What can I do to improve the performance of the Multi-Flo?

INTRODUCTION

The Multi-Flo is a precision instrument that must be properly maintained in order to achieve optimum measurement performance. The measurement principle uses a precise volumetric measurement over a known time period to calculate flow rates. Foreign material or air bubbles trapped within the measurement device will influence the volumetric measurement and consequently the flow rate measurement performance.

The volumetric measuring device must be able to rotate freely in order to operate correctly. Using inappropriate test fluids may leave a residue in the fluid path and impede the movement of the measurement device or ultimately cause total seizure.

Please note that damage resulting from the use of unauthorised test fluids is not covered by the warranty.

1. TEST FLUIDS

The following readily available test fluids are acceptable for use with the Multi-Flo:

De-ionised water

Distilled water

De-ionised/distiller water with approximately 0.1 % Micro-90 cleaning solution

A 0.1 % Micro-90 solution is the preferred test fluid as this will prevent growth of organic material within the fluid path and also act as a wetting agent. This will reduce the likelihood of small air bubbles being trapped in the fluid path which could influence the measurement accuracy. The unit should not be drained post testing. Keeping the channels wet will prolong the life of the instrument.

Note: Do not use saline or dextrose solution as a test fluid. IV administration sets which may have been used with saline or dextrose solution should not be used with the Multi-Flo unless thoroughly cleaned beforehand. If saline or dextrose solution is accidently used with the Multi-Flo, the unit should be cleaned immediately using the process described in section 5.

2. PRIMING

The Multi-Flo must be primed to fill the internal fluid path with test fluid and removeall air in order to provide accurate measurements. Optimum priming can be achieved using the supplied 3 port valve supplied with the Multi-Flo and a 60 ml syringe.

Follow the steps below to prime the Multi-Flo:

a. Ensure that the 3-port valve is in the prime position as shown in figure 1 then connect it to a Multi-Flo channel inlet.
b, Switch on the Multi-Flo.
c. Fill a clean 60 ml syringe with test fluid.
d. Ensure that all air is removed from the syringe.
e. Connect the syringe to the 3-port valve as shownin figure 1.
f. Slowly discharge the syringe into the Multi-Flo until no air bubbles appear in the Multi-Flo drain.
g. If air bubbles are still appearing in the Multi-Flo drain when the syringe has been fully discharged
repeatsteps c to f.
h. When no air bubbles are present in the Multi-Flo drain the system is ready to make measurements.
i. Turn the 3-port valve to the position shown in figure 2

Note: The Multi-Flo measurement device will rotate as the priming fluid is injected.

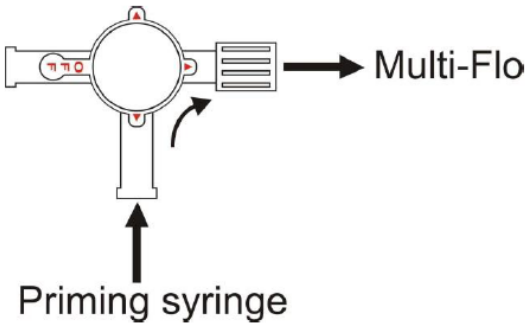


Figure 1

3. MAKING MEASUREMENTS

Always use a new disposable syringe when testing a syringe pump.It is advisable to lubricate the syringe by drawing on the plunger a few times before loading the syringe with test fluid and installing it in the pump.

Note: Administration sets which may have been used with saline or dextrose solution should not be used with the Multi-Flo unless thoroughly cleaned beforehand.

After priming the Multi-Flo, as described in section 3, connect an administration set between the device under test and the 3-port valve as shownin figure 2. Prime the device under test, administration set and 3-port valve with test fluid according to the manufacturer's instructions for the device under test.

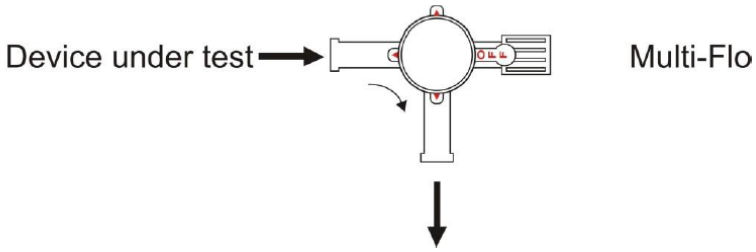
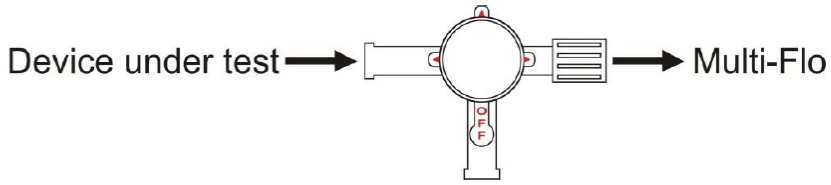


Figure 2

When there is no air in the device under test and administration set the system is fully primed and ready to make measurements.

Turn the 3-port valve to the position shownin figure 3 to direct the flow from the device undertest to the Multi-Flo inlet.

Figure 3



Note: The Multi-Flo channels should be kept primed between tests. After use, set the 3 port valve to the OFF position. Before placing into storage, the Multi-Flo inputs should be sealed using the caps provided.

Note: The Multi-Flo channels should be kept primed between tests. After use, set the 3-port valve to the OFF position. Before placing into storage the unit should not be drained, as keeping the channels wet will prolong the life of the instrument. The Multi-Flo inputs/outputs must also be sealed using the caps provided.

4. CLEANING

If the Multi-Flo is used with distilled or deionised water without Micro-90 additive, some contamination of the fluid path may occur over time. In order to maintain optimum measurement performance the following procedure should be used to clean the Multi-Flo:

After prolonged storage

After 3 months of normal use

Immediately after accidental contamination with unauthorised test fluids

Each Multi-Flo channel should be cleaned as follows:

a. Prepare a 1% solution of Micro-90 using deionised or distilled water.
b. Fill a disposable 60 ml syringe with the cleaning solution and connect the syringe to the Multi-Flo inlet.
c. Connect a suitable container to the Multi-Flo drain.

d. Switch on the Multi-Flo.

e. Inject the cleaning solution into the Multi-Flo channel to be cleaned.

f. Leave for approximately 10 minutes.

g. Flush the Multi-Flo channel with 100 ml of deionised or distilled water at a rate of 200ml/hr.

h. Repeat steps 1 to 6 for each Multi-Flo channel.

5. MAINTENANCE SPARES

Replacement priming kit: Part number **385A951**

MICRO-90 Concentrated Cleaning Solution (1 litre): Part number **3854952**

If you require more help, please contact us at https://www.seaward.com/gb/enquire/.