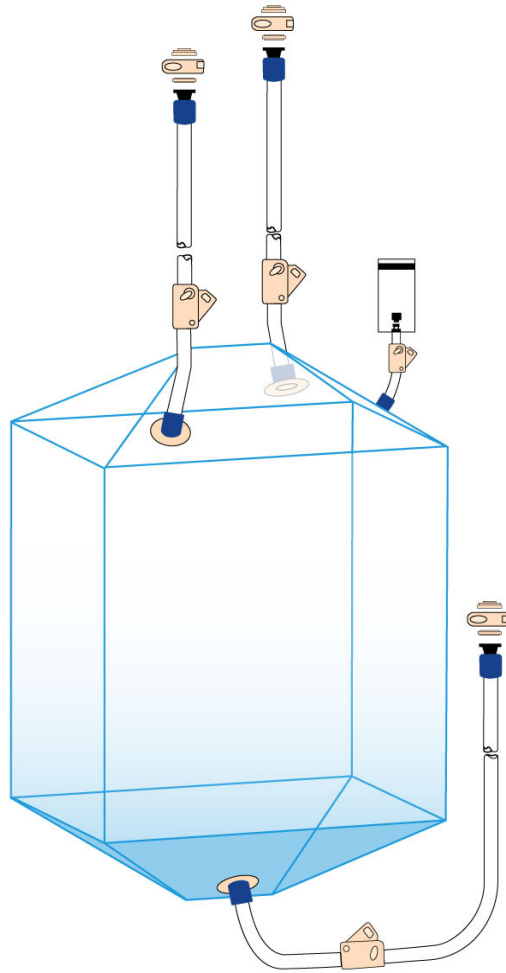


Saint-Gobain Life Sciences



Custom Single-Use Bioprocess Bags

CREATING HIGHLY CUSTOMIZED SOLUTIONS THAT MEET THE EXACTING NEEDS OF
OUR CUSTOMERS' DEMANDING APPLICATIONS.



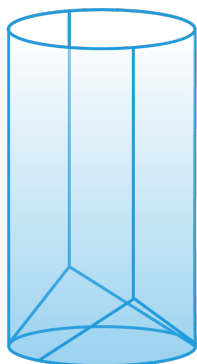
SAINT-GOBAIN

SINGLE-USE BAGS

Saint-Gobain Life Sciences is a leading global supplier of single-use bags for the biopharmaceutical industry. While our set of standard designs provide a ready-made solution for some customers, we understand that many applications require highly customized bag solutions to work with your specialized processes. With Saint-Gobain Life Sciences' large catalog of single-use fluid handling components and open architecture approach to incorporate components provided by other suppliers, we offer complete customization of our bioprocess bag assemblies. Virtually every element of our bag assemblies can be tailored to meet your exacting needs. Bag style and geometry, chamber volumes, the number, size, style, and placement of ports, tubing and fittings selection, and other fluid handling components – all can be selected and crafted to fit perfectly with your process. We are ready to produce bag solutions that are tailor-made for your application needs.

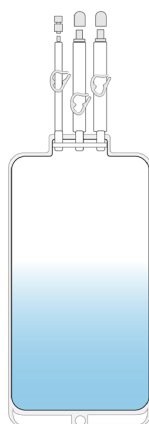
BAG STYLE

Perhaps the first consideration to make when designing a custom bioprocess bag with Saint-Gobain Life Sciences is to select the appropriate bag style. There are three main styles of bioprocess bags: liners, 2D or pillow style, or 3D.



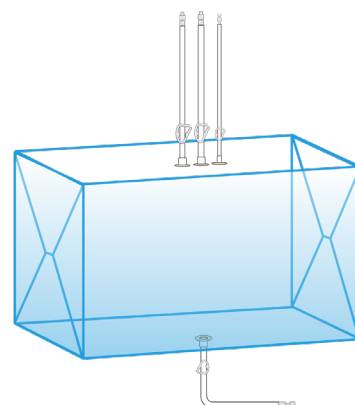
LINER

A liner is essentially an open-top bag meant to be placed inside of a tank or containment vessel. This type is common in upstream media preparation when a top-down paddle mixer is in use. A liner can be non-gusseted or gusseted. A non-gusseted liner welds two faces together on the sides and bottom while a gusseted liner will have an extra support panel welded into the bottom of the bag for better conformance to the tank and more structural support. Saint-Gobain Life Sciences can produce both gusseted or non-gusseted liners.



