



**TAU MEDICAL**  
**SUPPLIES (PTY)LTD**



PRODUCTS FOR LIFE, SERVICE FROM THE HEART

Company Profile

**Introduction:**

Tau Medical Supplies was formed in 2000 and is now well established as a competitive and well-respected provider of specialised surgical products to the private and public sector in South Africa.

- Cell Saving
- Auto transfusion systems
- Oxygenators
- Customised Tubing packs
- Surgical Drapes
- Silicone Thoracic Catheters
- Aortic Punch
- Surgical Instruments
- ECMO
- Sutures
- Heart Hugger – Sternum Support Harness
- Cannulae
- Hemoconcentrator
- Liga Clips
- Cardiac Flow Meter
- HIPEC
- Urology Lasers
- Urology Disposables
- Sternum Fixation
- Heart Lung machine

The suppliers to Tau are world leaders in their respective fields. Tau has negotiated a number of non-competing agreements with suppliers in US, France, Germany, Belgium, Korea, Israel, Denmark and Italy and has been distributing their products in South Africa for the past nineteen years.

Tau is continuously sourcing and negotiating additional agencies.

We believe there are very strong prospects to raise the profile, sales and distribution of the Tau product range in South Africa.

Historically our growth has outpaced our forecasts. We are well structured to increase our distribution and forecast rapid growth in market share.

**South African Market**

Tau Medical sells to all hospital groups as well as the independent hospitals .

In the Government sector Tau has secured positions in the Eastern Cape, Western Cape, Gauteng and Kwazulu Natal.

Our products are used by THE LEADING surgeons in their respective fields.

## Company Profile

### Positioning

We see ourselves as being total solution providers, as opposed to mere distributors of product.

This means that:

- WE OFFER AN UNCOMPROMISING DEDICATION TO PRE- AND AFTER SALES SERVICE
- We offer absolute professionalism in all our dealings with medical professionals
- Our product range is delivered quickly and correctly

### Ethics

We maintain high standards of professional ethics. While this can occasionally result in lost business, it is an area in which we are not prepared to compromise.

### Staffing

Tau has a sales force or agents in Gauteng, the Eastern Cape and Kwa-Zulu Natal. The sales team are tightly managed, incentivised and continuously motivated to perform. Our team are well supported by our efficient logistics and administrative team.

### Overall Approach

The key elements to maintaining and growing the penetration of the products distributed by Tau are:

- Leading products
- Relationship management
- Market Specialisation
- Delivery lead times
- Value-added services
- Competitive pricing

### Leading Products

The suppliers to Tau are world leaders in their respective fields and the products reflect the innovative use of leading edge technology. This is one of our key points of difference. We will continue to maintain our philosophy of only distributing and supporting world leading products. We are committed to the principle that the quality of our product range is a key driver to increasing our market share.

### Delivery lead times

Delivery lead-time is considered to be one of the key differentiators in our market.

Tau is recognised as one of the leaders in logistics efficiency and customer support. We respond to urgent requests from our clients faster than any of our competitors (often within 15 minutes).

We achieve this key point of difference by providing our clients with:

- 24 hours' access to senior staff
- 24-hour delivery and logistics support
- Ensuring adequate stock levels

Company Profile

**Value-added Services and Strengths**

The partnerships between Tau and its suppliers are formidable. A key opportunity of consolidating and reinforcing these partnerships lies in providing value-added services. Rather than selling products, Tau focuses on providing solutions. This philosophy has always been one of our key points of difference and has underpinned our growth. We believe that adhering to this philosophy and practice will ensure our growth as “preferred/exclusive distributor” to many suppliers.

**Our other key strengths are:**

- In-depth understanding of the market and its key decision-makers
- Quality of the product range
- Strong presence in the market
- Excellent relationship with existing customer base
- Professional Sales Staff
- A comprehensive range of products
- Excellent relationships with suppliers
- On site and ongoing training

**Relationship Management**

This is the most important driver of the increases in sales volumes. Our field staff sees their role being Relationship Managers, in which they develop and maintain ongoing relationships with all role players in the purchasing process as well as all users of the products. Buying decisions are influenced and made at several different points within each hospital/group. These need to be carefully and individually managed.

