Organ Recovery systems

LifePort®

Kidney Transporter

Zusammenfassung

Tagesordnung

- **Begrüßung**
  - Wer sind wir?
  - Was ist Maschine Perfusion
  - Wann kommt Maschine Perfusion nach Deutschland
  - Was bedeutet das ?
- **Die Maschine**
  - Die Komponenten der Maschine
  - Einweg Materialen:
  - Perfusionskreislauf
  - Kanülen
  - Transport Hülle
- **Aufbau der LifePort® Kidney Transporter**
  - Was bringt man mit
  - Kanülierung
- **Fehler Meldungen**
- **Organ Recovery Systems Client Services**
- **Stichprobe Prüfung**

Wer Sind Wir

Peter de Muylder
Associate Director

Annet van der Plas
Clinical Education Specialist

Serge Vogelaar
Senior Medical Advisor

20+ Jahre
Erfahrung in der Perfusion und im Vertrieb von Perfusionsgeräten

50
Länder

400+
Transplantationsprogramme mit LifePort

6
Nationale Programme mit der LifePort-Plattform in der EU

250.000+
Nieren perfundiert mit LifePort

100+
Peer-Review-Artikel

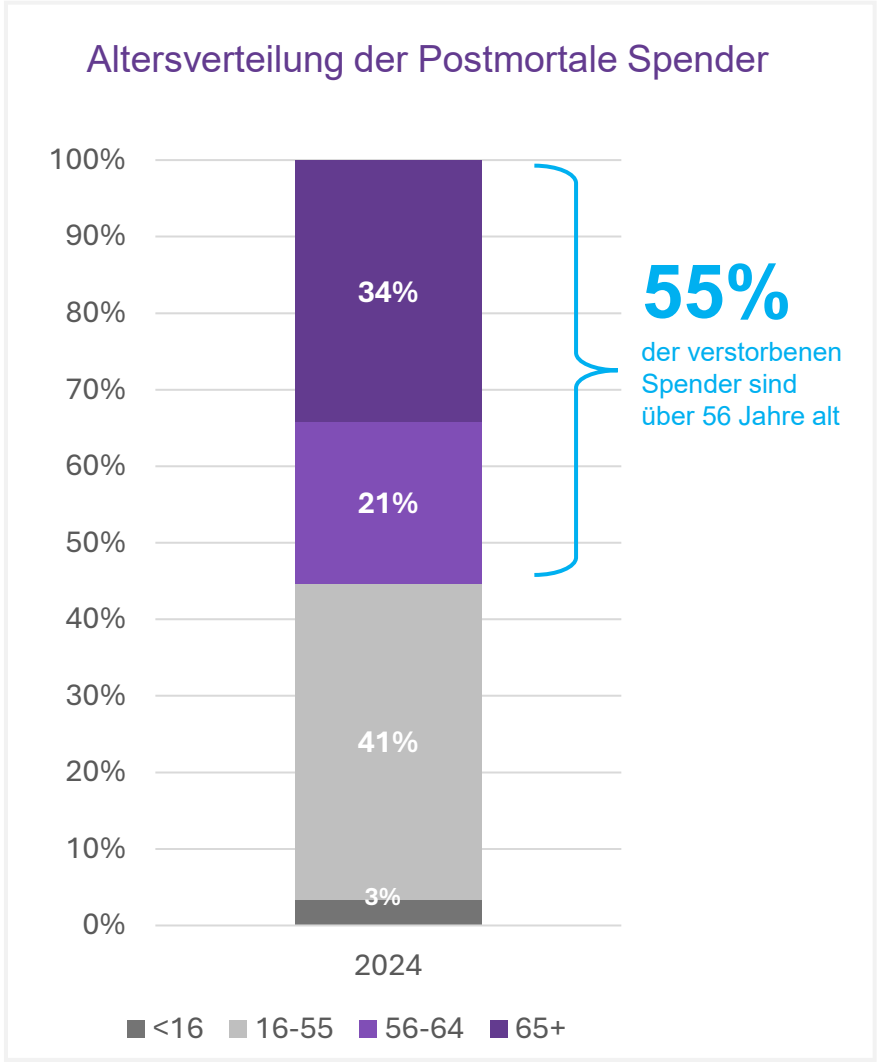
Daten liegen vor

Organ Recovery systems

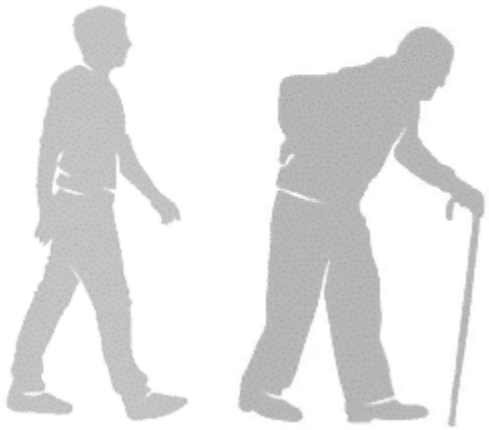
Stellen Sie sich vor

Sie betreten am nächsten Morgen das Zimmer des Patienten

Postmortale Spender werden älter



Source: Annual Report Eurotransplant 2024



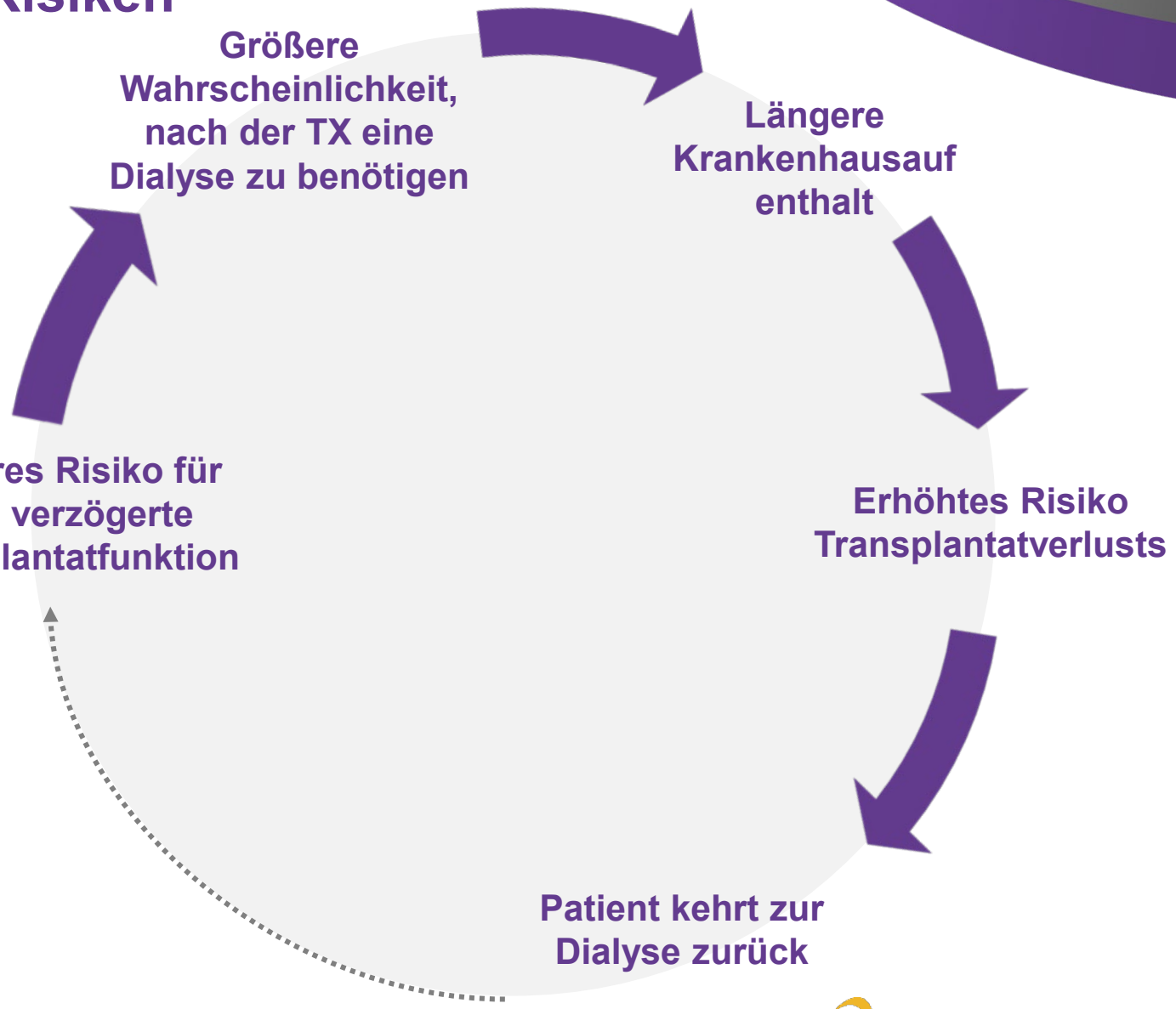
Ältere Spender
=
Höhere Risiken

Organ Recovery systems

Auswirkungen dieser höheren Risiken

Höhere Risiken

=



Organ Recovery systems

Warum wird Maschine Perfusion eingesetzt?

Bessere Organe:

Die Niere ist besser erhalten, geschützt und widerstandsfähiger mit reduzierten Entzündungs- und Immunreaktionen, was das Überleben des Transplantats bis zu 10 Jahren um 4% erhöht.[1,2,3,4]

Mehr verfügbare Spenderorgane:

Auch zunächst ungeeignete Organe können nach der Perfusion transplantierbar sein.[5]

Beurteilung der Organqualität:

Während der Perfusion kann die Funktionsfähigkeit des Organs überprüft werden.

More scientific evidences

1. Knijff LW, van Kooten C, Ploeg RJ, The Effect of Hypothermic Machine Perfusion to Ameliorate Ischemia-Reperfusion Injury in Donor Organs, Front Immunol; 2022; 13:848352
2. Bellini M et al, Machine Perfusion for Abdominal Organ Preservation: A Systematic Review of Kidney and Liver Human Grafts, J Clin Med 2019; 8(8): 1221.
3. Moers C et al. Machine perfusion or cold storage in deceased-donor kidney transplantation, N Engl J Med 2009; 360(1): 7-19
4. Moers C et al, Machine perfusion or cold storage in deceased-donor kidney transplantation, N Engl J Med 2012; 366(8): 770-771.
5. Savoye E et al, Evaluation of outcomes in renal transplantation with HMP for the preservation of kidneys from ECD, Clin Transplant 2019; 33(5): e13536
8. Husain S et al, Cold Ischemia Time and Delayed Graft Function in Kidney Transplantation: A Paired Kidney Analysis, Transplantation 2024; 108(9):e245-e253.
9. Tedesco S et al, Use of MP to Increase the Number of ECD Kidney Transplants: A Pharmacoeconomic Analysis; Transplantation Direct 2024, 10(8):p e1668

Organ Recovery systems

Wann Kommt Maschine Perfusion nach Deutschland

Richtline für die Wartelisteführung und die Organvermittlung zur Nierentransplantation

Ab 19.01 2026, wird für Nieren von Spender mit erweiterten Spenderkriterien wird für den Organtransport grundsätzlich ein hypothermes maschinegestütztes Organkonservierungsverfahren angewandt

Erweiterte Spenderkriterien sind:

- Spenderalter **≥ 60** Jahre

- Spenderalter **50-59** Jahre und zusätzlich Vorliegen von mindestens **2 der folgenden Kriterien**:
  - Zerebrovaskuläres Todesursache
  - Arterieller Hypertonus
  - Serum Kreatinin ≥ 1,5 mg/dl (bzw. ≥ 132 umol/l)

Was bedeutet das für?

Falls es Ein Spender gibt die die Kriterien erfüllt, wird die Maschine eingesetzt

Aufgabe Verteilung:

Der **DSO-Koordinator/ Perfusionst** bereitet vor und unterstutzt

Der **Chirurg** bestimmt ob die Niere kanüliert werden kann und kanüliert

Der komplette Vorgang ist festgelegt in das DSO Qualitätshandbuch

LifePort® Kidney Transporter Overview

"Designed with you for you"

