure regulator (attached to the control-box cover).

Adjustments

Pressure regulator

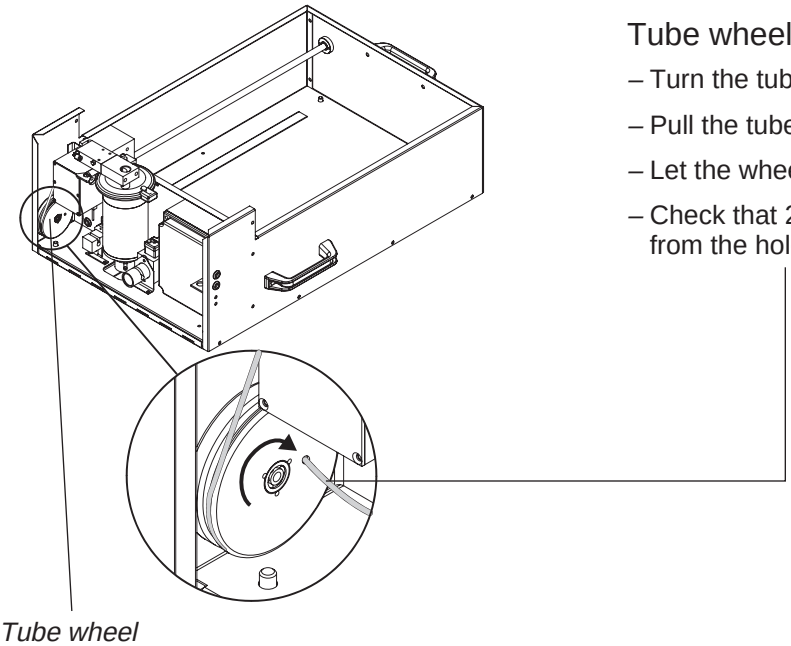
– Connect a manometer after the pressure regulator.

– Start the sampling from the touch screen.

– Fold the drain tube to close it.

– Adjust the pressure to 0.7 bar.

– Tighten the locking nut.



Tube wheel

Tube wheel

– Turn the tube wheel 8 rounds clockwise.

– Pull the tube through the hole in the wheel.

– Let the wheel pull back the tube.

– Check that 250 mm of the tube protrudes from the hole in the wheel.

Maintenance

Daily check

– Clean the Milk sampler on the inside and on the outside. Make sure that the stepping motor screws and the guides are clean.

– Check the silicone tubes for damage.

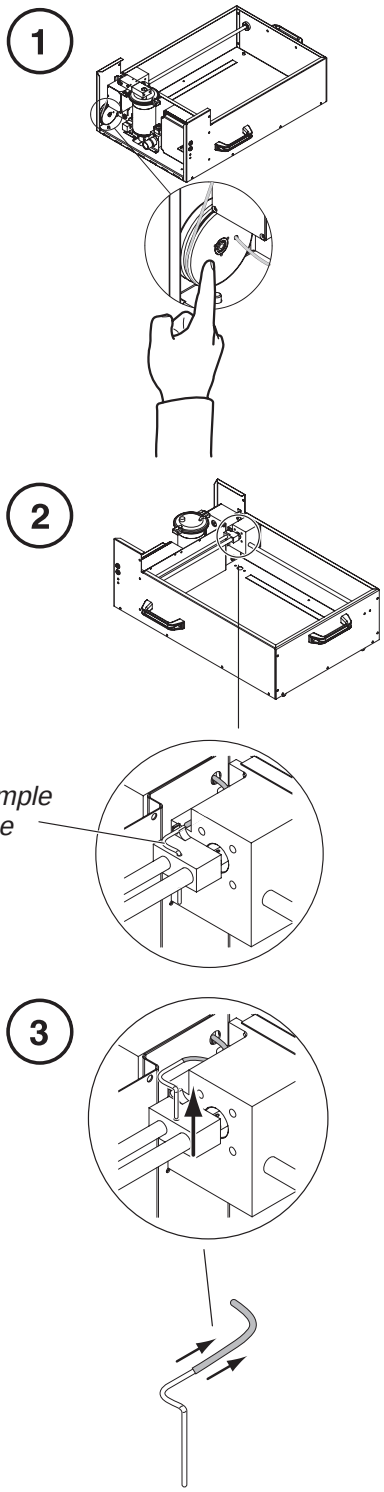
Service

– Exchange the silicone tubes every sixth month.

