

Medtronic

Extracorporeal life support

Product catalog



Advancing ECLS like no other



Extracorporeal life support (ECLS) is a rapidly growing therapy used to bridge patients experiencing acute cardiac and/or respiratory failure to recovery, or to bridge patients to a destination therapy. Together with our partners in healthcare, we are helping shape a comprehensive ECLS solution. We provide products designed specifically for ECLS and a wide breadth of support products that can be used with patients in critical care settings.

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Catheters

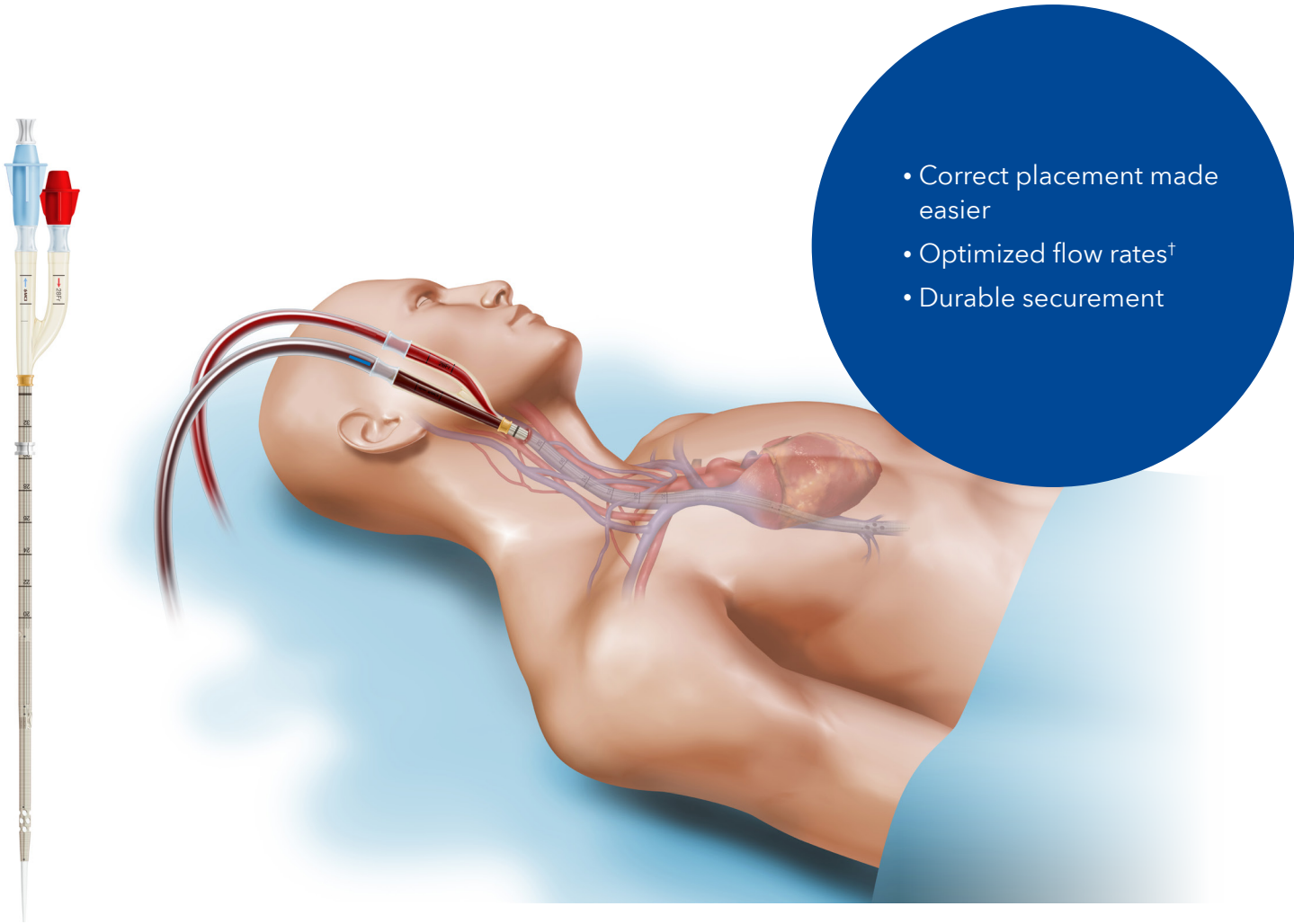
As ECLS therapy evolves and expands, so does the variety of patients you treat. Medtronic catheters are designed for the duration and support requirements of patients on VV and/or VA ECMO. Developed with extensive user input, the breadth of our dual lumen and single lumen catheter portfolio offers more lengths, sizes, and configurations than any other brand – giving you the choices you need to individualize your patients’ ECLS care.



Crescent^{TM*} Jugular Dual Lumen Catheter

Game-changing flow[†] for ECMO

Crescent allows for more accurate placement with just one cannulation site, delivers enhanced flow dynamics, and helps maintain optimal flow once placed.



- Correct placement made easier
- Optimized flow rates[†]
- Durable securement

Crescent Jugular Dual Lumen Catheter

- Bi-caval design
- Available in sizes 24, 26, 28, 30, and 32 Fr
- Includes introducer (accommodates guidewire) for percutaneous approach

