



Duoning Single-Use Technologies
**Elevating Process Excellence,
Empowering Flexible Manufacturing.**

ONE-STOP
BIOPROCESSING PLATFORM

www.duoningbio.com





Amid the accelerating evolution of the global biopharmaceutical industry, single-use technologies are increasingly becoming a key engine driving industry advancement. By significantly reducing the risk of cross-contamination, enhancing production flexibility, and shortening process changeover times, single-use systems are reshaping biopharmaceutical manufacturing models. They enable manufacturers to allocate capacity more efficiently, respond more rapidly to market demands, and comprehensively improve process quality, safety, and compliance.

In response to this industry trend, Duoning Biotech positions itself as a comprehensive provider of single-use system solutions, delivering professional support across research and development, pilot-scale studies, and commercial manufacturing. The company is dedicated to the development, manufacturing, and supply of single-use bioprocess products. Its portfolio includes single-use mixing bags, storage bags, cryogenic bags, bioreactor bags, silicone tubing, single-use process assemblies, and a wide range of connection components. Together, these products form a complete single-use solution covering preparation, transfer, storage, and application, offering biopharmaceutical manufacturers stable, flexible, and highly reliable fluid management solutions.

Duoning Biotech operates a modern manufacturing facility designed and managed in accordance with international quality management principles and has successfully passed rigorous quality audits conducted by customers worldwide. From raw material selection and process control to final product release, the entire production system ensures high consistency and full traceability. The facility spans over 30,000 square meters,

including more than 20,000 square meters of GMP-compliant Grade C cleanroom manufacturing areas, covering critical steps in single-use product manufacturing, with Grade A laminar airflow protection implemented at key operations. Supported by a mature and validated production system, Duoning Biotech maintains stable and sufficient manufacturing capacity to continuously meet large-scale commercial production demands.

Beyond product manufacturing, Duoning Biotech places equal emphasis on engineering and application value. The company has established comprehensive single-use system engineering capabilities, delivering highly customized solutions tailored to specific process scenarios and operational requirements. From interface design and tubing configuration to overall fluid path planning, Duoning Biotech is committed to aligning single-use systems more closely with real-world bioprocess operations, improving both operational efficiency and user experience.

Leveraging deep insight into bioprocess requirements and extensive industry experience, Duoning Biotech has built long-term partnerships with numerous leading global biopharmaceutical companies. By continuously integrating high-quality materials, advanced manufacturing technologies, and industry best practices into its products and services, the company delivers single-use system solutions that are both reliable and competitive.

Duoning Biotech strives to be a trusted partner, providing solid support for efficient operation, safe production, and innovative growth of global biomanufacturing.

DuoMix® Mini Benchtop Magnetic Mixing System

The mixing system is mainly used for the mixing and storage steps in the preparation of culture media, buffers, intermediates, and semi-finished products. Duoning has independently developed the 2 L–20 L DuoMix® benchtop mixing system, along with compatible 3D mixing bags and other products, providing a one-stop overall mixing solution suitable for process development and small-scale GMP production applications.

The DuoMix® Mini benchtop magnetic mixing system consists of three parts: a control system, a base with a magnetic drive motor and weighing module, and a support container. The controller can connect to three mixing bases, driving three mixing units simultaneously to maximize efficiency. The drive unit transmits power to the mixing bag via magnetic coupling, making operation simple and easy. Optional modules include pH and conductivity sensors, temperature sensors, temperature control units, and peristaltic pumps.

The software interface of the DuoMix® Mini benchtop magnetic mixing system is user-friendly and supports at least three levels of authorizations, recipe editing, alarm functions, sensor calibration, data recording and export, and audit trail functions.



DuoMix® Mini Benchtop Magnetic Mixing System

- Equipped with a 13" color multi-point HD touchscreen for easy user operation.
- Two I/O channels, allowing easy expansion of input and output functions.
- Easy operation:
 - Mistake-proof quick connectors: pumps and sensors can be connected to the DuoMix® Mini via cables for plug-and-play, without complex installation, setup, or wiring.
 - Intelligent sensor disconnection detection.
- Provides USB and RJ45 network interfaces.
- Supports commonly used protocols such as Modbus and OPC UA for easy data integration.
- Software interface is simple and user-friendly, with comprehensive data management, multi-level user management, and customizable user group authorizations.
- DuoMix® Mini has powerful data processing capabilities; with the weighing module and optional modules such as pH and conductivity sensors, temperature sensors, and temperature control units, it allows real-time monitoring and viewing of prepared samples or buffers, parameter setting, and recipe editing, as well as trend analysis. Generates RPM-time curves, weight-time curves, pH-time curves, conductivity-time curves, and temperature-time curves to visually display dynamic changes of sample data. Process data can be viewed in three formats: dashboard, table, and curve graph.
- Historical data, batch data, alarm data, and audit data can be viewed online.
- Supports calibration of weighing modules, pH sensors, conductivity sensors, and temperature sensors, with records saved for review.
- DuoMix® Mini supports data upload, backup, and recovery: built-in storage over 100 GB, enabling long-term data storage and ensuring data security and reliability.
- Data export function: data reports can be exported in PDF format.
- "One-to-three" efficient mixing: modular structure allows one main unit to support 2 L, 5 L, 10 L, and 20 L support containers. The controller can connect to three stirring bases to drive three mixing units simultaneously, maximizing efficiency.
- Equipped with a dot-matrix printer for convenient real-time data printing and analysis.

DuoMix® Mini Benchtop Magnetic Mixing System

Performance/Parameters

Item	Description
Controller Dimensions (L × W × H, mm)	410 × 450 × 250
Base Dimensions (L × W × H, mm)	400 × 370 × 150
Controller & Base Material	ABS
Holder Material	PMMA (Acrylic) or SUS304 Stainless Steel
Rated Voltage	220V / 50Hz or 110V / 50Hz
Rated Current	2.4A
Rated Power	200W
Weighing Range (Net/kg)	0–20 kg
Weighing Accuracy	3‰ (Full Scale)

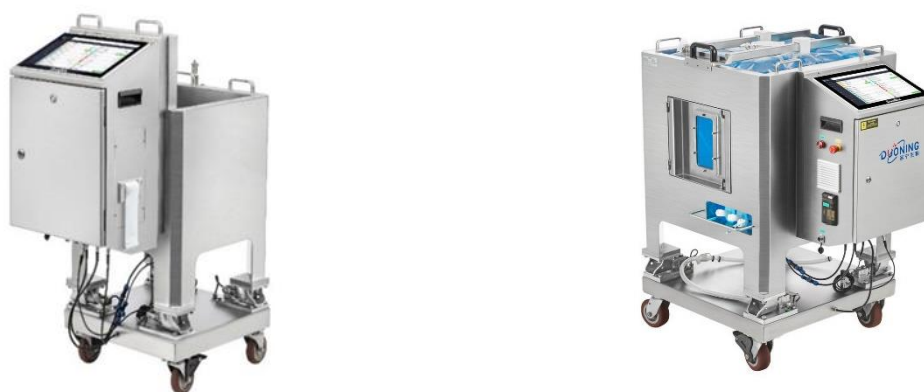
Ordering Information

Catalog Number	Unit	Name	Description	Remarks
DM-87901	pc	Benchtop Mixing Controller	Includes industrial computer, buzzer, emergency stop, PLC, dot-matrix printer, etc.	Standard
DM-68001	pc	Benchtop Mixing Base	Includes weighing base, drive motor, data cable to connect main unit, etc.	Standard
DM-43000	set	2, 5, 10, 20L Holder Set	Sold as a complete set, includes four holder sizes	Optional
DM-43002	pc	2L Holder	2L Holder	Optional
DM-43005	pc	5L Holder	5L Holder	Optional
DM-43010	pc	10L Holder	10L Holder	Optional
DM-43020	pc	20L Holder	20L Holder	Optional
DM-44005	pc	5L Jacket Holder	5L Jacket Holder	Optional
DM-44010	pc	10L Jacket Holder	10L Jacket Holder	Optional
DM-44020	pc	20L Jacket Holder	20L Jacket Holder	Optional
DM-260MP	pc	pH Module / Mettler (with data cable)	pH Module / Mettler (includes data cable)	Optional
DM-260HP	pc	pH Module / Hamilton (with data cable)	pH Module / Hamilton (includes data cable)	Optional
DM-260MC	pc	Cond Module / Mettler (with data cable)	Cond Module / Mettler (includes data cable)	Optional
DM-260HC	pc	Cond Module / Hamilton (with data cable)	Cond Module / Hamilton (includes data cable)	Optional
DM-26SHP	pc	Disposable pH Transmitter / Hamilton (with data cable)	Disposable pH transmitter / Hamilton (includes data cable, electrode not included)	Optional
DM-260PT	pc	PT100 Temperature Sensor	Temperature sensor	Optional
DM-130PA	roll	Printing Paper	Printing paper	Consumable

DuoMix® Floor-Standing Magnetic Mixing System

The mixing system is mainly used for the mixing and storage steps during the preparation of culture media, buffer solutions, intermediates, and semi-finished products. Duoning independently developed the DuoMix® floor-standing mixing systems (50 L–3000 L) along with compatible 3D mixing bags, providing a one-stop integrated mixing solution suitable for process development and large-scale production.