LifePort Kidney Transporter

Components

Organ Recovery systems

Components

Ice-Based: Redundant Preservation

Ice Container

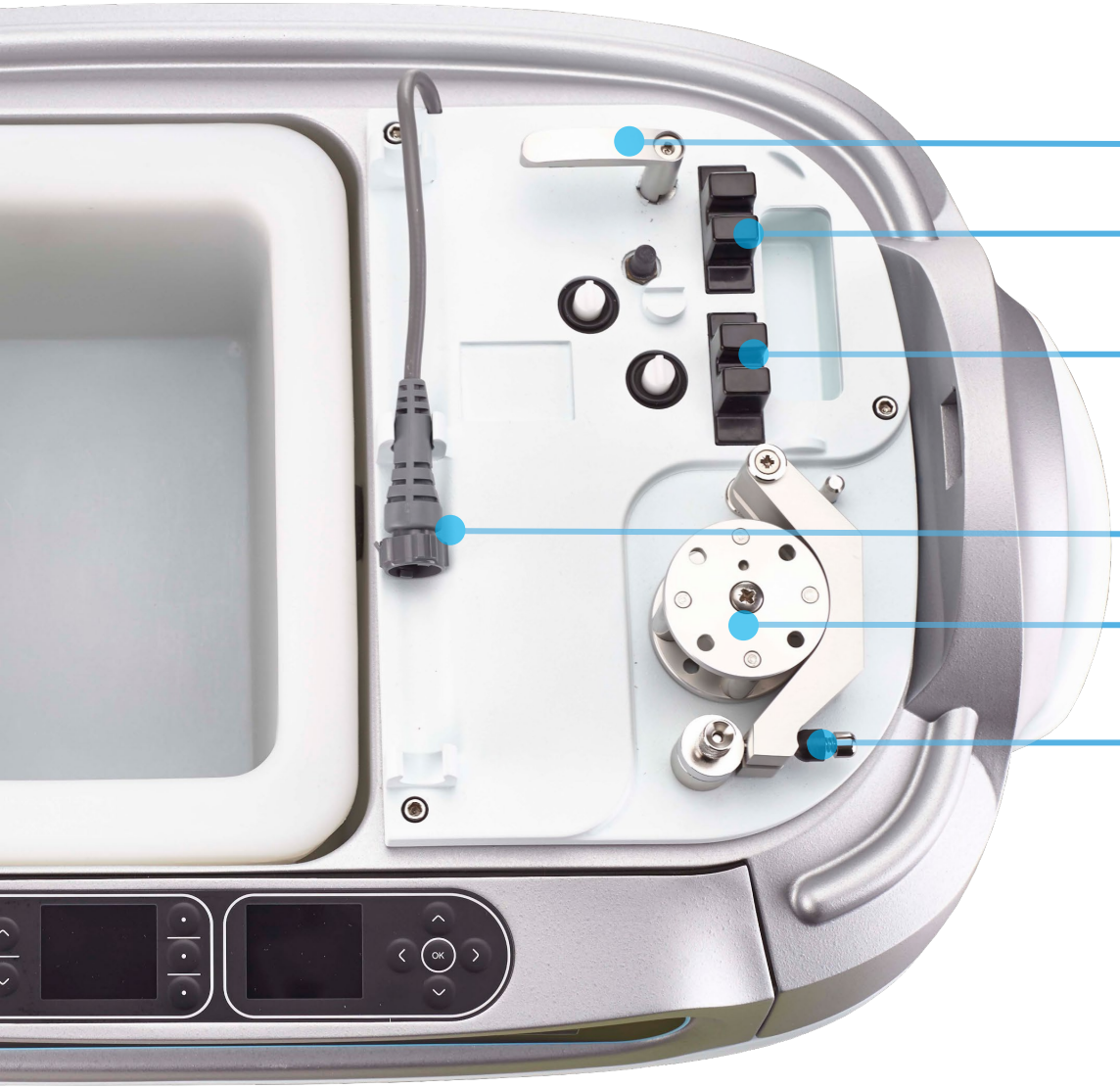
- Removable
- Mix of Crushed Ice and Water
- Last at least 24h without refills

Ice Container
Maintains hypothermic temperature at all time, action as a backup safety

Components

Embedded Safety Features

Pump Deck



Tube Frame Locking Arm

Bubble Detectors

Pressure Sensor Cable

Infusion Pump

Spring Latch Arm

Organ Recovery systems

Components

Display and Assess

Display Panel

- Pressure (Systolic/Diastolic)
- Flow
- Calculated Renal Resistance
- Temperature (Ice/Trap)
- Data:
  - Organ ID
  - Infuse time
  - Kidney side
  - Blood type

Organ Recovery systems

Components

User Interface made simple

Control Panel

- Adjustment of the Pressure
- Selection of the Perfusion Mode
- Organ ID information
- Device Identification

Organ Recovery systems

Components

Data and Power Panel

Connections Panel

- Data Ports
- Circuit Breakers
- AC Power Cord Connector
- Battery Door
- Alert Switch (Silencer)
- 4 Lithium-Ion Batteries
- Rechargeable
- Up to 24h autonomy

Perfusion Circuit

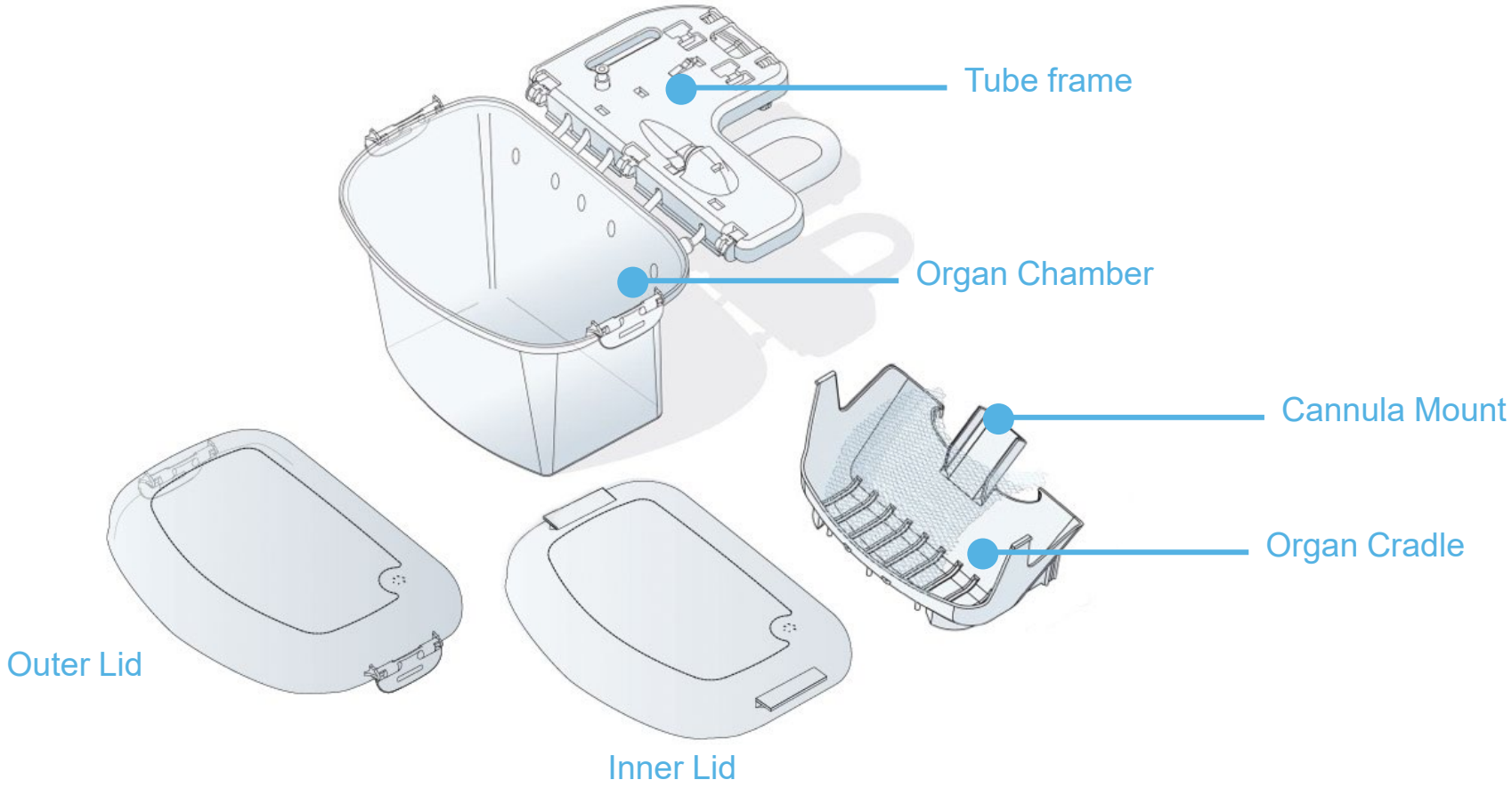
Ready to use – Plug & Perfuse

Perfusion Circuit with Oxygenation Option

Organ Recovery systems

Perfusion Circuit

Ready to use – Plug & Perfuse



Organ Recovery systems

LifePort DNA

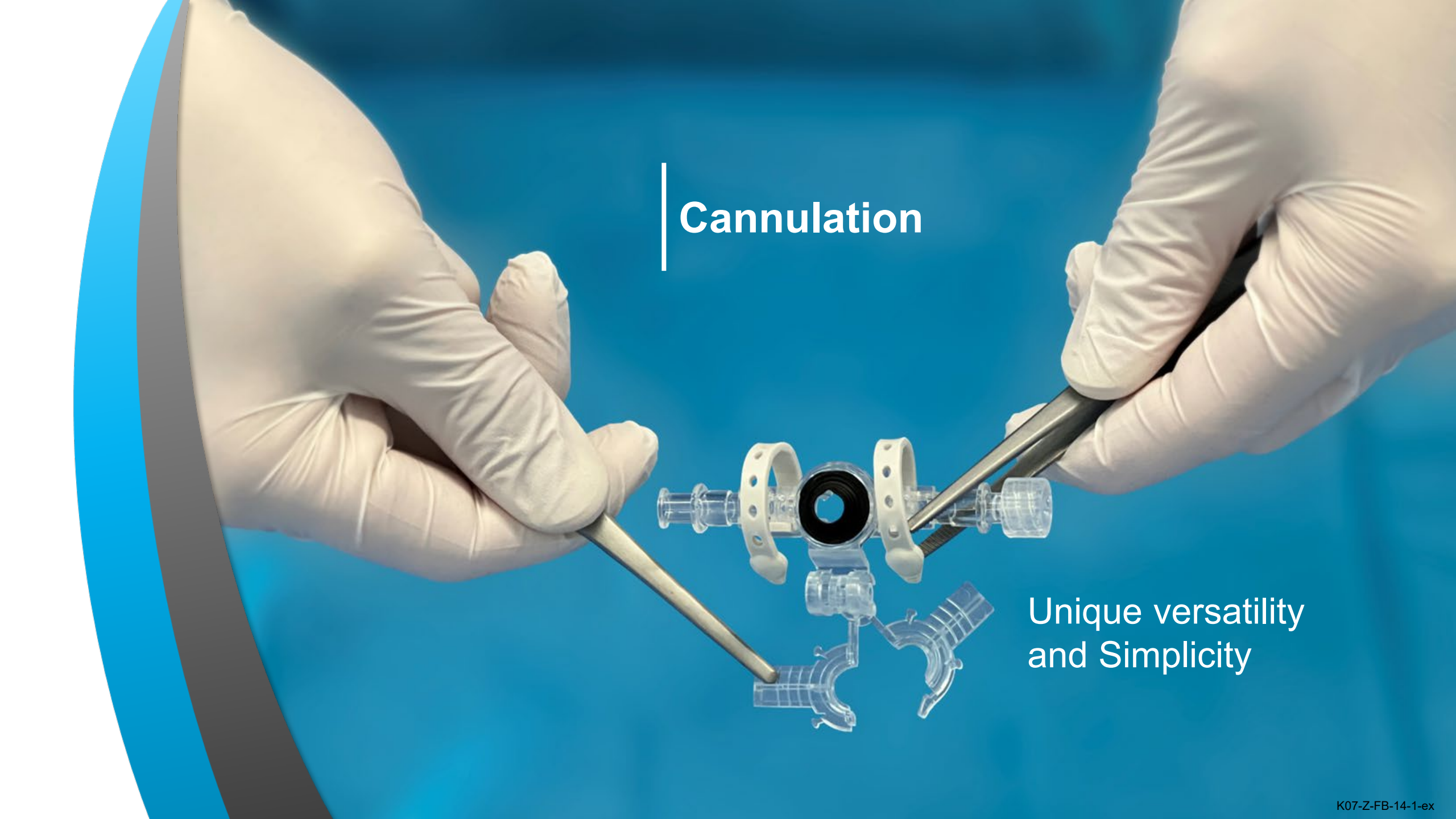
Built with those key considerations in mind

Safety

Fluid Level Protector

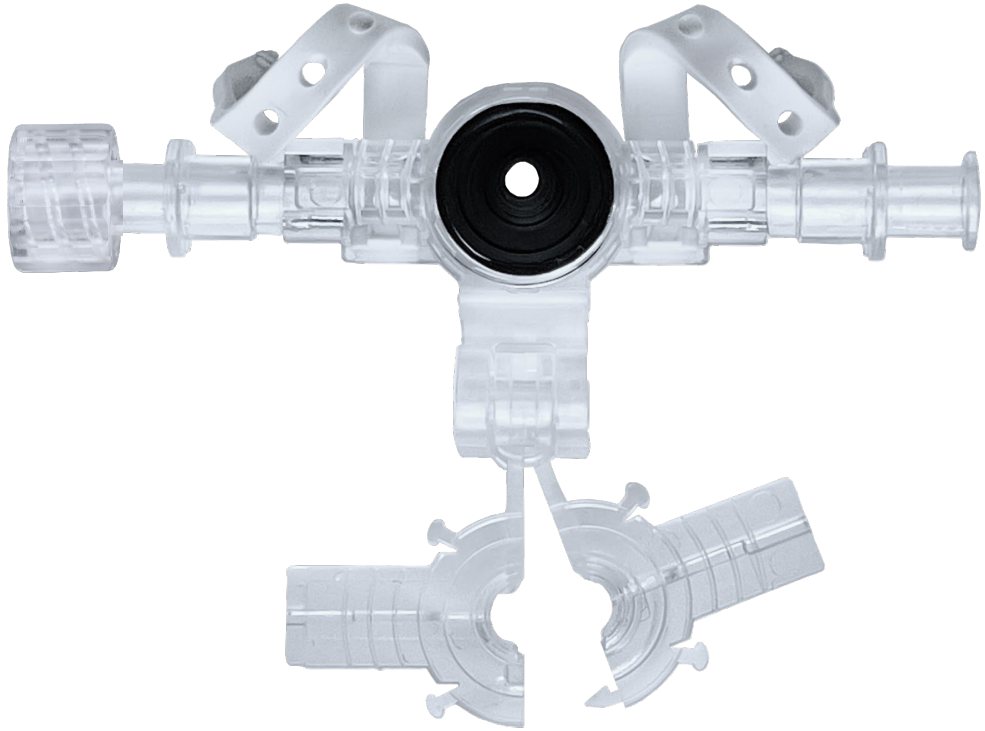
Prevents organ chamber running dry and protecting the organ

Organ Recovery systems


Cannulation
Unique versatility
and Simplicity

LifePort DNA

Built with those key considerations in mind



Universal SealRing

Enabling smooth cannulation with complete, partial or non existing aortic patches

Organ Recovery systems

Cannulation

Universal SealRing® Cannula

SealRing® Cannula

Straight Cannula

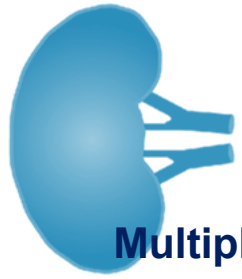
Coupler

Organ Recovery systems

Cannulation

A Solution for all Morphology

How many arteries?



