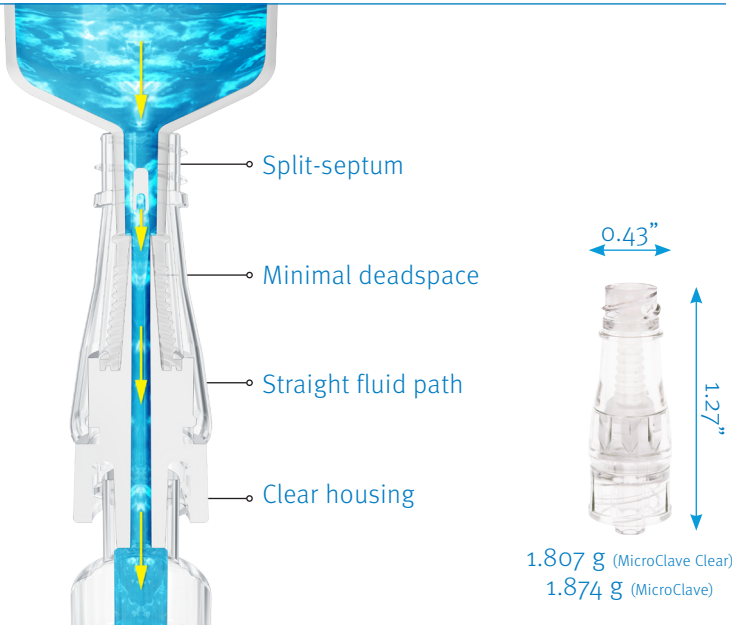
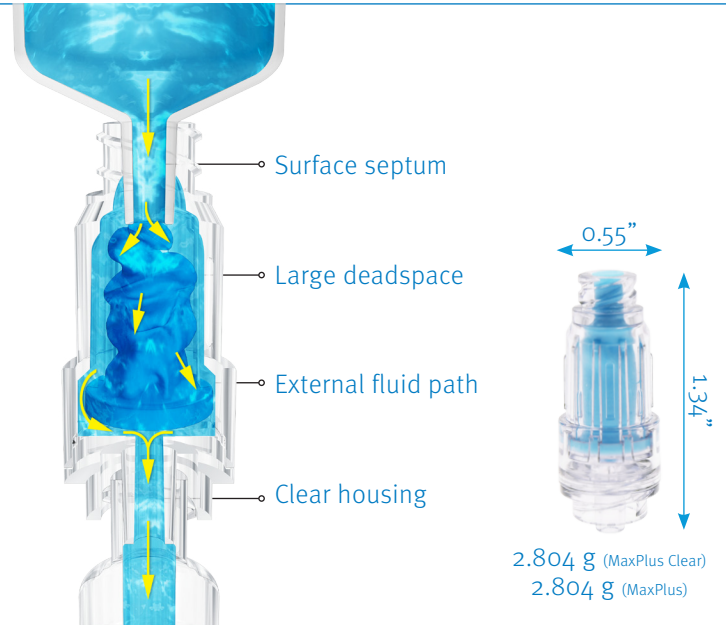


MicroClave® and MaxPlus® Comparative Matrix

MicroClave by ICU Medical Inc.



MaxPlus by CareFusion (formerly Medegen)



PRODUCT PERFORMANCE	MICROCLAVE TECHNOLOGY	MAXPLUS 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: +0.01 to +0.03 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	0.32 mL (8 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	Yes. Clamp after disconnect.
Flow Rate	165 mL/min	198 mL/min
Clear Available	Yes	Yes
Antimicrobial Available	Yes	Yes
Patient Comfort	22% smaller profile 33-35% less weight	Larger and heavier than MicroClave.
Bacterial Transfer Performance	The least amount of bacterial transfer of any connector tested. ¹	Among the connectors with the highest bacterial transfer rate. ¹
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.	Connector unable to be cleared of blood elements at maximum flush volumes (10 mL). ² Recommended to change connector according to facility protocol or in accordance with currently recognized guidelines for IV therapy.

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

1. 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.
2. Breznock E, Sylvia C. BioSurg, Inc., March 2011. The in vivo evaluation of the flushing efficiency of different designs of clear needlefree connectors.