The DuoMix® floor-standing magnetic mixing system consists of a control cabinet, tank, and drive motor. The control cabinet is mounted on the tank in an integrated design, while the drive motor and magnetic coupling are located at the bottom of the tank. A weighing module is positioned above the casters. The system is compatible with commonly used impeller types and can be equipped with optional modules such as pH and conductivity sensors, temperature sensors, a temperature control unit, and a peristaltic pump. Additionally, the appearance, dimensions, and shape can be highly customized to meet diverse process and workflow requirements.



DuoMix® Floor-Standing Magnetic Mixing System and Compatible 3D Mixing Bags

The software interface of the DuoMix® benchtop and floor-standing magnetic mixing systems is user-friendly, supporting at least three levels of access authorization, recipe editing, alarm functions, sensor calibration, data recording and export, and audit trail capabilities.

- Equipped with a 13" full-color multi-touch HD screen, providing convenient user operation;
- Features two I/O channels, allowing easy expansion of input and output functions;
- Easy to operate:
 - Anti-misplug quick connectors: Pumps and sensors can be connected to the DuoMix® via cables for plug-and-play operation, without complex installation, setup, or wiring;
 - Intelligent detection of sensor disconnection;
- Provides USB and RJ45 network interfaces;
- Supports common communication protocols such as Modbus and OPC, enabling easy data exchange deployment;
- The software interface is simple and user-friendly, featuring comprehensive data management, multi-level user management, and customizable user group authorizations;
- DuoMix® offers powerful data processing capabilities - with the weighing module and optional pH and conductivity sensors, temperature sensors, and temperature control unit - enabling real-time monitoring and display of samples or buffer solutions, parameter setting, recipe editing, and trend analysis. It can generate visual graphs such as speed - time, weight - time, pH - time, conductivity - time, and temperature - time curves. Process data can be viewed in dashboard, table, or trend chart formats;
- Supports online viewing of historical data, batch data, alarm logs, and audit trails;
- Allows calibration and record storage for weighing, pH, conductivity, and temperature sensors;
- DuoMix® features data upload, backup, and restore functions with over 100 GB of built-in storage, supporting long-term data retention to ensure data security and reliability.
- Data export function: Data reports can be exported in PDF format.

DuoMix® Floor-Standing Magnetic Mixing System

Performance/Parameters

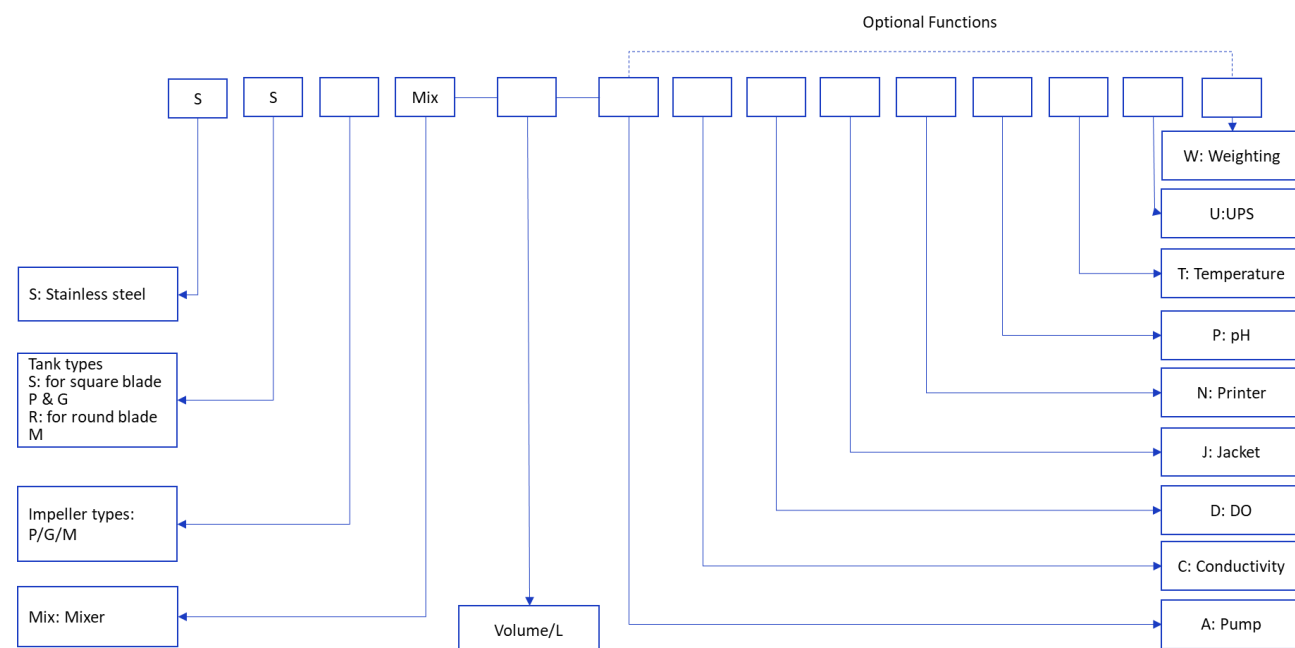
Item	Description
Maximum Working Volume	50L, 100L, 200L, 300L, 500L, 1000L, 1500L, 2000L, 2500L, 3000L
Maximum Speed	220 RPM*
Main Material	SUS304
Surface Polishing	Ra ≤ 0.8 μm
Rated Voltage	220V/50 Hz or 110V/50 Hz
Rated Current	4.8 A
Rated Power	750 W
Standard Function	Mixing
Optional Functions	Weighing, pH Monitoring, Conductivity Monitoring, Dissolved Oxygen, Temperature Monitoring, Printing, Data Integrity, UPS
Weighing Accuracy	3‰ (Full Scale)

* The rotation speed depends on the type of impeller in the corresponding mixing bag, with a default speed of 220 rpm.



Ordering Information

The product number is assigned according to the following naming rule, with optional function codes filled in sequentially according to their order.



For example:

- A 100 L mixing system equipped with a P-type impeller, single impeller, square tank, and no optional functions has the product number: SSPMix-100L.
- A 2500 L mixing system equipped with a G-type impeller, dual impellers, and optional conductivity, jacket, label printing, temperature, and weighing functions has the product number: SSGGMix-2500L-CJNTW.
- A 500 L mixing system equipped with an M-type impeller, single impeller, and optional dissolved oxygen, jacket, and UPS functions has the product number: SRMMix-500L-DJU.

(Optional code letters follow alphabetical order to avoid confusion. Include the corresponding code only if the related function is selected; otherwise, leave it blank.)

Note: Appearance dimensions, volume, shape, and functional parameters can be customized. For details, please contact your local sales or technical representative.

DuoMix® Single-use Mixing Bag

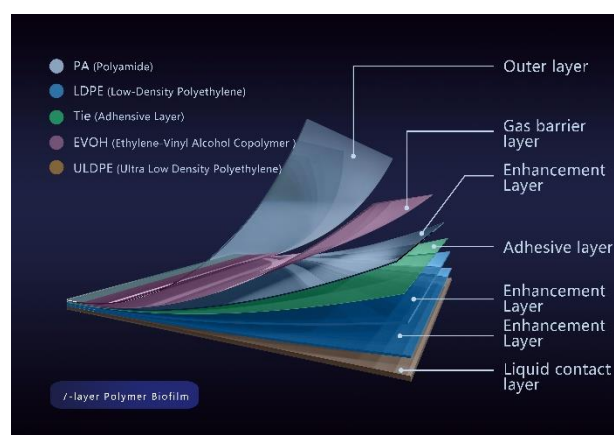
3D mixing bag from Duoning can be used with Duoning mixing systems, and bags fit for other industry mixing systems are also available. It is a product specially developed for liquid-liquid and liquid-solid mixing in the biopharmaceutical process. The bags are available from 2 L to 3,000 L, and can be customized according to customers' requirements. The DuoFilm-001 film used in these bags is 7-layer laminated bio-specific film with a thickness of 0.3 mm, and the liquid contact layer of ULDPE provides excellent physicochemical and biocompatibility properties. Duoning 3D liquid storage bag fully complies with cGMP and biopharmaceutical operation requirements in terms of raw materials, product assembly, and sterilization processes.

Applications

- Preparation of buffers and media
- Temporary storage, mixing and temperature control of intermediates
- Low pH incubation/virus inactivation
- Preparation of semi-finished products
- Adjuvant addition and mixing

Features

- Comply with USP<85>, USP<87>, USP<88>, USP<661>, ISO10993, etc.
- Wide size ranges from 2 L to 3,000 L
- Customizable
- Excellent mixing quality in short time
- Quick response, short lead time



DuoFilm-001 Structure Diagram

Function Design

Item	Description
Volume	2 L, 5 L, 10 L, 20 L, 100 L, 200 L, 500 L, 1,000 L, 1,500L, 2,000L, 2,500L, 3,000 L
Configuration	Mixer, feeding ports, with temperature, pH and conductivity monitor
Material	Main body: PE; Connectors and other parts: PP; Tubing: Platinum cured silicone, TPE
Options	Configurable for size, shape, inlet and outlet tubing, connectors, etc.