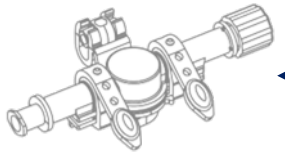
1 Artery

Is there a patch?

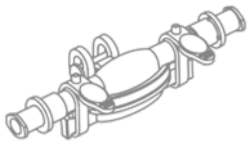
YES

NO

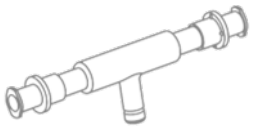
Or small patch



Universal SealRing®
Cannula



SealRing®
Cannula

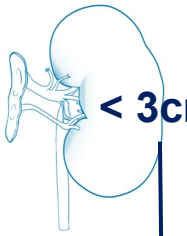


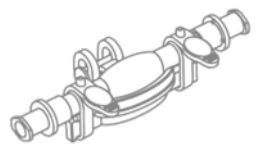
Straight
Cannula

Multiple Arteries

Distance between arteries?

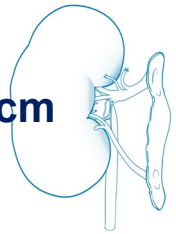
< 3cm

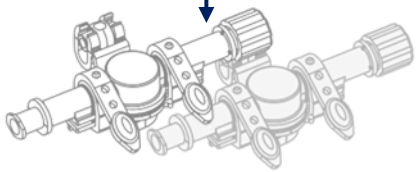




SealRing®
Cannula

> 3cm





Universal SealRing®
Cannula

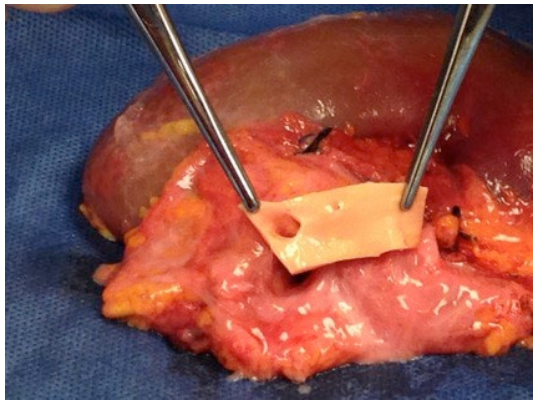
+ Coupler

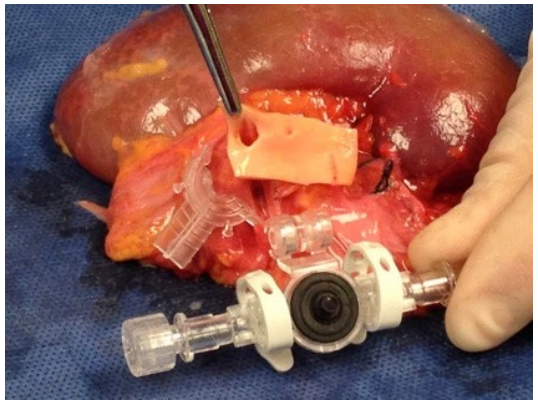
Organ Recovery systems

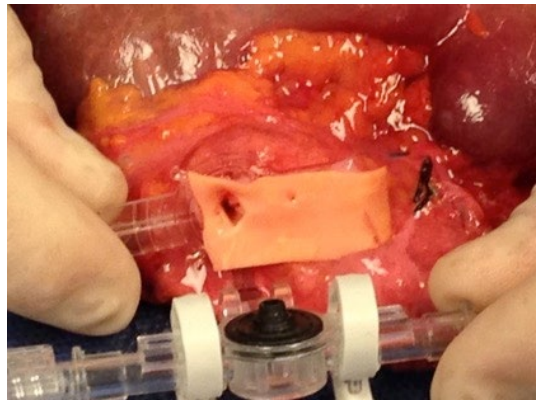
Cannulation

Universal SealRing® Cannula

Arteries with a complete, small or partial aortic patch