– Lubricate the packing boxes every sixth month.

– Exchange the gasket in the milk container every sixth month.

– Check the pressure regulator every sixth month.



Manual cleaning

Carry out the steps below if there is risk of remaining milk residues inside the sampler. This might be the case if the sampler was not disconneted immediately after a system cleaning.

– Open the control-box cover and the main cover.

– Remove all hoses connected to the milk container, then remove the container.

– Put one finger on the tube wheel to prevent it from unwinding too rapidly and thereby damaging the spring in the tube wheel. See figure 1.

– Lift up the sample tube that are inserted in the runner. See figure 2.

– Remove the plastic silicon tube, coming from the tube wheel, from the metal tube. See figure 3.

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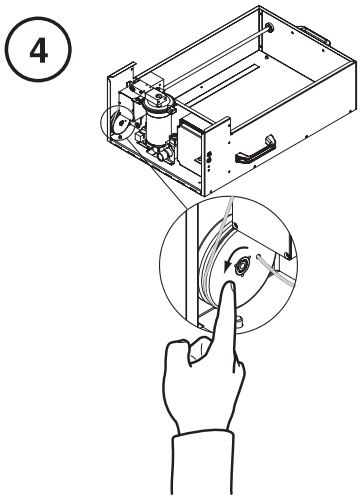


– Retract the tube and unwind it slowly from the tube wheel by turning the wheel with a finger. See figure 4.

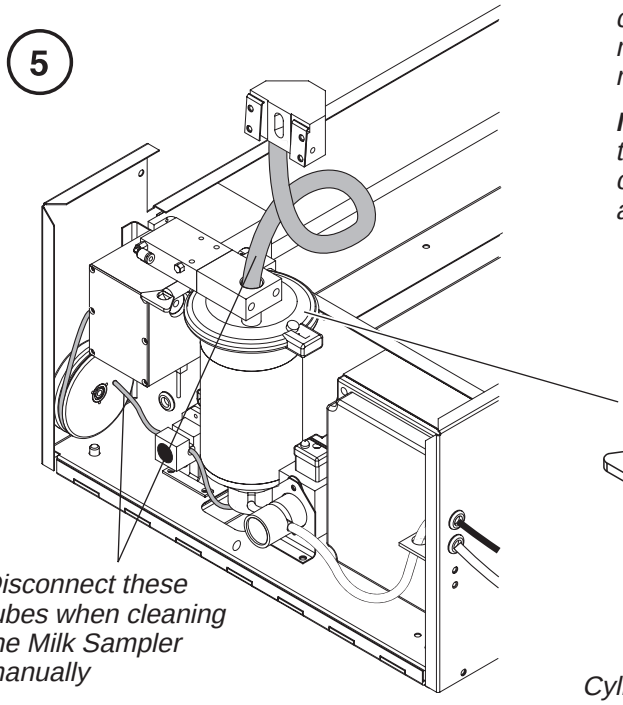
Note: *Use a finger to control the speed of the tube wheel when unwinding the tube. If you let the tube wheel rotate freely, the spring will be damaged and must be replaced.*

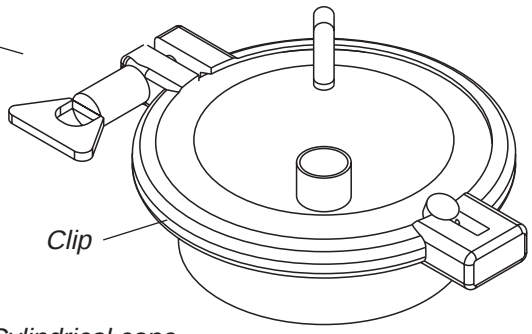
– Remove all tubes that have been into contact with milk. See figure 5.

– Clean the container and all tubes that have been in contact with milk, using appropriate detergents.