Note: For more customized design, please contact Duoning technical support team or your local Duoning sales representatives.

Single-use 2D Liquid Storage Bag

2D liquid storage bag from Duoning is a product specially developed for liquid storage and transfer in the biopharmaceutical environment. The bags are available from 5 mL to 50 L and can be customized according to customers' requirements.

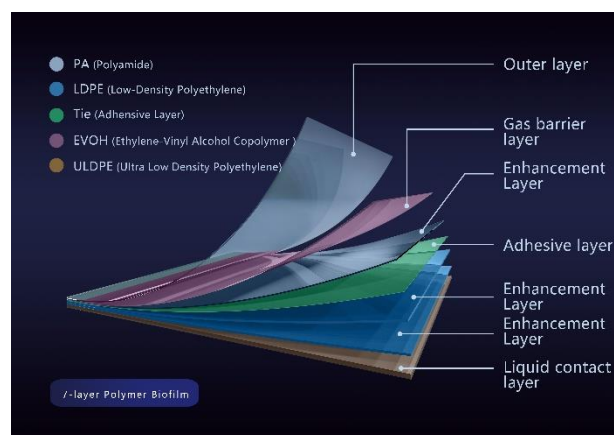
The DuoFilm-001 film used in these bags is 7-layer laminated bio-specific film with thickness of 0.3 mm, and the liquid contact layer of ULDPE provides excellent physicochemical and biocompatibility properties. Lianghei 2D liquid storage bag fully complies with cGMP and other biopharmaceutical operation requirements in terms of raw materials, product assembly, and sterilization processes.

Applications

- Sterile filtration and storage of buffer and media
- Bulk harvest
- Component collection
- Sample collection
- Storage of intermediates
- Shipment of final product

Features

- Comply with USP<85>, USP<87>, USP<88>, USP<661>, ISO10993, etc.
- Wide size ranges from 5 mL to 50 L
- Customizable
- Quick response, short lead time



DuoFilm-001 Structure Diagram

Single-use 3D Collapsible Cubic Liquid Storage Bag

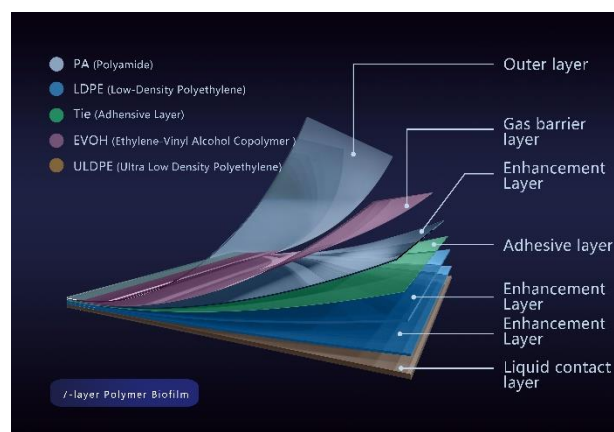
Collapsible cubic liquid storage bag/3D liquid storage bag from Duoning is a product specially developed for liquid storage and transfer in the biopharmaceutical environment. The bags are available from 50 L to 3000 L and can be customized according to customers' requirements. The DuoFilm-001 film used in these bags is 7-layer laminated bio-specific film with a thickness of 0.3 mm, and the liquid contact layer of ULDPE provides excellent physicochemical and biocompatibility properties. Duoning collapsible cubic liquid storage bag/3D liquid storage bag fully complies with cGMP and biopharmaceutical operation requirements in terms of raw materials, product assembly, and sterilization processes.

Applications

- Sterile filtration and storage of buffer and medium
- Bulk harvest
- Component collection
- Sample collection
- Storage of intermediates
- Shipment of final product

Features

- Comply with USP<87>, USP<88>, USP<661>, ISO10993, etc.
- Wide size ranges from 38 L to 568 L for barrel liquid storage bag, and 50 L to 3,000 L for cubic liquid storage bag
- Customizable
- Quick response, short lead time



DuoFilm-001 Structure Diagram

Single-use 3D Drum Bag

3D liquid storage drum bag from Duoning is a product specially developed for liquid storage and transfer in the biopharmaceutical environment. The bags are available from 38 L to 568 L and can be customized according to customers' requirements. The DuoFilm-001 film used in these bags is 7-layer laminated bio-specific film with a thickness of 0.3 mm, and the liquid contact layer of ULDPE provides excellent physicochemical and biocompatibility properties.

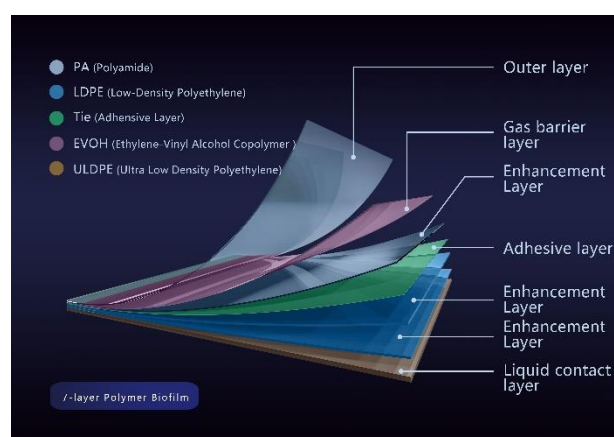
Duoning 3D liquid storage drum bag for barrel fully complies with cGMP and biopharmaceutical operation requirements in terms of raw materials, product assembly, and sterilization processes.

Applications

- Sterile filtration and storage of buffer and medium
- Bulk harvest
- Component collection
- Sample collection
- Storage of intermediates
- Shipment of final product

Features

- Comply with USP<85>, USP<87>, USP<88>, USP<661>, ISO10993, etc.
- Wide size ranges from 38 L to 568 L
- Customizable
- Quick response, short delivery time



DuoFilm-001 Structure Diagram

Single-use Open Lined Bag

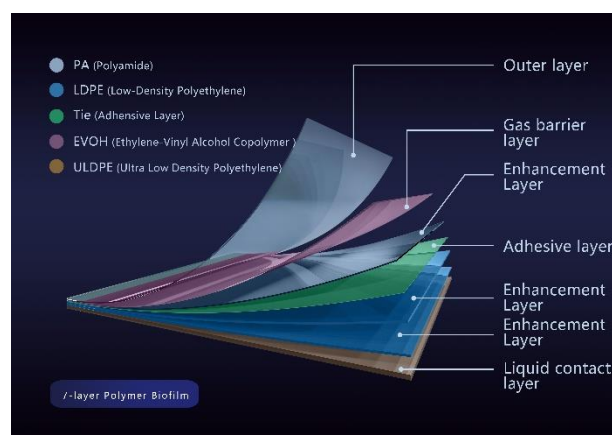
Open lined bag from Duoning is a product specially developed for liquid storage and transfer in the biopharmaceutical environment. The bags are available from 38 L to 568 L, and can be customized according to customers' requirements. The DuoFilm-001 film used in these bags is 7-layer laminated bio-specific film with a thickness of 0.3 mm, and the liquid contact layer of ULDPE provides excellent physicochemical and biocompatibility properties. Duoning open lined bag fully complies with cGMP and biopharmaceutical operation requirements in terms of raw materials, product assembly, and sterilization processes.

Applications

- Preparation of buffer and medium
- Temporary storage of liquid

Features

- Comply with USP<85>, USP<87>, USP<88>, USP<661>, ISO10993, etc.
- Wide size ranges from 38 L to 568 L
- Customizable
- Quick response, short lead time



DuoFilm-001 Structure Diagram

Single-use Feeding Bag

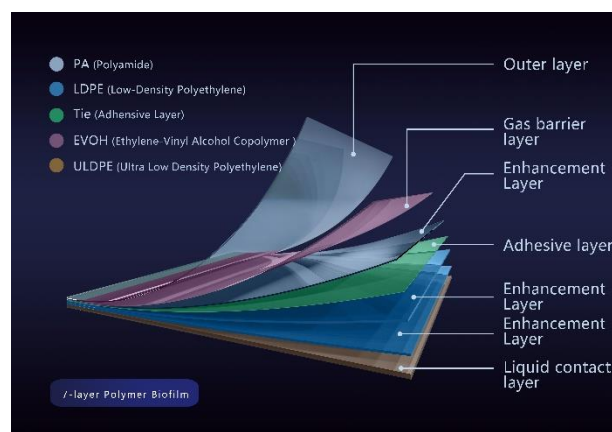
Weighing and feeding integrated bags from Duoning are products specially developed for liquid storage and transfer in the biopharmaceutical environment. The bags are available from 5 L to 50 L and can be customized according to customers' requirements. The DuoFilm-001 film used in these bags is a 7-layer laminated bio-specific film with a thickness of 0.3 mm, and the liquid contact layer of ULDPE provides excellent physicochemical and biocompatibility properties. Duoning weighing and feeding integrated bags fully comply with cGMP and other biopharmaceutical operation requirements in terms of raw materials, product assembly, and sterilization processes.

