

A. MicroFlo eductor

The MicroFlo is uniquely applicable for single point sampling. It is designed to deliver 1 LPM sample with minimal air consumption. This is accomplished by utilizing a precision ruby orifice to reproducibly deliver the desired flow rates. The 'working components' are inserted into a union Tee compression fitting for ease of installation and prevention of leaks.

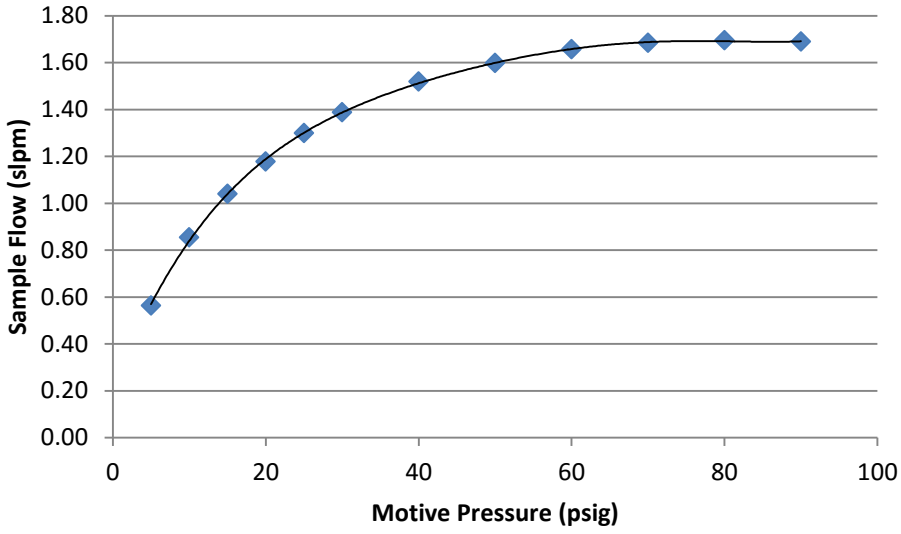
The MicroFlo eductor is also ideally suited for dilution. For example, for a dilution ratio of 1:1, set the motive air pressure to 15 psig. This produces 1 slpm sample flow as well as 1 slpm air flow for dilution. With 1 LPM volume flow rate through ¼" tubing, the flow velocity within the tube is 1 meter/second which produces turbulent flow. It also means that the sample can be drawn 200 feet to deliver the sample within a 60 sec delay time window. Below is a table of the MicroFlo performance characteristics with the volumetric flow mixing ratios. Other dilution ratios can be produced by controlling the sample intake.

MicroFlo Performance Characteristics				
air pressure	sample flow	air flow	total flow	flow ratio
psig	slpm	slpm	slpm	
5	0.56	0.51	1.07	1.10
10	0.85	0.81	1.66	1.05
15	1.04	1.05	2.09	0.99
20	1.18	1.35	2.53	0.87
25	1.30	1.62	2.92	0.80
30	1.39	1.92	3.31	0.72
40	1.52	2.57	4.09	0.59
50	1.60	3.26	4.86	0.49
60	1.66	4.01	5.67	0.41
70	1.68	4.72	6.40	0.36
80	1.70	5.54	7.24	0.31
90	1.69	6.48	8.17	0.26

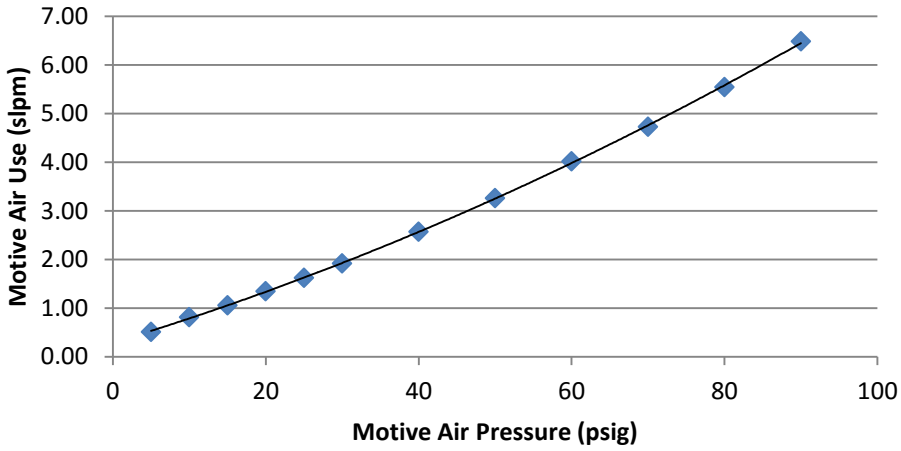
Installation is simple and inexpensive . No additional flow control beyond a pressure regulator is required. If a greater dilution is required, simply install a rotometer and needle valve to control the sample flow. The eductor incorporates compression fittings for ease of installation and leak-free operation..