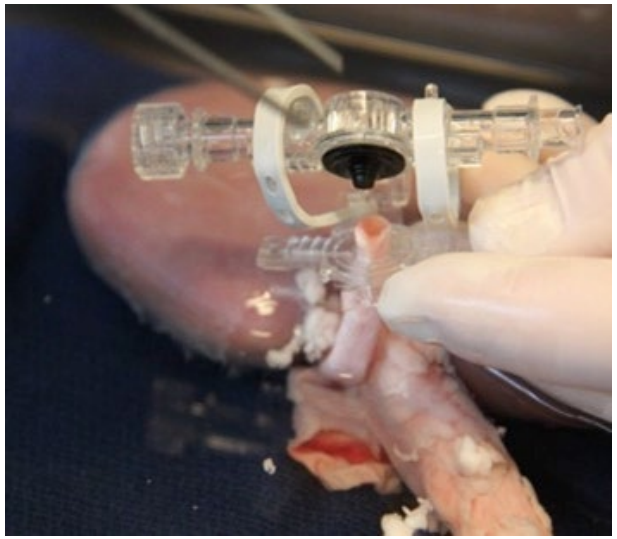


Organ Recovery systems

Cannulation

Universal SealRing® Cannula

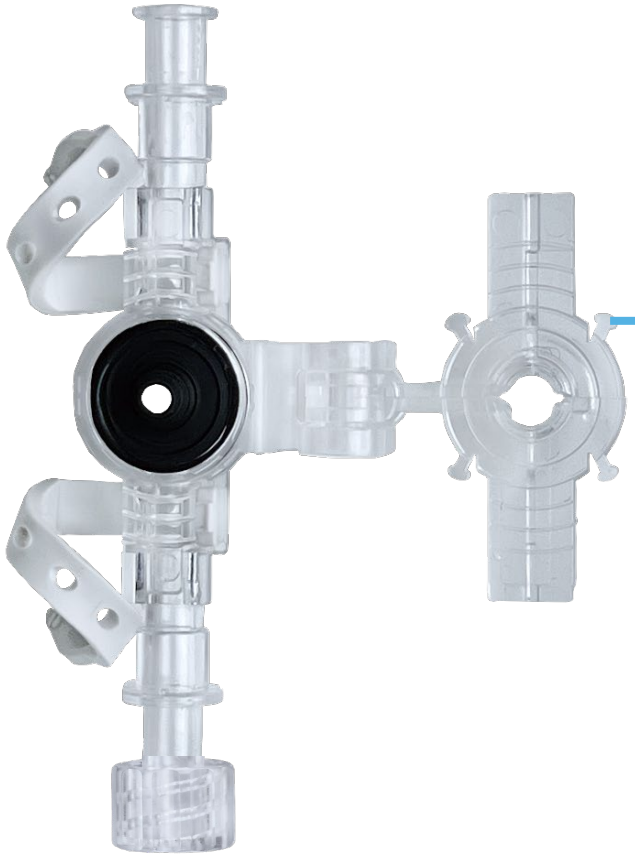
Arteries without aortic patch



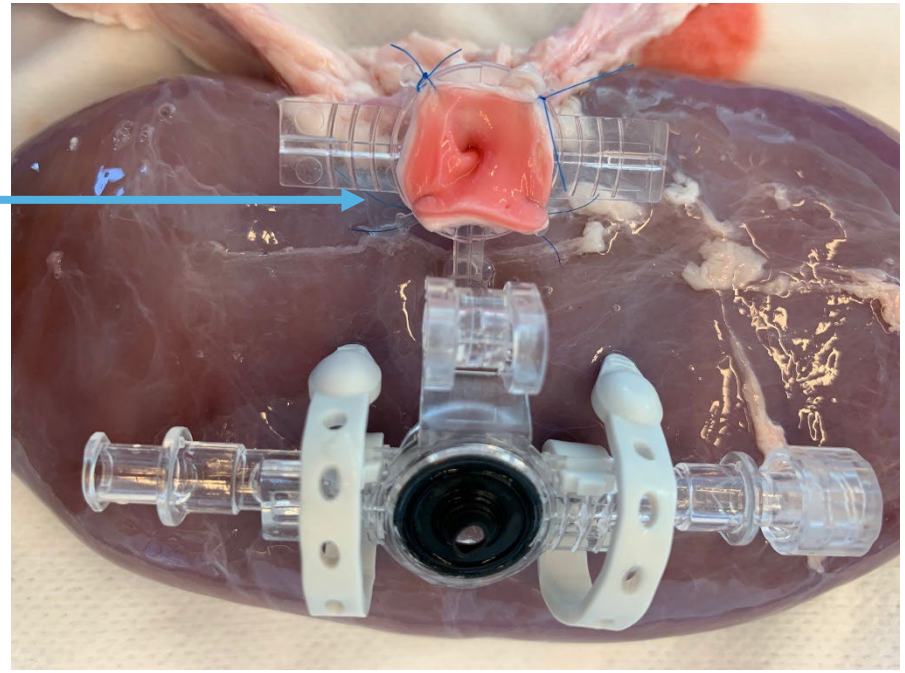
Organ Recovery systems

Cannulation

Universal SealRing® Cannula



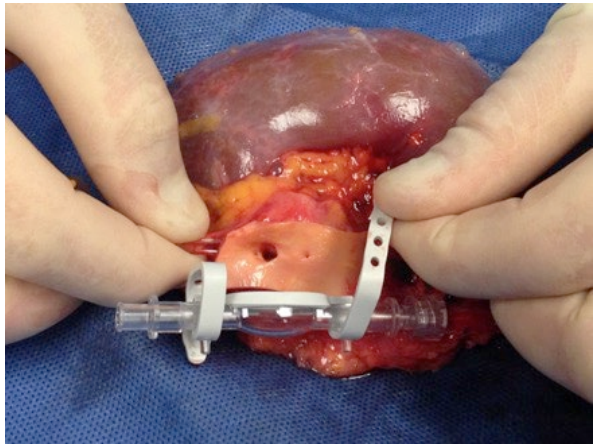
Option for fixing small patch

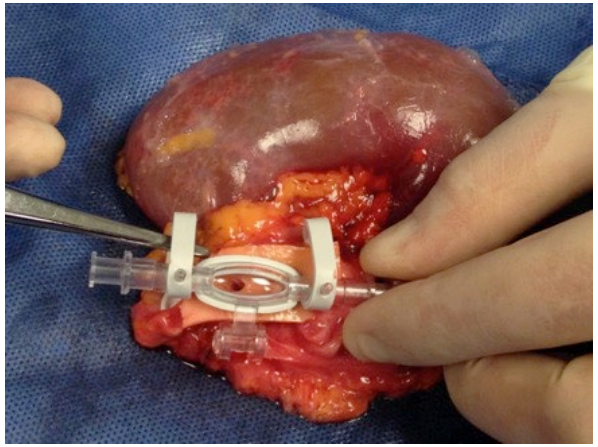


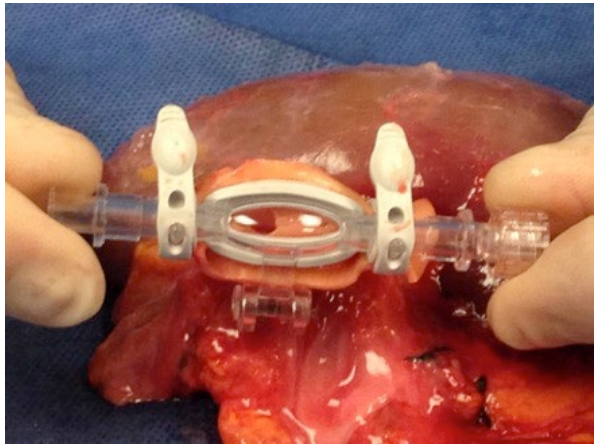
Organ Recovery systems

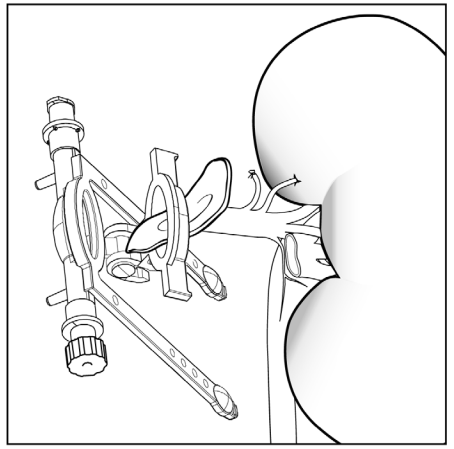
Cannulation

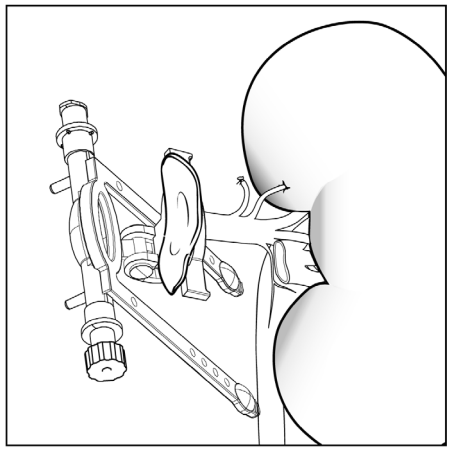
SealRing® Cannula

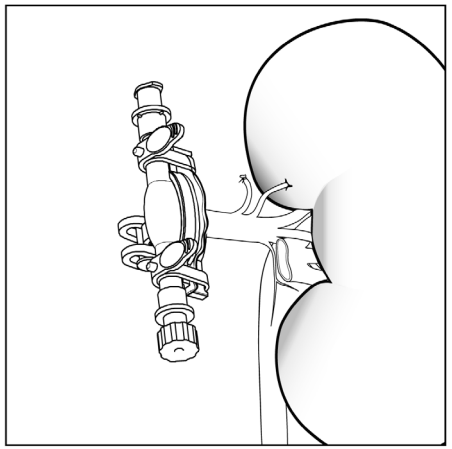


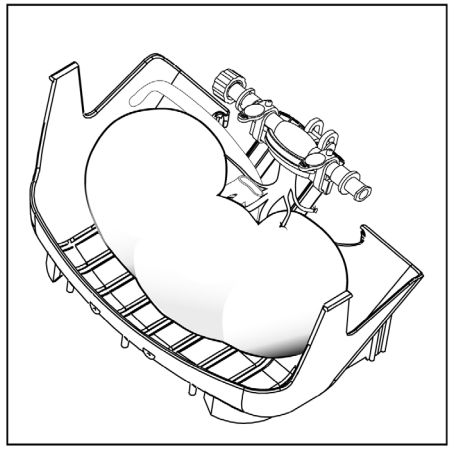








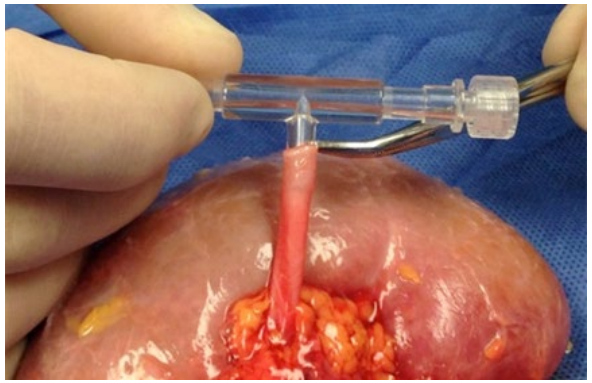


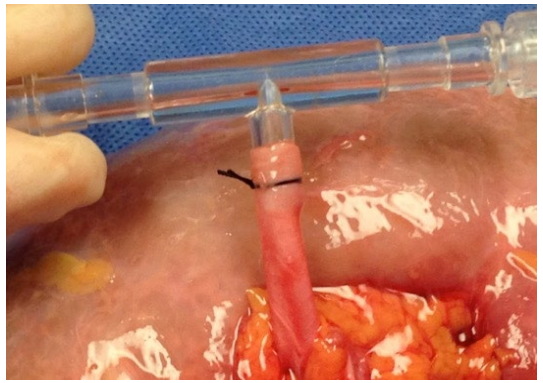


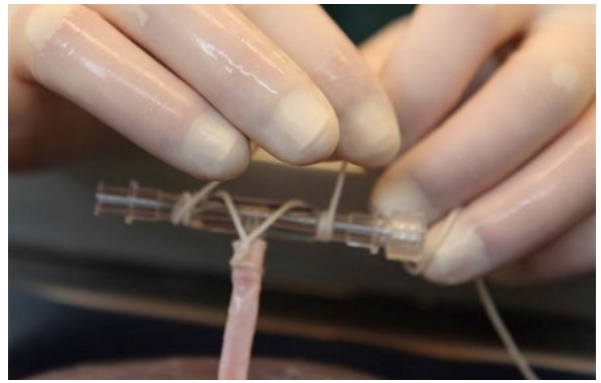