Applications

- Solid/liquid weighing
- Solid/liquid transfer
- Solid/liquid feeding

Features

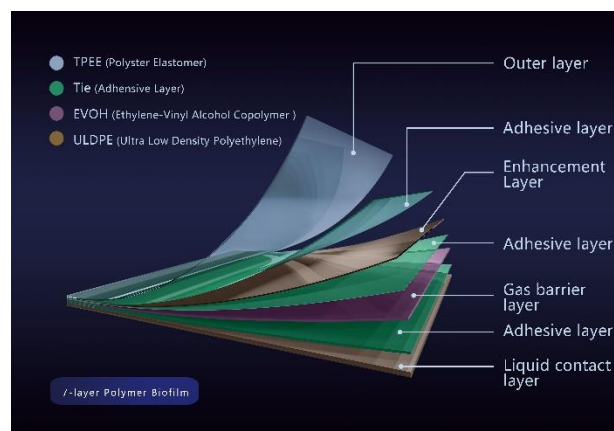
- Comply with USP<85>, USP<87>, USP<88>, USP<661>, ISO10993, etc.
- Wide size ranges from 5 L to 50 L
- Customizable
- Quick response, short lead time



DuoFilm-001 Structure Diagram

GlacierStore™ Single-use Freeze–Thaw Bag

To ensure the stability and safety of bulk solutions during freezing, thawing, and transfer, Duoning offers an innovative cold-chain transportation solution designed for biopharmaceutical users. This solution enables easy operation while ensuring consistency and reproducibility of freeze–thaw processes in biopharmaceutical research and manufacturing. The GlacierStore™ single-use freeze–thaw bag, independently developed and manufactured by Duoning Group's Lianghei facility, utilizes Duoning's proprietary DuoFilm-002 seven-layer co-extruded film with a thickness of 0.325 mm and an ULDPE liquid-contact layer. The film features high strength, toughness, and resistance to low temperatures and aging, allowing reliable storage at temperatures as low as –80 °C. The product is manufactured and packaged in a cleanroom compliant with ISO 14644-1:2015 Class 7, meeting relevant USP, FDA, ISO, and European Pharmacopoeia standards. Extractables testing is conducted by internationally recognized third-party laboratories following BPOG guidelines. Freeze–thaw testing has shown that, after irradiation, the product maintains all performance characteristics unaffected following storage at –80 °C and subsequent thawing at room temperature, fully complying with the relevant standards.



DuoFilm-002 Structure Diagram

- Bag + shell pre-assembled structure, available in three sizes: 2 L, 6 L, and 12 L
- Proprietary DuoFilm-002 seven-layer co-extruded film with excellent performance, suitable for long-term storage at –80 °C
- Advanced welding technology, with heat-seal strength > 30 N/15 mm
- After freezing, the product passes integrity and connection strength tests, ensuring no risk of leakage
- Gamma-irradiated sterilized version, dose 25–45 kGy; SAL confirmed to 10^{–6} according to ISO 11137 VDMAX25 method
- Single-use, reducing contamination risk
- Non-cytotoxic and non-hemolytic
- Liquid-contact materials comply with USP <88> Class VI
- Animal-derived component-free (ADCF)
- TSE/BSE-free
- Bacterial endotoxin < 0.25 EU/mL
- Single-use freeze–thaw bag complies with RoHS, REACH, SDS, and other relevant regulations
- Extractables study reports and validation documents available
- Shelf life: 2 years after irradiation

Relevant Testing

Chemical Compatibility	
Acidic solutions	Acceptable
Alkaline solutions	Acceptable
Common organic solvents	Test before use

* For further information on chemical compatibility, please contact our sales or technical team.

Physical Performance	
Irradiation resistance test	Pass
Repeated freeze–thaw test	Pass
Drop test	ASTM D4169
Connection strength, heat-seal strength, and integrity tests before and after freezing	Pass
Physicochemical tests	USP<661>, EP< 3.2.2.1>

Biocompatibility and Particles	
<i>In vitro</i> biocompatibility	USP<87>, ISO 10993-3, ISO 10993-4, ISO 10993-5
<i>In vivo</i> biocompatibility	USP<88>, ISO 10993-6, ISO 10993-10, ISO 10993-11
Bacterial endotoxin	USP<85>
Extractables	BPOG
Insoluble particles	USP<788>

GlacierStore™ Single-use Freeze–Thaw Bag

Maximum Filling Volume

The low-temperature resistance and freeze–thaw protection performance of Duoning's GlacierStore™ single-use freeze–thaw bags have been rigorously validated. When used with the protective shell, the bag design supports the maximum possible filling volume to meet user needs. The corresponding relationship between bag capacity and filling volume is as follows:

Freeze–Thaw Bag (with Shell) Specification	Maximum Filling Volume
2 L	2 L
6 L	5.5 L
12 L	12 L



Ordering Information

Product Name	Catalog Number	Configuration	HDPE Shell Dimension (Length*Width*Height, mm)	Packaging Specification
GlacierStore™ single-use freeze–thaw bag, 2 L, with silicone tubing, quick connector, HDPE shell	SUS-S-R000212G	Inlet: Silicone tubing + CPC female connector + plug	469*370*84	4 pieces/box
GlacierStore™ single-use freeze–thaw bag, 6 L, with silicone tubing, quick connector, HDPE shell	SUS-S-R000612G	Outlet: Silicone tubing + CPC male connector + plug	648*430*105	2 pieces/box
GlacierStore™ single-use freeze–thaw bag, 12 L, with silicone tubing, quick connector, HDPE shell	SUS-S-R001212G	Sampling: 20 cm silicone tubing + needle-free sampler	743*512*120	2 pieces/box
GlacierStore™ single-use freeze–thaw bag, 2 L, with silicone tubing, aseptic connector, HDPE shell	SUS-S-R000222G	Inlet: Silicone tubing + CPC aseptic connector	469*370*84	4 pieces/box
GlacierStore™ single-use freeze–thaw bag, 6 L, with silicone tubing, aseptic connector, HDPE shell	SUS-S-R000622G	Outlet: Silicone tubing + CPC aseptic connector	648*430*105	2 pieces/box
GlacierStore™ single-use freeze–thaw bag, 12 L, with silicone tubing, aseptic connector, HDPE shell	SUS-S-R001222G	Sampling: 20 cm silicone tubing + needle-free sampler	743*512*120	2 pieces/box
GlacierStore™ single-use freeze–thaw bag, 2 L, with thermoplastic tubing, HDPE shell	SUS-S-R000232G	Inlet: Thermoplastic tubing + plug	469*370*84	4 pieces/box
GlacierStore™ single-use freeze–thaw bag, 6 L, with thermoplastic tubing, HDPE shell	SUS-S-R000632G	Outlet: Thermoplastic tubing + plug	648*430*105	2 pieces/box
GlacierStore™ single-use freeze–thaw bag, 12 L, with thermoplastic tubing, HDPE shell	SUS-S-R001232G	Sampling: 20 cm silicone tubing + needle-free sampler	743*512*120	2 pieces/box

*The main tubing length for the 2 L bag is 66 cm/74 cm, for the 6 L bag is 89 cm/93 cm, and for the 12 L bag is 108 cm/112 cm.

*The product is double-layer vacuum-sealed in individual packaging, with product labeling on the package for batch traceability.

*The HDPE shell and bag are pre-assembled; the company assumes no responsibility for any leakage resulting from unauthorized disassembly.

*All catalog numbers above refer to standard configurations. Duoning can also provide shell-free freeze–thaw bags in 10 mL, 50 mL, or 150 mL sizes for process validation and development use. For these smaller bag volumes or assembly services, please contact your local sales or technical team for customized solutions.

SheerTainer™ Single-use Bioprocess Polycarbonate (PC) Bottles & Assemblies

The SheerTainer™ single-use bioprocess polycarbonate (PC) bottles are independently developed by Duoning Biotech, with volumes ranging from 5 mL to 20 L. The bottle graduations are blow-molded as an integral part of the body, preventing peeling. The gamma-irradiated version is dosed at 25–45 kGy, with a sterility assurance level (SAL) of 10^{-6} . The robust threaded neck design effectively prevents leakage, ensuring a secure seal between the cap and container. With a temperature range of -80°C to 100°C , the bottles exhibit excellent thermal performance, making them suitable for freezing, thawing, and transporting biopharmaceutical products.

Additionally, accessories such as silicone tubing, thermoplastic tubing, integrated silicone injection-molded components, and aseptic connectors can be assembled in a Grade C clean environment, with optional gamma sterilization. This enables one-step product delivery tailored to customer requirements, effectively reducing assembly and cleaning/validation time.

- Complete size range, from 5 mL to 20 L
- Temperature range: -80°C to 100°C
- PC bottle body design, sturdy and impact-resistant under low-temperature conditions
- White PE cap with robust threaded neck design to prevent leakage and ensure a secure seal between the cap and container
- Injection-stretch-blow molding process ensures better product stability
- For bottles ≥ 125 mL, integrated blow-molded graduations resist peeling; molded handles make handling easier
- Gamma-irradiated sterilized version, dose 25–45 kGy; SAL confirmed to 10^{-6} according to ISO 11137 VDMAX25 method
- 2–4 port 48 & 70 mm Hose-Barbed PE caps available for customized tubing assemblies, with rapid response and extensive customization experience
- Non-cytotoxic and non-hemolytic
- BSE/TSE statement available
- Bacterial endotoxin < 0.25 EU/mL
- PC bottles comply with RoHS, REACH, SDS, and other relevant regulations
- Extractables study reports and validation documents available
- Shelf life: 2 years after irradiation

Applications

- Storage, thawing, and transport of high-value bulk solutions
- Storage and transport of cell culture media
- Component collection and storage/transport of intermediates
- Single-use system assembly

Relevant Testing

Chemical Compatibility	
Acidic, dilute/weak	Acceptable
Common organic solvents	Acceptable
Acidic, concentrated/strong	Test before use
Alkaline solutions	Test before use

* For further information on chemical compatibility, please contact our sales or technical team.