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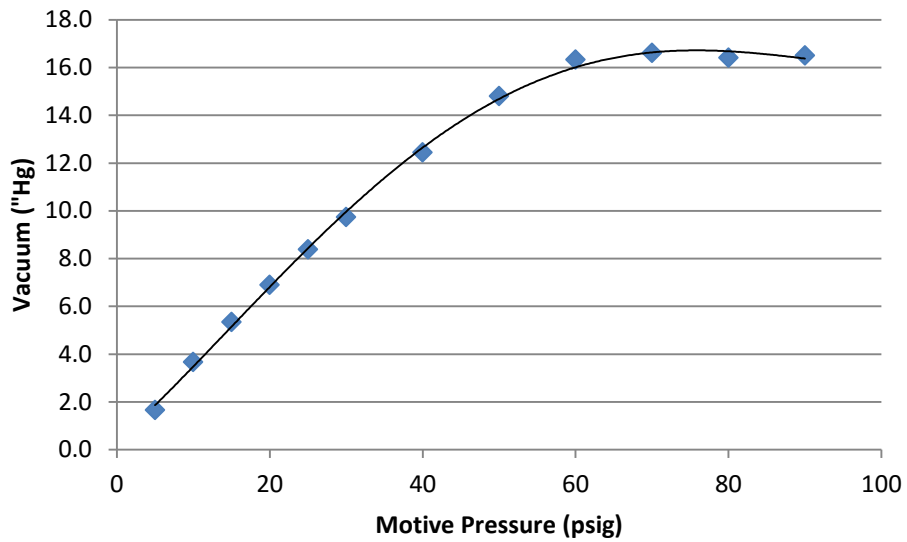
Sample Flow vs Motive Pressure MicroFlo-S-4



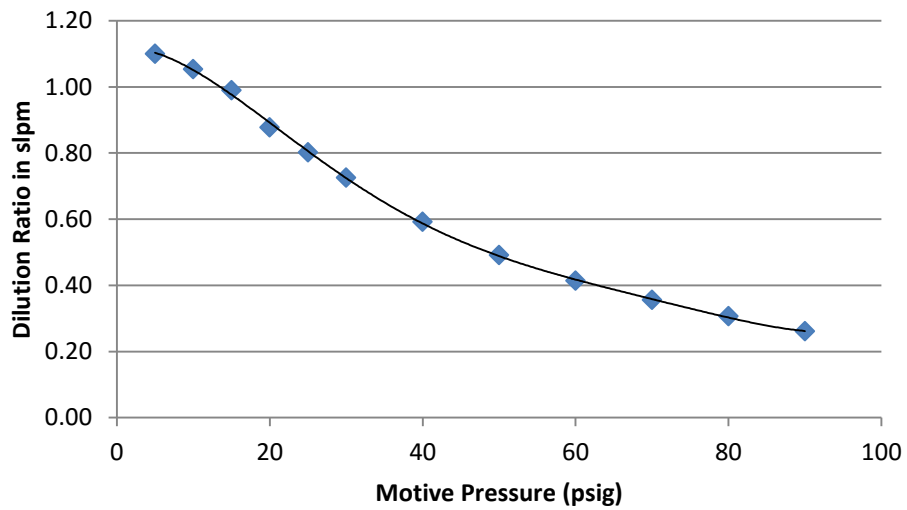
MicroFlo Air Usage



Vacuum vs Motive Pressure MicroFlo-S-4



MicroFlo Dilution Ratio (Sample to Motive Air)



B. ASP-520-S-4 (Motiv-Air-Torr)

I am also including the performance characteristics for the ASP-520-S-4 eductor. This unit is a general purpose device used in a wide variety of applications. As you will note the air use is significantly higher than the Micro-Flo.

Performance characteristics for ASP-520-S-4

Air Pressure psig	Vacuum "Hg	Sample Flow LPM	Air Use LPM	Mix Ratio for SLPM
30	18.7	17.2	29	0.2
25	19.4	17	27	0.22
20	18.1	15.5	26	0.25
15	11.3	13.7	24	0.28
10	7.6	11.7	21	0.33
5	3.7	8.4	17	0.37
3	1.2	6.7	14	0.4

Like the MicroFlo eductor, dilution ratios can be controlled using a rotometer with a downstream needle valve on the sample intake. Please note, the motive gas is controlled by pressure exclusively. Do not insert a needle valve to control motive gas flow. It will affect pressure which in turn will affect vacuum and sample flow.

When there is backpressure on the exhaust of the eductor, higher pressures will have to be used to compensate. Check the web site for typical curves (www.JacobsAnalytics.com). Our eductors are available in 316 ss, hastalloy C, monel, titanium and Teflon. (MicroFlo eductors available in 316 ss and monel.)