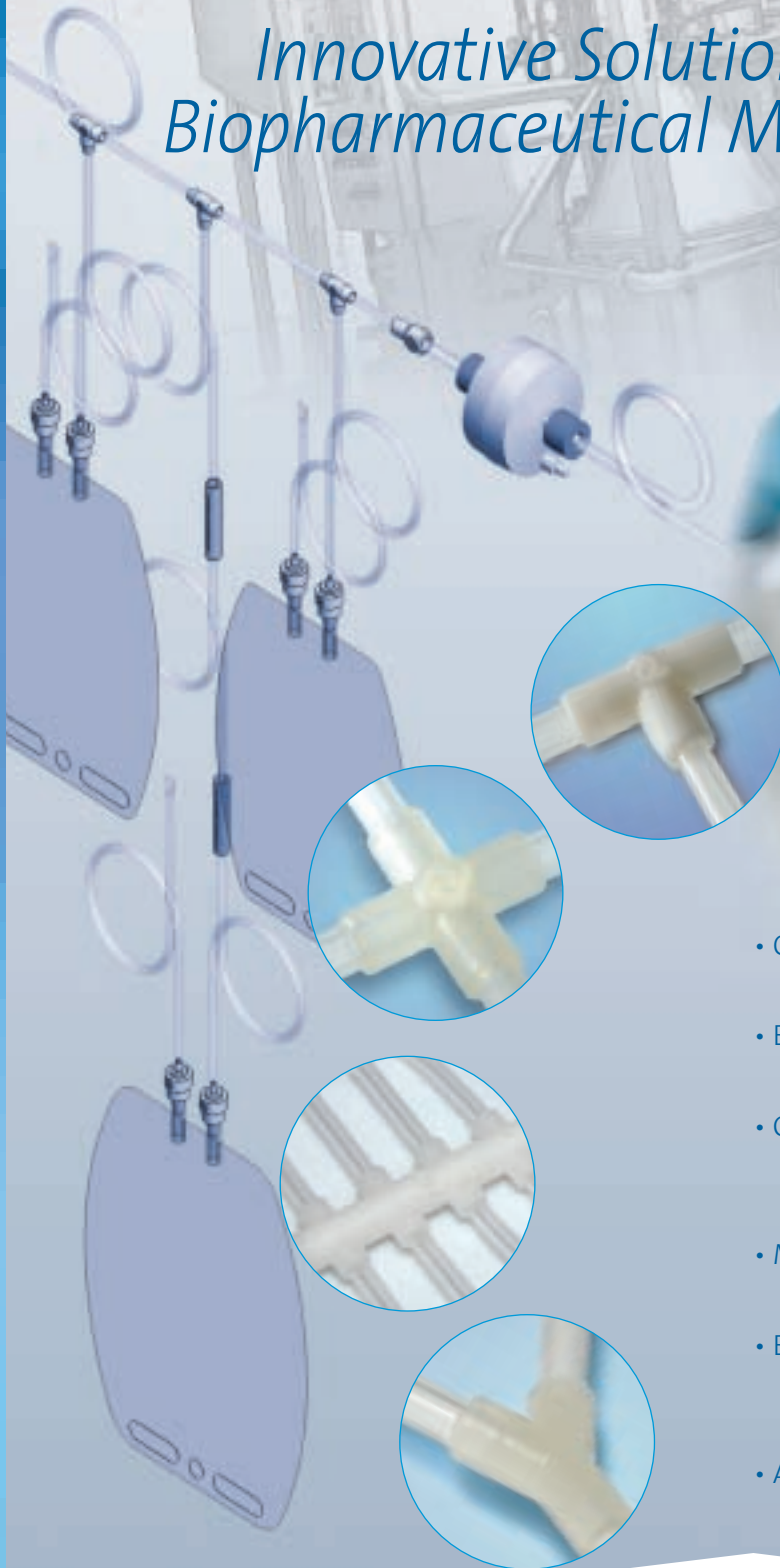


# Bio-SIMPLEX<sup>∞</sup>

INFINITE POSSIBILITIES...

