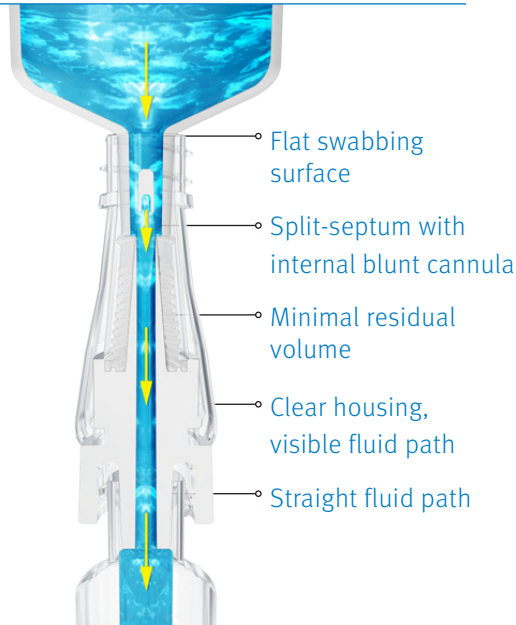
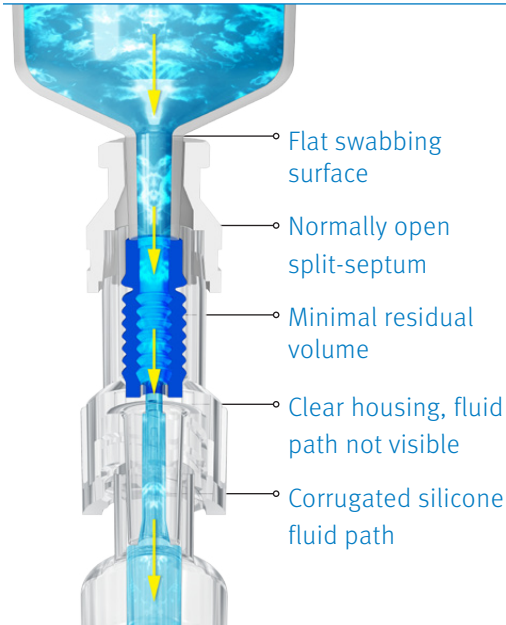


# MicroClave® and SmartSite® /SURPLUG Comparative Matrix

## MicroClave by ICU Medical Inc.



## SmartSite by CareFusion Corp. (Dist. by Terumo JP Ltd.)



PRODUCT PERFORMANCE	MICROCLAVE TECHNOLOGY	SMARTSITE 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.	Silicone compression seal split septum. No internal cannula. Silicone is depressed by the insertion of a male luer, pushing it into a wider chamber allowing the normally-open silicon septum seal to open, achieving flow through corrugated silicone.
Displacement	Neutral: 0 to -0.01 mL -0.0049 mL and -2.2 cm Published <sup>1</sup>	Negative -0.04 mL and -175 cm Published <sup>1</sup>
Residual Volume	0.04 mL	Valve not activated: 0.11 mL; Valve activated: 0.08 mL
Fluid Path	Straight through polycarbonate cannula.	Through corrugated silicon.
Moving Parts in Fluid Path	No	Yes
Number of Assembly Parts	3, fluid path component does not move on luer access.	3, fluid path component moves on luer access.
Fluid Residual External on Disconnect	Minimal	Minimal
Clamping Sequence	None required	Clamp before disconnect.
Flow Rate	165 mL/min	75 mL/min
Clear Available	Yes	No
Antimicrobial Available	Yes	No
Bacterial Transfer Performance	The least amount of bacterial transfer of any connector tested. <sup>2</sup>	Exhibits a higher bacterial transfer rate than MicroClave. <sup>2</sup>

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

SmartSite is a trademark of CareFusion Corporation.  
SURPLUG is a trademark of Terumo Japan, LTD.

1. Evaluation: Needleless Connectors. ECRI Institute Health Devices, Sept. 2008, Volume 37, Number 9  
2. Ryder M, James G, Pulchini E, Bickle L, Parker A. Presented at the Infusion Nursing Society Meeting, May 2011. Differences in bacterial transfer and fluid path colonization through needlefree connector-catheter systems in vitro.