Physical Performance	
Irradiation resistance test	Pass
Repeated freeze–thaw test after irradiation	Pass
Drop test after freezing	ASTM D4169
Physicochemical tests	USP<661>

Biocompatibility and Particles	
<i>In vitro</i> biocompatibility	USP<87>, ISO 10993-4
<i>In vivo</i> biocompatibility	USP<88>
Bacterial endotoxin	USP<85>
Extractables	BPOG
Insoluble particles	USP<788>



SheerTainer™ Single-use Bioprocess Polycarbonate (PC) Bottles & Assemblies



Ordering Information

Product Name	Catalog Number	Cap Size (mm)	Shape and Size (mm)	Packaging Specification
SheerTainer™ single-use bioprocess PC bottle, 5 mL	SUS-COPC0005G	20	Cylindrical, 22 × 46	25 pieces/package, 20 packages/box
SheerTainer™ single-use bioprocess PC bottle, 20 mL	SUS-COPC0020G	20	Cylindrical, 30 × 69	25 pieces/package, 20 packages/box
SheerTainer™ single-use bioprocess PC bottle, 125 mL	SUS-COPC0125G	48	Cuboidal, 59 × 95	5 pieces/package, 10 packages/box
SheerTainer™ single-use bioprocess PC bottle, 500 mL	SUS-COPC0500G	48	Cuboidal, 83 × 152	2 pieces/package, 24 packages/box
SheerTainer™ single-use bioprocess PC bottle, 1 L	SUS-COPC001LG	48	Cuboidal, 101 × 187	2 pieces/package, 14 packages/box
SheerTainer™ single-use bioprocess PC bottle, 2 L	SUS-COPC002LG	48	Cuboidal, 120 × 240	1 piece/package, 20 packages/box
SheerTainer™ single-use bioprocess PC bottle, 5 L	SUS-COPC005LG	70	Cuboidal, 168 × 322	1 piece/package, 6 packages/box
SheerTainer™ single-use bioprocess PC bottle, 10 L	SUS-COPC010LG	70	Cuboidal, 212 × 395	1 piece/package, 3 packages/box
SheerTainer™ single-use bioprocess PC bottle, 20 L	SUS-COPC020LG	70	Cuboidal, 256 × 500	1 piece/package, 3 packages/box

*A non-irradiated version is available; the catalog number for the non-irradiated version is the same as above, with the "G" removed.

*For the non-irradiated version, the minimum order unit is "package"; for the irradiated version, the minimum order unit is "box."

*The product is double-layer vacuum-sealed, with product labeling on the package for batch traceability.

*The bottle body and cap are pre-assembled; the cap is a smooth, barb-free sealing cap.

*For inquiries about Hose-Barbed cap and manifold system assembly services, please contact your local sales or technical team.

Single-Use Aseptic Sampling System

Duoning Biotech's single-use aseptic sampling system is a convenient and safe single-use bioprocess solution. This closed system comprises aseptic sampling connectors, sampling containers (PC bottles, centrifuge tubes, 2D bags, etc.), tubing, and various customized components. It supports overall gamma-irradiation sterilization, requiring no cleaning or sterilization by the user, and can be directly connected to equipment, ensuring a more efficient and safer process.

Typical Applications

- Cell culture sampling
- Endotoxin sampling
- Sterility testing
- Bioburden testing
- Chemical and pH analysis

Features

- Single-use pre-assembled system, ready to use, improving operational efficiency;
- Single-use closed system, reducing the risk of sample contamination during the process;
- No cleaning or re-validation required, offering greater convenience;
- Supports customized solutions to meet specific sampling needs;
- All system components are standardized products with complete specifications.



Aseptic Sampling System Components

Aseptic Sampling Base



Reusable option ensures compatibility with all stainless-steel equipment



Single-use option features a twist-and-press design for precise sampling

The aseptic sampling base, independently manufactured by Duoning Biotech, is available in two material options: stainless steel and PA66. Both types can be connected to up to five needle-based sampling devices simultaneously, with each system featuring an independent fluid path to effectively minimize the risk of cross-contamination between systems.

This aseptic sampling base is designed to enable seamless integration between single-use systems and equipment, maintaining sterility, integrity of the contents, and operator safety under specific process conditions. Our technical service team will work closely with you throughout the entire process to understand your workflow, develop customized design solutions, and provide a validated implementation plan.

Single-Use Aseptic Sampling System

Common Sampling Devices



2D aseptic sampling bag



Aseptic sampling bottle

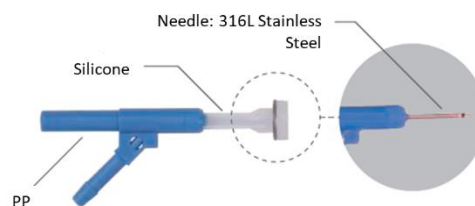


2D tandem sampling bag



Pre-assembled single-use base and sampling bag

Ordering Information



Components	Specifications	Materials	Catalog Number	Packaging Specification
Aseptic sampling base (stainless steel)	Compatible with 1.5 mm sampling needle	Connection part: 316L stainless steel	SUS-OC-8008728	1 piece/package
	Compatible with 2.5 mm sampling needle	Handle: PPSU	SUS-OC-8008729	1 piece/package
Aseptic sampling base (single-use)	Compatible with both 1.5 mm and 2.5 mm sampling needles	PA66	Provided as customized with consumables	/
Aseptic sampling needle	1.5 mm sampling needle	Needle: 316L stainless steel	Provided as customized with consumables	/
	2.5 mm sampling needle	Handle: PP (1.5 mm – green; 2.5 mm – blue)	Provided as customized with consumables	/
Silicone sealing sleeve	Compatible with 1.5 mm sampling needle	Silicone	SUS-C-8015288	50 pieces/package
	Compatible with 2.5 mm sampling needle		SUS-C-8015289	50 pieces/package

HPT Platinum Cured Silicone Tubing

Platinum cured silicone tubing (HPT, Highly Pure Tubing) is independently developed and produced by Duoning. It is designed to meet the requirement of high flexibility, durability, elasticity, and visibility of tubing in biopharmaceutical process fluid transferring. It features good flow stability, low extractables and leachables, and smooth inner surface, contributes to precise process control and high purity products. The product has undergone a lot of tests and complies with USP, FDA, CFR177.2600, ISO10993 and European Pharmacopoeia and other relevant standards. The extractables study is conducted by an international third-party laboratory in accordance with BPOG standards and provides validation documents to ensure that the overall quality is controllable and traceable.



Applications

- High-purity fluid transferring
- Buffer and medium preparation
- Cell culture and harvest
- Fermentation
- Filtration
- Filling
- Single-use system assembly

Features

- Complete size specifications, with inner diameter from 1/8" to 1"
- Working temperature range: -60°C~200°C
- Animal derived component free (ADCF)
- Flexible and elastic, easy to assemble
- Low extractables and leachables
- Sterilization by autoclave or gamma irradiation
- Complies with relevant regulations of RoHS, REACH and MSDS
- Documents of extractables study and validation are available on-demand

Relevant tests

Physical Properties	
Appearance	Semitransparent
Shore hardness	59
Tensile strength (psi)	860
Elongation at break (%)	280
Physical chemistry test	USP<661>, EP<3.1.9>, USP<381>, 21 CFR Part 177.2600

Biocompatibility and Particulates	
<i>In vitro</i> biocompatibility	USP<87>, ISO 10993-3, ISO 10993-4, ISO 10993-5
<i>In vivo</i> biocompatibility	USP<88>, ISO 10993-6, ISO 10993-10, ISO 10993-11
Bacterial endotoxin	USP<85>, USP<161>
Extractables	BPOG
Insoluble particles	USP<788>

HPT Platinum Cured Silicone Tubing

Ordering Information

Standard Tube #	Product Number	ID		OD		Wall Thickness		Working Pressure	Burst Pressure
		mm	Inch(")	mm	Inch(")	mm	Inch(")	bar	bar
	SUS-HPT-0047-0173	1.2	3/64	4.4	11/64	1.59	1/16	1	2
14#	SUS-HPT-0063-0188	1.59	1/16	4.76	3/16	1.59	1/16	1	2
16#	SUS-HPT-0125-0250	3.18	1/8	6.35	1/4	1.59	1/16	1	2
15#	SUS-HPT-0188-0375	4.76	3/16	9.53	3/8	2.38	3/32	1	2
17#	SUS-HPT-0250-0375	6.35	1/4	9.53	3/8	1.59	1/16	1	2
24#	SUS-HPT-0250-0438	6.35	1/4	11.11	7/16	2.38	3/32	1	2
26#	SUS-HPT-0250-0500	6.35	1/4	12.7	1/2	3.18	1/8	1	2
35#	SUS-HPT-0313-0500	7.94	5/16	12.7	1/2	2.38	3/32	1	2
36#	SUS-HPT-0375-0563	9.53	3/8	14.3	9/16	2.38	3/32	1	2
73#	SUS-HPT-0375-0625	9.53	3/8	15.88	5/8	3.18	1/8	1	2
82#	SUS-HPT-0500-0750	12.7	1/2	19.05	3/4	3.18	1/8	1	2
91#	SUS-HPT-0750-1250	19.05	3/4	31.75	1-1/4	6.35	1/4	1	2
92#	SUS-HPT-1000-1375	25.4	1	34.92	1-3/8	4.76	3/16	1	2

* The standard tube length is 15 meters per roll (i.e., 50 feet).