*Innovative Solutions for Today's  
Biopharmaceutical Manufacturers*



- Custom-engineered for customer-specific applications
- Economically designed for single use
- One-piece construction provides superior reliability and product integrity
- Made from C-Flex<sup>®</sup> pharmaceutical-grade thermoplastic elastomers
- Eliminates manual assembly, tie wraps, hose barbs and other connecting devices
- Available with your choice of bottles, bags, syringes and filters

## Bio-Simplex™ Connection Method:

Bio-Simplex™ technologies **eliminate the need for assembly infrastructure.**

Bio-Simplex™ overmolded technology is **“one-piece” construction.** The overmolding material is the same as the tubing; when molded together they become one, providing an integrally bonded connection with superior strength.

Bio-Simplex™ overmolding **maintains inner bore** diameters.

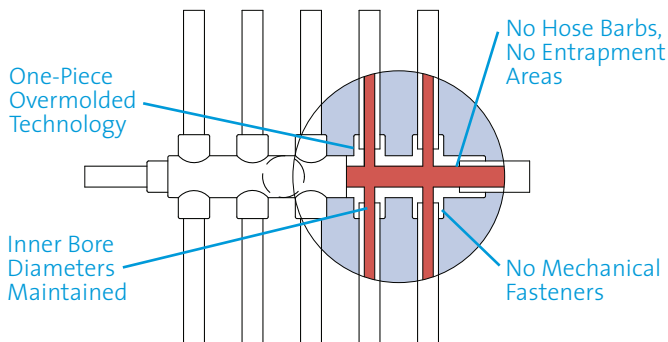
Bio-Simplex™ overmolded connections intrinsically have **exceptional burst strength** that exceeds the burst pressure of the tubing.

**No mechanical fasteners** to fail, one-piece design.

Repeatable, **machine-driven** molding process.

**No hose bars used.** Bio-Simplex™ overmolds maintain bore diameters throughout connectors, eliminating entrapment areas.

## Bio-Simplex™ Connections



## Traditional Connection Method:

**Mechanical assembly:** Requires labor, overhead, inventory of specialized pieces.

**Dissimilar materials:** Typically the tubing, the hose barb connector and cable ties are of different materials with different expansion rates. This can result in loose connections and premature failures.

**Decreased bore diameters:** By design, hose barb connectors have smaller diameter bores than the mating tubing, which results in fluid flow restrictions.

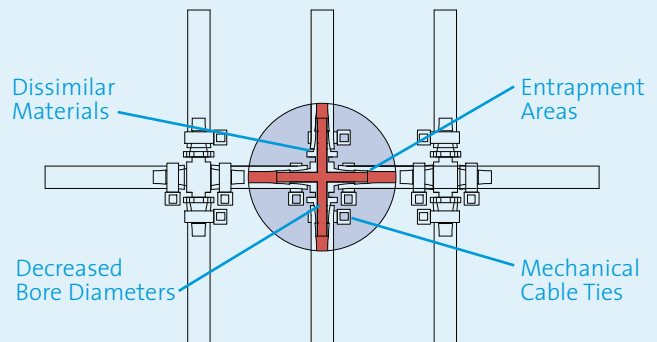
**Reduced tubing strength:** Tubing has to be stretched over the hose barb, reducing the wall thickness and pressure resistance.

