

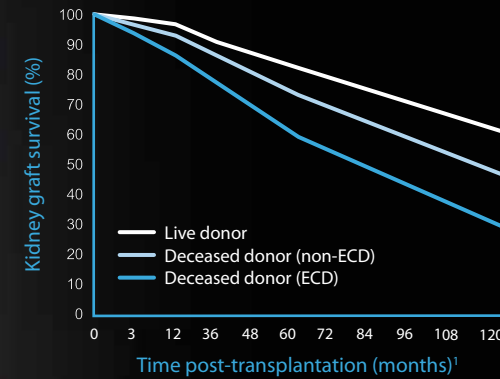
Transforming Preservation



LifePort®

Clinical Needs

Long-term survival of kidney grafts is not improving despite better donor management and improved immunosuppression.¹

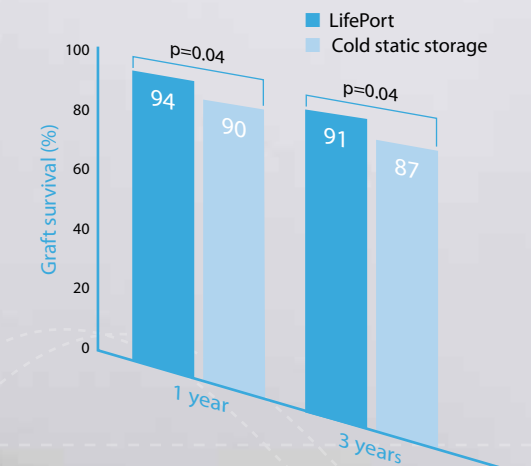


At the same time, the number of people needing dialysis for end-stage renal failure is likely to double in the next 10 years.² Some will go on the ever-growing waiting list for a life-saving transplant.

Every donor kidney is a gift that deserves to be protected

With its innovative technology, LifePort Kidney Transporter has revolutionized kidney preservation. Compelling evidence shows that LifePort can improve the odds of a good outcome.

Both 1-year and 3-year graft survival for all deceased donor kidneys is significantly better with LifePort Kidney Transporter when compared with cold static storage.^{3,4}



Transform Outcomes

Clinical Challenge

Graft survival in kidney transplantation is strongly impacted by the occurrence of delayed graft function (DGF), particularly in kidneys from marginal donors.^{5,6}

Impact of DGF

- Negative impact on long-term graft survival^{6,7,8}
- Increased risk of acute rejection⁶
- Increased healthcare costs⁶
- Poor outcomes for the patient⁶

LifePort helps surgeons to transplant kidneys with confidence, even those from marginal donors. State-of-the-art preservation with LifePort has proven to significantly reduce the risk of DGF for all kidney donor types compared with cold static storage.^{5,6}

Routinely protecting and preserving expanded criteria donor (ECD) kidneys and kidneys donated after cardiac death (DCD) with LifePort could make all the difference.⁶

Transform Transplantation

Clinical Decision Making



The self-contained Perfusion Circuit cradles the organ in cold physiologic solution. A custom-made disposable cannula, situated comfortably on an adjustable mount, swiftly connects LifePort to even the most challenging anatomies.

And the entire disposable apparatus – complete with organ cassette, pressure sensor and preservation solution – loads and unloads in one easy motion.

The fully portable LifePort captures and displays key performance data in real time. Onboard digital readouts show patient ID number, blood type, temperature, diastolic and systolic pressure, flow, resistance and perfusion time.

The on-board GPS system transmits location and key performance data every 10 minutes. Perfusion data is available for rapid download via USB port.



Transform Knowledge

Transform Lives



LifePort provides portable protection and preservation for all types of donor kidneys,³ helping to transform the lives of renal transplant patients.



