PATENTED

Your single-use bag

Our RoSS® shell

RoSS® shell

Robust cold chain packaging for every single-use bag.

Bag independent.
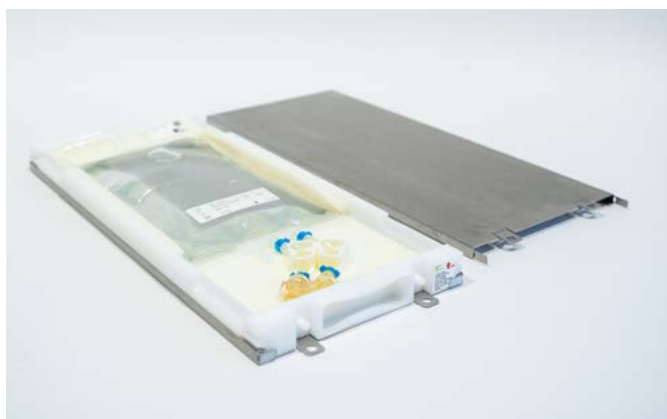*< 0.001 % product loss.*
Enables controlled freezing.

RoSS® shell
PROTECTING SINGLE-USE BAGS.

More than 300,000 RoSS® shells shipped worldwide and <0.001 % product loss.

The RoSS® shell offers a **robust & safe protection for bioprocess containers during freezing, transportation, storage & thawing**.

With more than 300.000+ RoSS® shells sold worldwide, the product provides a tamper-proof and contamination-free system. **It can be used with all available 2D bioprocess containers**, making it a vendor-independent protective shell that unifies the cold chain logistics process.
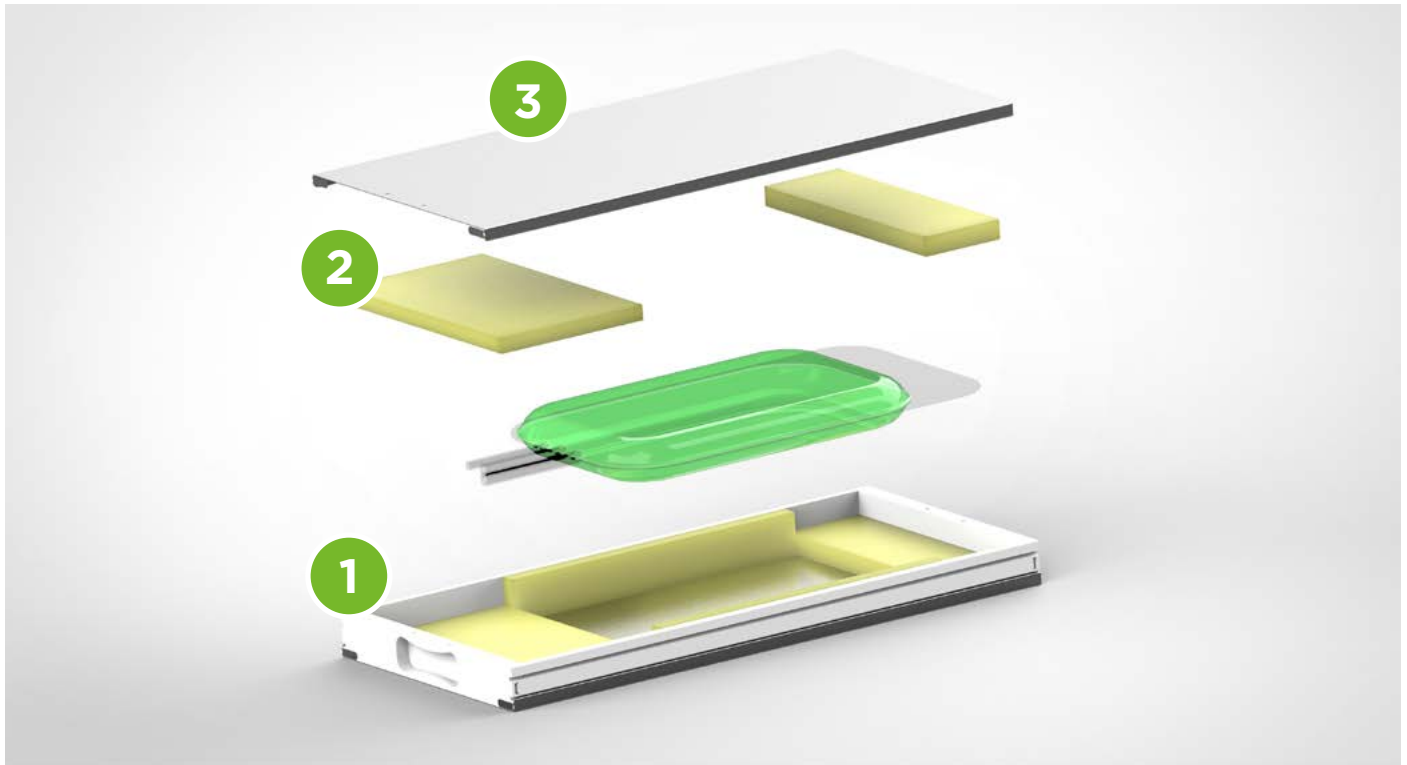