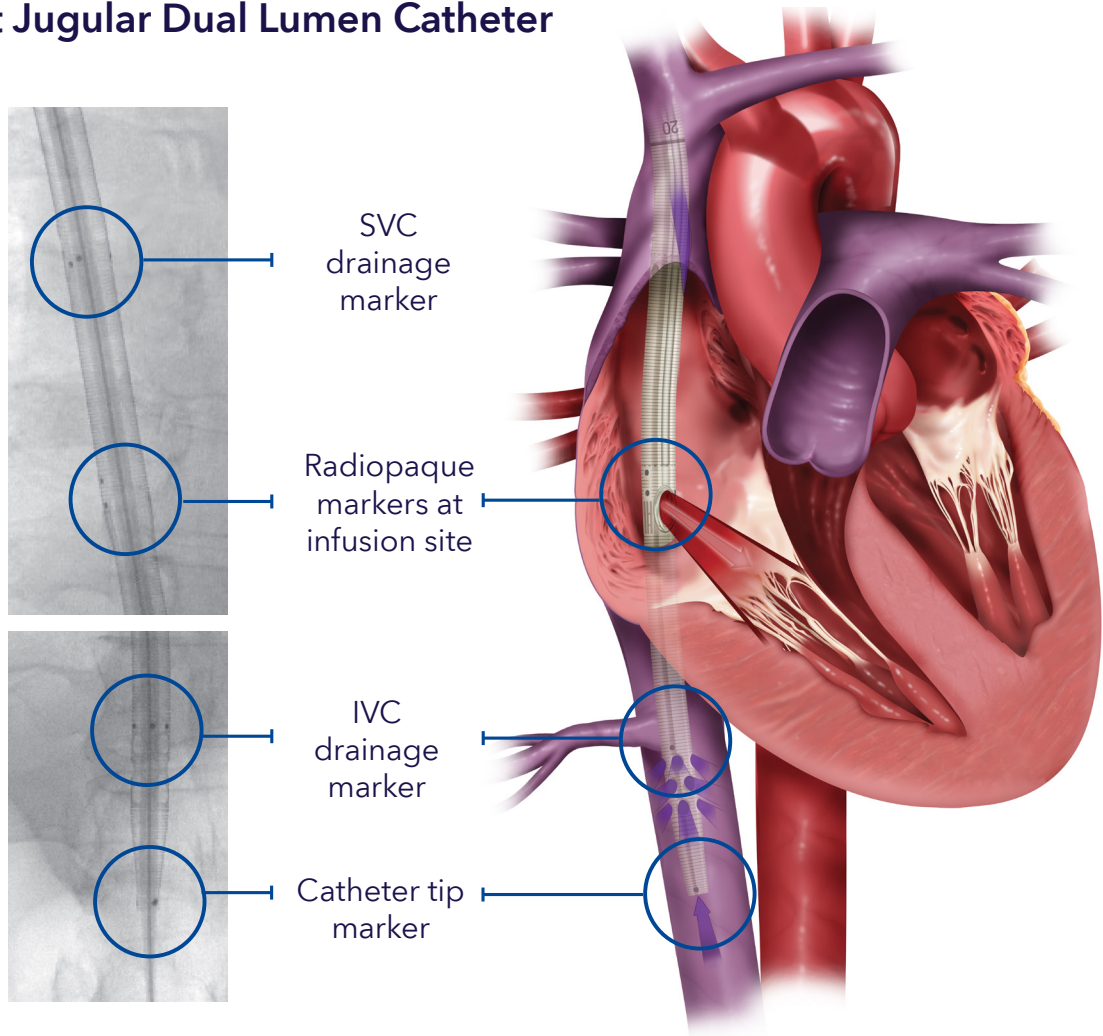
Only physicians with previous training and experience with venous catheterization and extracorporeal life support should use this device. Crescent^{TM*} jugular dual lumen catheter is manufactured by MC3, Inc., and exclusively distributed by Medtronic.
^{TM*}Third-party brands are trademarks of their respective owners.
[†]Bench and animal data on file at MC3. These tests may not be indicative of clinical performance.

Crescent^{TM*} Jugular Dual Lumen Catheter

Correct placement made easier

Optimal flow begins with correct placement, and that can be challenging. The Crescent jugular dual lumen catheter is designed to address those challenges with features that make positioning and securement easier for you.

Crescent Jugular Dual Lumen Catheter



Radiopaque markers for improved visualization

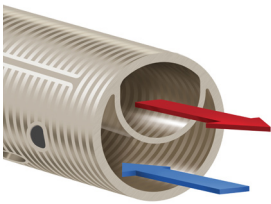
Visible under radiographic imaging, radiopaque markers aid in positioning the catheter and identifying drainage sites, infusion port, catheter tip, and axial orientation of the port.

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Crescent^{TM*} Jugular Dual Lumen Catheter

Optimized flow rates[†]

Enhancements in port placement, lumen design, and tip geometry give these catheters optimal flow efficiency. This enables you to realize higher flow at lower pressure, and allows for lower rates of hemolysis and recirculation.



Enhancements for optimal flow

Crescent-shaped lumen helps optimize pressure flow performance, and advanced materials make the catheter strong, flexible, and kink-resistant.



Promotes directional efficiency

Large infusion port, combined with radiopaque markers for placement accuracy, help ensure flow is directed toward the tricuspid valve and pulmonary artery.

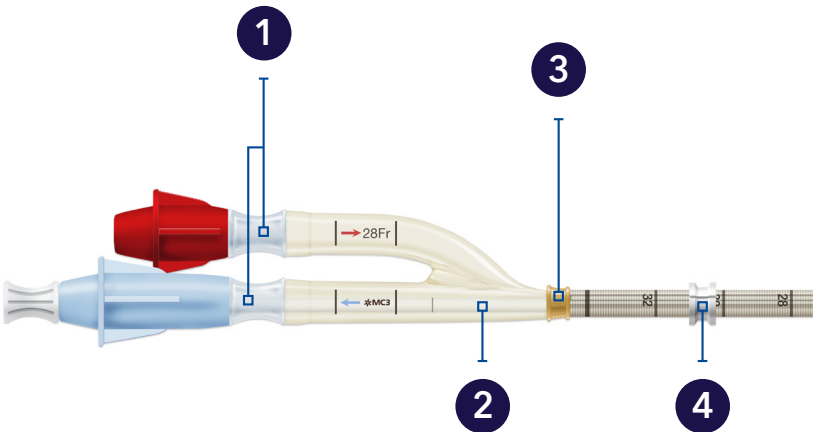


Helps minimize recirculation

Drainage and reinfusion ports are designed to mimic the body's natural flow ratios to minimize recirculation while maintaining flow.

