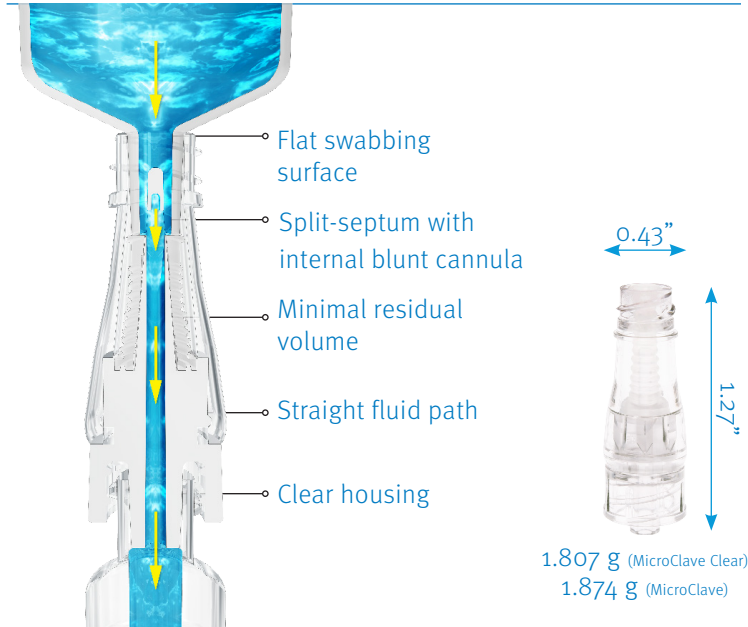
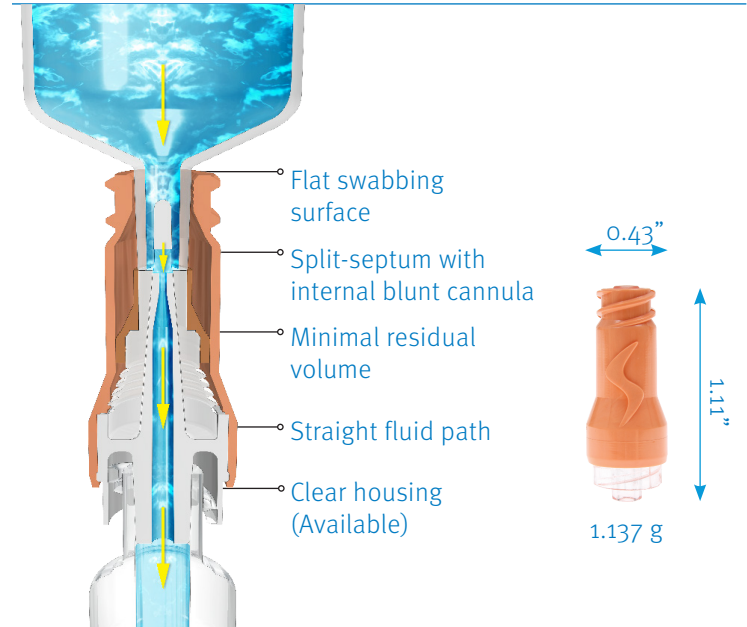


# MicroClave® and Cair~Drive Comparative Matrix

## MicroClave by ICU Medical Inc.



## Cair~Drive by Cair LGL



PRODUCT PERFORMANCE	MICROCLAVE TECHNOLOGY	CAIR~DRIVE TECHNOLOGY
Base Technology	Internal cannula and silicone compression seal split-septum. Internal cannula windows are exposed by the insertion of a male luer, and cannula enters the male luer's internal space to achieve flow.	Internal cannula and silicone compression seal split-septum. Internal cannula windows are exposed by the insertion of a male luer, and cannula enters the male luer's internal space to achieve flow.
Displacement	Neutral: 0 to -0.01 mL -0.0049 mL and -2.2 cm Published <sup>1</sup>	Neutral: 0 to -0.01 mL
Residual Volume	0.04 mL	0.05 mL
Fluid Path	Straight through polycarbonate cannula.	Straight through polycarbonate cannula.
Moving Parts in Fluid Path	No	No
Number of Assembly Parts	3, of which 1 moves on luer access.	4, of which 2 move on luer access.
Number of Activations	700	200
Fluid Residual External on Disconnect	Minimal	Minimal
Clamping Sequence	None required	None required
Flow Rate	165 mL/min	180 mL/min claimed, 85 mL/min tested. <sup>1</sup>
Back Pressure	60 psig	60 psig claimed, 35 psig tested. <sup>1</sup>
Clear Available	Yes	Yes
Antimicrobial Available	Yes	No
Compatibility	Lipid resistant and can be used in chemotherapy. Chemical inertia is guaranteed.	Compatible with lipids and chemotherapy drugs
High Pressure Compatibility	400 psi maximum pressure or 10 mL/second.	325 psi at 10 mL/sec
Peer Reviewed Published Studies and Poster Presentations	No. of Published Studies = 6 <sup>2</sup> No. of Poster Presentations = 3 <sup>3</sup>	None identified.

Performance data on file at ICU Medical Inc. San Clemente, CA 92673. Reference ENG-433

Cair~Drive and Cair LGL are trademarks of Cair LGL.

- ICU Medical Engineering Test Lab. Procedure P520-00017. Cair~Drive Needle Free Connector.
- Peer Reviewed Published Studies: Yebenes J, Delgado M, Sauca G, Serra-Prat M, et al. Efficacy of three different valve systems of needle-free closed connectors in avoiding access of microorganisms to endovascular catheters after incorrect handling. *Crit Care Med* 2008;36: 2558-2561. Stoker R Facing the challenge of CRBSIs *Managing Infection Control*, November 2009. Moore C, Landreth R, Maschmeier C, et al. Significantly decreased rate of catheter-related bloodstream infections after discontinuation of luer access device at an academic medical center. *Managing Infection Control*, November 2009. Maragakis L, Bradley K, Song X, et al. Increased catheter-related bloodstream infection rates after the introduction of a new mechanical valve intravenous access port. *Infect Control Hosp Epidemiol*, 2006; 27:67-70. Bouza E, Munoz P, Lopez-Rodriguez J, et al. A needleless closed system device (Clave®) protects from intravascular catheter tip and hub colonization: a prospective randomized study. *J Hosp Infect*. 2003; 54:279-287. Brown JD, Moss HA, Elliott TSJ. The potential for catheter microbial contamination from a needleless connector. *J Hosp Infect*. 1997; 36:181-189.
- Peer Reviewed Poster Presentations: Landreth R, Moore C, Maschmeier C. The connector or not the connector: reduction of blood culture contamination. *APIC* 2010. Moore C, Landreth R, Maschmeier C. Maintained low rate of catheter related bloodstream infections (CRBSIs) after discontinuation of a luer access device (LAD) at an academic medical center. *Apic* 2010. Ryder M, Fisher S, Hamilton G, et al. Bacterial transfer through needlefree connectors: comparison of nine different devices. *SHEA* 2007.