The influential contact points that we concentrate on are:

- Operating Theatre staff
- Surgeons
- Physicians
- Perfusionists
- Hospital managers
- Buyers at individual hospitals
- Buyers at hospital groups

Post-sale training and support is recognised as a key component of relationship management and is integral to the role of our Relationship Managers.

### Company Profile

#### Promotion

We also communicate our brand via the following mediums:

- Catalogues
- Clinical Documentation
- Product Information, through various types of communication distributed by suppliers
- Advertising in relevant journals
- Workshops and Congresses

#### Monitoring and Reporting

We believe in tight monitoring and controls to ensure:

- Conservative financial growth
- Efficient marketing structure

We achieve this by a series of controls which include:

- Stringent financial reporting
- Monitoring of sales performance. This evaluation enables us to compare actual and compare actual and planned results, identify the reasons for any deviations and take the necessary corrective action.
- Representative reporting systems
- Monthly / daily sales report

#### Suppliers

We have a number of non-competing strategic partnerships with manufacturers of products that are widely acknowledged to be amongst the world's best.

#### Our suppliers are:

##### Assut Europe

Assut Europe, is the only Italian producer of high-quality surgical sutures. It was founded in 1991 and now operates in many countries with products of excellent quality and high technology. Assut Europe guarantees the highest level of quality because it uses only selected raw materials, purchased from validated and certified suppliers; the production is subject to strict quality control measures at all stages of the production process.

[www.assuteurope.com](http://www.assuteurope.com)

##### Andocor n.v.

Andocor is a Belgian company active in the field of cardiovascular surgery and anaesthesiology. They started their production of high-quality cardiac catheters and cannulae in 1997. The cardiac catheters and cannulae are manufactured in state-of-the-art clean rooms that meet the stringent European requirements. At the beginning of 1998 the production department obtained the CE-sign for its entire product range and became a fully ISO-certified company. Their commitment to scientific research and their endeavour to excellence and

### **Company Profile**

quality have propelled Andocor to successfully market and sell an innovative line of cardiac catheters and cannula worldwide. This success is a result of applying high standards of manufacturing methods, highly-qualified scientists and production personnel and cooperating side by side with the specialists and doctors who are the ultimate judge of AndoCor as their partner for better patients' care. [www.andocor.com](http://www.andocor.com)

### **General Cardiac Technology**

The HEART HUGGER® sternum support harness fitted to the patient in the ICU just before the first Respiratory Therapy exercises. HEART HUGGER®'s uniform encircling support will support the whole chest wall during the coughing and movement throughout the recovery process. [www.hearthugger.com](http://www.hearthugger.com)

### **Jena Surgical**

Asclepion Laser Technologies GmbH designs and sells laser devices for general surgery and precision microsurgery under the branding "JenaSurgical". Based at the hearth of the optical industry in the German city of Jena, we manufacture flexible and microscope-assisted laser systems for surgical teams around the world. Our workstations are mostly used in cutting-edge gynecology, urology, oncology and otolaryngology. [www.jenasurgical.com](http://www.jenasurgical.com)

### **Landanger Delacroix-Chevalier**

Delacroix-Chevalier is a leading producer of a wide variety of surgical instruments for clinical use. Based in Chaumont, France, it has distribution agents on all continents. Their success is based on consistent presence in each hospital system, a respectable quality to price ratio and the specific commitment to each aspect of the services provided. [www.landanger.com](http://www.landanger.com).

### **Eurosets**

Eurosets was established in 1975, working in the field of disposable hospital products. Eurosets is located in the vicinity of Medolla, Italy, the most important concentration of biomedical industry in Europe, and has always collaborated for development and manufacturing with the major multinational companies in this sector. It is a company of Villa Maria Group ([www.gruppovillamaria.it](http://www.gruppovillamaria.it)) one of the leading groups in the field of Italian healthcare. Eurosets produces a wide range of products for transfusion, auto transfusion and heart surgery. [www.eurosets.it](http://www.eurosets.it).