Durable securement

1. In select circumstances, sutures may be placed on the connectors.
2. **Bifurcation suture site** provides security against catheter translations.
3. **Integrated suture site** contains special reinforcement to protect against catheter damage.
4. **Optional suture collar** can be placed at a desired location on the catheter body before or after catheter insertion.

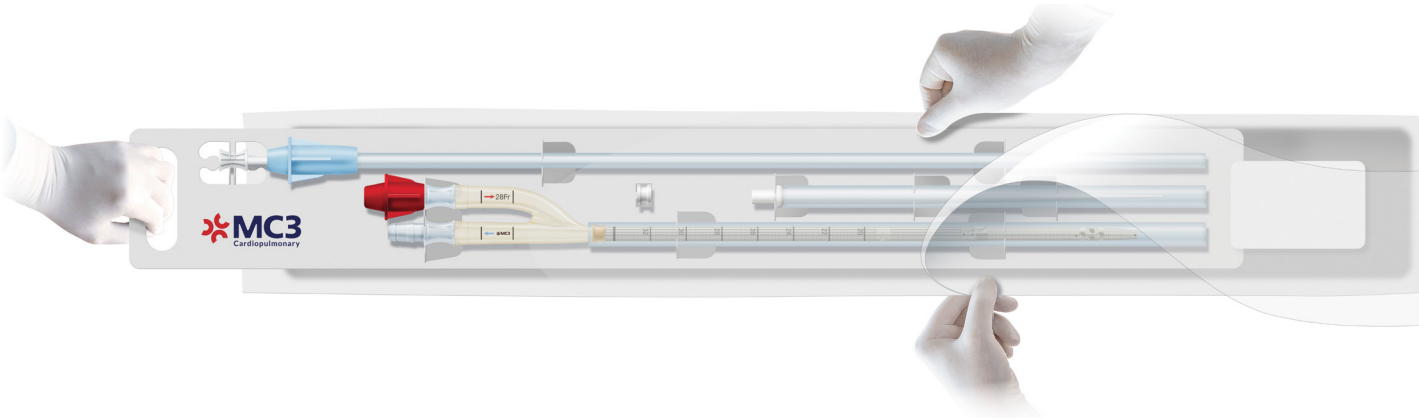


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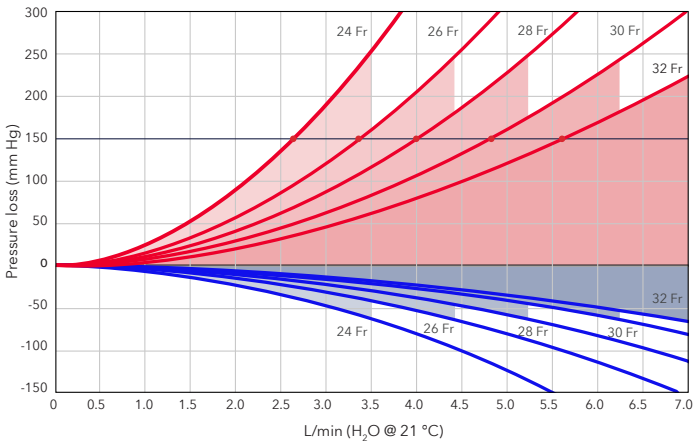
Crescent^{TM*} Jugular Dual Lumen Catheter

Crescent catheter allows for more accurate placement with just one cannulation site, delivers enhanced flow dynamics, and helps maintain optimal flow[†] once placed.



The Crescent catheter, introducer with drainage cap, suture collar, and matching dilator are provided on a holding card and sealed in a sterile pouch.

Crescent flow curves



Non-vented 3/8 in (0.95 cm) connector

		Insertion length
70124	24 Fr (8.0 mm)	30.0 cm
70126	26 Fr (8.7 mm)	30.0 cm
70128	28 Fr (9.3 mm)	34.0 cm
70130	30 Fr (10.0 mm)	34.0 cm
70132	32 Fr (10.7 mm)	34.0 cm

One unit per carton.

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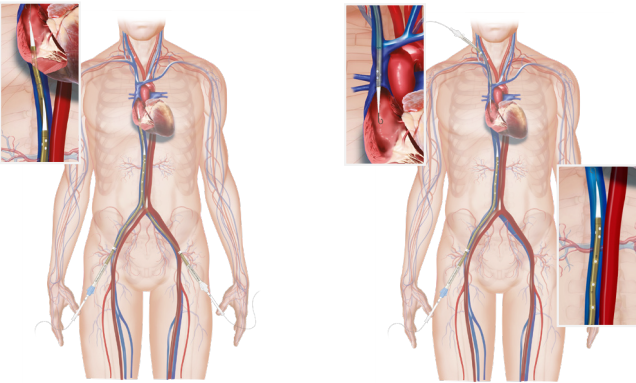
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Bio-Medicus Life Support™ Catheters

Developed with extensive user input, the Bio-Medicus Life Support catheter offers more lengths, sizes, and configurations than any other brand. Life Support catheters provide clinicians with choices and options to individualize patients’ ECLS care.