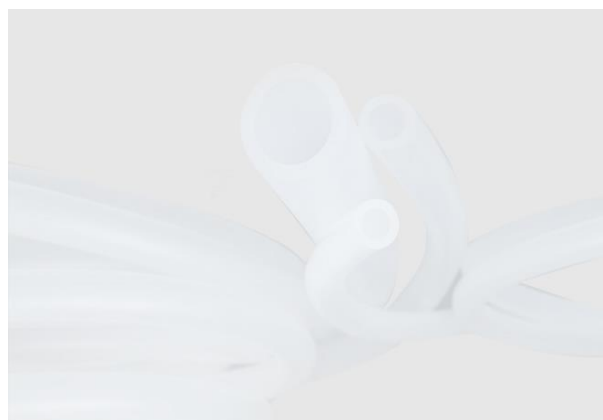
* The product is double-layer vacuum-packed, with product identification and batch traceability information on the packaging.

* An irradiated version is available, with the item number adding a "G" to the existing code. For example, the irradiated version of tube #92 is SUS-HPT-1000-1375G.

* Non-standard tubing specifications and custom-made tubing are also available upon request. To confirm whether your required tubing specifications are available, please contact our sales representatives or the marketing email address below.

TPT Pressure-Resistant Silicone Tube

The TPT Pressure-Resistant Silicone Tube, independently developed and manufactured by Duoning Biotech Group's Lianghei Factory, is a transparent, non-reinforced tube. Compared with traditional braided pressure-resistant silicone tubes, it allows users to more easily observe the fluid inside and effectively prevents potential particle shedding that may occur when cutting braided hoses. It is suitable for use in single-use systems such as virus filtration and ultrafiltration, as well as in large-volume fluid transfer applications. With enhanced pressure resistance and faster transfer capability, it provides improved performance for single-use system applications.



Applications

- Virus filtration
- Ultrafiltration
- Pressure-resistant fluid transfer processes
- Single-use system assembly

Features

- Complete range of sizes available, with inner diameters from 1/8" to 1"
- Operating temperature range: -60°C to 200°C
- Animal Derived Component Free (ADCF)
- High pressure resistance
- Compatible with steam sterilization and gamma irradiation
- Compliant with RoHS, REACH, and MSDS requirements
- Extractables and validation documents available

Relevant tests

Physical Properties	
Appearance	Translucent
Shore Hardness	80
Specific Gravity	1.2
Tear Strength (psi)	860
Tensile Strength (psi)	1082
Elongation at Break (%)	147
Tensile Modulus (psi)	280
Physicochemical Testing	USP <661>, EP <3.1.9>, USP <381>, 21 CFR Part 177.2600

Biocompatibility and Particulate	
<i>In Vitro</i> Biocompatibility	USP <87>, ISO 10993-3, ISO 10993-4, ISO 10993-5
<i>In Vivo</i> Biocompatibility	USP <88>, ISO 10993-6, ISO 10993-10, ISO 10993-11
Bacterial Endotoxin	USP <85>, USP <161>
Extractables	BPOG
Insoluble Particles	USP <788>

TPT Pressure-Resistant Silicone Tube

Ordering Information

Standard Tube #	Product No.	ID		OD		Wall Thickness		Working Pressure	Burst Pressure
		mm	Inch(")	mm	Inch(")	mm	Inch(")	bar	bar
	SUS-TPT-0094-0225	2.38	3/32	5.72	9/40	1.66	0.0655	4	8
5#	SUS-TPT-0188-0313	4.76	3/16	7.94	5/16	1.59	1/16	4	8
17#	SUS-TPT-0250-0375	6.35	1/4	9.53	3/8	1.59	1/16	3.2	7
24#	SUS-TPT-0250-0438	6.35	1/4	11.11	7/16	2.38	3/32	4	8
26#	SUS-TPT-0250-0500	6.35	1/4	12.7	1/2	3.18	1/8	4	8
73#	SUS-TPT-0375-0625	9.53	3/8	15.88	5/8	3.18	1/8	4	8
82#	SUS-TPT-0500-0750	12.7	1/2	19.05	3/4	3.18	1/8	3.2	7
	SUS-TPT-0625-0875	15.88	5/8	22.23	7/8	3.18	1/8	4	8
	SUS-TPT-0625-1000	15.88	5/8	25.4	1	4.76	3/16	4	8
	SUS-TPT-0750-1000	19.05	3/4	25.4	1	3.18	1/8	3.2	7
	SUS-TPT-0750-1125	19.05	3/4	28.57	1-1/8	4.76	3/16	4	8
92#	SUS-TPT-1000-1375	25.4	1	34.92	1-3/8	4.76	3/16	4	8
	SUS-TPT-1000-1500	25.4	1	38.1	1-1/2	6.35	1/4	4	8

***Standard tube length:** 15 m per roll (50 FT)

***Packaging:** Double-layer vacuum packaging with product labeling and batch traceability

***Irradiated version:** Available; product code adds "G" to the existing code. For example, the irradiated version of #92 tube is **SUS-TPT-1000-1375G**

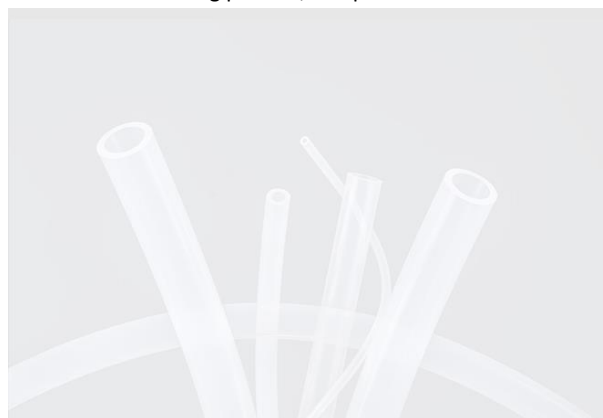
***Custom sizes:** Other non-standard tube sizes and special custom specifications are available. To confirm if your required tube size can be supplied, please contact Duoning technical support team or your local Duoning representatives.

TGP Peristaltic Pump Tubing

TGP peristaltic pump tubing is high quality, high purity silicone tubing. Specially designed for peristaltic pumps and pinch valves, the TGP tubing is an ideal choice for peristaltic pump applications. Due to advance manufacturing process, this product features outstanding strength and performance, longer life cycle, and ultra-smooth internal surface for better fluid delivery. The life cycle of TGP tubing on pumps can reach up to 388 h.

Applications

- Pharmaceutical and biopharmaceutical processes
- Ultrapure fluid transfer
- Single-use systems
- Peristaltic pump applications
- Vaccine production
- Aseptic filling



Features

- Sub-visible particle test as per USP 788
- Animal-free
- Operating temperature range: -60°C to 200°C
- Minimal leachability contributes to the integrity of fluid delivery and resistant to extreme temperature, compression, chemical erosion, ozone, irradiation, moisture, and environmental exposure
- Autoclavable or sterilization by GAMMA irradiation
- Validation of gamma irradiation sterility according to ISO 11137 Method VDmax25
- Documented quality control as per ISO 9001:2015
- Comprehensive validation package available upon request

Relevant Tests

Physical Characteristics

	ASTM Method	Parameters
Hardness Type A Shore Durometer 15 S	D2240	50
Tensile strength psi	D412	1290
Elongation at break 100%	D412	480
Tear strength ppi	D642	102
Specific gravity	D792	1.13
Tensile modulus psi	D412	306

Biocompatibility

Validation Item	Regulatory Standards
Bacterial endotoxin	USP 85
Biological reactivity test – <i>in vitro</i>	USP 87
Biological reactivity test – <i>in vivo</i>	USP 88
Elastic sealant for injection	USP 381
Physicochemical properties of plastics	USP 661
Sub-visible particles	USP 788
Genotoxicity, carcinogenicity, and reproductive toxicity	ISO 10993 3
Selection of tests for interactions with blood – <i>in vitro</i> hemocompatibility	ISO 10993 4
<i>In vitro</i> cytotoxicity test	ISO 10993 5
Stimulation and sensitivity test – Kligman maximization test	ISO 10993 10
Systemic toxicity test	ISO 10993 11
Rubber products	FDA 21 CFR 177.2600
Sealing and tubing testing of organic silicone elastomers	EP 3.1.9
Extractables	BPOG