### **MDD Medical Device Development**

World leaders in Titanium Ligating Clips  
Their website address is: [www.m-d-d.net](http://www.m-d-d.net)

### **Medistim ASA**

Medistim innovative medical devices help improve the quality and outcome of cardiac bypass surgery, vascular and transplant procedures. They combine advanced technologies in flow measurement and ultrasound imaging to accurately monitor and control proper blood flow intraoperatively.  
Their website address is: [www.medistim.com](http://www.medistim.com)

### Company Profile

#### **Fresenius / Xenios**

Novalung's mission is to create new solutions for the treatment of lung failure with innovative artificial lungs that "breathe" outside the patient's body. The pioneering task is to work with leading clinicians around the world to develop new therapies to replace damaging invasive mechanical ventilation. Novalung was founded in Hechingen (Baden-Württemberg, Germany) in 2003 through the fusion of leading German and American technologies in the field of artificial lungs and is now active throughout the world. Xenios now incorporates Novalung, Medos and iCOR. [www.xenios-ag.com](http://www.xenios-ag.com)

#### **Plasti-Med**

Plasti-med Company, since 1995 has been one of the leading designers, manufacturers, and suppliers of disposable medical devices in Turkey. With 28 years of experience, we provide a comprehensive range of products offering quality, innovation, and choice. Our production focuses on disposable medical devices of several groups, such as respiratory, anaesthesia, wound drainage & surgical suction, urology, gynecology, and general disposables. [www.plasti-med.com](http://www.plasti-med.com)

#### **Sengewald**

The Sengewald group is the only manufacturer in the world who develops and makes materials, drape systems and sterilisation packaging themselves. Since 1979 we have been connecting the needs and professional competence of our customers with our own considerable experience to create innovative, highgrade products. With our fully automated manufacturing facilities in Rohrdorf we give new meaning to the quality seal of "made in Germany" every day from the material lamination to the finished sterile products. [www.sengewald.de](http://www.sengewald.de)

#### **Sewoonmedical CO., Ltd**

Suppliers of silicone thoracic catheters  
[www.sewoonmedical.co.kr](http://www.sewoonmedical.co.kr)

#### **Spectrum Medical**

Spectrum Medical is focused on the development of becoming a single "solutions provider" of a platform of high-performance technologies that include Quantum Informatics, Quantum Technologies and Quantum Sterile, Single-Use Technologies. The combination of these world leading technologies will lead to greater patient safety, improved patient outcomes and significantly improved health economics. [www.spectrummedical.com](http://www.spectrummedical.com)

#### **RanD**

The name RanD originates from the phonetic transcription of the English acronym R&D (Research and Development) direct expression of RanD core activity: the development of technologically innovative systems based on extracorporeal circulation technologies, marked, at the same time, by extremely simplified operative management. Over the years RanD developed a whole range of products mainly focused on surgical oncology,

## Tau Medical Supplies Pty Ltd

---

### Company Profile

but it also exploited its own know-how in the development of third-party cutting-edge projects in the fields of liver support, cardiopulmonary support and dialysis. <https://rand-biotech.com/>

### Waston Medical

Established in 2002, Waston Medical is one of the top players in China's medical industry. With the concept of innovation and cooperation, we specialized in five lines including orthopedics, surgical staplers, thoracic implants, customized 3Dprinting and advanced wound care. Orthopedic department focuses on trauma, spine, sports medicine and artificial joint under development. [www.waston-global.com](http://www.waston-global.com)

*Our contact details are:* Tau Medical Supplies  
Commerce Square  
39 Rivonia Road  
Sandhurst  
2196  
South Africa

Telephone: + 27 11 728 4740  
Mobile: +27 82 309 1626  
Attention: Evette Beck  
Email: [evette@taumed.co.za](mailto:evette@taumed.co.za)

CARDIOPULMONARY



THE SOLUTION  
FOR EXTENDED  
DURATION CPB

REM2WEL



**EUROSETS**  
EVERY LIFE MATTERS



## DESIGNED TO REDUCE NEUROLOGICAL INJURY AND INFLAMMATORY RESPONSE IN PATIENTS UNDERGOING CARDIAC SURGERY.

Despite advancements in cardiopulmonary bypass, brain injury remains a significant problem of cardiac surgery<sup>1</sup>.