- French sizes 9 to 29
- Insertion lengths from 10 to 61 cm
- Configurations for VA and VV ECMO or ECLS

Veno-venous



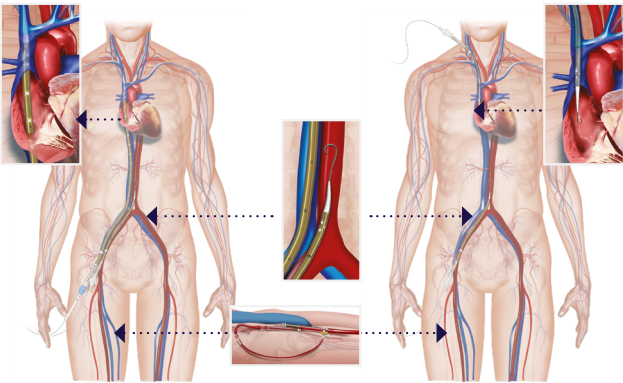
FEM-FEM VV

- Femoral-venous drainage
- Femoral-venous return

FEMORAL-JUGULAR VV

- Femoral-venous drainage
- Jugular return

Veno-arterial



FEM-FEM VA

- Femoral-venous drainage
- Femoral-arterial return

FEMORAL-JUGULAR VA

- Jugular-venous drainage
- Femoral-arterial return

Bio-Medicus Life Support cannulae are made with Elast-Eon™, a biocompatible and biostable polyurethane/siloxane copolymer.¹ Elast-Eon is commonly used in prolonged use and implantable medical devices, including ECLS dual lumen catheters. Features such as fingerlet-tip supports create a no-step transition, allowing for smooth insertion. The kink-resistant wall design promotes optimized flow rates.

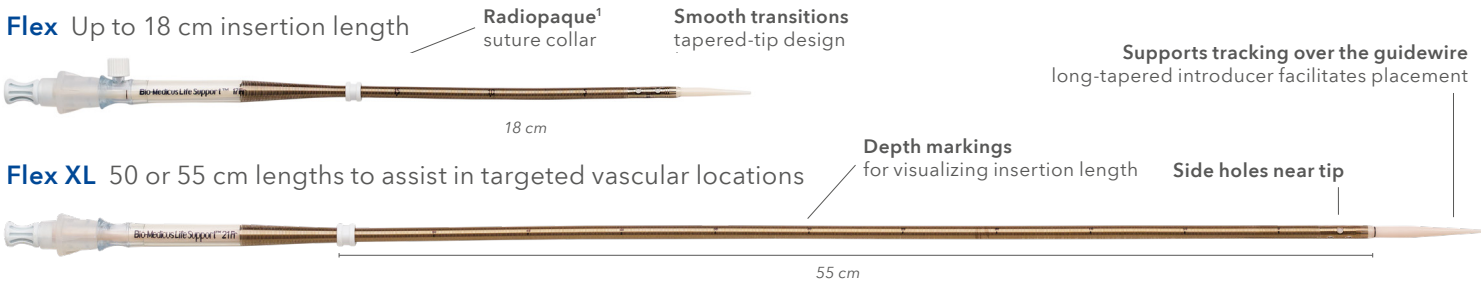
™*Third-party brands are trademarks of their respective owners.

¹Elast-Eon™ is a siloxane urethane copolymer.

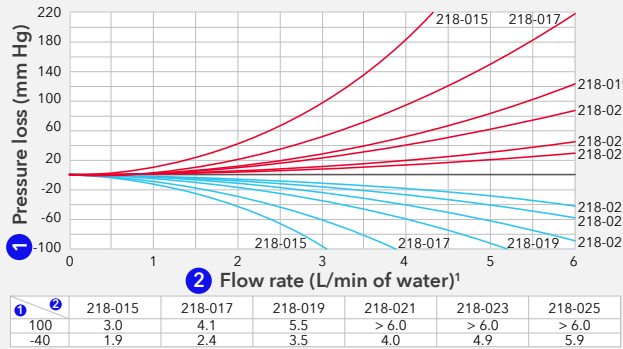
Bio-Medicus Life Support™ Catheters

Flex and Flex XL

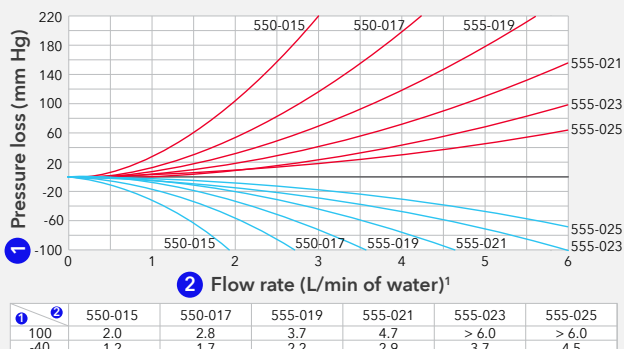
Designed for drainage or return at different insertion lengths, with side holes only near the tip.