Facts:

- Unique functionality and patented system
- Adjustable for all 2D single-use bioprocess container
- Outside: Robust, closed and tamper-proof construction
- Inside: 3D cryo foam-inlays for complete immobilization of the sensitive bag and its attachments
- Stainless-steel lids on top and bottom for consistent and best possible freezing and defrosting performance (optimized coolness and heat transfer)
- High storage density during freezing, storage and transportation
- Easy handling during the recycling process

Start to plug & play: *Choose your bag, no matter the size or manufacturer and get your pre-assembled & ready-to-use bag & shell solution. Contact sales@susupport.com for further information.*

THE SETUP FOR BAG PROTECTION

The RoSS® shell is composed of a stainless-steel top and bottom lid, a robust plastic frame and 3D foam inlays. These components provide unparalleled advantages in the handling of liquids in single-use bags. The composition of elements that embed the bioprocess containers is simple, easy to recycle, validated for use in cleanroom environment, and it offers significant cost-efficiency and process flexibility.

1 **PE frame**
provides robustness

2 **3D foam inlays**
ensures immobilization

3 **Stainless-steel lids**
enables plate freezing

1. Validated robustness

All types of RoSS® shells manufactured by Single Use Support are subjected to rigorous testing and validation to ensure their robustness. The aim of the tests is to simulate real-life handling under standardized conditions, thereby verifying the shells protective ability in cryogenic conditions. The RoSS® shell has been proven to reduce bag rupture down to 0% and protects frozen single-use bags down to -90°C (-130°F) or -196°C (-320°F) for small volumes.
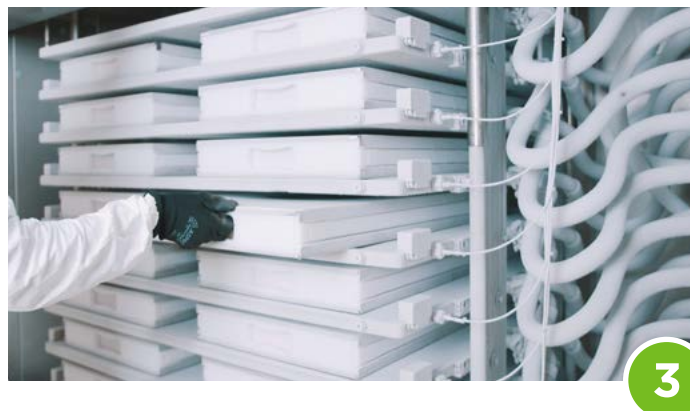
2. Full immobilization of single-use bags

While the outer shell is constructed from durable stainless steel and robust plastic elements, the interior is lined with specialized foam inlays that provide additional stabilization. The 3D foam offers a protective enclosure for the single-use bag and its attachments. But it also absorbs the bag's/liquid's expanding energy caused by the density drop during freezing. At sub-zero temperatures, when the bag is already frozen, the foam hardens. The bag is fully immobilized in the hardened foam setup, making it safe to handle during storage and shipping.

3. Enabling plate freezing

The RoSS® shell enables plate-based freezing of single-use bags which is an advanced method for cooling biologics. The stainless-steel lid serves as the sole barrier between the bag and the cooling medium, facilitating **efficient heat transfer**. This direct cold exposure between the cooling plates and the single-use bag accelerates the freezing process, resulting in homogeneous freezing with controlled ice front growth from the bottom and top preventing the effects of cryoconcentration.

LIMITLESS SCALABILITY

Scaling up biopharmaceutical production presents challenges in achieving consistent freezing results. Single Use Support addresses this by standardizing ice front growth speed across all scenarios. Therefore, the RoSS® shell is designed **for single-use bags ranging from 250mL to 50L**, while the **RoSS.KSET is ideal for bags under 250mL**. This ensures reproducible freezing, regardless of bag type or freezing platform size.