Experience LifePort

LifePort Kidney Transporter (LKT 101P)

Dimensions

Size	<ul style="list-style-type: none"> 61 cm (24") x 35.6 cm (14") x 35.6 cm (14")
Weight	<ul style="list-style-type: none"> 13.6 kg (30 lb) dry 20.4 kg (45 lb) fully loaded

Cooling and Insulation

Cooling mechanism	<ul style="list-style-type: none"> Conduction from organ cassette to Ice Container
Insulated cold zones	<ul style="list-style-type: none"> Ice Container, Pump Deck, Perfusion Circuit
Cold mass	<ul style="list-style-type: none"> 5.5 L water-and-ice (50/50) slush
Ice Container	<ul style="list-style-type: none"> Removable, replaceable and watertight Replenishable without interrupting perfusion Ice is visible through transparent lid
Electronics cooling	<ul style="list-style-type: none"> Vented air convection Mains-activated fan

Pump Deck

Infuse pump	<ul style="list-style-type: none"> Peristaltic pump Infuse line pressure range user settable from 10 to 65 mmHg
Valves	<ul style="list-style-type: none"> Wash valve, normally open Infuse valve, normally closed
Flow measurement	<ul style="list-style-type: none"> Range: 0 to 250 mL/min Accuracy: $\pm 15\%$, 20 mL/min to 150 mL/min
Sensors, temperature (2)	<ul style="list-style-type: none"> Temperature sensor 1: Ice Container Temperature sensor 2: fluid in bubble trap Sensing range: -30° to 60° C Accuracy: $\pm 0.5^\circ\text{C}$ (-5° to 10° C)
Sensors, bubble (2)	<ul style="list-style-type: none"> Bubble detector 1: filter output Bubble detector 2: infuse line
Sensor, cover	<ul style="list-style-type: none"> 2 states: cover open/cover closed
Sensor, Perfusion Circuit	<ul style="list-style-type: none"> 2 states: circuit loaded/circuit not present

Control/Display

Control panel	<ul style="list-style-type: none"> Power button Set pressure increment/decrement buttons (1 mmHg steps) Set pressure display Wash, Infuse, Prime, and Stop options (when appropriate)
Data Entry, 5 way keypad	<ul style="list-style-type: none"> Organ Information <ul style="list-style-type: none"> Organ ID Kidney side Blood type Cross Clamp Time, date, and time zone Device Information <ul style="list-style-type: none"> Time, time zone Date Device ID Battery status indicator Language selection
Outer display	<ul style="list-style-type: none"> Plot/Clear toggle button Pressure display Flow rate display Resistance display Ice/Trap temperature display Alphanumeric display indicating: Organ ID, Kidney side, Blood type, Device ID, Infusion time, Mode of operation and Alarm messages (if present)

LifePort Perfusion Circuit

Organ capacity	<ul style="list-style-type: none"> One human kidney ≤ 7.5 cm x 17 cm x 4 cm
Organ support	<ul style="list-style-type: none"> Cradle support, mesh organ restraints
Perfusate per use	<ul style="list-style-type: none"> 1 L
Perfusate compatibility	<ul style="list-style-type: none"> KPS-1[®] or other approved machine perfusion solution

Circuit compatibility

Circuit compatibility	<ul style="list-style-type: none"> Use only with the LifePort Kidney Transporter
Sterility considerations	<ul style="list-style-type: none"> Single-use, ETO sterilized
Sealing and venting	<ul style="list-style-type: none"> Pressure-compensating and liquid-tight No perfusate wetting outside disposable set
Bubble Trap	<ul style="list-style-type: none"> Disposable, integral to Perfusion Circuit
Sensors, pressure	<ul style="list-style-type: none"> Disposable, integral to Perfusion Circuit Sensing range: 0 to 150 mmHg Accuracy: $\pm 10\%$ above 10 mmHg
Solids filtration	<ul style="list-style-type: none"> 20-micron nominal, cartridge filter
Cannula mount	<ul style="list-style-type: none"> For positioning and securing LifePort Disposable Cannula

LifePort Disposable Cannulas

SealRing™ cannula	<ul style="list-style-type: none"> 7 x 20 mm, 10 x 35 mm
Straight cannula	<ul style="list-style-type: none"> 3 mm, 5 mm and 8 mm
Cannula coupler	<ul style="list-style-type: none"> Flexible, trimmable tubing with detachable Luer locks

