# MicroClave® and Q-Syte™ Comparative Matrix

**MicroClave** by ICU Medical Inc.

- **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.

- **Displacement**: Neutral: 0 to -0.01 mL, -0.0049 mL and -2.2 cm Published\(^1\)

- **Residual Volume**: 0.04 mL

- **Fluid Path**: Straight through polycarbonate cannula. Enhances flushing efficiency.

- **Moving Parts in Fluid Path**: No

- **Fluid Residual External on Disconnect**: Minimal

- **Clamping Sequence**: None required.

- **Flow Rate**: 165 mL/min

- **Clear Available**: Yes

- **Incompatible with all O2 Tubing**: Yes

- **Incompatible with all Enteral Tubing**: Yes

- **Antimicrobial Available**: Yes

- **Patient Comfort**: Smooth housing, 20% smaller profile.

- **Bacterial Transfer Performance**: The least amount of bacterial transfer of any connector tested.\(^2\)

- **Flushing Performance**: Highly efficient. Connector cleared of blood elements with minimal flush volumes (2 to 75 mL).\(^3\) Not recommended to change connector after blood draw.

**Q-Syte** by BD Medical

- **Base Technology**: Male luer of administration device pushes through the septum. Fluid enters an interstitial fluid chamber before exiting the valve.

- **Displacement**: Negative: -0.02 mL, -0.0236 mL and -10.5 cm Published\(^1\)

- **Residual Volume**: 0.08 mL (2 times larger)

- **Fluid Path**: Through silicone slit into interstitial valve chamber.

- **Moving Parts in Fluid Path**: Yes

- **Fluid Residual External on Disconnect**: Varies

- **Clamping Sequence**: Yes. Clamp before disconnect.

- **Flow Rate**: 642 mL/min

- **Clear Available**: Yes

- **Incompatible with all O2 Tubing**: No

- **Incompatible with all Enteral Tubing**: No

- **Antimicrobial Available**: No

- **Patient Comfort**: Irregular housing profile.

- **Bacterial Transfer Performance**: Among the connectors with the highest bacterial transfer rate.\(^2\)

- **Flushing Performance**: BD recommends flushing connector with a minimum of 5 mL if blood is present. If unable to clear, replacement is recommended.

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**PRODUCT** | **MICROCLAVE TECHNOLOGY** | **Q-SYTE 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 of administration device pushes through the septum. Fluid enters an interstitial fluid chamber before exiting the valve.

**Displacement** | Neutral: 0 to -0.01 mL, -0.0049 mL and -2.2 cm Published\(^1\). | Negative: -0.02 mL, -0.0236 mL and -10.5 cm Published\(^1\).

**Residual Volume** | 0.04 mL | 0.08 mL (2 times larger)

**Fluid Path** | Straight through polycarbonate cannula. Enhances flushing efficiency. | Through silicone slit into interstitial valve chamber.

**Moving Parts in Fluid Path** | No | Yes

**Fluid Residual External on Disconnect** | Minimal | Varies

**Clamping Sequence** | None required. | Yes. Clamp before disconnect.

**Flow Rate** | 165 mL/min | 642 mL/min

**Clear Available** | Yes | Yes

**Incompatible with all O2 Tubing** | Yes | No

**Incompatible with all Enteral Tubing** | Yes | No

**Antimicrobial Available** | Yes | No

**Patient Comfort** | Smooth housing, 20% smaller profile. | Irregular housing profile.

**Bacterial Transfer Performance** | The least amount of bacterial transfer of any connector tested.\(^2\) | Among the connectors with the highest bacterial transfer rate.\(^2\)

**Flushing Performance** | Highly efficient. Connector cleared of blood elements with minimal flush volumes (2 to 75 mL).\(^3\) Not recommended to change connector after blood draw. | BD recommends flushing connector with a minimum of 5 mL if blood is present. If unable to clear, replacement is recommended.

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\(^1\) Performance data on file at ICU Medical Inc. San Clemente, CA 92673. Reference ENG 433  
\(^2\) BD and Q-Syte are trademarks of BD Medical.
MicroClave and Q-Syte Comparison with Oxygen and Enteral Tubing Devices

Recent concerns regarding the ability to inadvertently attach oxygen or enteral tubing to a needlefree IV connector, potentially resulting in patient harm or death, have prompted manufacturers to evaluate the risk. For the comparison below, we attempted to connect both the MicroClave and the Q-Syte to enteral or oxygen devices and, if a successful attachment was made, attempt to initiate infusion through the needlefree connector. Please note that at no time did the MicroClave allow for the infusion of oxygen or enteral feeding product, while the Q-Syte allowed flow to occur on several occasions.

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Part #</th>
<th>Manufacturer</th>
<th>MicroClave Attach/Flow</th>
<th>Q-Syte Attach/Flow</th>
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</thead>
<tbody>
<tr>
<td>Enteral</td>
<td>52048</td>
<td>Abbott Nutrition</td>
<td>No/No</td>
<td>Yes/No</td>
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<tr>
<td>Enteral</td>
<td>20-1007</td>
<td>Corpak</td>
<td>No/No</td>
<td>Yes/Yes (45 mL/min)</td>
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<td>Enteral</td>
<td>773667</td>
<td>Sherwood Davis &amp; Geck</td>
<td>No/No</td>
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<td>Enteral</td>
<td>8884702500</td>
<td>Tyco Kendall</td>
<td>No/No</td>
<td>Yes/Yes (56 mL/min)</td>
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<td>20-2513</td>
<td>Viasys</td>
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<tr>
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<td>Corpak</td>
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<td>Invacare</td>
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<td>Tyco Kendall</td>
<td>No/No</td>
<td>No/No</td>
</tr>
</tbody>
</table>

*Full air flow on all five connectors.
**Two connectors with full flow, three connectors with short flow then an abrupt disconnect.