Single-use bag manufacturer	Single-use bag size & type	Product number	Outer dimensions (LxWxH)	Target volume
SINGLE USE SUPPORT	0.5L IRIS	RoSS_3005	423.6x168x31.6 mm	0.45 - 0.5 L
	1L IRIS	RoSS_3010	528.6x213x31.6 mm	0.95 - 1.0 L
	2L IRIS	RoSS_3020	613.6x259x41.6 mm	1.95 - 2.0 L
	5L IRIS	RoSS_3050	714.1x343x56.6 mm	4.2 - 4.4 L
	10L IRIS	RoSS_3100	783.1x460x64.6 mm	9.8 - 10.0 L
AVANTOR	20L Pillow Bag™	RoSS_1060	782.6x460x81.6 mm	13.0 - 13.4 L
CHARTER MEDICAL	10L Freeze-Pak™	RoSS 1076	882.6x362.4x60.8 mm	8.0 - 8.4 L
	20L Freeze-Pak™	RoSS 1075	882.6x463x86.6 mm	14.6 - 15.0 L
CYTIVA	0.5L Allegro™	RoSS_1021	412.6x173x36.6 mm	0.45 - 0.5 L
	1L Allegro™	RoSS_1032	482.6x208x41.6 mm	0.95 - 1.0 L
	2L Allegro™	RoSS_1051	532.6x273x41.6 mm	1.8 - 1.9 L
	5L Allegro™	RoSS_1049	712.6x333x56.6 mm	4.3 - 4.5 L
	10L Allegro™	RoSS_1008	783x460x51.6 mm	7.3 - 7.6 L
	10L Allegro™	RoSS_1041	725x459.4x69.6 mm	9.8 - 10.0 L
	10L Allegro™	RoSS_1074	725x459.4x69.6 mm	9.4 - 9.6 L
	20L Allegro™	RoSS_1039	882.6x502.4x69.6 mm	14.0 - 14.5 L
ENTEGRIS	1L Aramus™	RoSS_1017	482.6x208x36.6 mm	0.8 - 0.9 L
	2L Aramus™	RoSS_1019	532.6x288x36.6 mm	1.6 - 1.7 L
	5L Aramus™	RoSS_1018	642.6x357.4x51.6 mm	3.4 - 3.6 L
	10L Aramus™	RoSS_1015	703x407.4x69.6 mm	6.4 - 6.6 L
	15L Aramus™	RoSS_1059	752.6x502.4x69.6 mm	9.4 - 9.6 L
	20L Aramus™	RoSS_1016	882.6x502.4x69.6 mm	10.9 - 11.1 L
LEPURE	20L LePure™	RoSS_1057	882.6x460x69.6 mm	14.3 - 14.5 L
	50L LePure™	RoSS_1064	984x620x70 mm	19.9 - 20.4 L
MEISSNER	5L Pillow Bag	RoSS_1079	582.6x357.4x56.6 mm	3.3 - 3.5 L

Single-use bag manufacturer	Single-use bag size & type	Product number	Outer dimensions (LxWxH)	Target volume
MILLIPORE	1L Mobius™	RoSS_1043	462.6x183x41.6 mm	0.95 - 1.0 L
	5L Mobius™	RoSS_1042	489.6x333x69.6 mm	3.7 - 4.0 L
	10L Mobius™	RoSS_1077	821.8x333x69.6 mm	7.0 - 7.4 L
	20L Mobius™	RoSS_1040	782.6x459.4x69.6 mm	11.7 - 12.2 L
SAINT GOBAIN	1L Saint Gobain	RoSS_1070	573.6x183x36.6 mm	0.98 - 1.0 L
	5L Saint Gobain	RoSS_1071	643.6x333x56.6 mm	4.2 - 4.5 L
	10L Saint Gobain	RoSS_1072	882.6x333x69.6 mm	8.7 - 9.0 L
SARTORIUS	0.5L Flexboy™	RoSS_1084	481.8x208x51.6	0.28 - 0.35 L
	1L Flexboy™	RoSS_1044	482.6x208x36.6 mm	0.7 - 0.8 L
	2L Celsius™ PAK	RoSS_1053	532.6x288x36.6 mm	1.8 - 1.9 L
	5L Flexboy™	RoSS_1010	489.6x333x69.6 mm	4.2 - 4.4 L
	6L Biopharm™	RoSS_1031	712.6x303x69.6 mm	5.7 - 6.0 L
	8.3 L Celsius™ PAK	RoSS_1054	882.6x372.4x69.6 mm	8.0 - 8.2 L
	10L Flexsafe™	RoSS_1055	882.6x357.4x36.6 mm	5.3 - 5.5 L
	10L Flexboy™	RoSS_1007	711.8x303x69.6 mm	7.6 - 8.1 L
	10L Flexboy™	RoSS_1046	771.8x303x69.6 mm	7.6 - 8.1 L
	12L Celsius/Biopharm™	RoSS_1056	730x459.4x69.6 mm	11.5 - 11.8 L
	16.6L Celsius™ PAK	RoSS_1066	882.6x452.4x69.6 mm	12.6 L
	20L Flexsafe™	RoSS_1065	882.6x502.4x69.6 mm	12.3 - 12.6 L
	20L Flexboy™	RoSS_1036	725x459.6x81.6 mm	13.0 - 13.5 L
THERMO FISHER	5L Labtainer™	RoSS_1073	610x365.4x69.6 mm	3.9 - 4.1 L
	10L Labtainer™	RoSS_1046	771.8x303x69.6 mm	7.6 . 7.7 L
	10L Labtainer™	RoSS_1007	711.8x303x69.6 mm	7.6 . 7.7 L
	10L Labtainer™ Pro	RoSS_1082	802.6x362.4x61.6 mm	7.6 . 7.7 L
	20L Labtainer™	RoSS_1036	725x459.4x81.6 mm	13.0 - 13.5 L
	20L Labtainer™ Pro	RoSS_1067	842.6x459.4x81.6 mm	13.0 - 13.5 L

* Single Use Support's RoSS® shell is suitable for all single-use bags available on the market. If your desired bag is not listed please contact sales@susupport.com.