**Mechanical cable ties:** Have a tendency to relax and loosen after sterilization, resulting in connection failures.

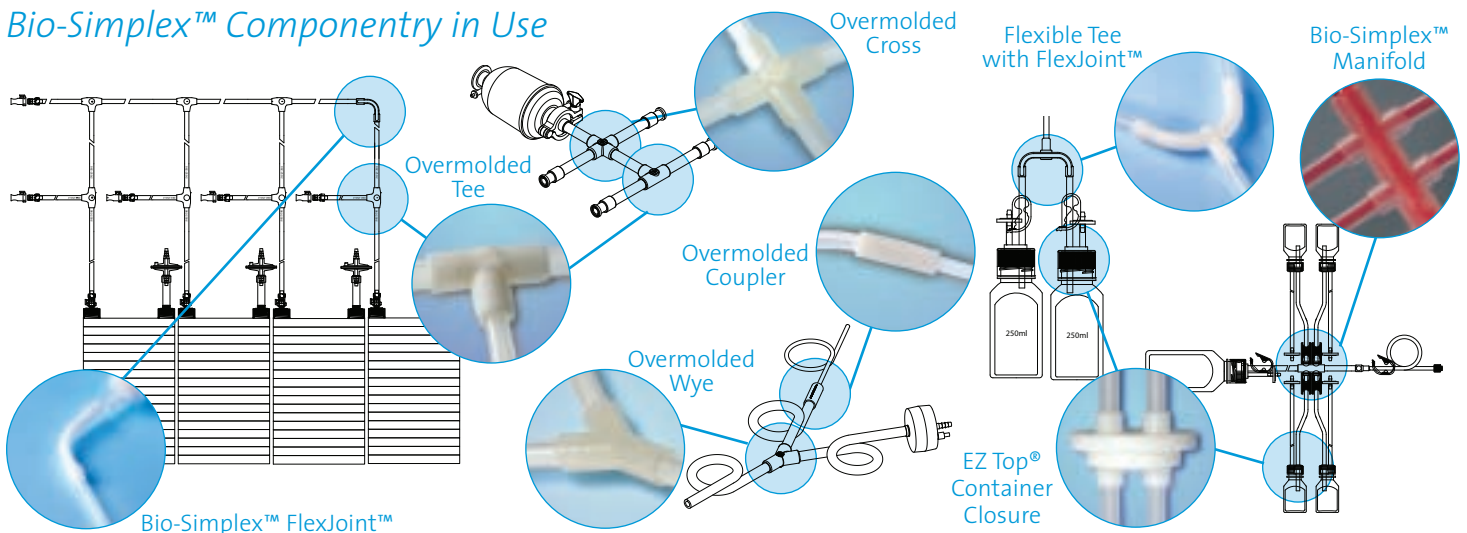
**Operator dependent assembly processes:** How tight mechanical cable ties become is dependent upon the individual operator.

**Entrapment:** When tubing is mounted onto a hose barb, areas of entrapment occur where the tubing cannot seal against the connector.

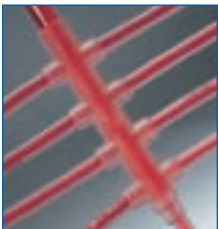








## Traditional Connections



## Bio-Simplex™ Componentry in Use



Some of the componentry used in our Bio-Simplex™ custom engineered manifolds and other fluid transfer systems:

