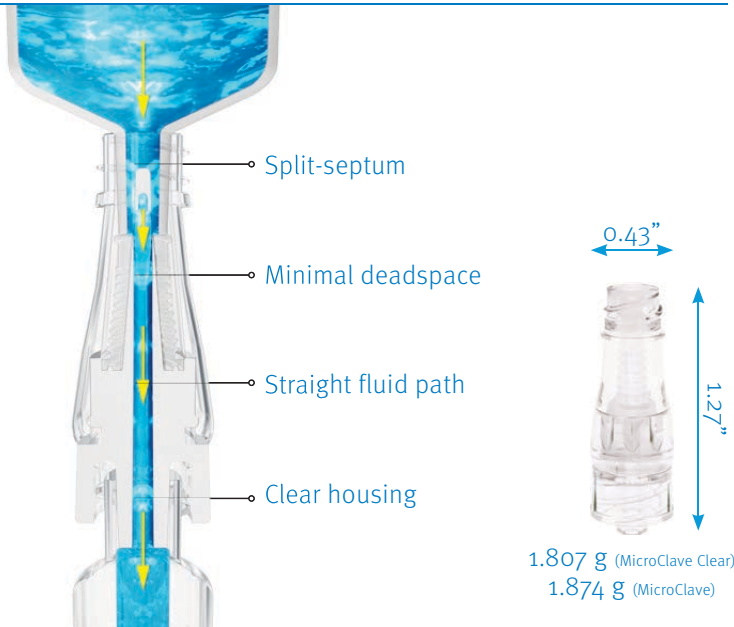
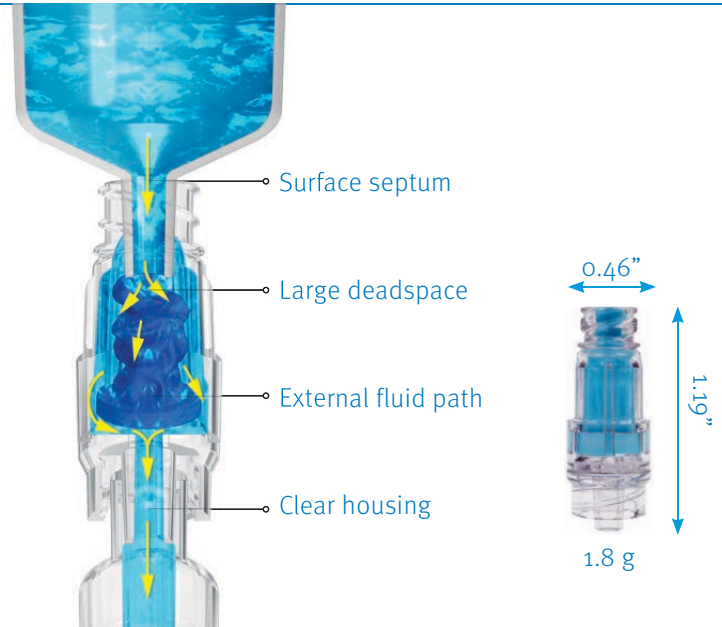


MicroClave® and MaxZero™ Comparative Matrix

MicroClave by ICU Medical Inc.



MaxZero by CareFusion (formerly Medegen)



PRODUCT PERFORMANCE	MICROCLAVE TECHNOLOGY	MAXZERO 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 luers internal space to achieve flow.	Surface septum. Crushable elastomer piston deforms upon luer connection to allow fluid flow around the septum.
Displacement	Neutral: 0 to - 0.01 mL	Positive: +0.03 to +0.04 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	0.19 mL (4.5 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
Fluid Residual External on Disconnect	Minimal	Yes
Clamping Sequence	None required	None required
Flow Rate	165 mL/min	173 mL/min
Clear Available	Yes	Yes
Antimicrobial Available	Yes	No
Bacterial Transfer Performance	The least amount of bacterial transfer of any connector tested. ¹	TBD
Flushing Performance	Highly efficient. Connector clear of blood elements with minimal flush volumes from (2 to 7.5 mL). ² Not recommended to change connector after blood draw.	TBD

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 SE02-041t

- Ryder M, James G, Pulchini E, Bickle L, Parker A, May 2011. Presented at the Infusion Nursing Society Meeting. Differences in bacterial transfer and fluid path colonization through needlefree connector-catheter systems in vitro.
- Breznock E, Sylvia C. BioSurg Inc., March 2011. The in-vivo evaluation of the flushing efficiency of different designs of clear needlefree connectors.

icumedical
human connections