Organ Recovery systems

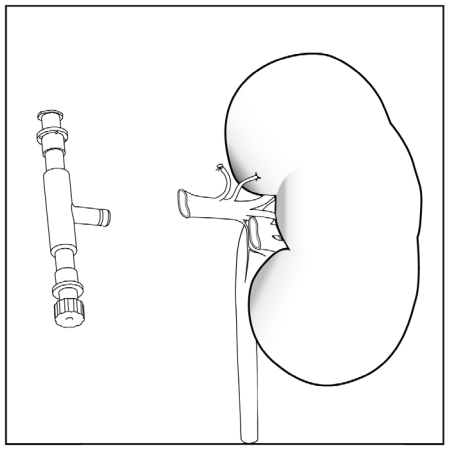
Cannulation

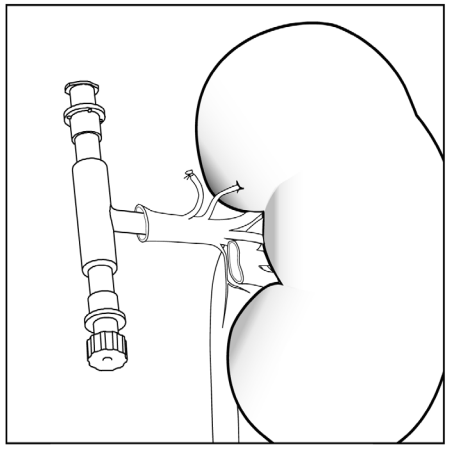
Straight Cannula

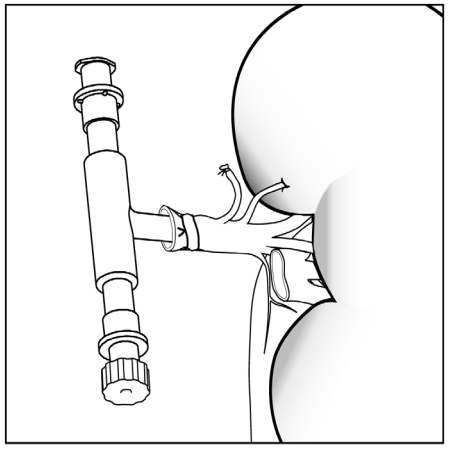


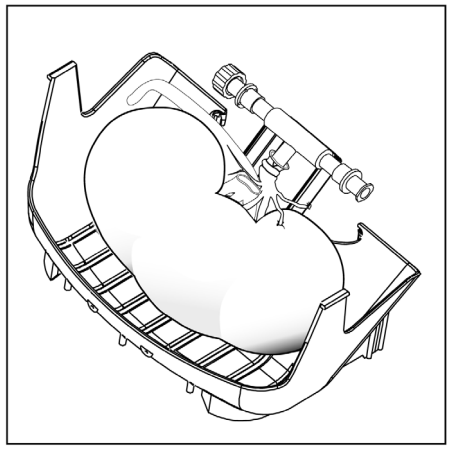








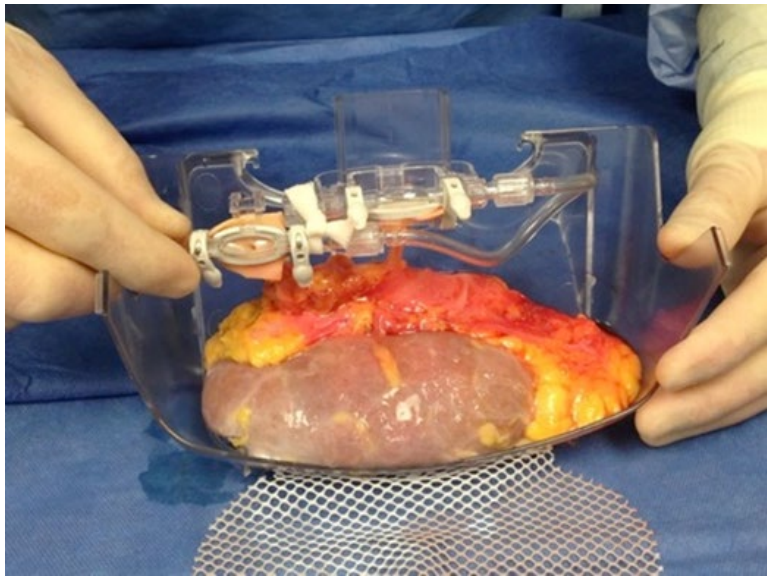


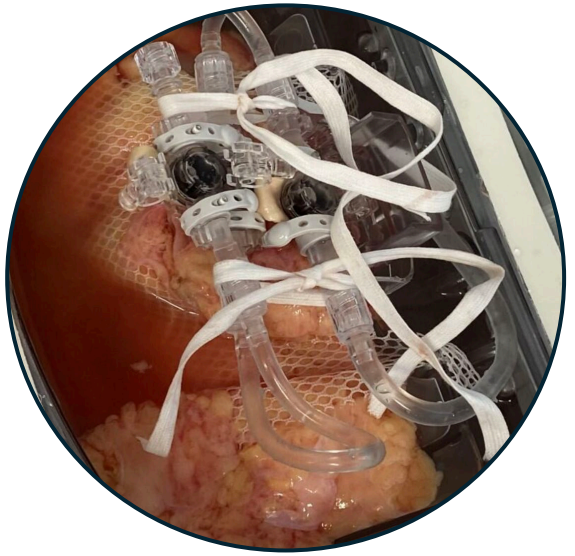


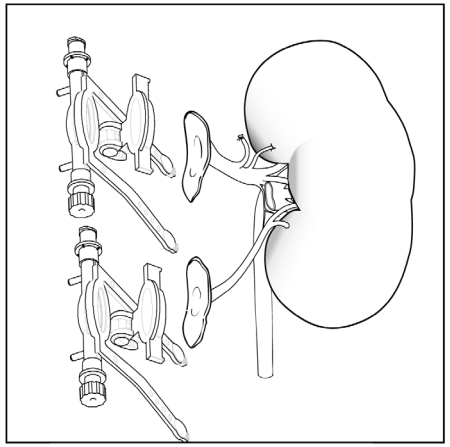
Organ Recovery systems

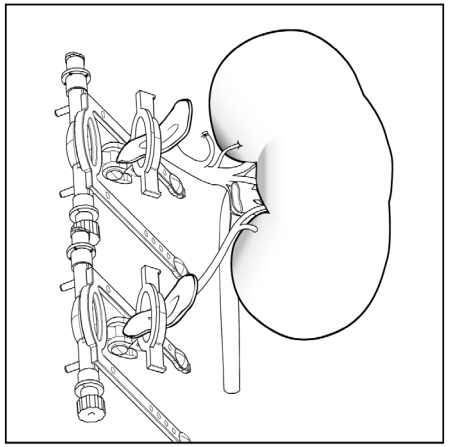
Cannulation

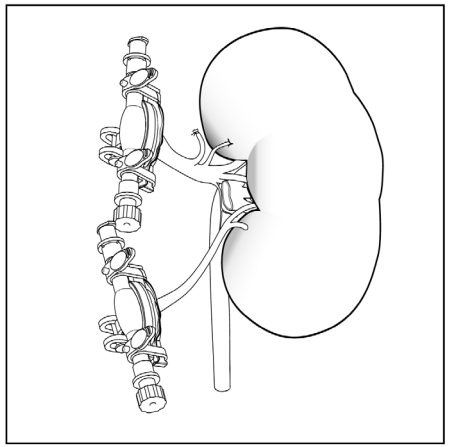
Coupler

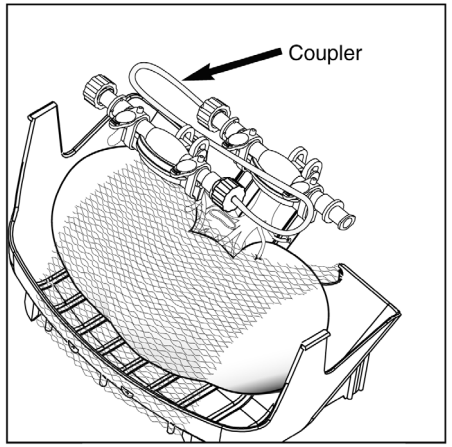




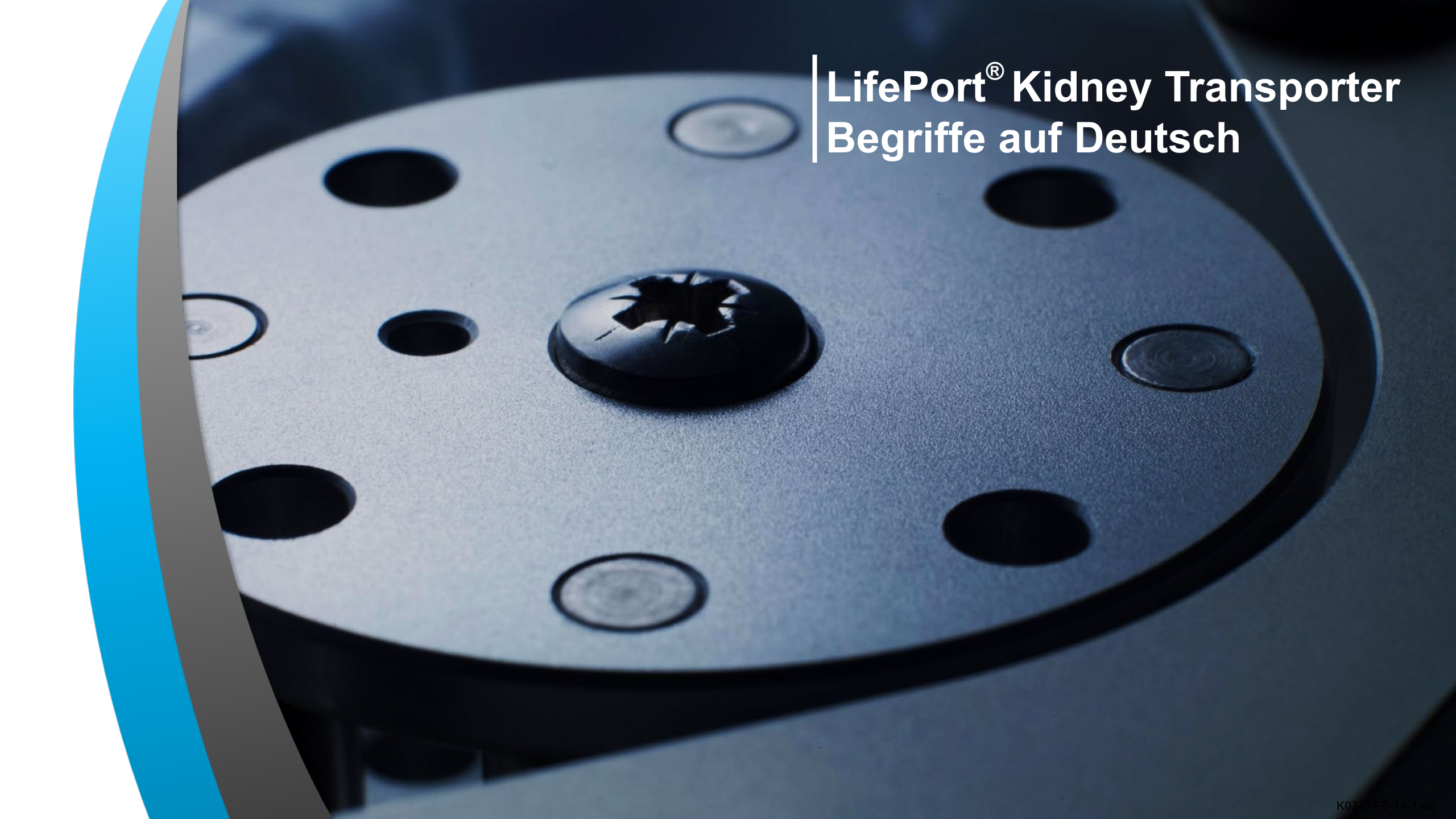






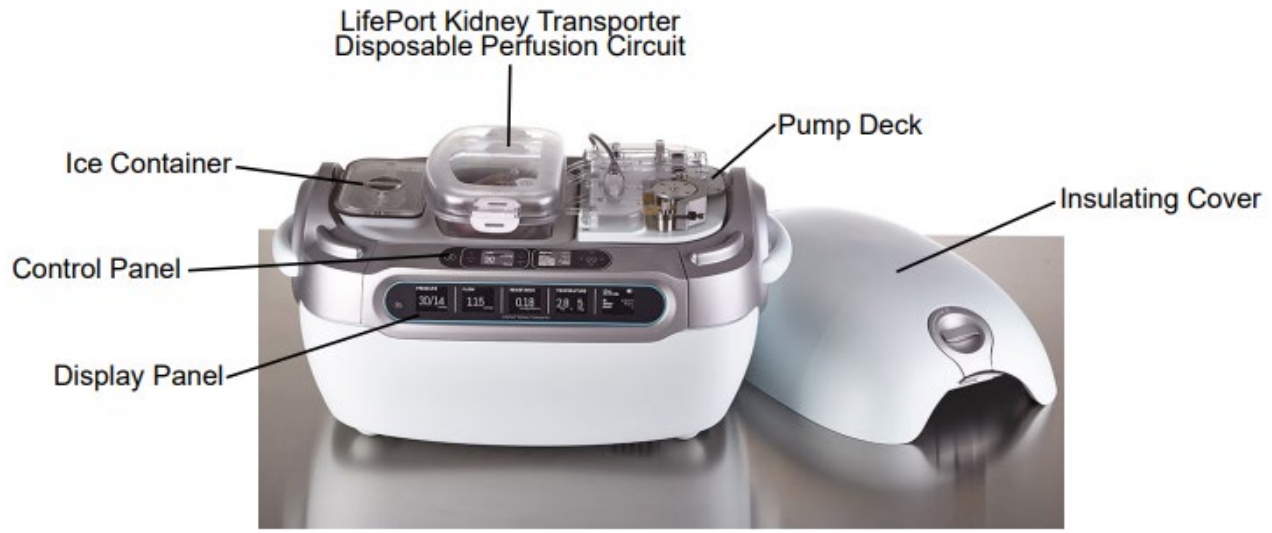


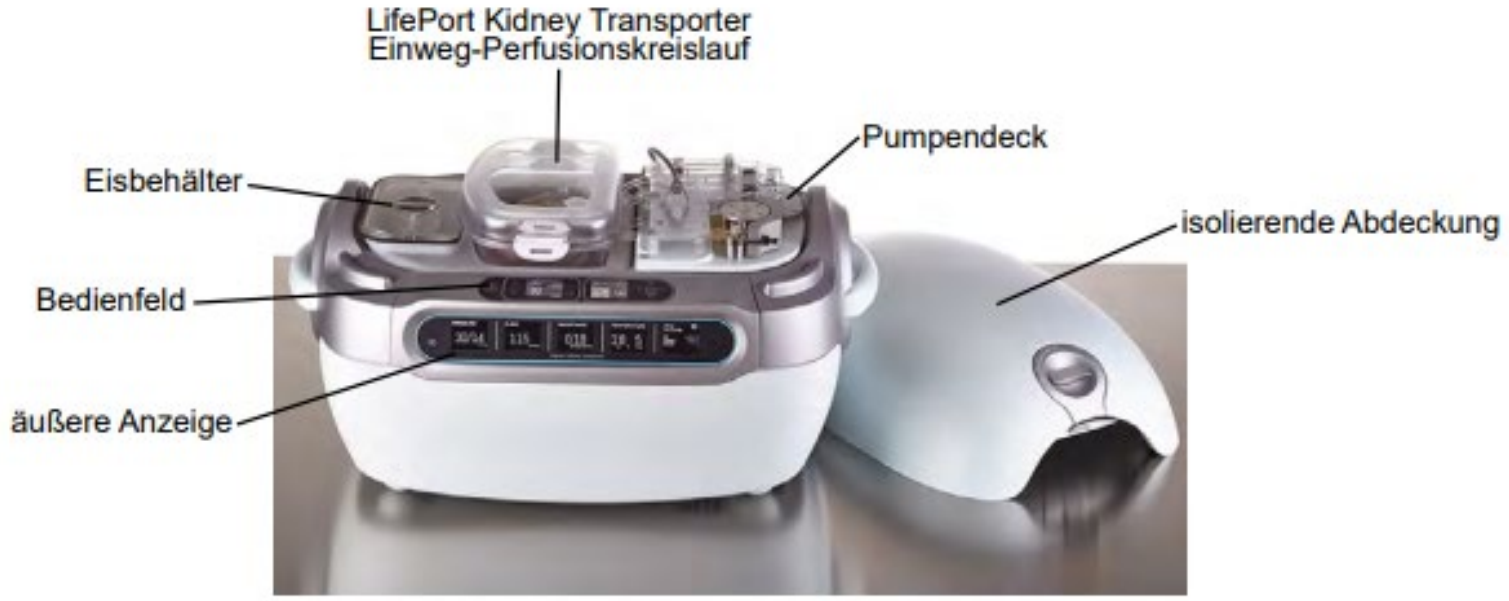
Organ Recovery systems



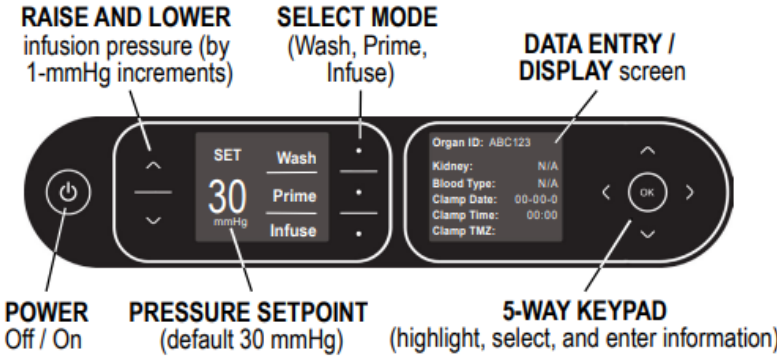
LifePort® Kidney Transporter
Begriffe auf Deutsch