Flex return/drainage catheters LS96218-¹



Flex XL return/drainage catheters LS96550-, LS96555-¹



Ordering information

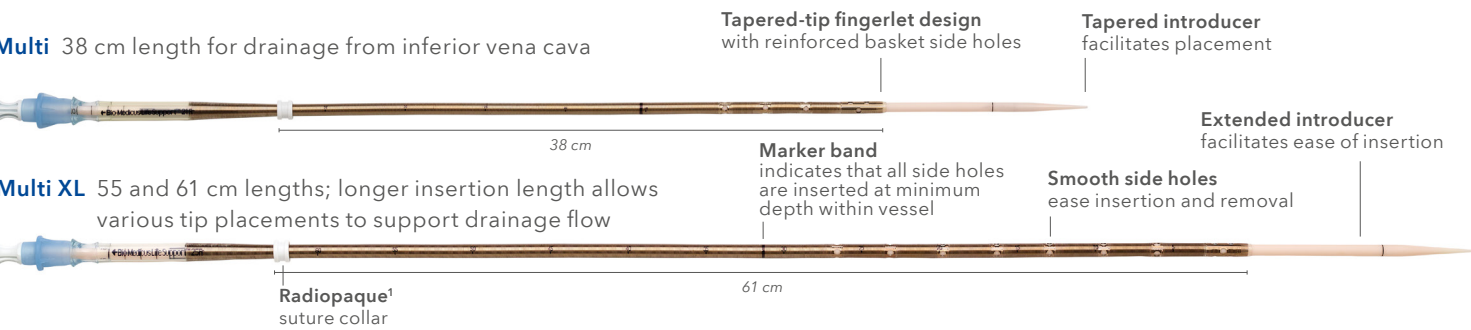
Bio-Medicus Life Support catheters and introducers	Catheter code	French size	Tip length	Connector
Return or drainage Flex	LS96218-015	15 Fr (5.0 mm)	18 cm	3/8 in (0.95 cm) vented
	LS96218-017	17 Fr (5.7 mm)	18 cm	3/8 in (0.95 cm) vented
	LS96218-019	19 Fr (6.3 mm)	18 cm	3/8 in (0.95 cm) vented
	LS96218-021	21 Fr (7.0 mm)	18 cm	3/8 in (0.95 cm) vented
	LS96218-023	23 Fr (7.7 mm)	18 cm	3/8 in (0.95 cm) vented
	LS96218-025	25 Fr (8.3 mm)	18 cm	3/8 in (0.95 cm) vented
Return or drainage Flex XL	LS96550-015	15 Fr (5.0 mm)	50 cm	3/8 in (0.95 cm) non-vented
	LS96550-017	17 Fr (5.7 mm)	50 cm	3/8 in (0.95 cm) non-vented
	LS96555-019	19 Fr (6.3 mm)	55 cm	3/8 in (0.95 cm) non-vented
	LS96555-021	21 Fr (7.0 mm)	55 cm	3/8 in (0.95 cm) non-vented
	LS96555-023	23 Fr (7.7 mm)	55 cm	3/8 in (0.95 cm) non-vented
	LS96555-025	25 Fr (8.3 mm)	55 cm	3/8 in (0.95 cm) non-vented

¹Bench data on file, may not be indicative of clinical performance.

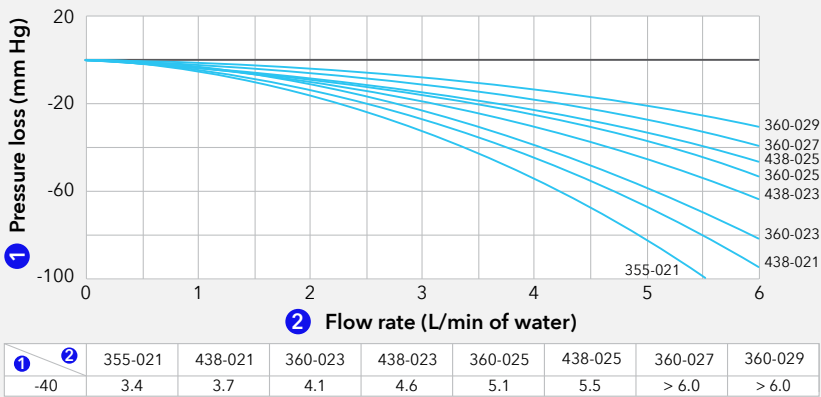
Bio-Medicus Life Support™
Catheters

Multi and Multi XL

Designed for efficient drainage and optimized flow dynamics.¹



Multi and Multi XL drainage catheters **LS96438-**, **LS96355-**, **LS96360-**¹



Ordering information

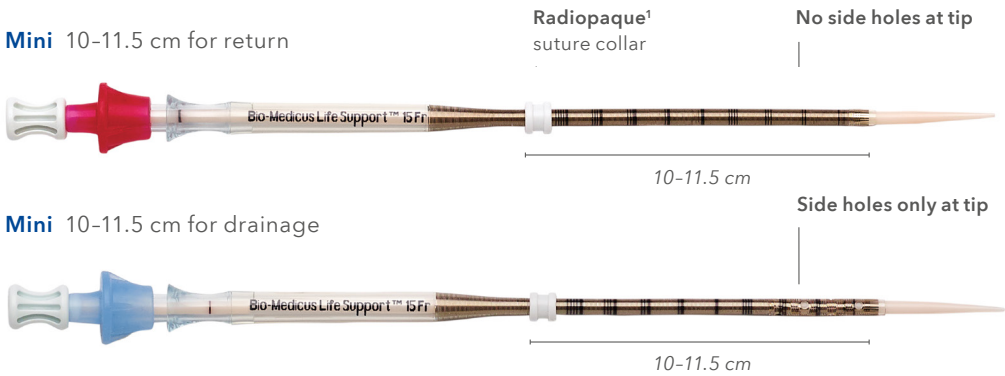
Bio-Medicus Life Support catheters and introducers	Catheter code	French size	Tip length	Connector
Drainage Multi	LS96438-021	21 Fr (7.0 mm)	38 cm	3/8 in (0.95 cm) non-vented
	LS96438-023	23 Fr (7.7 mm)	38 cm	3/8 in (0.95 cm) non-vented
	LS96438-025	25 Fr (8.3 mm)	38 cm	3/8 in (0.95 cm) non-vented
Drainage Multi XL	LS96355-021	21 Fr (7.0 mm)	55 cm	3/8 in (0.95 cm) non-vented
	LS96360-023	23 Fr (7.7 mm)	61 cm	3/8 in (0.95 cm) non-vented
	LS96360-025	25 Fr (8.3 mm)	61 cm	3/8 in (0.95 cm) non-vented
	LS96360-027	27 Fr (9.0 mm)	61 cm	3/8 in (0.95 cm) non-vented
	LS96360-029	29 Fr (9.7 mm)	61 cm	3/8 in (0.95 cm) non-vented