2D OR PILLOW STYLE

This style of bag is simply two faces welded together on all sides resulting in a pillow shape when the bag is filled. A 2D bag is typically used on relatively smaller bag assemblies (50L and under) and is not often placed inside a supporting tank or container. Rather these bags are often laid flat (such as in “rocker” or “rocking bags”) or hung by the insert holes at the top of the bag. Support rods can be selected to help the bag maintain its shape while hung or carried.



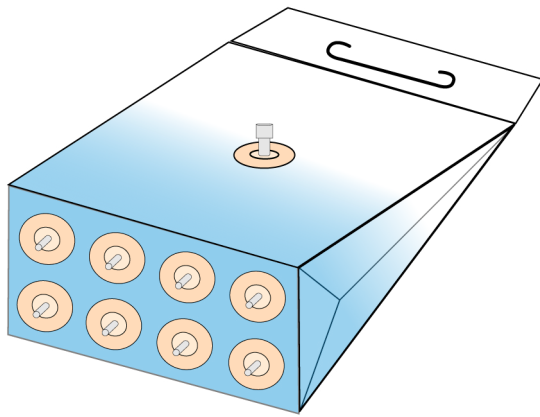
3D

A 3D bag is often cuboidal in shape and is created by sealing multiple sheets of film together. These are often larger in volume than 2D bags (> 50L) and are typically placed inside a supporting tank or container. With proper design and construction, unassisted fill (UAF) 3D chambers can be designed that expand and deploy in their tank as they are filled with minimal manipulation or oversight needed by an operator.

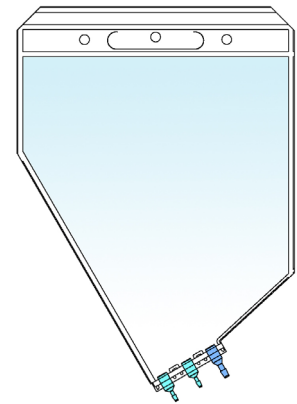
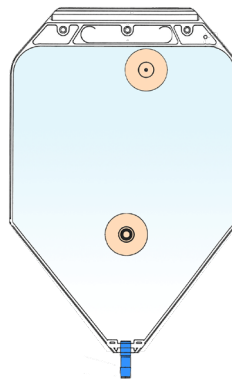
UNIQUE GEOMETRIES

In some instances, customers require a bag solution that does not perfectly conform to one of the three classic bag styles. In these cases, unique geometries may be required. Saint-Gobain Life Sciences has experience designing bags of many different styles and geometries.

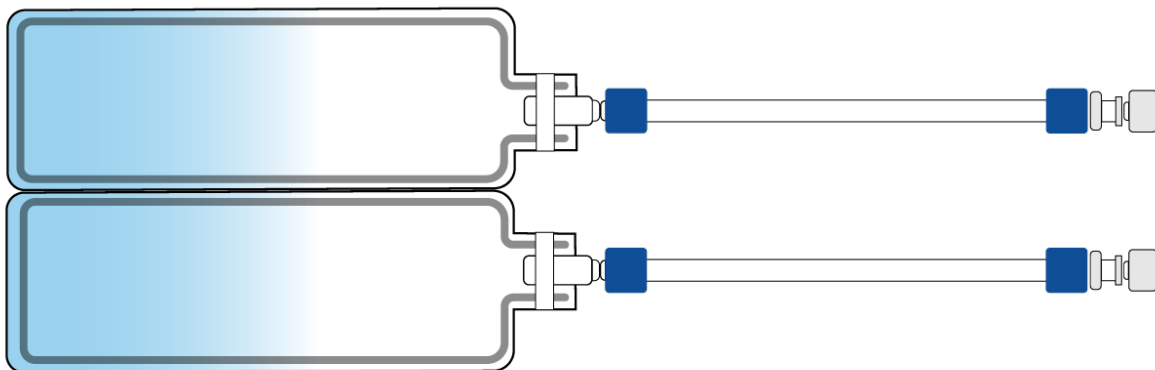
LUNCH BAG STYLES



TAPERED OR CASCADING EDGES



MULTIPLE CHAMBERS

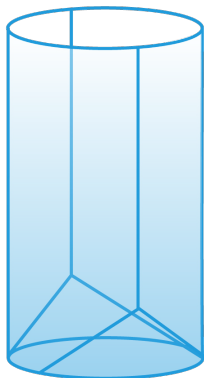




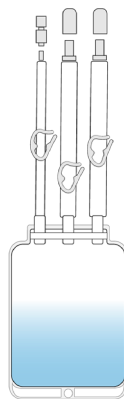
BAG VOLUME

From the very small (10mL) to the very large (3,000L), Saint-Gobain Life Sciences' bags can be built to hold a considerable range of fluid volumes.