TGP Peristaltic Pump Tubing

Ordering Information

Part No.	ID		OD		Wall thickness		Length/Pack
	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)
SUS-TGP-0125-0250	3.18	1/8	6.35	1/4	1.59	1/16	15
SUS-TGP-0125-0313	3.18	1/8	7.94	5/16	2.38	3/32	
SUS-TGP-0188-0375	4.76	3/16	9.53	3/8	2.38	3/32	
SUS-TGP-0250-0375	6.35	1/4	9.53	3/8	1.59	1/16	
SUS-TGP-0250-0438	6.35	1/4	11.11	7/16	2.38	3/32	
SUS-TGP-0250-0500	6.35	1/4	12.70	1/2	3.18	1/8	
SUS-TGP-0313-0500	7.94	5/16	12.70	1/2	2.38	3/32	
SUS-TGP-0375-0563	9.53	3/8	14.29	9/16	2.38	3/32	
SUS-TGP-0375-0625	9.53	3/8	15.88	5/8	3.18	1/8	
SUS-TGP-0500-0750	12.7	1/2	19.05	3/4	3.18	1/8	
SUS-TGP-0625-0875	15.88	5/8	22.23	7/8	3.18	1/8	
SUS-TGP-0750-1000	19.05	3/4	25.40	1	3.18	1/8	
SUS-TGP-0750-1125	19.05	3/4	28.58	1-1/8	4.76	3/16	
SUS-TGP-0750-1250	19.05	3/4	31.75	1-1/4	6.35	1/4	
SUS-TGP-1000-1375	25.4	1	34.93	1-3/8	4.76	3/16	

I-Flex Thermoplastic Tubing

I-Flex thermoplastic tube (TPE, Thermoplastic elastomer) is independently developed and produced by Lianghei (A Duoning company), which fully meets the needs of pharmaceutical applications for flexibility, heat sealable and weldability in fluid handling.

Applications

- Sampling, fraction collection
- Fluid transferring
- Buffer and medium preparation
- Cell culture operation
- Manifolds of bioreactors
- Aseptic filling
- Vaccine production
- Single-use system assembly

Features

- Complete size specifications, with ID from 1/8" to 1"
- Working temperature range: -40°C - 135°C
- Animal derived component free (ADCF)
- Sterilization by autoclave or gamma irradiation
- Excellent aseptic welding & sealing performance: I-Flex thermoplastic tube itself features excellent heat welding performance and can be welded with tubes from other suppliers. After welding, the tube interface is smooth, with qualified pressure resistance and sealing performance.
- In different environments, I-Flex thermoplastic tubes can be aseptically disconnected after heat sealing, and the tubes after heat sealing are flat and free of air bubbles, with qualified pressure resistance and excellent heat-sealing performance.
- Complies with relevant regulations of RoHS, REACH and MSDS
- Documents of extractables study and validation are available on-demand



Relevant tests

Chemical compatibility	
Acids, diluted/weak	Acceptable
Acids, concentrated/strong	Acceptable
Bases, dilute/weak	Acceptable
Bases, concentrated/strong	Acceptable
Salt	Acceptable
Alcohol and organic solvents	Not recommend
Oil/water emulsion	Test before use

Physical properties	
Appearance	Semitransparent
Shore hardness	59
Tensile strength (PSI)	860
Elongation at break (%)	280
Physical chemistry test	USP<661>, EP<3.1.9>

*Contact sales representatives or technicians for detailed chemical compatibility information.

Biocompatibility and Particulates	
In vitro biocompatibility	USP<87>, ISO 10993-3, ISO 10993-4, ISO 10993-5
In vivo biocompatibility	USP<88>, ISO 10993-6, ISO 10993-10, ISO 10993-11
Bacterial endotoxin	USP<85>, USP<161>
Extractables	BPOG
Insoluble particles	USP<788>

I-Flex Thermoplastic Tubing

Ordering Information

Standard Tube #	Product number	ID		OD		Wall thickness	
		mm	Inch(")	mm	Inch(")	mm	Inch(")
16#	SUS-TPE-0125-0250	3.18	1/8	6.35	1/4	1.59	1/16
25#	SUS-TPE-0188-0313	4.76	3/16	7.94	5/16	1.59	1/16
15#	SUS-TPE-0188-0375	4.76	3/16	9.53	3/8	2.38	3/32
17#	SUS-TPE-0250-0375	6.35	1/4	9.53	3/8	1.59	1/16
24#	SUS-TPE-0250-0438	6.35	1/4	11.11	7/16	2.38	3/32
26#	SUS-TPE-0250-0500	6.35	1/4	12.7	1/2	3.18	1/8
35#	SUS-TPE-0313-0500	7.94	5/16	12.7	1/2	2.38	3/32
	SUS-TPE-0375-0500	9.53	3/8	12.7	1/2	1.59	1/16
36#	SUS-TPE-0375-0563	9.53	3/8	14.3	9/16	2.38	3/32
73#	SUS-TPE-0375-0625	9.53	3/8	15.88	5/8	3.18	1/8
	SUS-TPE-0500-0688	12.7	1/2	17.46	11/16	2.38	3/32
82#	SUS-TPE-0500-0750	12.7	1/2	19.05	3/4	3.18	1/8
	SUS-TPE-0625-0875	15.88	5/8	22.22	7/8	3.18	1/8
	SUS-TPE-0750-1000	19.05	3/4	25.4	1	3.18	1/8
	SUS-TPE-0750-1125	19.05	3/4	28.57	1-1/8	4.76	3/16
91#	SUS-TPE-0750-1250	19.05	3/4	31.75	1-1/4	6.35	1/4
92#	SUS-TPE-1000-1375	25.4	1	34.92	1-3/8	4.76	3/16

*The standard tube length is 15m/roll, which is 50FT.

*The product is double-layer vacuum packed, with product identification on the packaging, and the batch can be traced and recorded.

*Gamma irradiated version is also available.

*Tube length, size and packaging can be customer tailored.

Single-Use PUPSIT Assemblies

PUPSIT is the abbreviation for Pre-Use Post-Sterilization Integrity Test, which refers to an integrity test performed after sterilization of a filter system and before it is put into production use. The purpose of this test is to ensure that the sterilization process has not damaged the filter system and that its integrity is maintained. Essentially, it confirms that the filter system is still capable of performing its intended function, without any leaks or failures that could compromise the sterility or quality of the final product. PUPSIT is critical because even minor integrity breaches can lead to contamination risks; therefore, performing PUPSIT before starting the production process ensures that everything is intact and functioning properly.

The importance of performing PUPSIT during production includes:

- Ensuring the integrity of the filter system after sterilization
- Preventing contamination
- Complying with regulatory standards
- Ensuring product quality and safety
- Reducing the risk of process failure
- Being essential for high-risk processes
- Providing documentation for validation and audits

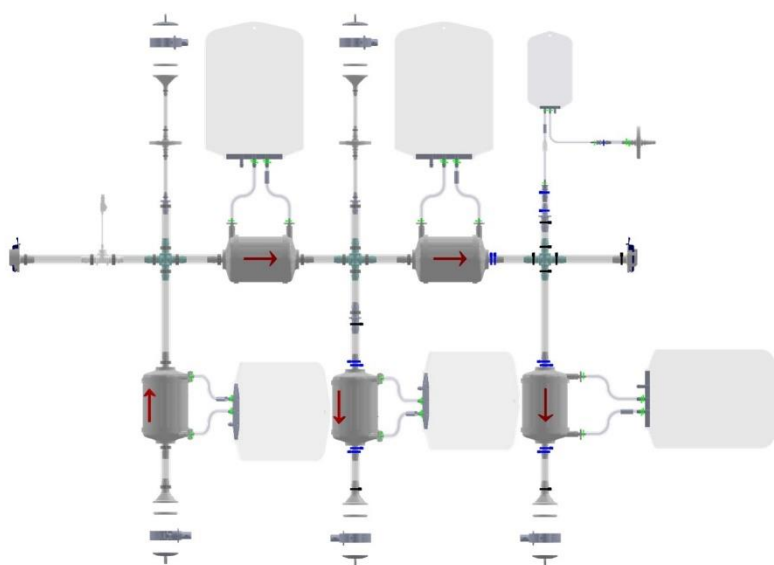
With regard to PUPSIT, many of the advantages of using single-use technologies (SUTs) in biopharmaceutical manufacturing are equally applicable. Single-use systems are designed for one-time use and subsequent disposal, which offers particularly significant benefits in aseptic processing applications, such as:

- Reduced risk of contamination
- Improved time and cost efficiency
- Simplified regulatory compliance
- Lower risk of failures
- Enhanced flexibility and scalability
- Reduced environmental and safety risks
- Improved process control and reliability
- Reduced capital investment

Duoning Biotech can support the qualified supply of single-use PUPSIT components, ensuring that the components are pre-sterilized, validated, and compliant with all relevant standards, with full traceability, performance data, and reliability. By working closely with Duoning Biotech's single-use product engineering design, manufacturing, and technical support teams, you can obtain PUPSIT components that meet the expected performance requirements, while maintaining the sterility and integrity of the production process.