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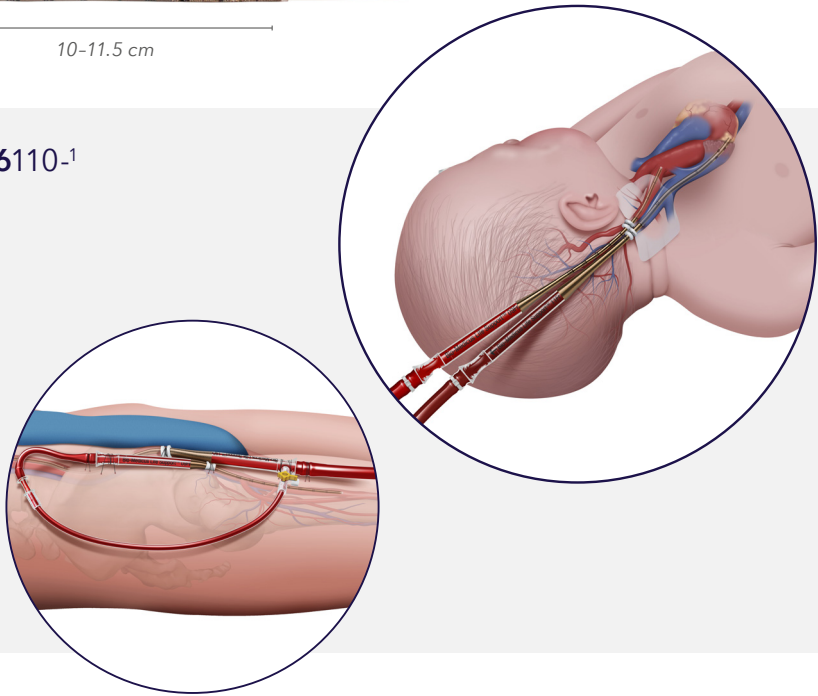
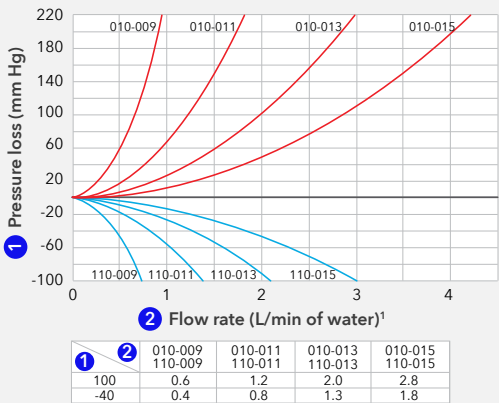
Bio-Medicus Life Support™
Catheters

Mini

Designed for catheter placement configurations that require smaller sizes and shorter insertable lengths.



Mini return/drainage catheters **LS96010-**, **LS96110-**¹



Ordering information

Bio-Medicus Life Support catheters and introducers	Catheter code	French size	Tip length	Connector
Return Mini	LS96010-009	9 Fr (3.0 mm)	10 cm	1/4 in (0.64 cm) non-vented
	LS96010-011	11 Fr (3.7 mm)	10.5 cm	1/4 in (0.64 cm) non-vented
	LS96010-013	13 Fr (4.3 mm)	11 cm	1/4 in (0.64 cm) non-vented
	LS96010-015	15 Fr (5.0 mm)	11.5 cm	1/4 in (0.64 cm) non-vented
Drainage Mini	LS96110-009	9 Fr (3.0 mm)	10 cm	1/4 in (0.64 cm) non-vented
	LS96110-011	11 Fr (3.7 mm)	10.5 cm	1/4 in (0.64 cm) non-vented
	LS96110-013	13 Fr (4.3 mm)	11 cm	1/4 in (0.64 cm) non-vented
	LS96110-015	15 Fr (5.0 mm)	11.5 cm	1/4 in (0.64 cm) non-vented

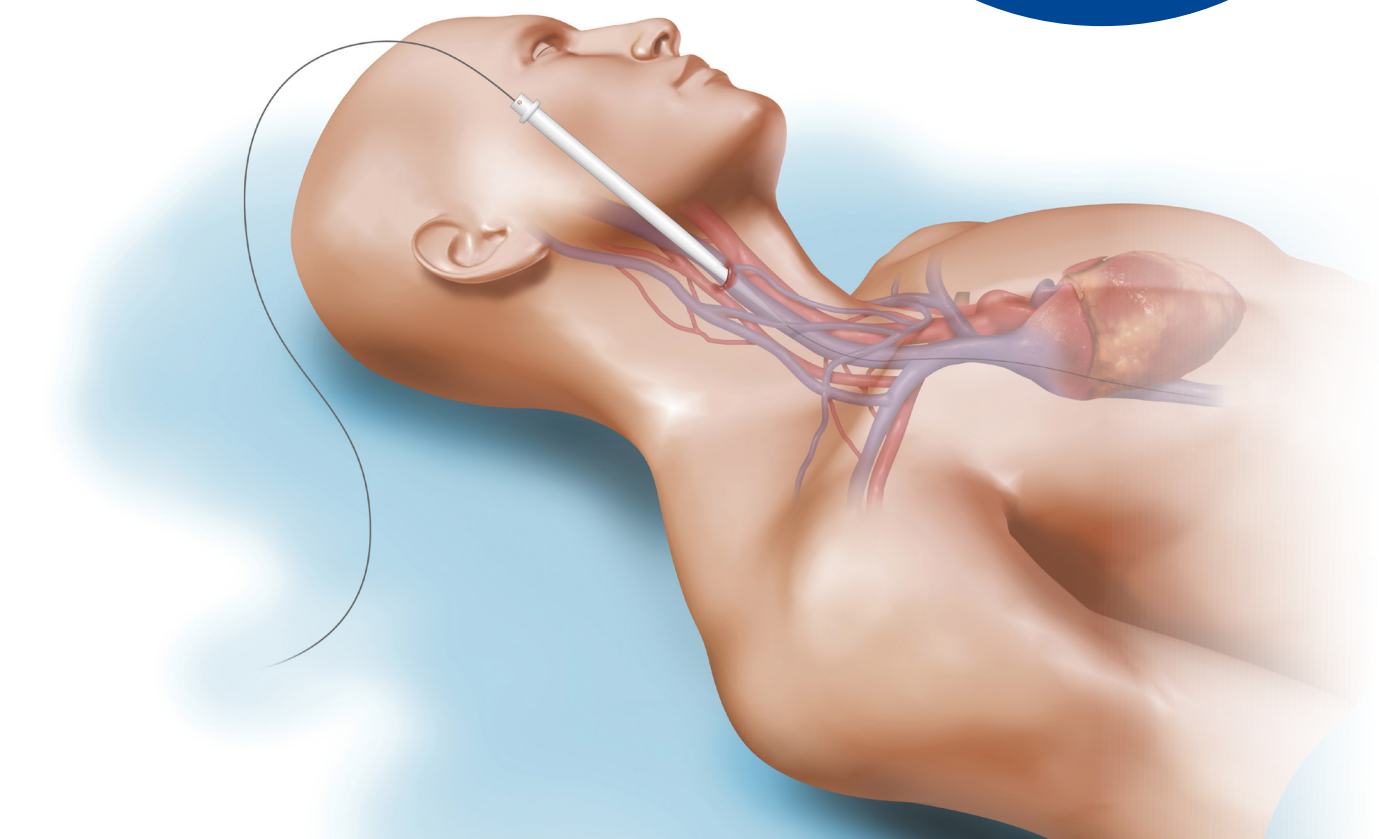
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Opus^{TM*} Vascular Access Kit