Current estimates indicate that > 50% of patients undergoing CPB have neurological or neuropsychological deficits during the first week after surgery, 10% to 30% have long-term or permanent deficits, and 1% to 5% experience severe disability or die<sup>2</sup>.

Liquid fat from recycled pericardial suction blood (PSB) is the major embolic source<sup>3</sup>.

Scientific literature demonstrates that up to 300,000 lipid particles per milliliter of blood, in the size range of 10 µm, can be found in shed mediastinal blood<sup>4</sup>. Lipid microemboli found in shed blood during cardiac surgery have been shown to postoperatively block capillaries of the brain<sup>3</sup>. Embolization of lipids is a phenomenon that is not just limited to the brain, as it can affect other organs such as the kidneys, spleen and lung<sup>3,5</sup>.

Activation of the systemic inflammatory response during CPB has also been a major problem for Clinicians because of the potential injury to organs such as the heart, brain, lung, kidneys<sup>5,6,7</sup>.

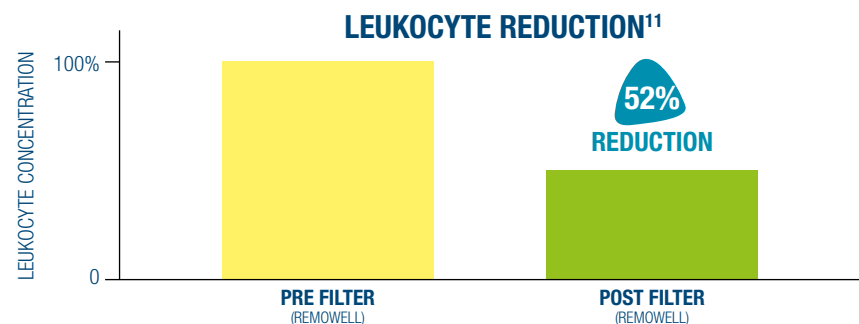
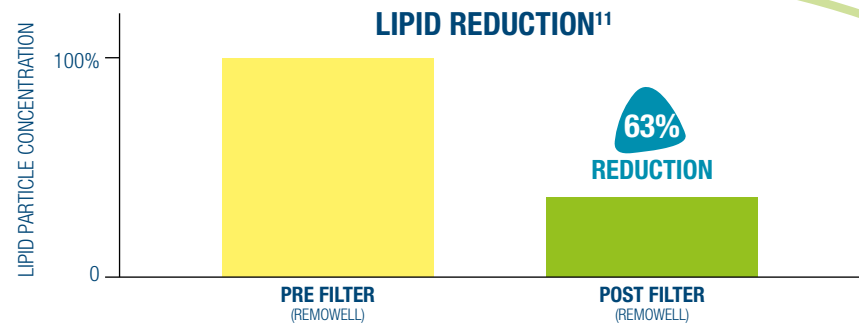
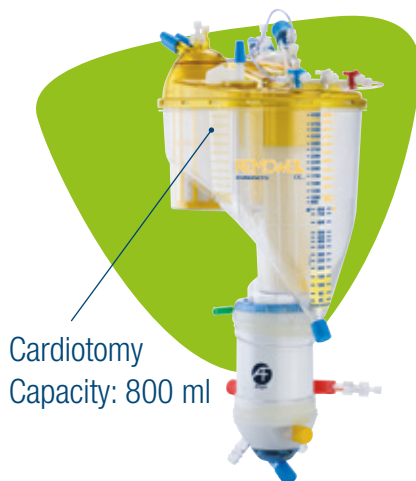
**REMO2WELL2 is designed to reduce neurological injury and the inflammatory response in patients undergoing cardiac surgery, thanks to its unique and patented cardiotomy features that can reduce lipids and leukocytes coming from pericardial suction blood.**

Evidence in the literature shows that the REMO2WELL technology offers efficacious LME filtration (Lipid Micro Emboli) in the clinical setting and the subsequent attenuation of NSE release, a known marker of neurologic injury<sup>8</sup>. In addition, significantly lower concentration of cystatin C, a known biomarker of kidney function, was found in the postoperative period, suggesting a renoprotective role for LME filtration<sup>9</sup>.

