CL17sc

CL17sc Flow Meter Guide

Flow Meter was added to the CL17sc design to notify users when unexpected changes in flow could compromise measurement accuracy. This failure mode was prevalent in the legacy CL17 design where insufficient or excessive flow could affect accuracy of the readings. The absence of the sample would not stop the operation of the legacy CL17 and since the reagents were still added to the colorimetric cell, it led to its excessive fouling and need for unscheduled maintenance.

Now, flow through the CL17sc is measured every cycle, displayed on the screen, and can be reported to SCADA. It helps with troubleshooting and provides other functions as listed below:

- Helps quickly identify the most common issue affecting measurement quality (saves time)
- Reduces inaccurate measurements caused by low flow conditions (improves accuracy and peace of mind)
- Puts CL17sc on standby when flow stops and automatically restores operation when flow returns to proper levels (saves time)
- Stops reagents from being wasted during low/no flow conditions (saves money)
- Keeps sample flushing during low flow to eliminate potential fouling of the colorimeter (saves time and money)

Possible issues related to the flow meter usually reflect inconsistencies of the sample flow and frequently stem from incorrect or insufficient installation of the CL17sc analyzer. The guidance to correct installation to match the application realities can be found here: CL17sc Installation and Maintenance Guide. The flow meter may get plugged with either particulates or by excessive biogrowth.

- The fouling and plugging with sediments and other particulate matter may happen when CL17sc is used in dirty water applications, e.g. chlorinated WW or cooling water. This can be mitigated by providing additional or more rigorous sample filtration with higher mesh filters.
- Biofouling happens when CL17sc is measuring chlorine absence in dechlorination applications, e.g. tertiary wastewater treatment or ultra pure water. In this case the only mitigation is more frequent cleaning of the sample filter, flow meter, and the colorimeter lid (chip).

Mitigation of the particulate fouling with additional filtration options available off the shelf and from Hach (Guidance for CL17sc in Dirty Water Applications):

Dirty Water Filtration Options

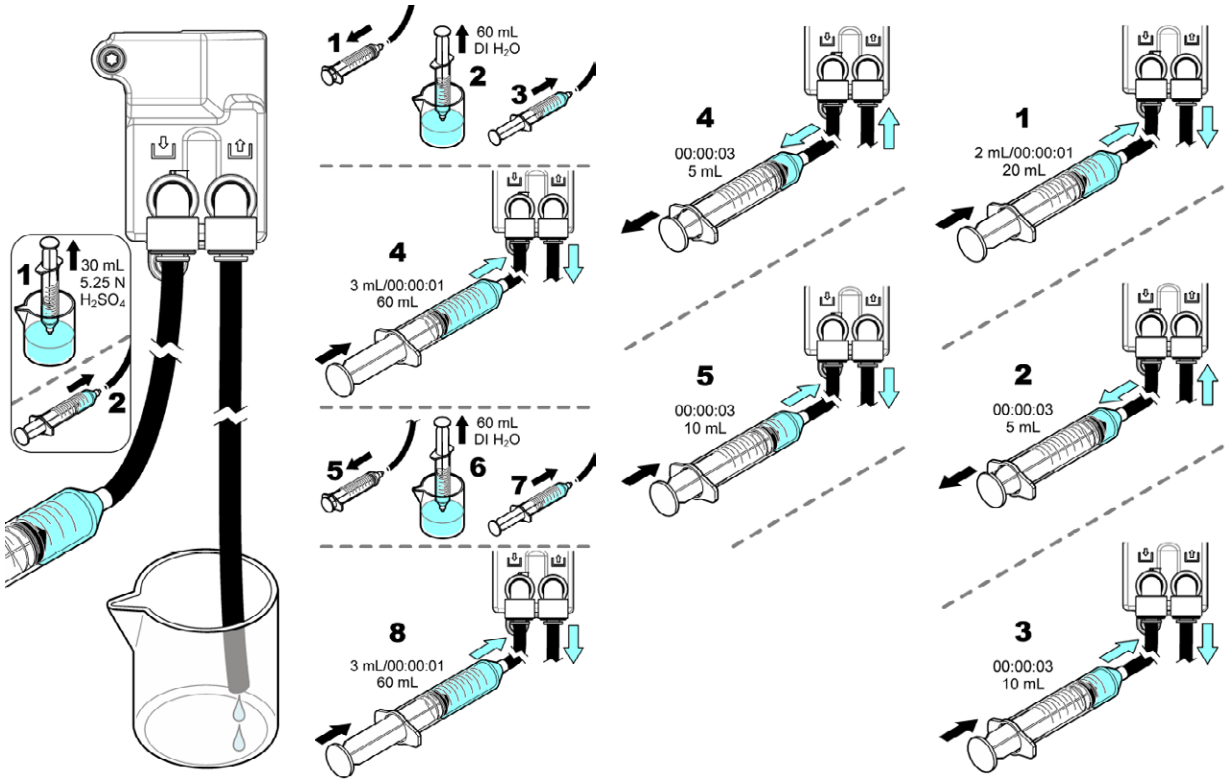
HAYWARD 100µm CPVC SIMPLEX BASKET STRAINER ($822)

Lakos ¾" Model T2C-075 105µm Twist Clean Filter ~$100

HACH FILTER, 100µm PART #9623400 $408 We sell this filter with 5500sc AMC!