		Type	Tubing Size
	<b>Bio-Simplex™ Manifold</b> — The heart of our fluid transfer system. Allows samples to be taken without compromising product sterility. Whether a single molded design (eight-port shown here) or a series of inline Tees (see previous page), we can design to your exact specifications.	3 ports 4 ports 6 ports 8 ports 10 ports 16 ports 20 ports 7 ports into 1	1/4" through 3/8" 1/4" through 3/8" 1/4" through 3/8" 1/4" through 3/8" 1/4" through 3/8" 1/4" through 5/8" 3/16" through 3/8" 1/4" into 5/8"
	<b>Overmolded Tee</b> — Totally seamless fluid path. Overmolding eliminates path obstruction, fluid holdup or loss, cell damage and connection failure.	1/4" 3/8" 1/2" 5/8" 3/4"	1/8" x 1/4" 1/4" x 3/8" 1/4" x 1/2" 3/8" x 5/8" 1/2" x 3/4"
	<b>Overmolded Cross</b> — Similar technology to the Tee. Allows two additional seamless fluid paths.	1/4" 3/8" 5/8" 3/4"	1/8" x 1/4" 1/4" x 3/8" 3/8" x 5/8" 1/2" x 3/4"
	<b>Overmolded Wye</b> — Blends or divides fluid path. Overmolding holds tubing shape and maintains consistent fluid path through junction.	3/8" 1/2" to 1/4" 5/8" 3/4"	1/4" x 3/8"  3/8" x 5/8" 1/2" x 3/4"
	<b>Overmolded Right Angle with Septum</b> — Allows sample aspiration via needle through self-sealing septum port.	1/8" x 1/4"	
	<b>Overmolded Coupler</b> — Joins two similar-sized segments of tubing together. Overmolding creates a totally seamless path. The bond is stronger than the tubing burst strength.	1/8" x 1/4" to 1/8" x 1/4" 1/4" x 3/8" to 1/4" x 3/8" 1/4" x 3/8" to 1/4" x 1/2" 1/4" x 3/8" to 1/4" x 1/2"	
	<b>Overmolded Reducer</b> — Similar to the coupler, but joins two different tubing sizes, reducing sizes from 5/8"x 3/4" down to 1/16" x 1/8".	5/8" x 3/4" down to 1/16" x 1/8"	
	<b>Bio-Simplex™ FlexJoint™</b> — Eliminates tube kinking, holds shape after autoclaving. Unobstructed inner bore. Designed to accommodate angle deviation in hand-blown Spinner Flasks.	1/8" 1/4" 3/8" 1/2"	1/8" x 1/4" 1/8" x 1/4" 1/4" x 3/8" 3/8" x 1/2"
	<b>Flexible Tee with FlexJoint™</b> — Holds shape and maintains consistent fluid path.	1/4" 1/2"	1/8" x 1/4" 1/4" x 1/2"

EZ Top® Container Closures



One-piece construction. Made from pharmaceutical grade C-Flex® resin and tubing to ensure an unobstructed fluid path and extremely low levels of extractables, and to provide a secure elastomeric seal against glass and plastic surfaces.

Sizes

20mm 2 port	48mm 2 port	83B 3 port
24mm 2 port	48mm 3 port	83B 4 port
24mm 3 port	48mm Biotainer 2 port	250ml EMF
28mm 2 port	48mm Biotainer 3 port	500ml EMF 2 port
32mm 2 port	53B 2 port	500ml EMF 3 port
38mm 2 port	53B 3 port	1L EMF 2 port
38mm 3 port	53B 4 port	1L EMF 3 port
GL32 2 port	60mm 2 port	2L EMF 2 port
GL45 2 port	70mm 2 port	2L EMF 3 port
GL45 3 port	70mm 3 port	3L EMF 2 port
GL45 4 port	83B 2 port	3L EMF 3 port

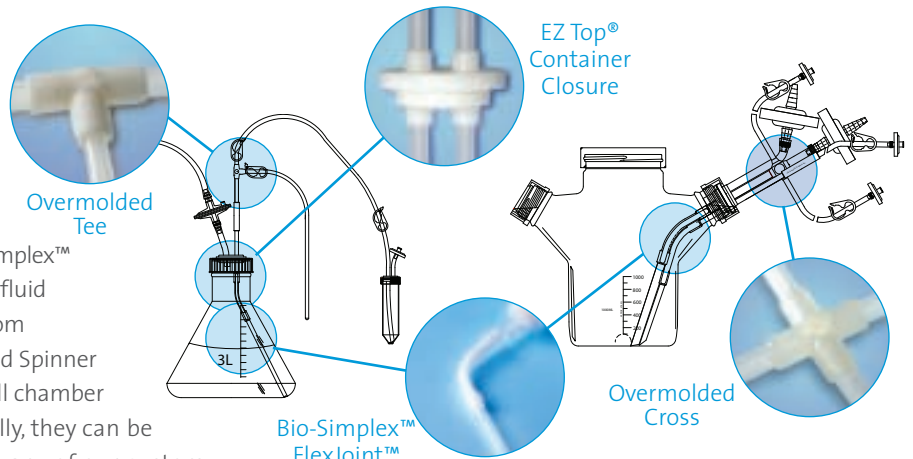
# INFINITE POSSIBILITIES...