The Remowell filtration technology effectively contributes to reducing the inflammatory response and minimize the negative effects of cardiopulmonary bypass<sup>10</sup>.

### CARDIOTOMY FEATURES

- Capacity 800 ml
- Two-step lipid-leukocyte depletion
- Multilayer cascade filtration (for lipids and leukocytes)
- Supernatant separator (lipids only)



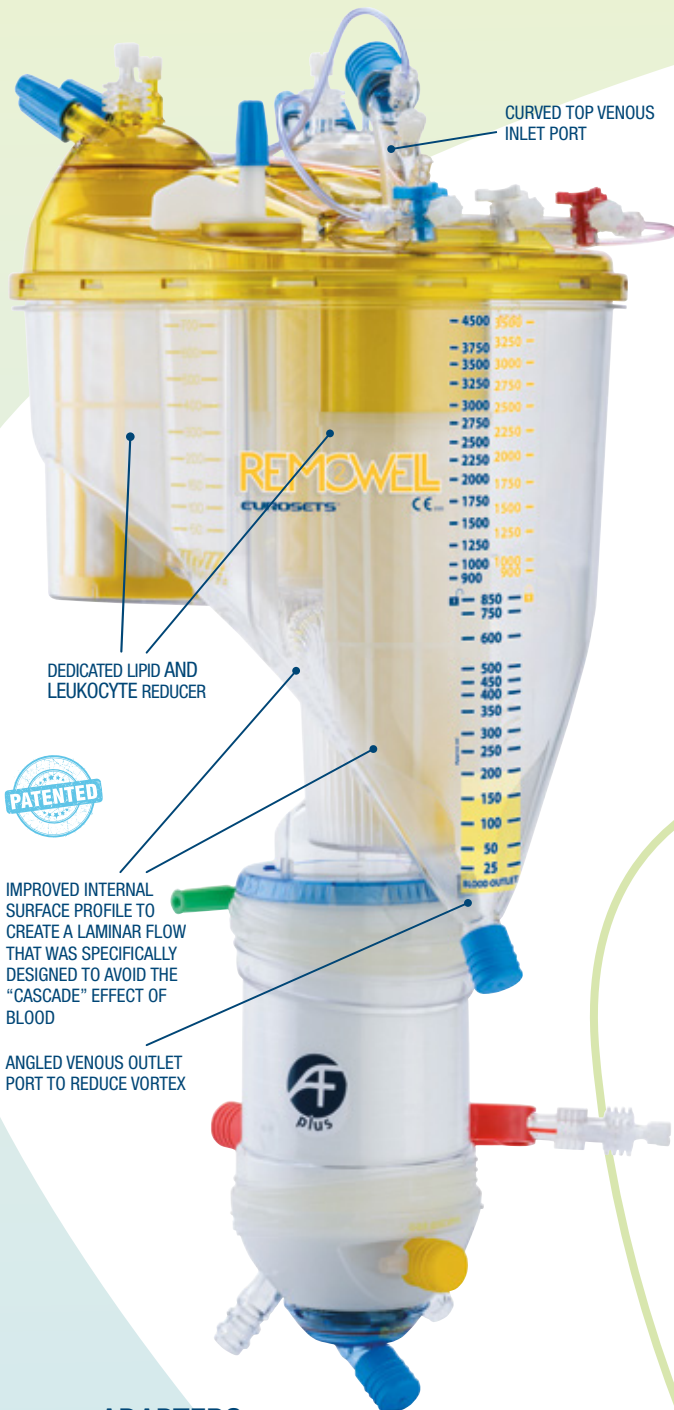
# DUAL CHAMBER RESERVOIR WITH LIPID AND LEUKOCYTE REDUCTION

## MAIN FEATURES

- 4500 ml total reservoir capacity
- 800 ml cardiotomy capacity
- 3 different filtration systems:
  - Venous inlet (80µm)
  - Intracavitary inlet (40µm)
  - Extracavitary inlet
    - Two step lipid-leukocyte depletion:
    - Multilayer cascade filtration (for lipids and leukocytes)
    - Supernatant separator (lipids only)
- Fully PC coated
- Suitable for VAVD