The qualified supply of single-use PUPSIT components is critical to ensuring the reliability and sterility of components used in biopharmaceutical manufacturing. With many years of experience in single-use product

- Pre-validated component library
- Customizable design and configurations
- Certified and reliable quality systems
- Comprehensive testing and inspection programs
- Continuous and robust supply chain
- Strict regulatory compliance
- Comprehensive technical support



Example of Single-Use PUPSIT Design

Design shown for reference only; actual drawings may vary depending on the application.

engineering design, high-quality manufacturing, technical support, and product validation, Duoning Biotech is able to meet stringent standards, maintain process integrity and product quality, minimize risks, and ensure regulatory compliance.

DuoPAT® Process Analytical Terminal

The DuoPAT® Process Analytical Terminal is a flagship product independently developed and newly launched by Duoning Biotech. It is designed for real-time monitoring and control of pressure and flow in pipelines or vessels and features alarm setting and browsing, data and trend recording, audit trail, user management, data storage, and export functions.

Equipped with a 13" multi-touch high-definition embedded PC, the system allows simultaneous monitoring and configuration of multiple components. It can be integrated with optional modules such as pressure sensors, flowmeters, and peristaltic pumps, and supports external control of pump start/stop and speed adjustment.

The software features a user-friendly interface for simple and intuitive operation. It meets pharmaceutical audit trail requirements and complies with relevant GMP regulations.

By monitoring pressure and flow through DuoPAT®, users can promptly detect abnormalities, preventing production incidents or product contamination. It also assists in optimizing process parameters, improving production speed and yield. Furthermore, the system can generate detailed data reports, providing valuable insights to help users enhance their manufacturing processes.



DuoPAT® Process Analytical Terminal

Performance/Parameters

Item	Specification
Dimensions (L × W × H, mm)	400 × 410 × 250
Rated Voltage	220V/50 Hz or 110V/50 Hz
Rated Current	1.1 A
Equipment Weight	10 kg
Housing Material	ABS Plastic
Display	13" full-color multi-touch HD screen
Pressure Monitoring Range	0–60 PSI (0–4 bar)
Pressure Monitoring Accuracy	±5% (full scale)
Flow Monitoring Accuracy	±3% (full scale)
Output Signal	4–20 mA analog output

Ordering Information

Product Name	Product Number
DuoPAT® Process Analytical Terminal*	PA-30302

*Parameters can be customized. For details, please consult Duoning technical support team or your local Duoning representatives.

Product Number Key:

P	A	-	3	0	3	0	2
Process	Analysis		3 Pressure Inputs	0 Temperature Inputs	3 Flow Inputs	0 Reserved Ports	2 I/O Interfaces

Accessory Ordering Information

Pressure Sensor:

Compatible with Pendotech-type single-use pressure sensor

- Range: 0 - 60 PSI (0 - 4 bar)
- Accuracy: ±5% (Full Scale)



Flow Sensor:

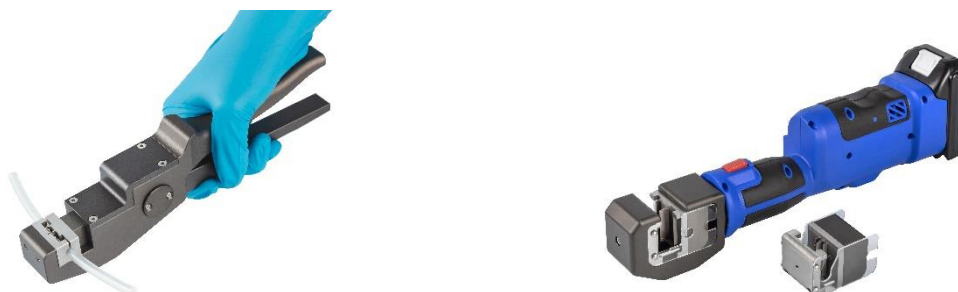
Product Number	Compatible Tubing (Outer Diameter)	Default Flow Range*
PF-25016	1/4"	3 – 6 L/min
PF-37517	3/8"	4 – 8 L/min
PF-43818	7/16"	4.5 – 9 L/min
PF-50026	1/2"	5 – 10 L/min
PF-62573	5/8"	7 – 14 L/min
PF-75082	3/4"	10 – 20 L/min
PF-10001	1"	25 – 50 L/min
PF-12502	1 1/4"	50 – 100 L/min



- *Accuracy: ±3% (full scale)
- Default calibration fluid: Water at 22 ± 3 °C
- Compatible tubing materials: Smooth internal and external surfaces, such as PVC, Silicone, PFA, PE, PUR
- *Flow accuracy depends on the measurement range. For more precise flow monitoring, please provide fluid information before ordering, including tubing brand, fluid type, and flow rate range, to allow proper calibration of the flowmeter. You can also contact our sales or technical staff for professional selection assistance.

Aseptic Disconnecter

The Duoning Aseptic Disconnecter is designed for sterile disconnection of thermoplastic and silicone tubing. By compressing and cutting the external metal disconnection ring and the tubing wall, the disconnection ring then seals the tubing wall to form a closed space. The cutting head and air remain completely separate from the liquid inside the tubing, ensuring that external microorganisms cannot enter the tubing during disconnection, thus preventing contamination.



- The Duoning Aseptic Disconnecter is available in manual and rechargeable versions, compatible with commonly used silicone and thermoplastic tubing.
- The rechargeable disconnecter comes standard with two detachable cutting heads.
- The rechargeable disconnecter is equipped with two 18 V removable high-capacity batteries, ensuring extended operational runtime.
- The rechargeable disconnecter seals tubing in approximately 5 seconds.

Technical Parameters

Item	Manual Aseptic Disconnecter	Rechargeable Aseptic Disconnecter
Weight	0.5 kg	3.1 kg
Packaging Dimensions (L × W × H)	275 × 230 × 80 mm	540 × 440 × 140 mm
Operation Time	N/A	~5 s
Removable Cutting Head	Yes, requires additional cutting head	Yes, comes with two standard cutting heads
Included Accessories	N/A	Two rechargeable batteries and a charger
Compatible Tubing Outer Diameter	6 mm, 6.4 mm	Small cutting head: 5/16", 3/8", 7/16";

Ordering Information

Product Name	Product Number	Packaging	Fittings
Manual Aseptic Disconnecter	SSTong-D	1 piece/box	
Rechargeable Aseptic Disconnecter	SSTong-C	1 set/box	Includes two cutting heads (small and large), two rechargeable batteries, and a charger.
Manual Disconnecter – Replacement Cutting Head	SSTong-D-S	1 piece/pack	
Rechargeable Disconnecter – Small Cutting Head	SSTong-C-S	1 piece/pack	
Rechargeable Disconnecter – Large Cutting Head	SSTong-C-M	1 piece/pack	

Disconnecter Accessories

Product Name	Product Number	Packaging
6.4 mm Metal Disconnection Ring	SUS-DKHO0250	25 pcs/pack
8.0 mm Metal Disconnection Ring	SUS-DKHO0312	25 pcs/pack
9.6 mm Metal Disconnection Ring	SUS-DKHO0375	25 pcs/pack
11.1 mm Metal Disconnection Ring	SUS-DKHO0438	25 pcs/pack
12.7 mm Metal Disconnection Ring	SUS-DKHO0500	25 pcs/pack
6 mm Metal Disconnection Ring	SUS-DKHO0236	25 pcs/pack
15.9 mm Metal Disconnection Ring	SUS-DKHO0625	25 pcs/pack
19.0 mm Metal Disconnection Ring	SUS-DKHO0750	25 pcs/pack

Mouseholes

Duoning mouseholes provide simple, safe, and reliable solutions for fluid transfer between different equipment in different cleanrooms. Compared with traditional transfer solutions, it can effectively avoid potential problems in validation and GMP management caused by transferring equipment across cleanrooms, meanwhile, avoiding or reducing damage and risk of leakage caused by traditional physical (bag or other container) liquid transfer.



Mousehole for same level cleanrooms



Mousehole for different level cleanrooms

The entire system realizes the aseptic transmission of single or multiple fluids at both ends of the channel through a single channel made of stainless steel, and the system integrates multiple single-use components that do not require cleaning validation.

The mousehole system can quickly, conveniently, safely and efficiently perform fluid transfer, and reduce cost. Standard 5 cm wall panels or sandwich wall panels can be constructed with corresponding mousehole systems.

Applications

- Fluid transfer between cleanrooms of same level
- Fluid transfer between cleanrooms of different levels
- Single/multiple channel transfer

Features

- SUS304 material, quick assembly and disassembly
- No cleaning validation required, avoiding cross-contamination
- Facilitate the positioning of equipment in the cleanroom
- Easy to use and cost effective

Ordering Information

Product Name	Part No.	Configuration
4" mouseholes for same level	SSpass-4N	socket × 1, end cap × 2, half-moon plate × 4, clamp × 2, gasket × 2
4" mouseholes for different levels	SSpass-4	socket × 1, end cap × 2, half-moon plate × 4, clamp × 4, gasket × 4, manual valve × 2
5" mouseholes for same level	SSpass-5N	socket × 1, end cap × 2, half-moon plate × 4, clamp × 2, gasket × 2
5" mouseholes for different levels	SSpass-5	socket × 1, end cap × 2, half-moon plate × 4, clamp × 4, gasket × 4, manual valve × 2

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