Electronics Module

CPU board	<ul style="list-style-type: none"> Digital and analog circuits and IO for sensors, valves and pumps Control panel interface Microcontroller circuits Embedded firmware Real-time clock USB 2.0 interface
Battery board	<ul style="list-style-type: none"> Power management Battery management and recharge
Perfusion mode	<ul style="list-style-type: none"> Pulsatile

GPS Module

GPS location accuracy	<ul style="list-style-type: none"> With strong GPS signal: 100 feet Without GPS signal (using GSM triangulation): 0.5 miles Without GPS or GSM: Not available
Data available (via secure ORS website)	<ul style="list-style-type: none"> Serial number of LifePort Kidney Transporter Organ ID Kidney side Current mapped position Current Ice temperature Current renal resistance LifePort battery level LifePort alarm conditions (if any)
Data from LifePort is transmitted via cellular GSM network	

Batteries

Batteries	<ul style="list-style-type: none"> 1-4 lithium ion batteries
Replacement	<ul style="list-style-type: none"> Drop-in, hot swappable
Status indicator	<ul style="list-style-type: none"> Remaining time readout on outer display LED charge status indicator on each battery
Charging	<ul style="list-style-type: none"> Rapid recharge (5 hr) via mains
Battery conditioning	<ul style="list-style-type: none"> Available with accessory charger

Mains Power

Mains power	<ul style="list-style-type: none"> 100-240V AC; 50-60Hz
Power cord	<ul style="list-style-type: none"> 2.5 m detachable, medical-grade (US)

Power and Data Panel

Contents	<ul style="list-style-type: none"> Mains power connection USB type A interface connection USB type B interface connection Circuit breakers
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Data Collection

Interface	<ul style="list-style-type: none"> USB type A interface connection, USB mass-storage device (flash drive) USB type B interface connection, computer
Data	<ul style="list-style-type: none"> Setpoints, calculated and displayed values, sensor readings and events stored every 10 sec
Data files	<ul style="list-style-type: none"> Five 48-hr data files
Data modes	<ul style="list-style-type: none"> Query Streaming Upload
External control	<ul style="list-style-type: none"> LifePort cannot be controlled via USB

Alarms

Automatic warnings (Infusion continues)	<ul style="list-style-type: none"> Ice temperature above 5° C, Check Ice Can't Reach Pressure Too Cold Low Battery
Automatic alarms (Infusion Stops)	<ul style="list-style-type: none"> Check Tubing Occlusion Too Much Pressure Sensor Error Ice temperature above 8° C, Too Warm, Add Ice Near Freezing Purge Bubbles Load Perfusion Circuit Pump Error High Resistance Check Filter Watchdog Timer

Performance

Closed loop control	<ul style="list-style-type: none"> Constant pressure monitoring to maintain user-set pressure
Temperature	<ul style="list-style-type: none"> Maintains ice container temperature at 1° to 8° C over ice life
Ice life	<ul style="list-style-type: none"> 24 hr with cover closed
Battery life	<ul style="list-style-type: none"> 24 hr uninterrupted perfusion
Hardwire safety circuits	<ul style="list-style-type: none"> Maximum temperature Maximum pressure Motor current Watchdog
Pulsatile flow	<ul style="list-style-type: none"> Systolic pressure regulated to user setting $\pm 20\%$ above 10 mmHg Fixed pulse repetition rate, 30 beats per minute (BPM)

LifePort Kidney Transporter, including components, disposables and methods of use, are protected by patents and pending patent applications in the United States and various other countries and regions of the world.

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Full references are available upon request.

Specifications



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Organ Recovery Systems is the market-leading provider of products and services for organ preservation, evaluation and transport.

LifePort comes with dedicated technical support from expert perfusionists 24 hours a day, 7 days a week. We provide comprehensive onsite training and wet labs as well as loaner devices and a protection plan to help you keep your transplantation program running smoothly.

We transform technology,
to help you transform lives

LifePort