## CONNECTIONS

- venous inlet, 360° rotatable 1/2" with 3/8" adapter
- venous reservoir outlet 3/8"
- vent/vacuum port 1/4"
- 4 filtered ports 1/4", 1 of which with 1/4" - Luer lock adapter
- 2 filtered ports 3/8":
  - 1 with 3/8" - 1/4" adapter
  - 1 with 3/8" - Luer lock adapter
- 2 filtered Luer lock ports
- 2 filtered post lock - Luer lock
- 1 unfiltered Luer lock

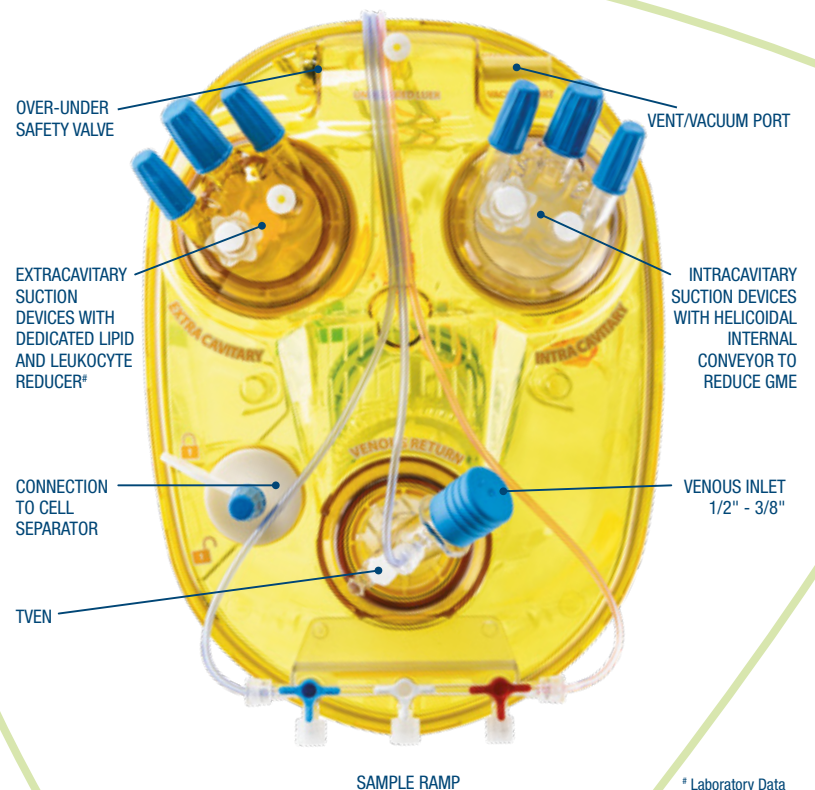


## ADAPTERS

1/4" - Luer (1 pc)  
3/8" - Luer (1 pc)

3/8" - 1/4" (1 pc)

1/2" - 3/8" (1 pc)



\* Laboratory Data

# A.L.ONE AF PLUS

## OPTIMIZED PRESSURE RESISTANCE OXYGENATOR MODULE WITH INTEGRATED CASCADE ARTERIAL FILTER

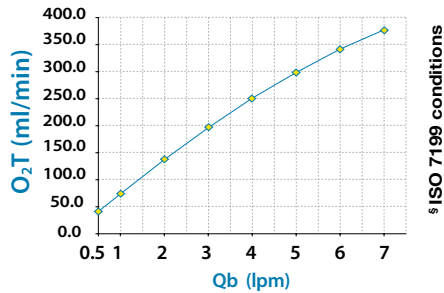
### TECHNICAL CHARACTERISTICS

Priming volume:	225 ml
Contact surface area:	1.65 m <sup>2</sup>
Max. blood flow rate:	7.0 l/min
Cascade Arterial Filter pore size:	80 μm + 38 μm
Heat Exchanger surface area:	0.08 m <sup>2</sup>
H.E. Performance Factor:	$\eta = 0.64$ (at 4 l/min)
Material:	stainless steel
<b>Coating:</b>	<b>Phosphorylcholine (PC)</b>