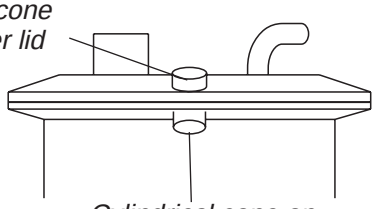
Note: *If the Milk Sampler has not been cleaned for a long time, the milk residues might be impossible to remove. In this case, replace the tubes.*

Note: *When re-assembling the milk container, make sure that the cylindrical cones on the container and the lid are positioned in accordance with the figure below.*



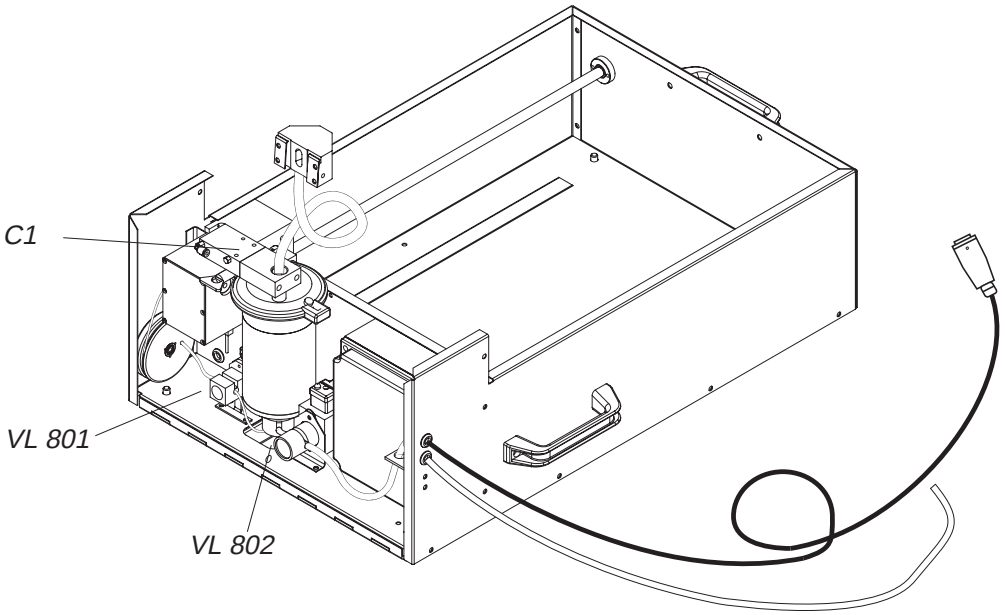


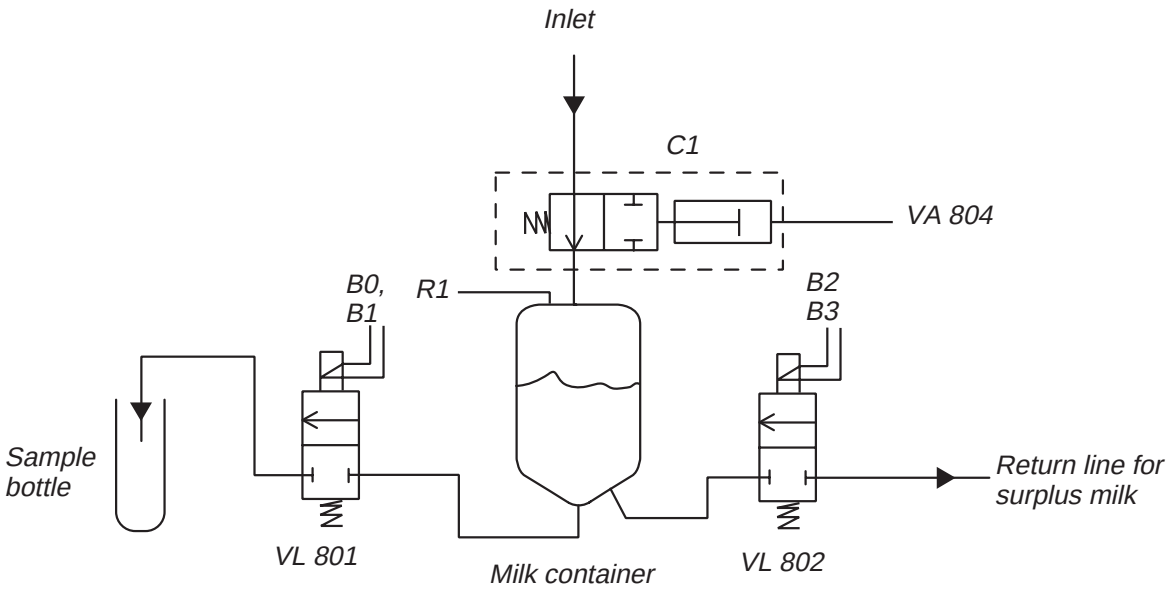
Cylindrical cone on container lid



Note that the cylindrical cones must be facing each other and properly inserted in the clamp when re-assembling the milk container.

