What is a genderless connection? Historically, single-use connections involved a male and a female half. These were two distinctly different parts that mated with each other. Connections like these are considered gendered. Genderless connections are those in which the connector halves are identical in design, thus eliminating the need for different male and female halves to make the connection.

What are the benefits of having a genderless connector? There are multiple benefits to incorporating genderless connections into your single-use system, including:

Supply chain benefits – The ability to inventory fewer components can increase your opportunities for streamlining your supply chain.

What other features should I take into consideration when evaluating genderless connectors? While genderless interchangeability is a significant advantage, it is not the only feature to consider. You need to ensure that the connector will have the overall functionality to ensure a reliable, repeatable and secure connection. Important connector attributes to consider are:

Ease of use – Connectors should be as intuitive to use as possible with a minimal number of actuation steps. The more actuation steps required in a connection, the higher the risk of operator error. Simpler is better.

Robustness – Connectors need to be able to withstand intended use as well as unintended abuse. One of the issues common with some connectors is the inability to withstand side-loading. Side-loading is difficult to avoid when dealing with tube and bag assemblies, so the connector you choose needs to be able to handle situations that are less than perfect.

Secondary equipment – Ideally, connectors do not require additional equipment (such as tri-clover clamps, fixtures or assembly aids) to ensure a solid connection. If additional equipment is needed, this may indicate that the connector on its own is not as robust as you need. Another concern is that operators can fail to use components not integral to the connector, and these usage errors could make the connector non-functional.

Seal design – The seal design is your last line of defense against leaking or microbial ingress into the connector, so it is important to understand what is providing the final seal within the connector. When evaluating connectors, you will want to look inside each option to see the seal design and how it functions. A great seal design ensures the seal will stay in place throughout the actuation steps and that the connector will withstand side-load and tensile forces.
What is the current market perception of genderless connectors?

It is next to impossible to attend a conference on single-use without hearing about standardization. While standardization can cover several items, one of the most common discussion topics is connector compatibility (e.g., interchangeability). Research conducted in “BioPlan Associates, Inc., April 2014, Biotechnology Industry Council™ Analysis of Single Use Connectivity” showed that 88% of respondents viewed standardizing connector compatibility as important. This same study reported a 73% preference for genderless connectors over gendered connectors. End users are identifying easy-to-use, robust, genderless connectors as an answer for both standardizing single-use systems and eliminating many of the headaches experienced at facilities using single-use technology.