Expanding options for vascular access

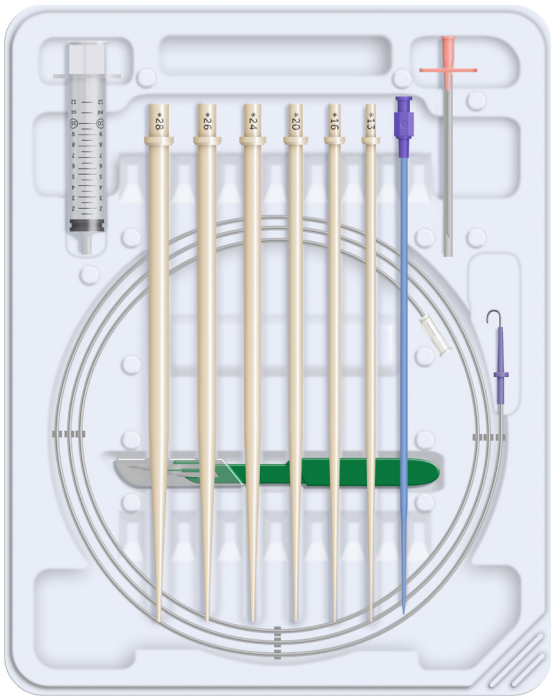
The Opus vascular access kit offers a convenient solution for the access you need. Our kits are thoughtfully composed to meet your preferences and techniques. Each Opus kit includes a complete set of instruments, along with dilators specifically designed to facilitate a smooth insertion – while allowing for gradual dilation of the fascia. A versatile performer, the Opus kit is compatible with single lumen arterial and venous cannulae – and Crescent^{TM*} jugular dual lumen catheter.

Experience smooth insertion and guidewire tracking with flexible, long, tapered-tip dilators.



- Selection of dilator sizes can accommodate varying patient anatomies
- Flexible-tip dilators support tracking along the guidewire¹
- Hub helps with handling during insertion and removal
- Safety scalpel features clear protective shield that locks into place with a one-handed activation

Opus^{TM*} Vascular Access Kit



Ordering information

Code	Configuration	Kit contents
21030	Box of 5	Stepped vessel dilator, 8/10 Fr, 13 Fr, 16 Fr, 20 Fr, 24 Fr, 26 Fr, 28 Fr
		Guidewire, J-tip 0.038 in (0.97 mm) x 71 in (180 cm) with depth mark increments
		Scalpel, #11 safety
		Needle, 18 gauge
		Syringe, 10 cc

Crescent^{TM*} jugular dual lumen catheter and Opus^{TM*} vascular access kit are manufactured by MC3, Inc., and exclusively distributed by Medtronic.
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ECMO Oxygenators

Extracorporeal life support (ECLS) provides long-term heart and/or lung support to critically ill patients. We are committed to learning and developing this therapy together with those healthcare professionals who use it to save patient lives. Medtronic is shaping a comprehensive solution through standardized, easy-to-use, advanced technologies. Our Nautilus™ and Nautilus™ Smart oxygenators were designed specifically for extracorporeal membrane oxygenation (ECMO).



Nautilus™ ECMO Oxygenators

Designed for ECMO

- Long-term ECMO indication†
- PMP fiber
- Balance™ Biosurface‡
- Circular flow-path design



