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Subject: MSV Tester
Date: Friday, 29 May, 2020 21:09:51
Attachments: [image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)

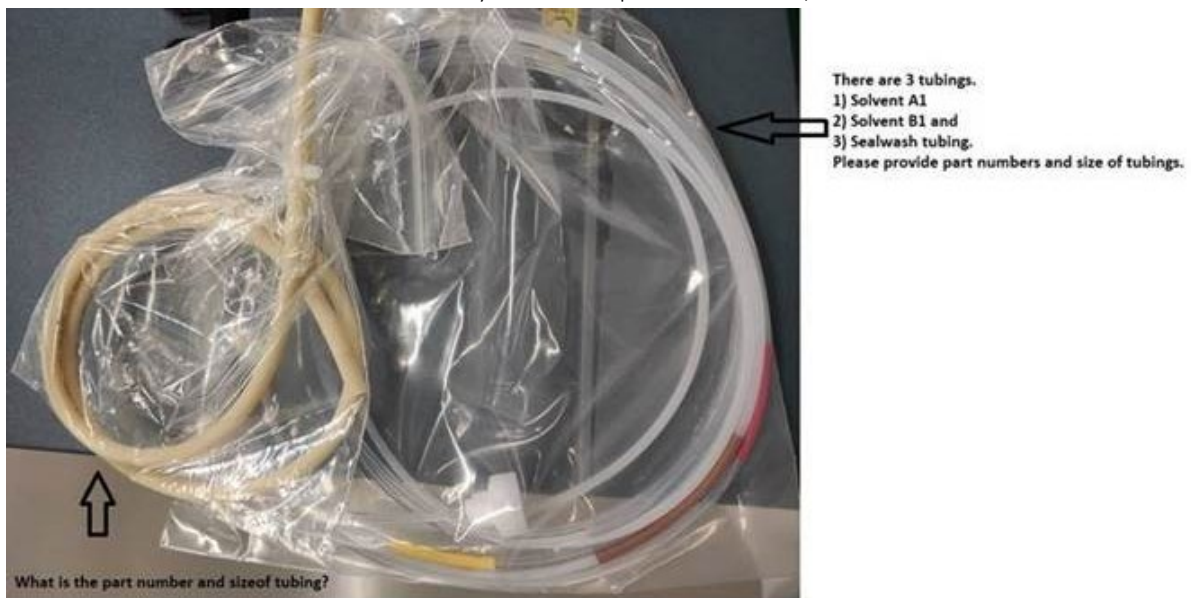
Hello All,

The calibrated Bronkhorst Flow Meter used to calibrate the system must be sent to Bronkhorst in the Netherlands yearly to be calibrated. It costs \$4000 - \$5000. Do you really want one? They are no longer being made and are in short supply. I would suggest you coordinate the calibration of the test system with Paul Deschenes. He will send you one to use when required.

If you do not wish to purchase the Hydraulic Pressure Calibrator why don't you try and find a calibration company (Metrology Lab) that does have this capability to come in and perform this task? Either way I am not the person to approve consignment of off the shelf calibration equipment. The Bronkhorst Flow Meter is special. It is the lowest flow fluidic meter in the world. It can only be calibrated by Bronkhorst and is no longer available for purchase.

I had planned on packing the test system myself. I was going to label all cables and tubing. But I was/am not allowed in Waters facilities. I don't agree with the way the Test Engineer who wrote the test procedure. Most of the tubing he listed in the Disposables section are not disposable and are an integral part of the test system. They will never require replacement unless someone goes inside the tester and breaks them. If that happens they all have Waters part numbers so you can order it from Waters or look in SAP for specs and approved vendors and order from them. He also wrote and described how to build the test system. I think this is confusing everyone.

The tubing below is supplied with the BSM. They come with every Waters pump. They should still be connected to the BSM. They will never need replacement. It is the same tubing set that is part of the 8 CPSM Final Test stations at Venture. Has any one ever replaced them? No, I don't think so.



The stainless steel tubing in question below is a waste line. It really doesn't matter what it is and has no impact on the test or test results. I put a stainless steel tube there so it can be positioned directly above of

in a small waste container. You can also use Peek tubing if you want, but is more difficult to position and stay positioned. I can't imagine why you would want to replace it unless some one bends it so severely that fluid will not flow through it. Don't do that. If you want to get it out of the way remove it from the valve with the finger tight fitting. If you want more ask one of the Test Engineering techs to send you some.



Below is the only tubing you need be concerned with. As the diagram in the test procedure states this is .010" ID Peek tubing, 430000527. It is listed as A/R (as required) because this will most likely require replacement because this is the tubing the operator will handle to make the connection to the UUT. The finger tight fittings, 410000890 will have to be replaced regularly depending on how hard the operator is on them. They do not require a lot of torque to hold 250 PSI pressure. This tubing should be available because it is used in many Waters instruments including the FTNs. The length does not matter. Venture should have Peek tubing cutters as well.



The tubing below is the same as above. That's why it is the same color. This tube is used to connect the output of the BSM to the Test Box fitting labeled "To BSM". The diagram in the test procedure is incorrect. The tube in the diagram labeled "102" .002 ID Peek Tubing" is located inside the Test Box. Again the length does not matter. It all depends on how close the pump is to the test box. It should not be disconnected on either end unless either the BSM or the Test Box is moving.



Best Regards Everyone
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