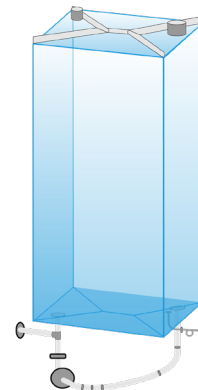
LINER
5L - 2,000L



2D
10mL - 500L

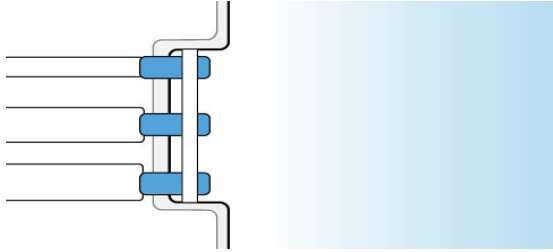


3D
2L - 3,000L



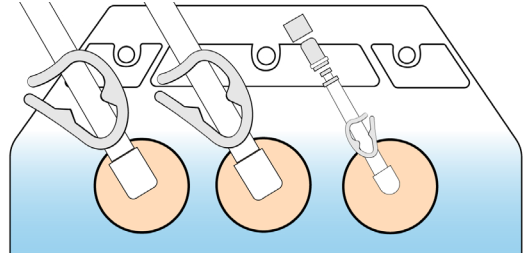
PORTS

There are two basic options for selection of a port to a bioprocess bag.



INSERT/END PORT

These ports are sealed into the edge seam of stamped 2D bags. Our insert ports have barb sizes of 1/8", 1/4", 3/8", and 1/2". The barb sizes can be mixed and matched and port areas can be blocked off to build in space as needed.

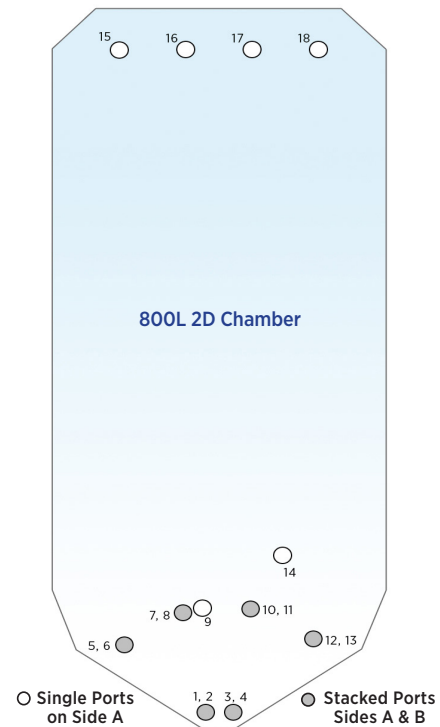
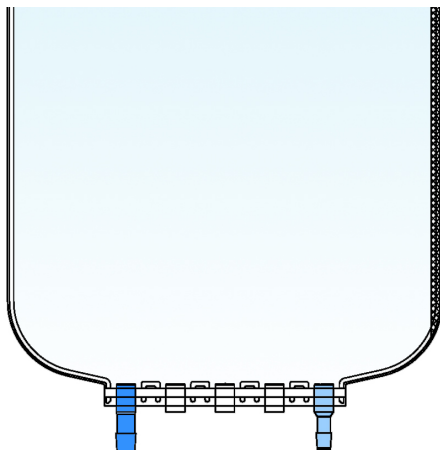


FLANGE/FACE PORT

These ports are sealed into the face area of the bag and are most often found on 3D bags, although certain applications require them to be incorporated into 2D bags and liners as well. Our flange ports come in a large variety of barb sizes, ranging from 1/8" to 1".