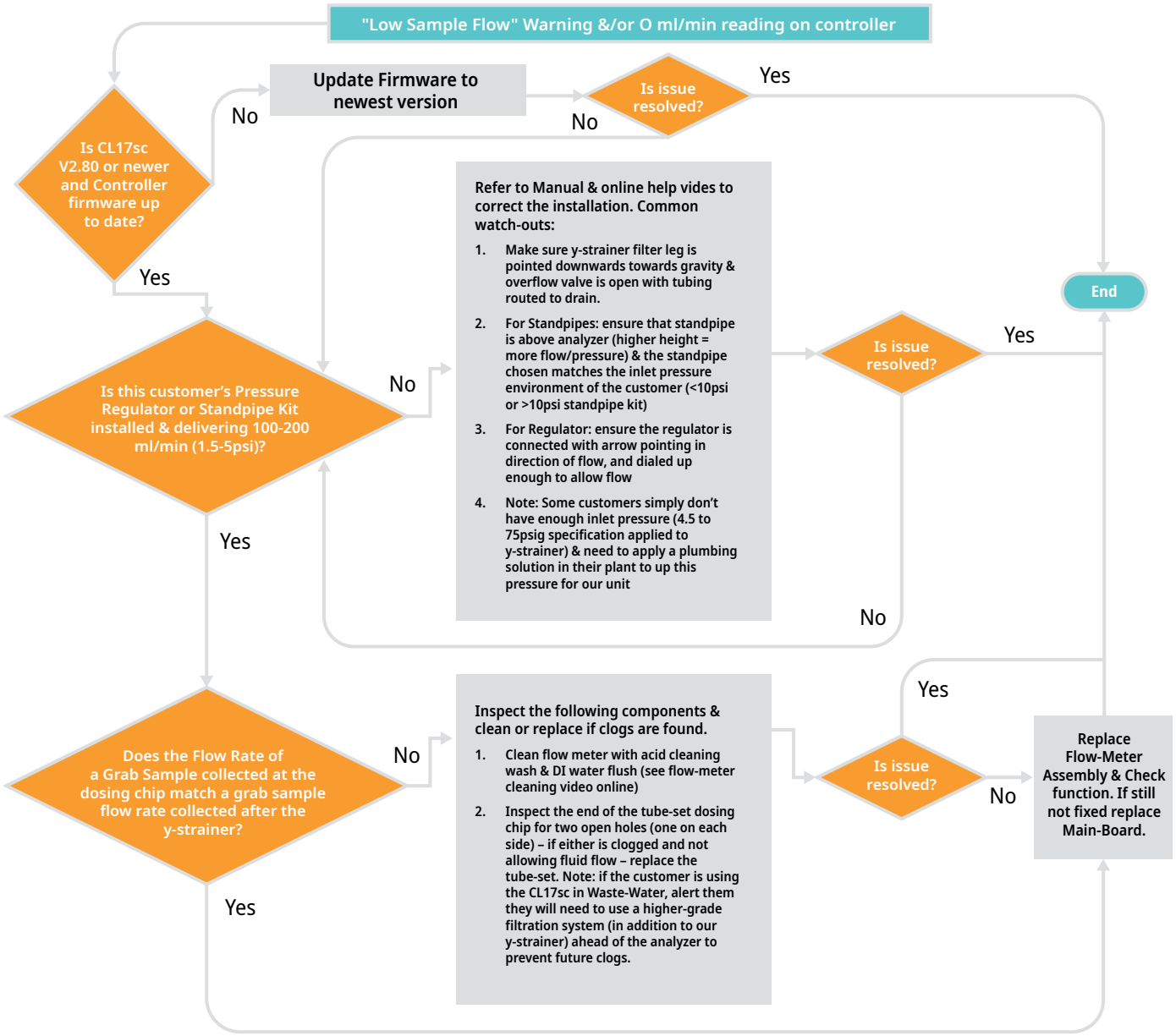
ISPRING 100µm Strainer WSB100P ~$200

Flow meter cleaning procedure is described in the CL17sc Flow Meter Blockage Removal User Instructions available on Hach.com (DOC273.53.80686). The essential parts of this instruction include stopping the sample flow, disconnecting the flow meter tubes, and flushing it with acidic solution followed by DI water using a syringe as depicted below:



In some situations the flow meter can be bypassed – follow the instructions in the DOC273.53.80686 (Section 5). This operation requires a ¼" to ⅛" union Hach PN 013861. The necessity to bypass the flow meter may be due to either inability to provide proper filtration, or perception of less maintenance due to fewer warnings. The "Low Sample Flow" warning may cause confusion if the user can see a flow. In this case, the step-by-step decision tree may help find the root cause:

Low sample flow step-by-step decision tree



[1]Cleaning solution formulation may vary based on the fouling, e.g. for iron and manganese it can be a 1:3 mixture of acetic acid (vinegar) and hydrogen peroxide (10% solution)

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