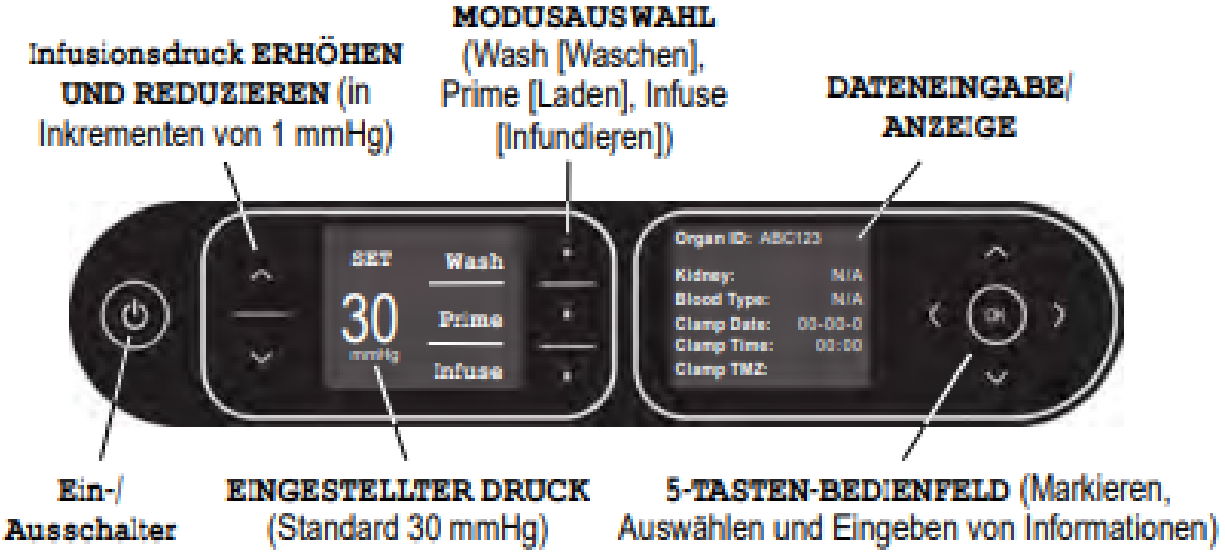
LifePort Components



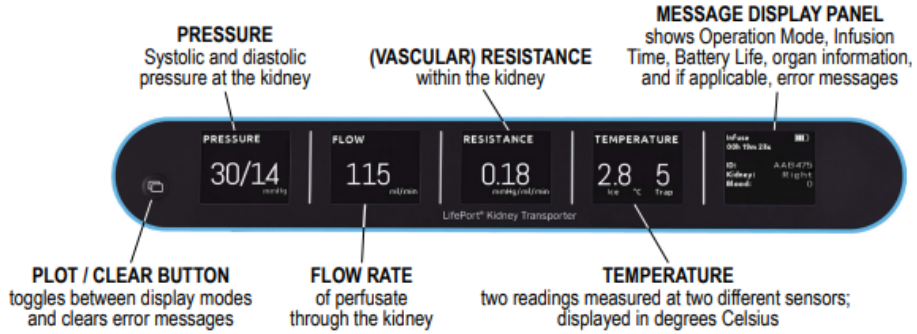


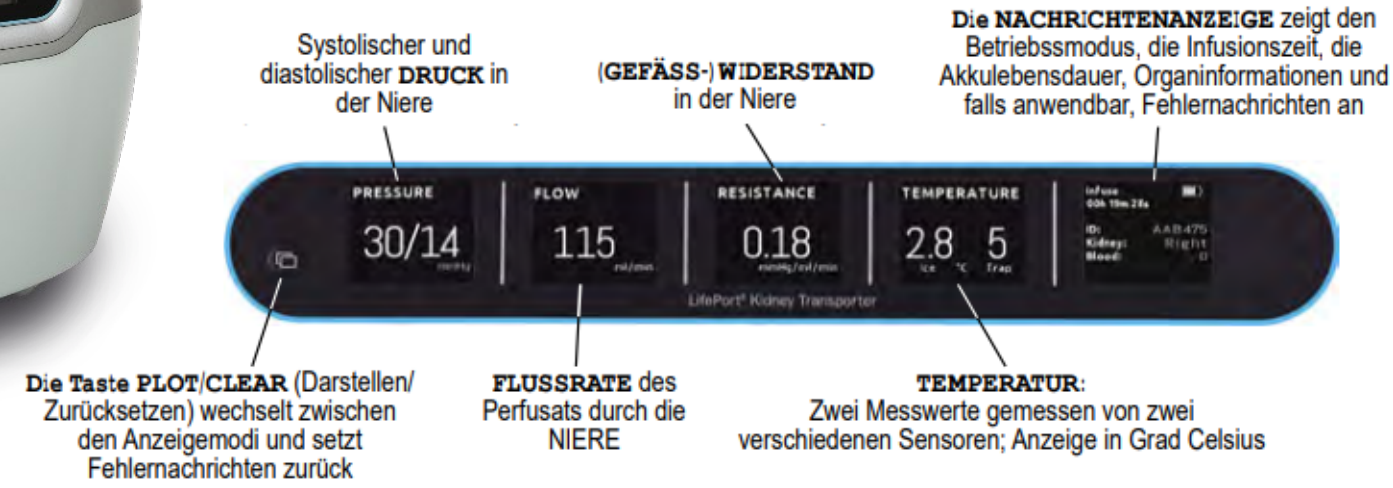
LifePort Components



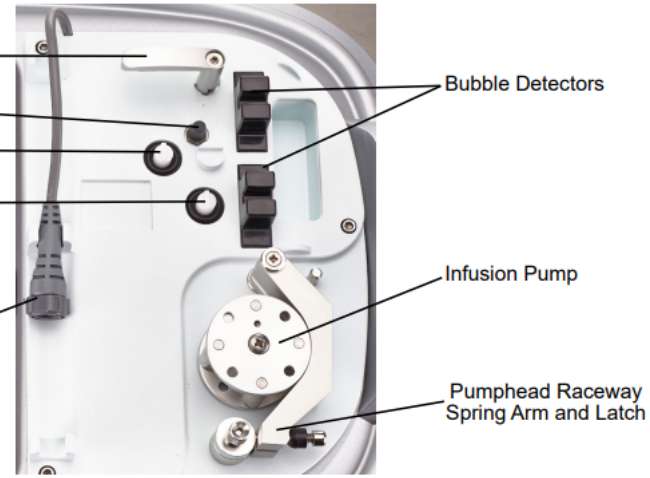


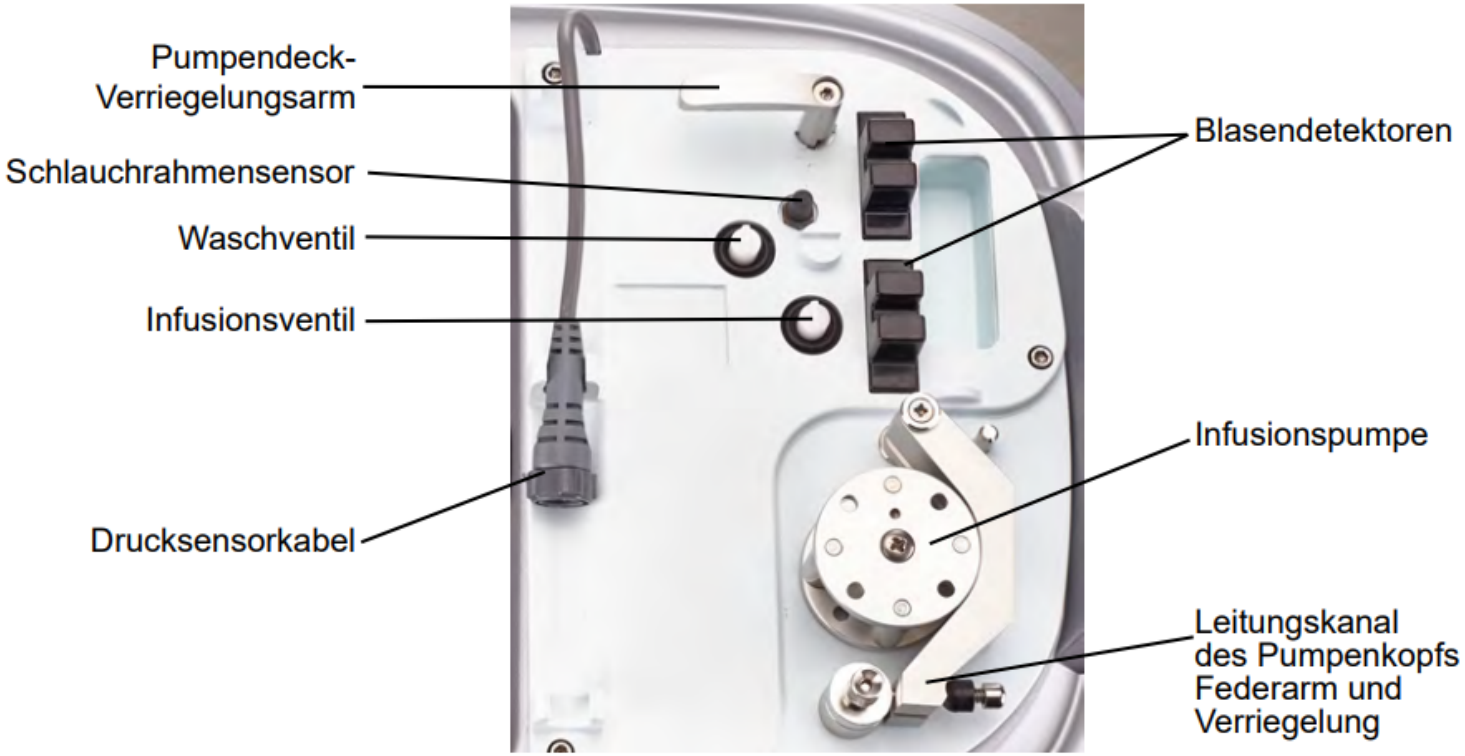
LifePort Components



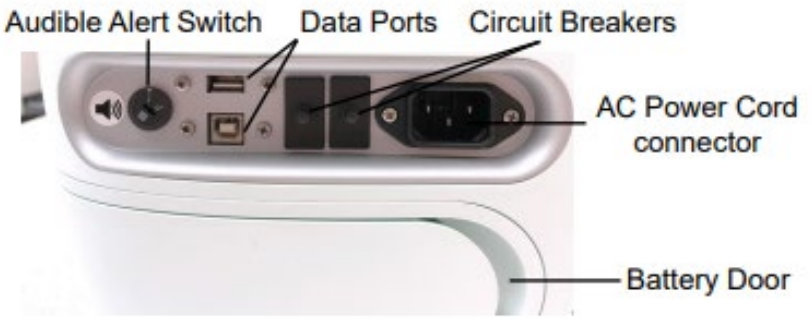


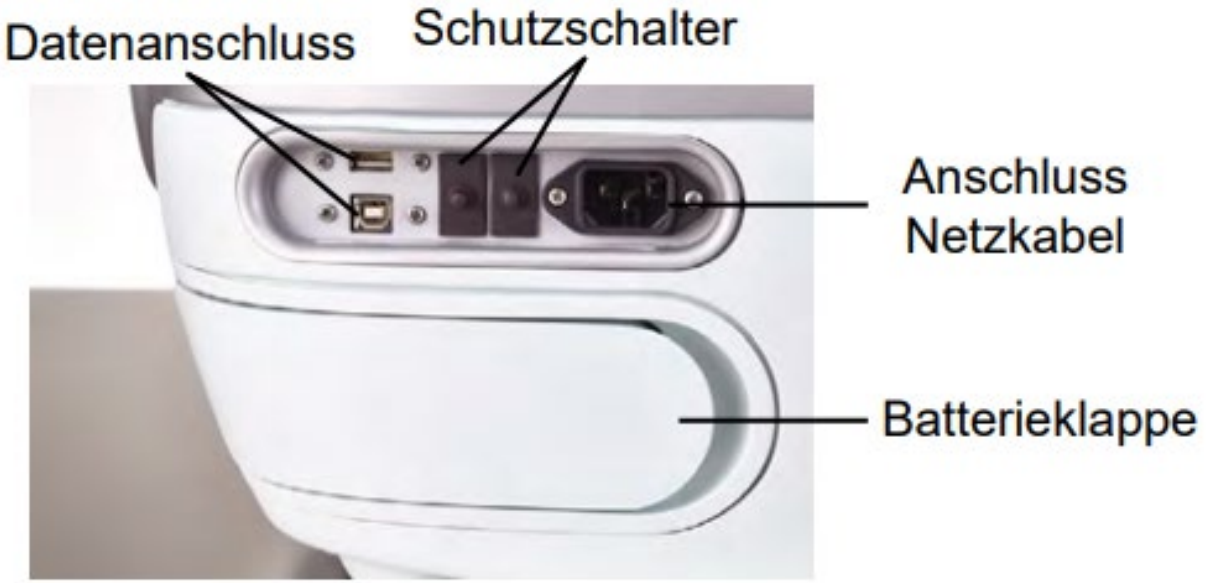
LifePort Components



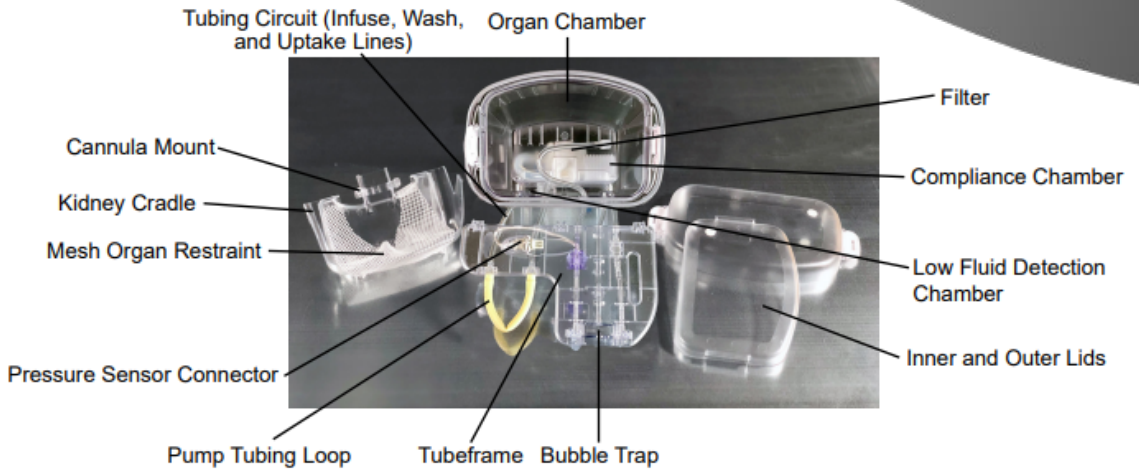


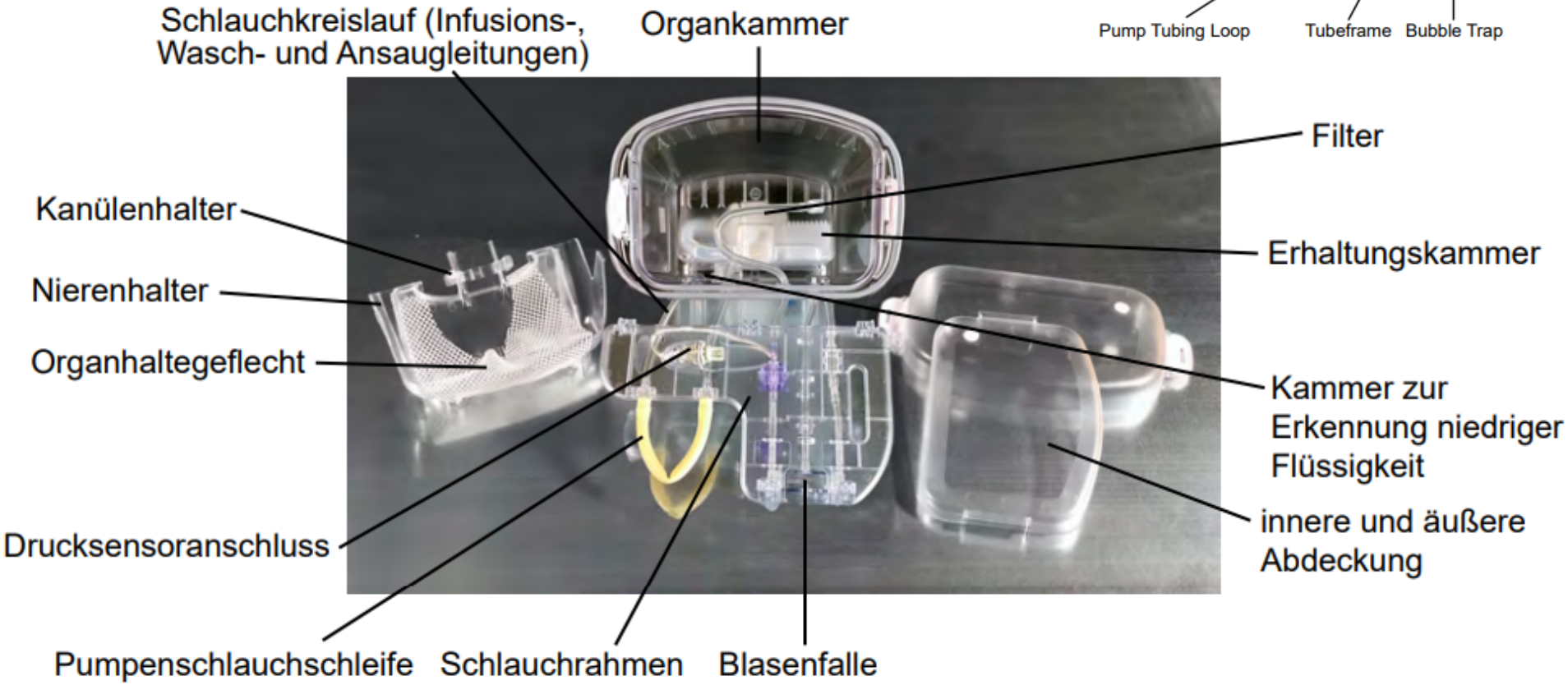
LifePort Components





LifePort Components

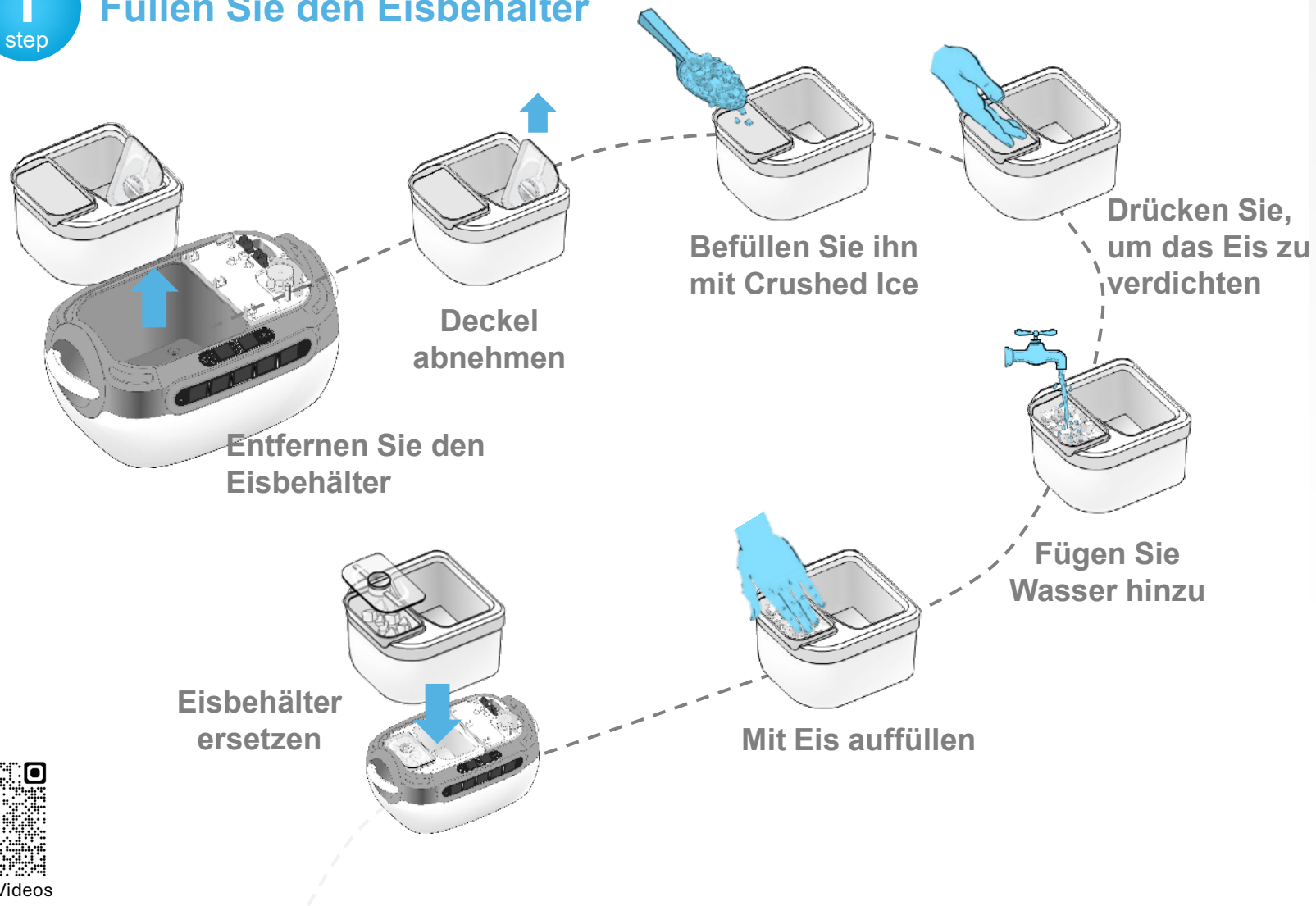




LifePort® Kidney Transporter Kurzanleitung

Kurzanleitung

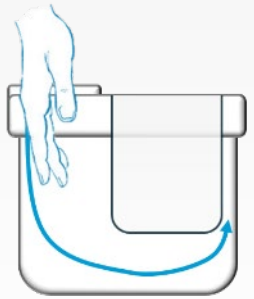
1 step Füllen Sie den Eisbehälter



Training Videos

Tipps & Tricks

Crushed Ice verwenden

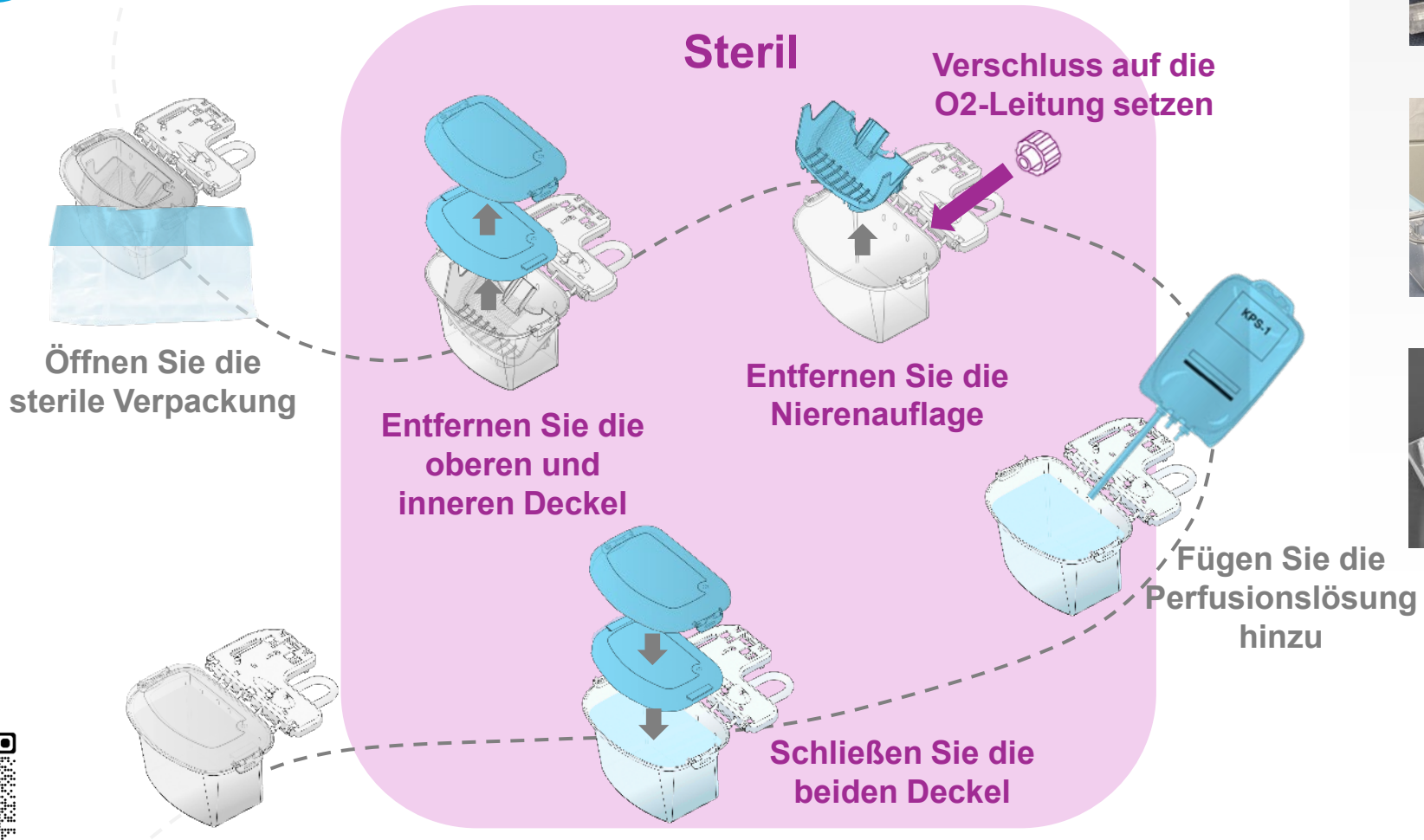


Schiebe das Eis in die hohlen Seiten

Organ Recovery systems

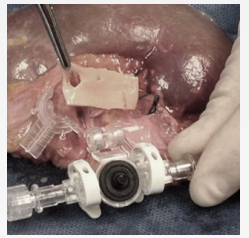
Kurzanleitung

2 step Perfusionskreislauf vorbereiten



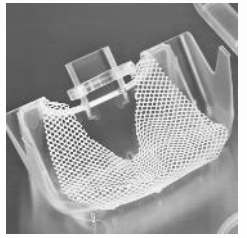
Training Videos

Tipps & Tricks



Warten Sie auf die Bestätigung der Kanülierung

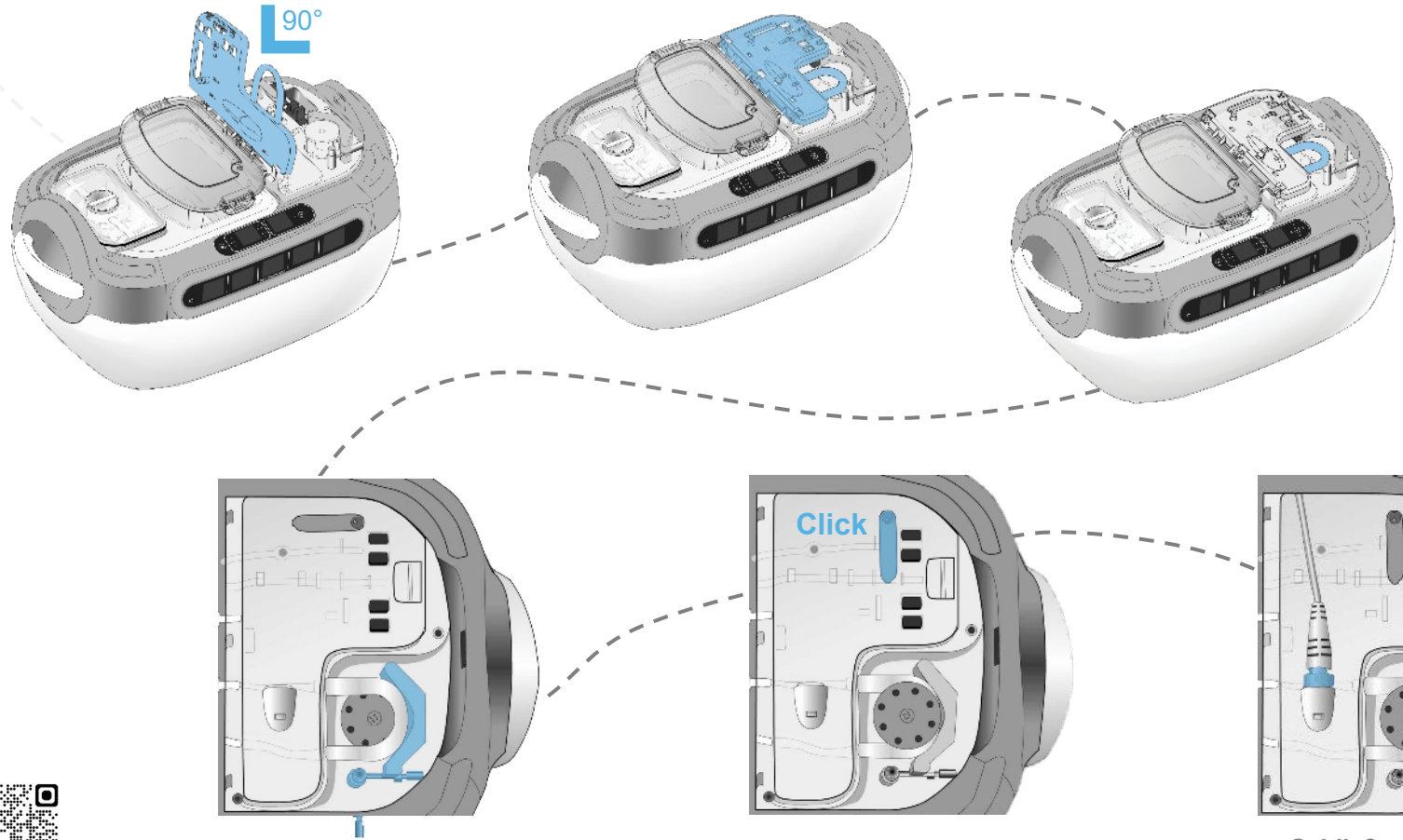
Beutel = nicht steril
Halten Sie Abstand zum Kreislauf



Die Nierenauflage während der Kanülierung im sterilen Bereich behalten

Kurzanleitung

3 step Installieren Sie den Perfusionskreislauf



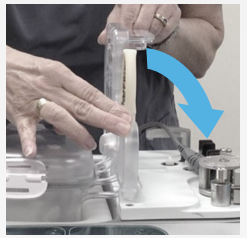
Schließen Sie an die Rollerpumpe an

