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).

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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 ±10% of expected (our measurement capability). However, clinical engineering verified performance within manufacturer specifications (±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 ±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 ±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:


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