## Bio-Simplex™ Custom Engineered Systems:

Saint-Gobain Performance Plastics' Clearwater facility manufactures a wide variety of Bio-Simplex™ custom engineered systems individually designed to meet our clients' unique production requirements. Our engineers and designers work closely with yours to develop the most efficient design — one that integrates seamlessly into your production flow, that arrives ready to install, and that will not develop contamination or leakage issues down the line. Any of our Bio-Simplex™ assemblies can also be fitted with outside components, such as bottles, bags, syringes and filters — whatever will work the best for your needs.

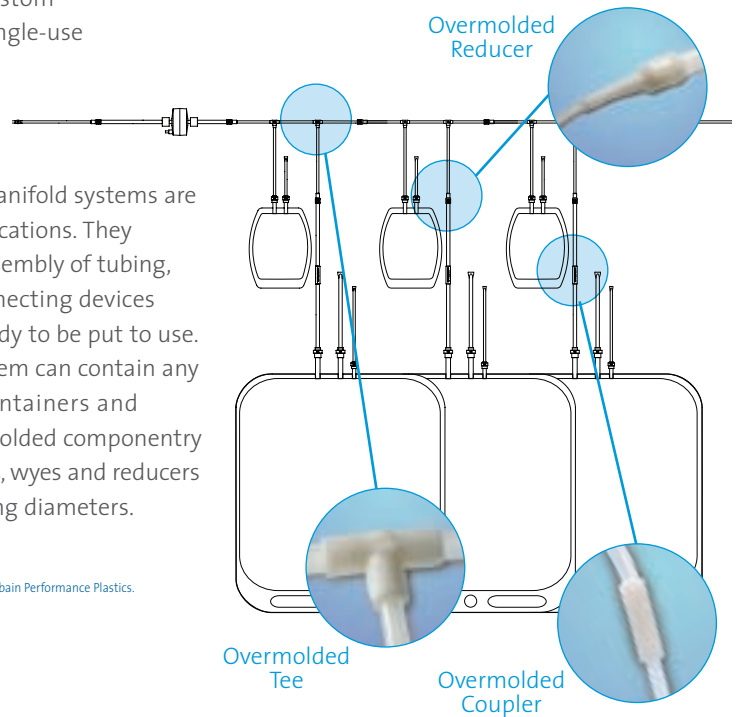
### Fluid Transfer Systems:

We offer the capabilities of combining a wide variety of labware with our custom Bio-Simplex™ tubing assemblies for fluid transfer systems — from custom Erlenmeyer and Spinner Flask accessories to cell chamber connectors. Additionally, they can be easily combined with any of our custom engineered manifolds to make a single-use closed system unit.



### Manifold Systems:

Bio-Simplex™ custom engineered manifold systems are designed for customer-specific applications. They replace the cumbersome manual assembly of tubing, hose barbs, tie wraps and other connecting devices with a single assembly delivered ready to be put to use. A single Bio-Simplex™ manifold system can contain any number of sampling or storage containers and incorporate any variety of the overmolded componentry on the previous pages, including tees, wyes and reducers for connection of two different tubing diameters.



Bio-Simplex™, C-Flex® and EZ Top® are registered trademarks of Saint-Gobain Performance Plastics. FlexJoint™ is a trademark of Saint-Gobain Performance Plastics.

**To learn more about C-Flex® tubing and Bio-Simplex™ molded products and assemblies contact:**

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Toll-Free: (800) 541-6880  
Tel: (727) 531-4191  
Fax: (727) 530-5603