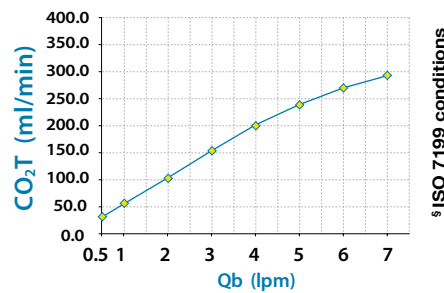
### CARDIOPLEGIA ADAPTER

Poslock - 1/4" M (1 pc)

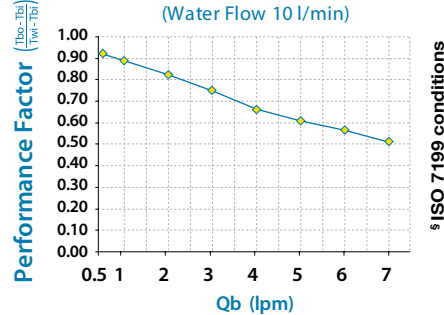
**O<sub>2</sub>T vs Q<sub>b</sub> (in vitro)**



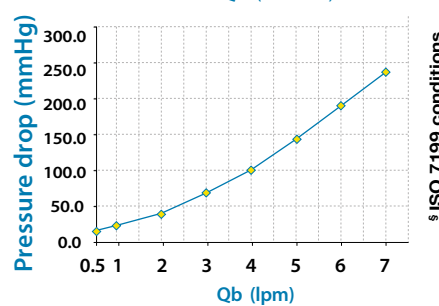
**CO<sub>2</sub>T vs Q<sub>b</sub> (in vitro)**