PORT PLACEMENT

While insert ports are limited to being placed along the seams of a 2D bag, flange ports have much more flexibility in their placement and have few limitations. Saint-Gobain Life Sciences can produce single-use bag assemblies with great flexibility as to number and placement of insert and flange ports.





TUBING

In most cases, it will be necessary to attach tubing to a custom bag assembly to facilitate filling and draining of the bag. Saint-Gobain Life Sciences manufactures a wide variety of tubing of different materials, features and properties to broadly meet fluctuating requirements between applications. For more detailed information on Saint-Gobain Life Sciences' tubing products, please find our tubing selection guide by visiting biopharm.saint-gobain.com

FLUOROPOLYMER

Extremely high chemical resistance properties.

- PharmaFluor® FEP

SILICONE

Often a default tubing selection when sealing and welding is not required.

- Sani-Tech® STHT®-C
- Sani-Tech® STHT®-65
- Sani-Tech® Ultra-C
- Sani-Tech® Ultra-65
- Sani-Tech® STHT®-R
- Sani-Tech® SPT-60L
- Tygon® 3350

THERMOPLASTIC ELASTOMER (TPE)

Used when sealing and welding of tubing is needed.

- C-Flex® 374
- C-Flex® 072
- C-Flex® 082
- C-Flex® Braided
- PharMed® BPT
- PharmaPure®

Saint-Gobain Life Sciences follows an open architecture approach to component selection, including tubing, so we are able to incorporate non-Saint-Gobain Life Sciences tubing products into our bag assemblies should your project require it.

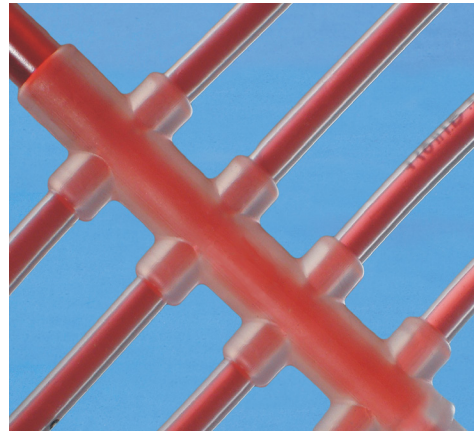
OVERMOLDED TUBING

If your bag assembly requires branching fluid pathways, you may consider overmolded tubing sub-assemblies. Overmolded tubing sub-assemblies provide leak-proof connectivity, operator protection, and flow continuity that are superior to mechanical joining. They also eliminate the need for manual assembly of many sections of tubing with rigid joints and connectors. Furthermore, they provide an integrally bonded connection with superior strength, reliability, and product integrity.

WYES



CROSSES AND TEES



REDUCERS



TRI-CLAMPS



TUBING RETAINERS

If overmolding is not possible, several mechanical joining options exist to secure the tubing of your choice to the hose barbs of insert and flange ports on your custom bag assembly.



BARBLOCK®

Offering a uniform 360-degree radial crimp and compression around the connection area, Saint-Gobain Life Sciences' BarbLocks are the best choice to ensure your tubing connections remain integral and leak-free.



OTHER TUBING RETAINERS

Other options exist for securing tubing to the hose barbs of a bag's ports, particularly if very large tubing or hoses are specified. However, some of these options do not provide 360-degree radial crimp and compression or direct compression over the barb. Proper positioning and tensioning of these retainers are required to reduce the risk of tube distortion and pinching. Furthermore, some of these options have sharp edges that can result in damage to materials or injury to operators if not carefully handled.

FITTINGS AND COMPONENTS

Important for controlling fluid processing into adjacent process steps, Saint-Gobain Life Sciences offers numerous fittings and components from its own portfolio or sourced from other suppliers to complete your bioprocess bag assembly.

- Needleless luer lock ports
- Tri-clamp connectors
- Gendered or genderless connect-disconnects
- Gendered or genderless sterile connects-disconnects
- Liquid or vent filters
- Sensors (temperature, pH, conductivity, etc)





YOUR CUSTOM BAG ASSEMBLY

No matter how challenging your application may be, our team has the experience and capabilities to produce single-use bags that will get the job done. Depending on your geographic location, bag assembly will take place at our facility in Plymouth, MN in the USA or Hangzhou, China. Both facilities conduct assembly operations in a certified ISO Class 7 cleanroom. Our salespeople and designers are ready to guide you through the design process and ensure your bag solution is expertly paired with your process.