Nautilus™ Smart ECMO Module



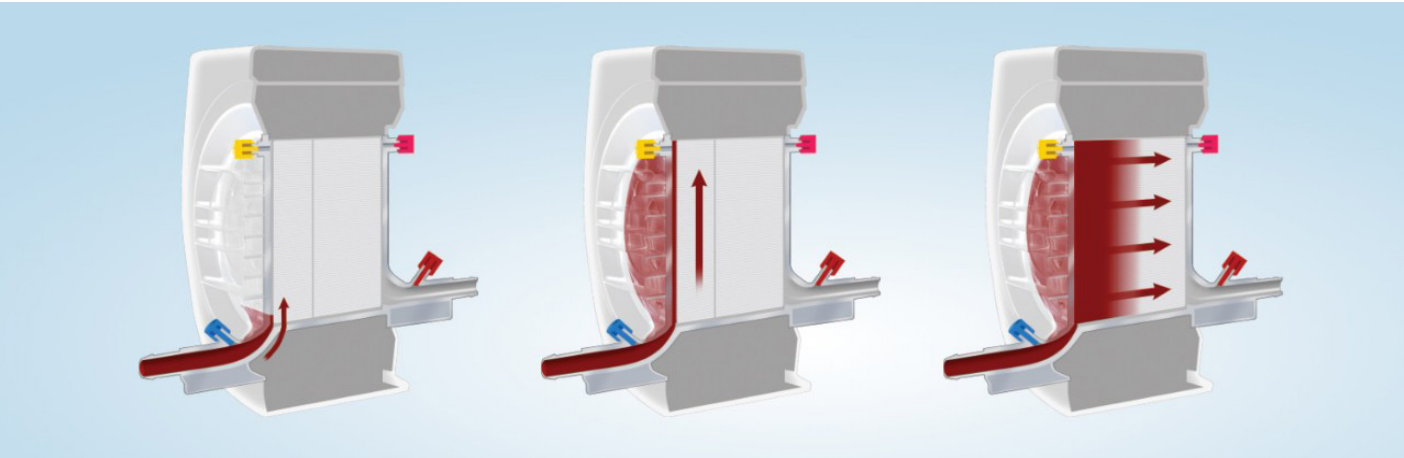
Nautilus™ ECMO Oxygenator

Nautilus^{TM*} ECMO Oxygenators

Designed for ECMO

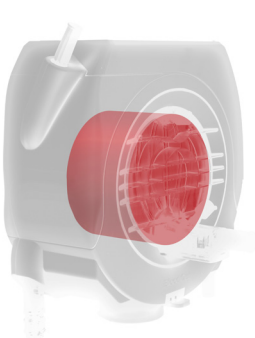
Circular flow-path technology

The Nautilus ECMO oxygenator has a transverse flow-path with a circular profile.¹ Transverse flow minimizes surface contact area while achieving a low blood-side pressure drop. The circular profile eliminates corners where low flow and stasis are known to occur.



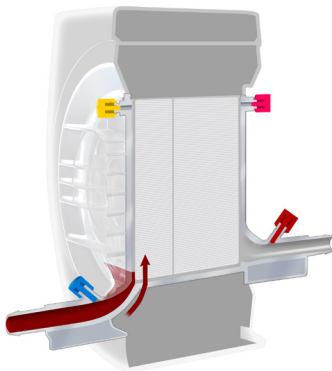
Circular shape

Eliminates corners, areas known for clotting.



Guided inlet[†]

Reduces velocity changes at the inlet where low flow and stasis may occur.



Filling vanes

Aid in even filling and even flow distribution across the membrane.



^{TM*}Third-party brands are trademarks of their respective owners.
[†]Patent pending.
¹Data on file at MC3. These tests may not be indicative of clinical performance.

Nautilus^{TM*} Smart ECMO Module

Simplify your circuit with the first oxygenator featuring integrated monitoring. The Nautilus Smart ECMO module improves long-term gas transfer¹ while providing real-time device performance data that's accessible from an intuitive touch screen.

Performance predictability

View monitored parameters on the interactive touch screen.

- Pressure in/pressure out/ ΔP
- O₂ saturation in/O₂ saturation out
- Temperature out
- Set alarm limits
- Receive visual and audio alert notifications



Circuit simplicity

- Integrated sensors may eliminate the need for pressure transducers and in-line blood saturation monitoring
- Simplify the circuit for patient transport, ambulation, and rehabilitation
- Fewer connections minimizes number of areas prone to blood clot formation and air entrainment



Streamlined workflow

- Light bar provides at-a-glance assessment of oxygenator performance
- Reduce need to look at multiple devices to get oxygenator-related performance data
- Visual and audio alerts when limits are exceeded
- Displayed data allows clinicians to clearly communicate oxygenator status among ECMO team members



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Nautilus^{TM*}

specifications

Membrane material	Polymethylpentene (PMP)
Membrane surface area	1.8 m²
Heat exchange material	Polyethylene terephthalate (PET)
Heat exchange surface area	0.3 m²
Static priming volume	226 mL
Recommended blood flow rate	0.5–7 L/min
Maximum blood pressure	750 mm Hg
Recommended gas flow rate (gas:blood)	0.5:1 to 3:1
Maximum water side pressure	1,125 mm Hg
Arterial outlet port	3/8"
Venous inlet port	3/8"
Delta P at 4 L/min	38 mm Hg
O2 at 4 L/min	266 mL/min
CO2 at 4 L/min	186 mL/min
Heat exchange performance at 4 L/min	0.77

^{TM*}Third-party brands are trademarks of their respective owners.

Nautilus^{TM*}

ordering information



CFN	
48135E	Nautilus Smart ECMO module
48160	Nautilus oxygenator holder
48150	Nautilus Smart power supply
Country-specific	Nautilus Smart power cord

CFN	
48145E	Nautilus ECMO oxygenator with Balance™ Biosurface
48160	Nautilus ECMO oxygenator holder



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See the device manual for detailed information regarding the instructions for use, indications, contraindications, warnings, precautions, and potential adverse events. For further information, contact your local Medtronic representative and/or consult the Medtronic website at www.medtronic.eu.

For applicable products, consult instructions for use on www.medtronic.com/manuals. Manuals can be viewed using a current version of any major internet browser. For best results, use Adobe Acrobat® Reader with the browser.

Catheters

ECMO Oxygenators

This information is intended only for users in markets where Medtronic products and therapies are approved or available for use as indicated within the respective product manuals. Content on specific Medtronic products and therapies is not intended for users in markets that do not have authorization for use.

Nautilus™* ECMO oxygenator, Nautilus™* Smart ECMO Module, Crescent™* Jugular Dual Lumen catheter and Opus™* vascular access kit are manufactured by MC3, Inc. and exclusively distributed by Medtronic.

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