

We evaluated the Zyno Medical Z-800F, CME Body Guard 323 Color Vision, and Baxter Flo-Gard 6201 infusion pumps for monoplace chamber conditions” Bell et al (2016).

Abstract:

We evaluated the Zyno Medical Z-800F, CME Body Guard 323 Color Vision, and Baxter Flo-Gard 6201 infusion pumps for monoplace chamber conditions. We adjusted pump occlusion pressure allowing infusion to 3 atmospheres absolute (atm abs).

ReTweet if useful... Intravenous infusion pump performance in a hyperbaric chamber
[@ivteam #ivteam](http://ctt.ec/5dfDo+)

Click To Tweet

Baxter and Zyno pumps were connected to the chamber pass-through with rigid small-bore tubing. The CME infusion set was connected directly to the pass-through. We infused saline to a collection manifold inside a monoplace chamber at 1-100 mL/ hour under pressures ranging from 0.85-3.0 atm abs. We averaged results from three to five separate tests for each condition. At baseline, pumps performed within $\pm 10\%$ of expected (our measurement capability). However, clinical engineering verified performance within manufacturer specifications ($\pm 5\%$ at atmospheric pressure). During a carbon monoxide hyperbaric protocol (3 atm abs/2 atm abs), measured flow with the Baxter, CME and Zyno pumps was $\pm 5\%$ of setting at 10 mL/hour (95%, 103%, 95%, respectively); at 1 mL/hour, average flow were 91%, 83%, 83%, respectively. During timed testing (volume recorded before decompression), pump accuracy was $\pm 10\%$ at 10 and 100 mL/hour. Tubing compliance compromised performance at lower flow rates, magnified by increased pressure. These pumps have potential for monoplace chamber use, although not supported by the manufacturers or FDA-cleared. At low flow rates, tubing compliance affects delivered volumes.

Reference:

Bell, J., Weaver, L.K. and Deru, K. (2016) Performance of three large-volume infusion pumps with the monoplace hyperbaric chamber. *Undersea & Hyperbaric Medicine*. 43(1), p.9-19.



Thank you to our partners for supporting IVTEAM