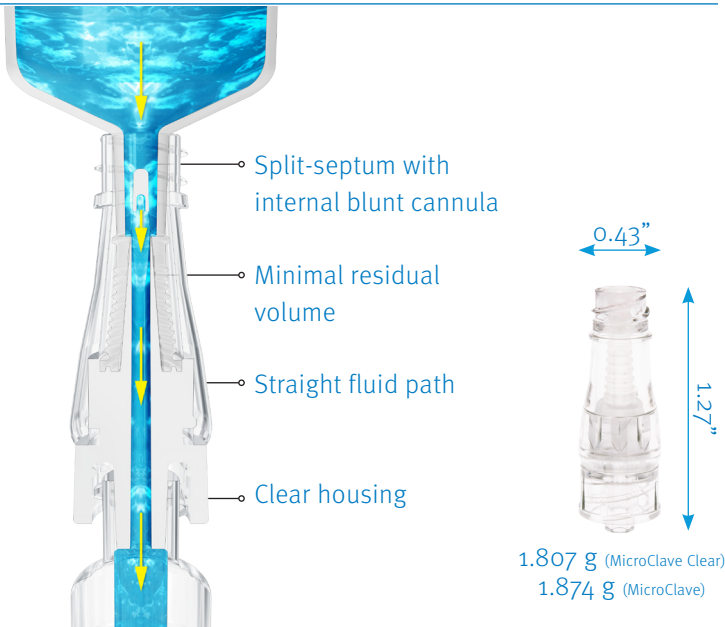
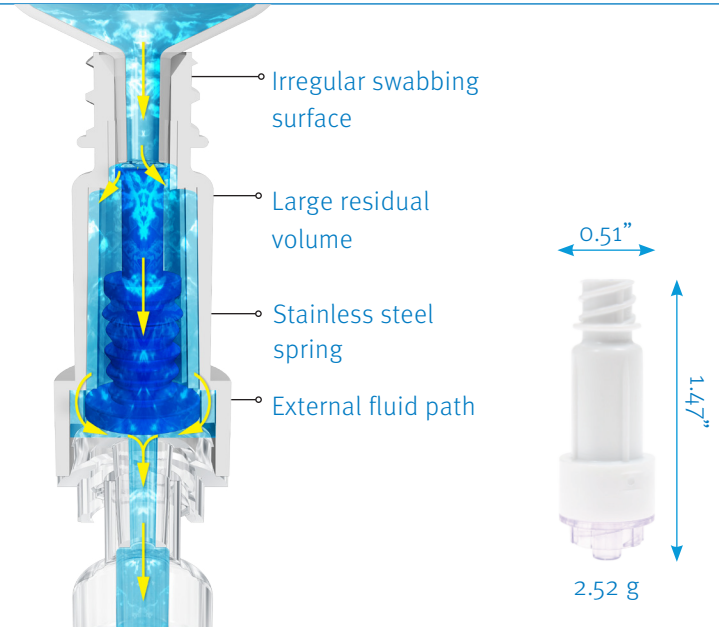


# MicroClave® and ULTRASITE® Comparative Matrix

## MicroClave by ICU Medical Inc.



## ULTRASITE by B. Braun Medical Inc.



PRODUCT PERFORMANCE	MICROCLAVE TECHNOLOGY	ULTRASITE 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.	Male luer depresses a plug, spring, and polyethylene seal. Fluid travels from the male luer over the plug and polyethylene seal, through the bottom luer component, and into the catheter.
Displacement	Neutral: 0 to -0.01 mL	Positive: +0.05 mL Note: The Society for Healthcare Epidemiologists of America (SHEA) and Infectious Disease Society of America (IDSA) have recommended against using positive displacement needleless connectors with mechanical valves without a thorough assessment of risks and benefits.
Residual Volume	0.04 mL	0.3 mL (7.5 times larger)
Fluid Path	Straight through polycarbonate cannula. Enhances flushing efficiency.	Between external housing and piston. Results in comparatively large residual volume.
Moving Parts in Fluid Path	No	Yes
Number of Assembly Parts	3, of which 1 moves on luer access.	6, of which 4 move on luer access.
Fluid Residual External on Disconnect	Minimal	Yes
Clamping Sequence	None required	Yes. Clamp after disconnect.
Flow Rate	165 mL/min	175-200 mL/min
Clear Available	Yes	No
Antimicrobial Available	Yes	Yes
Patient Comfort	16% smaller profile 26-28% less weight	Larger and heavier than MicroClave.
Flushing Performance	Highly efficient. Connector cleared of blood elements with minimal flush volumes (from 2 to 75 mL): Not recommended to change connector after blood draw.	Four out of five connectors unable to be cleared of blood elements at maximum flush volumes (10 mL). <sup>2</sup>

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

Performance data on file at ICU Medical Inc. San Clemente, CA 92673. Reference 00-0751, 01-189t, 01-133t

1. Breznock E, Sylvia C. BioSurg, Inc., March 2011. The in vivo evaluation of the flushing efficiency of different designs of clear needlefree connectors.
2. Breznock E, Sylvia C. BioSurg, Inc., 2011. The in vivo evaluation of the flushing efficiency of the NanoClave™ low-profile neutral displacement connector compared to two other connectors commonly used on central and PICC lines.

**icumedical**  
human connections