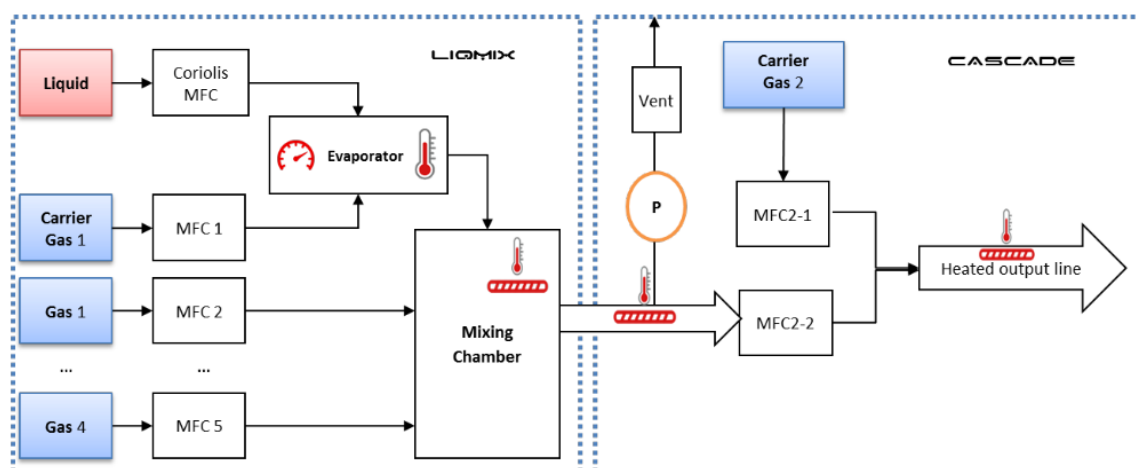


Alytech Liquid/Gas mixer

The Alytech Gasmixer with cascade dilution was configured to provide dynamic mixing of dilute gas concentration. All lines are passivated and the gas output is heat traced, making this a versatile instrument for gas mixing and dilution.

Controlled flow of liquid to the evaporator is performed with a Coriolis mass flow controller (MFC). This means that the calibration is not fluid dependent. The Coriolis MFC has a capacity of 5 g/h and the liquid is mixed with gas from a MFC with a capacity of 5000 Nml/min.

Gas mixing can be done in a mixing chamber to where three MFC's are connected. The capacity of the MFC's are 500, 500 and 50 Nml/min. The evaporator mix is also mixed into this chamber.



Mixer general layout with the two stages indicated by the blue boxes

The cascade option dilutes the maximum output from the 1st stage—50 Nml/min— with a maximum of 5000 Nml/min in the second stage. In addition to the 100-fold dilution from the cascade setup, the same dilution can be achieved from the first mixing step resulting in an overall dilution factor of 1:10000. In practice, this means that a 1 % vol gas mixture can be diluted to 1 ppb vol by the Alytech mixer.

With passivation of all fluid lines, individual thermostating of evaporator, mixing chamber and transfer lines this makes up for a very versatile gas/liquid mixing unit. The system is portable and comes with a reservoir for liquid supply.

Contact:
Thor Anders Aarhaug, SINTEF Industry