Röhrenrahmen mit Arretierhebel sichern

Schließen Sie den Drucksensor an

Training Videos

Tipps & Tricks



Senkrecht anbringen und drehen, bis es waagerecht ausgerichtet ist

LifePort **NIEMALS** einschalten, wenn der Drucksensor nicht angeschlossen ist!

Organ Recovery systems

Kurzanleitung

4 step Perfusionskreislauf entlüften

POWER
Halten Sie den Ein-/Ausschalter gedrückt

Klicken Sie auf STOP um die älteste Datendatei zu löschen
Bei Bedarf

Geben Sie die Organinformationen ein und speichern Sie

WASH drücken, um Luft aus dem Kreislauf zu entfernen

Tipps & Tricks

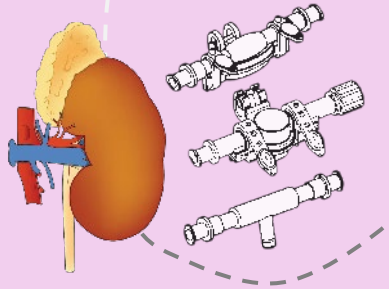
Das Gerät kippen, um Luft aus dem Filter im Organbehälter zu entfernen

Training Videos

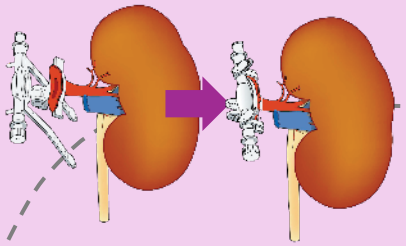
Kurzanleitung

5 step Kanülierung

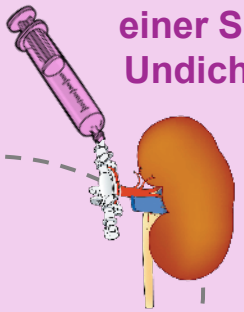
Steril



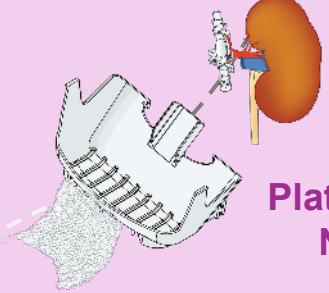
Wählen Sie die Kanüle
(siehe Entscheidungsbaum)



Kanülieren Sie



Testen Sie mit einer Spritze auf Undichtigkeiten

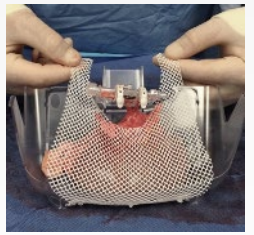


Platzieren Sie die Niere in der Halterung
Vene oben

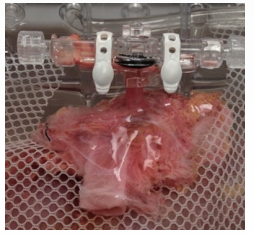
Training Videos

Tipps & Tricks

Testen Sie die Kanülierung mit der Spritze



Mit dem Netz-Organhalter sichern, aber nicht zu fest anziehen



Die Arterie gerade installieren und stets die Vene oben auf dem Netz positionieren