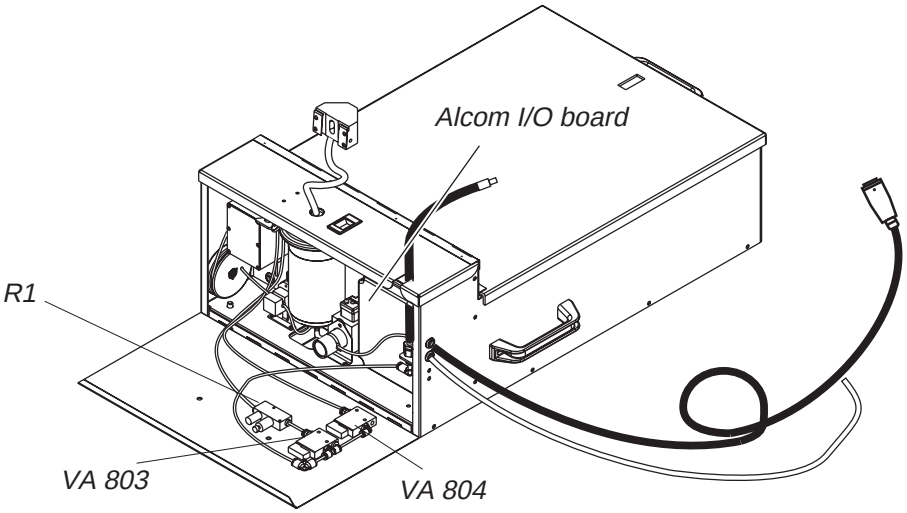
Milk diagram

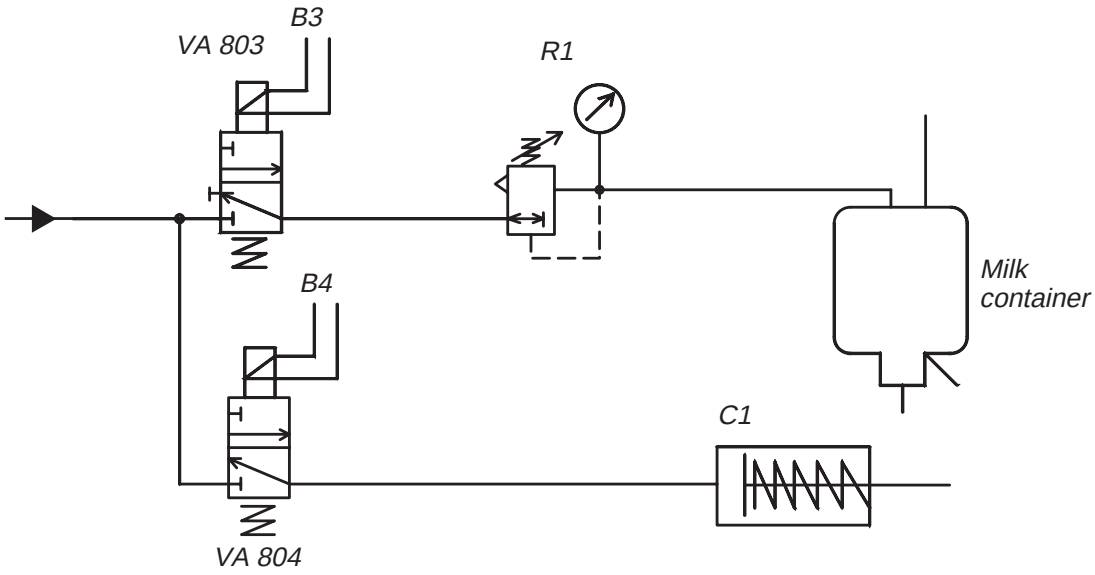


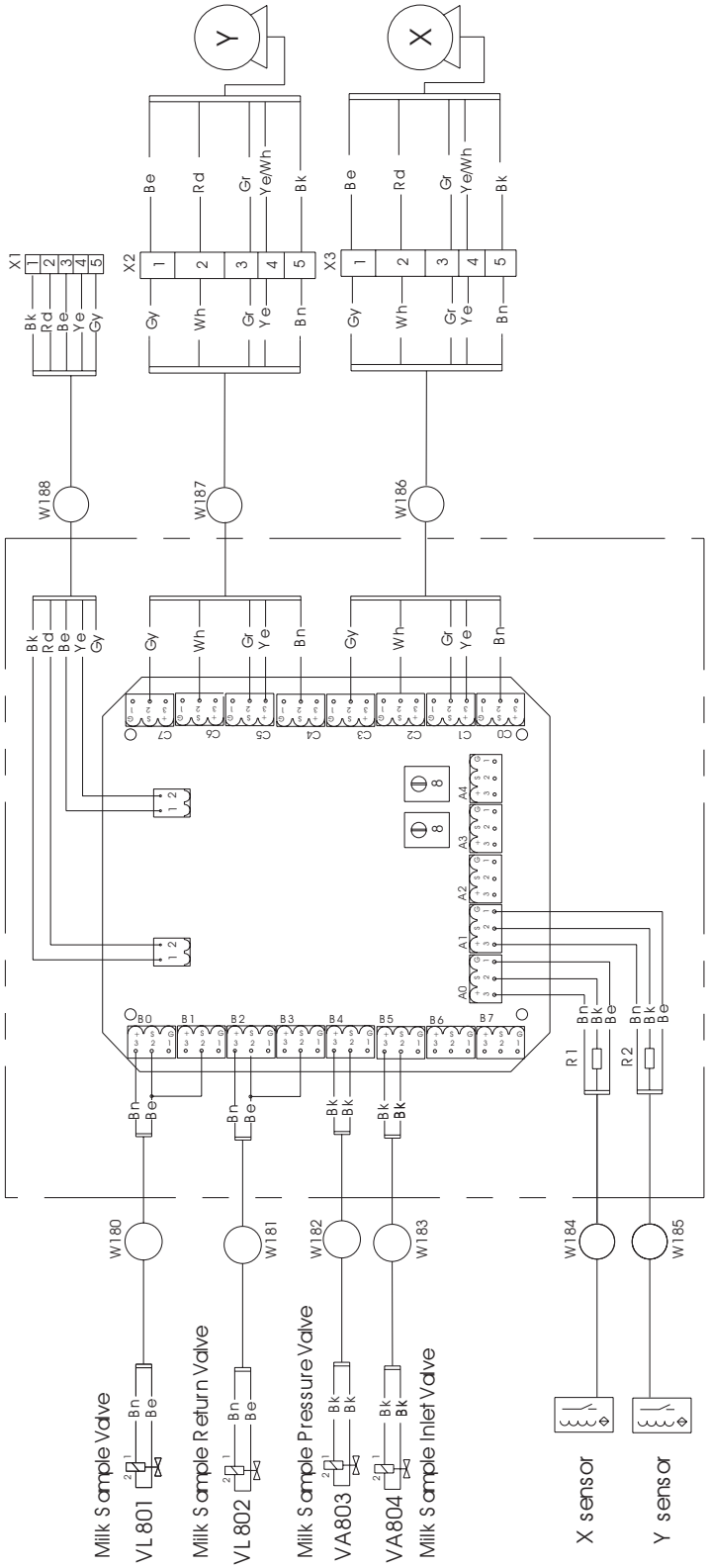
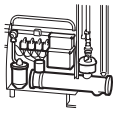


VA 804	Milk Sample Inlet Valve
VL 801	Milk Sample Valve
VL 802	Milk Sample Return Valve

Pneumatic diagram





VA 803	Milk Sample Pressure Valve
VA 804	Milk Sample Inlet Valve
R1	Pressure Regulator
B3	To Alcom I/O board
B4	To Alcom I/O board
C1	Inlet Valve

Milk sampler Alcom I/O