



## FROG-5000 Hamilton® Valve Positions



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The FROG-5000™ features a purge-and-trap system with a Hamilton® valve, which opens and closes the sample inlet for sample loading depending on what position it is in.

The valve has three positions (Figure 1): A) LOAD WATER, B) RUN WATER and C) RUN AIR.

### Water Analyses

To make a water injection, the valve should be in the LOAD WATER position. After loading the water sample, the valve is turned to the RUN WATER position, the sparge bottle is secured with a sparge bottle nut, and the water analysis is started. While in the RUN WATER position, the carrier gas is pulled in through a pump and directed through activated carbon and molecular sieves scrubbers. The scrubbed air purges volatile organic compounds (VOCs) out of the sample liquid and into the headspace of the sparge bottle. The VOCs are then trapped onto the preconcentrator (PC). The analysis proceeds with injection, separation and detection of the VOCs.

### Air Analyses

To make analyze an air sample, the air sample adapter is attached to the purge-and-trap system, and the valve is turned to the RUN AIR position. The air sample adapter contains a pump that acts as a vacuum to collect the VOCs. Since the VOCs are already being collected in the vapor phase, the sample gas is collected directly onto the PC. The analysis proceeds just as it does for water samples.



Figure 1: A) LOAD WATER. B) RUN WATER. C) RUN AIR.

Position of the valve is indicated by the red arrow.