Organ Recovery systems

Kurzanleitung

6 step Verbinden Sie die Niere mit dem Perfusionskreislauf

Äußeren Deckel entfernen

Beenden Sie den WASH-Modus

Steril

Legen Sie das sterile Tuch auf

Entfernen Sie die Deckel

Platzieren Sie die Halterung

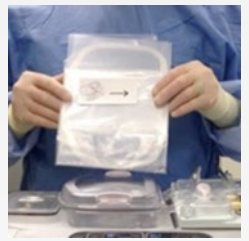
PRIME
um die Luft aus der Kanüle zu entfernen

Ersetzen Sie die Endkappe

Entfernen Sie die Endkappe und verbinden Sie die Leitung

Training Videos

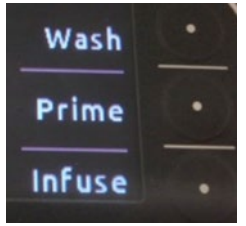
Tipps & Tricks



Nutzen Sie die Angaben auf der Verpackung zum Platzieren des Tuchs

Form des Ausschnitts oben auf dem inneren Deckel ausrichten

Inneren Deckel steril lagern



Beim Platzieren der Endkappe muss Prime mit einem Druckfehler anhalte

Organ Recovery systems

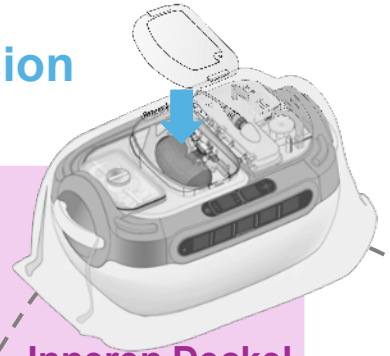
Kurzanleitung

7 step Starten Sie die Perfusion

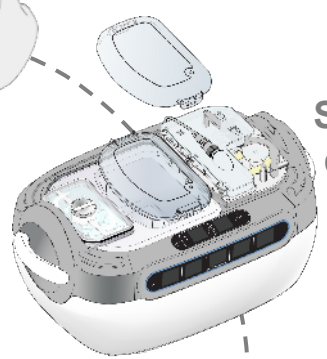
Steril

Starten Sie den INFUSE-Modus

Warten Sie, bis Psys erreicht ist



Inneren Deckel schließen und steriles Tuch entfernen



Schließen Sie den äußeren Deckel

schließen Sie die Abdeckung

Tipps & Tricks

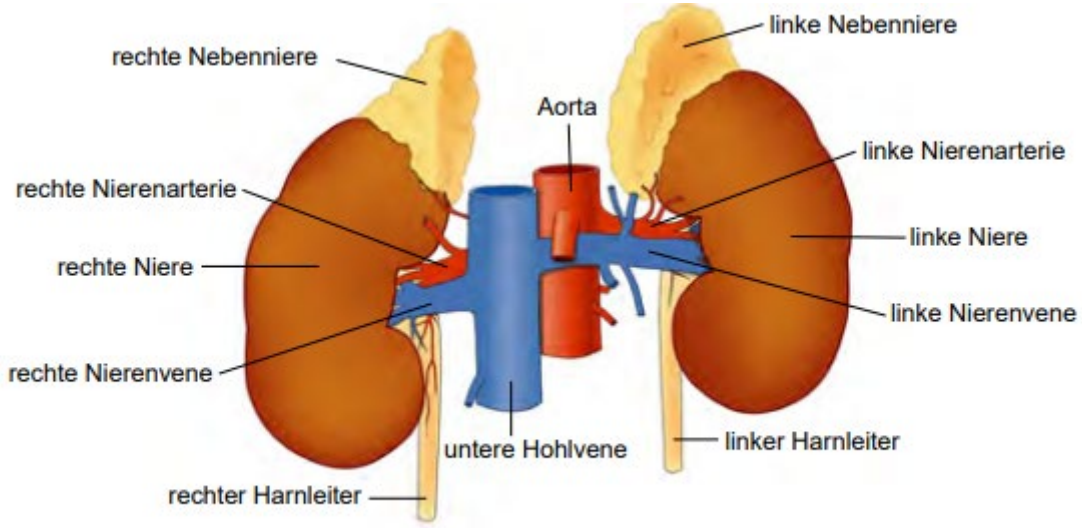
Systolischen Druck bei Bedarf auswählen

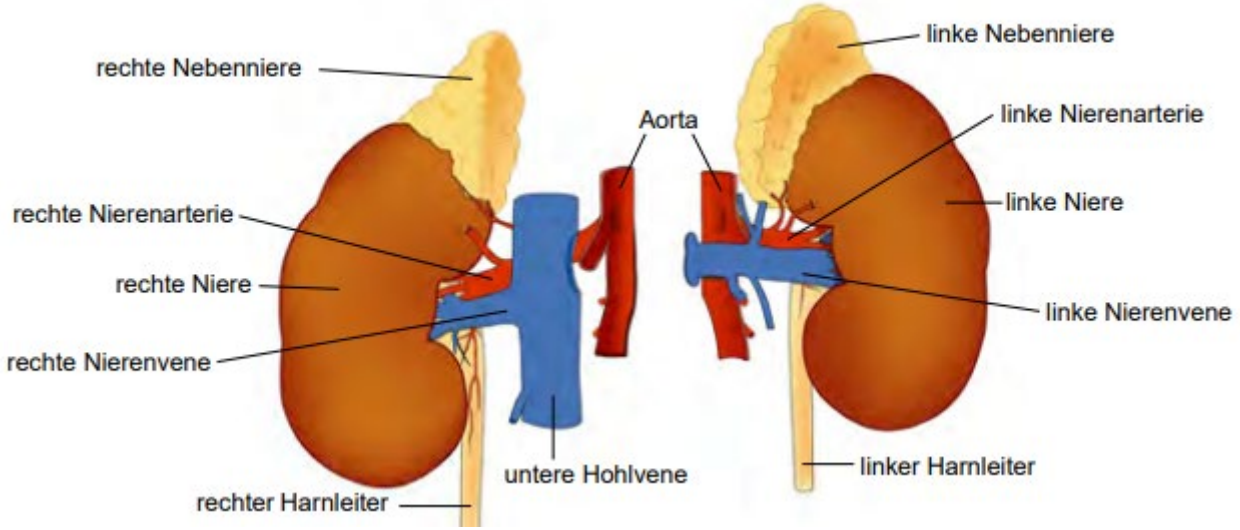
Warten Sie, bis der systolische Druck erreicht ist, bevor Sie das sterile Tuch entfernen

Training Videos

Organ Recovery systems

Anatomie der Niere

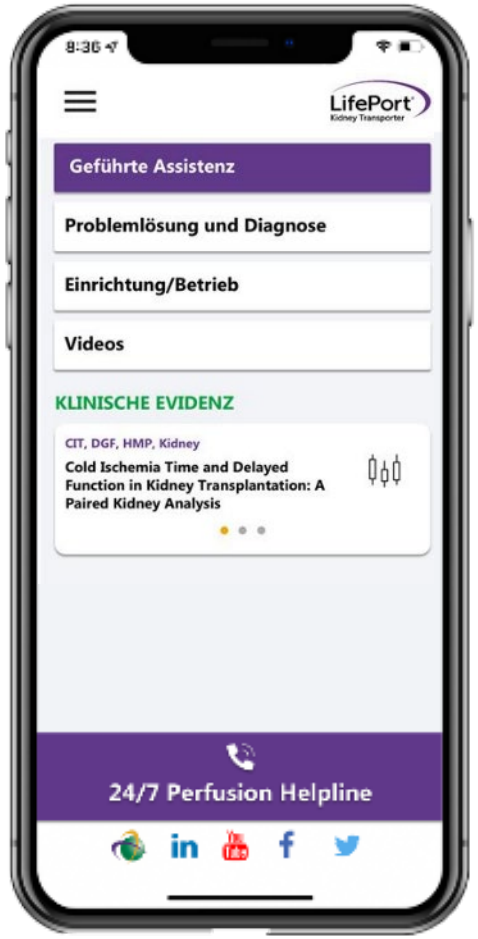




LifePort® Kidney Transporter Alert Handling

Support

Alert & Troubleshooting



Detailed overviews, probable causes, and corrective actions can be found in:

- LifePort Kidney Transporter 1.1 Operator's Manual
- LifePort Mobile App

Download on the App Store

GET IT ON Google Play

Organ Recovery systems

Alert Handling

Overview

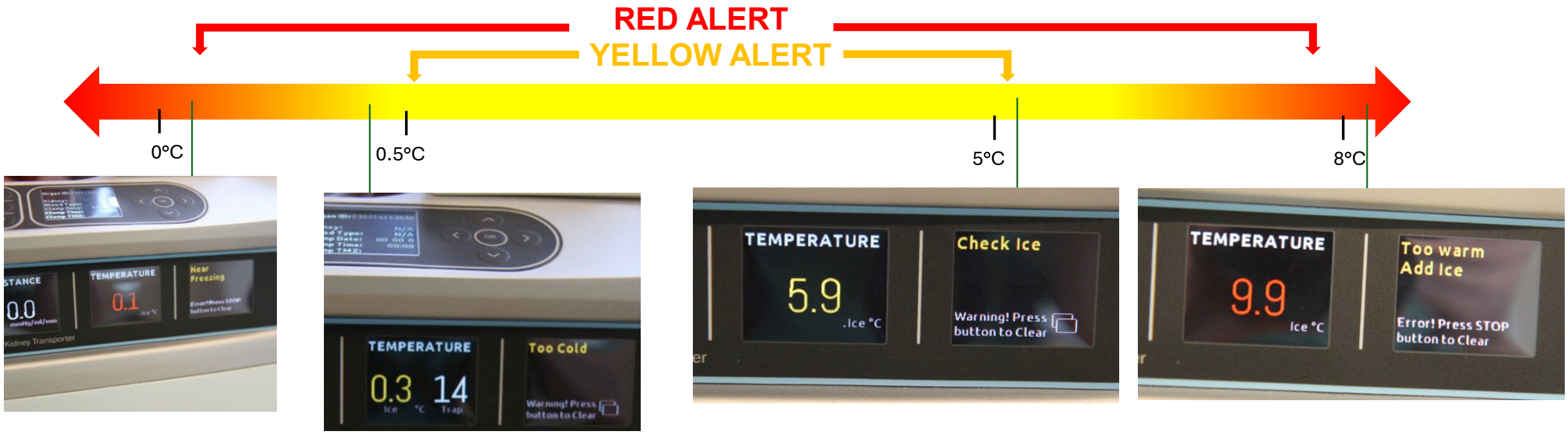
Temperature	Installation	Resistance	Bubbles	Batteries	Memory
Check Ice	Load Perfusion Circuit	Can't Reach Pressure	Purging Bubbles	Low Battery	Ready to Erase File
Too Warm Add Ice	Connect Pressure Sensor	Kidney Not Connected	Bubbles in Infuse Line	Shutdown Battery	
Too Cold	Pressure Sensor Failure	Kidney High Resistance			
Near Freezing		Equalizing			

Press **STOP** **to clear an alert** after solving the issue

Alert Handling

Temperature

TEMPERATURE related alerts are the **most important** to address in a timely fashion.



Alert Handling

Pressure

PRESSURE
related alerts

LOW PRESSRE → HIGH PRESSURE

Can't Reach Pressure

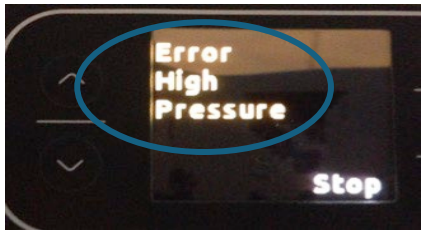
1. small leakages at cannula, artery or Perfusion Circuit
   - Cannula – recannulate
   - Lateral branch - close
   - Biopsy site - close
   - Wash line – reinstall Perfusion Circuit
2. If no leak
   - Artery filled during perfusion?
   - Liquid coming out of vein?
3. If none of the above work, lower the set pressure

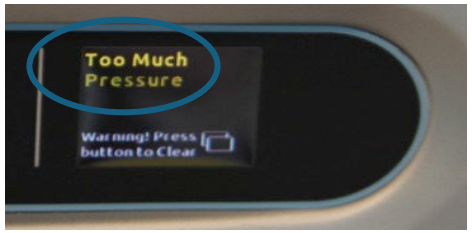
Kidney Not Connected

1. big leakages at cannula, artery or Perfusion Circuit
   - Cannula - recannulate
   - Lateral branch - close
   - Biopsy site - close
   - Wash line – reinstall Perfusion Circuit

Too Much Pressure

1. Check for venous, arterial occlusions
2. Check for proper valve function in Wash and Infuse Lines





Organ Recovery systems

Alert Handling

Bubbles

"**Purging Bubbles**" alert will appear if LifePort Kidney Transporter has detected air in first Bubble Detector and begins to purge bubbles automatically through the Wash Line. (There is no risk that air will enter renal artery.)

To correct:

- Let LifePort Kidney Transporter complete the cycle. Every 10 minutes, LifePort Kidney Transporter performs a hygienic Wash cycle for 10 seconds
- Tilting LifePort Kidney Transporter toward you during WASH Mode to guide air out of filter will limit air being released from filter later on
- If cycle continues much beyond 15 seconds, press STOP, repeat rock-'n'-roll movement, press INFUSE

Note: In case of persistent alarm, air may be located outside the tubing. To correct, add drop of alcohol gel to fill the gap between tubing and air detector.