**H.E. Performance Factor vs Q<sub>b</sub> (in vitro)**  
(Water Flow 10 l/min)



**dPB vs Q<sub>b</sub> (in vitro)**



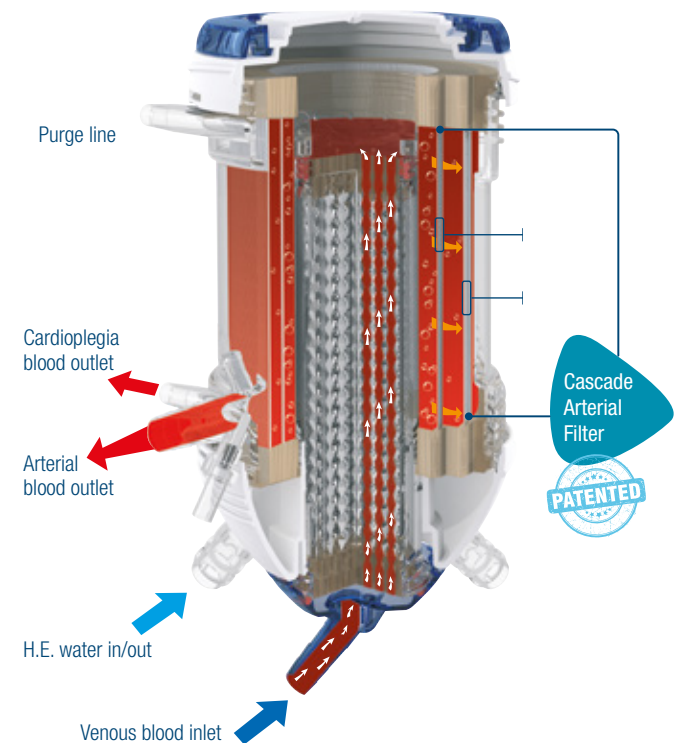
§ ISO 7199 conditions

Bovine blood  
Hb = 12 ± 1 g/dL

SVO<sub>2</sub> = 65 ± 5%  
PVCO<sub>2</sub> = 45 ± 5 mmHg

B.E. = 0 ± 5 mEq/L  
Temp. = 37 ± 1°C

Q<sub>b</sub>/Q<sub>g</sub> = 1  
FIO<sub>2</sub> = 100%



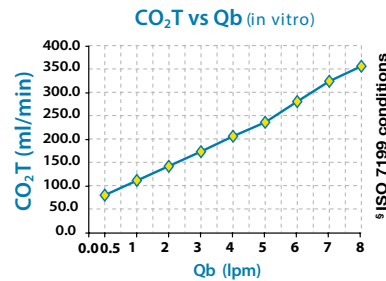
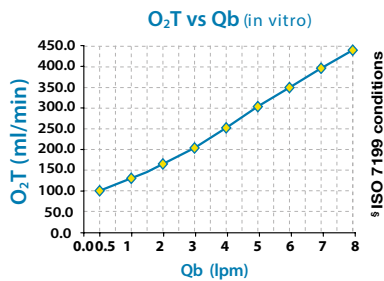
# AMG OXYGENATOR MODULE

## TECHNICAL CHARACTERISTICS

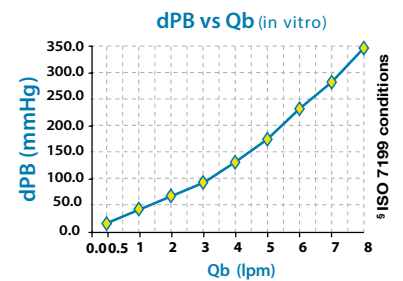
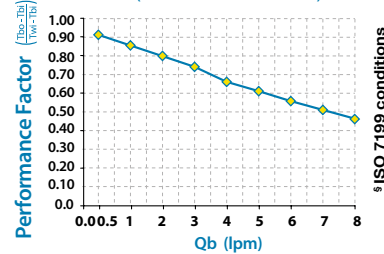
Priming volume:	220 ml
Contact surface area:	1.81 m <sup>2</sup>
Max. blood flow rate:	8.0 l/min
Heat Exchanger surface area:	0.08 m <sup>2</sup>
H.E. Performance Factor:	$\eta = 0.64$ (at 4 l/min)
Material:	Stainless Steel
<b>Coating:</b>	<b>Phosphorylcholine (PC)</b>

## CARDIOPLEGIA ADAPTER

Poslock - 1/4" M (1 pc)



**H.E. Performance Factor vs Q<sub>b</sub> (in vitro)**  
(Water Flow 10 l/min)

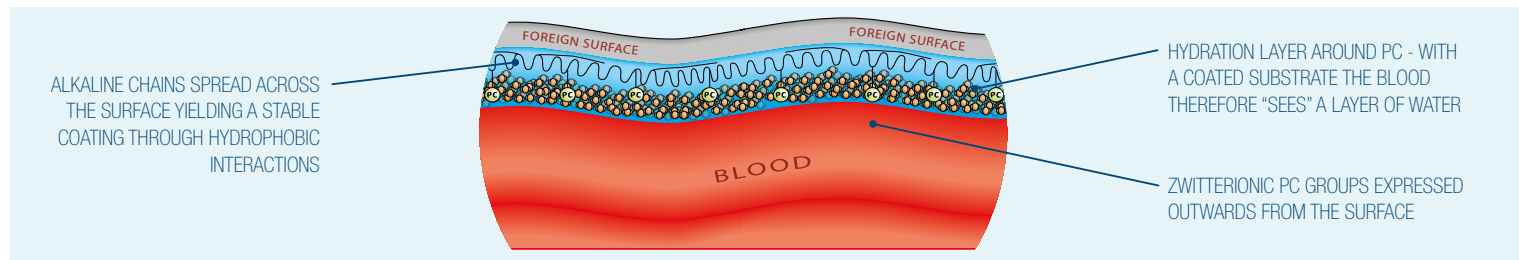


## PHOSPHORYLCHOLINE COATING




Phosphorylcholine or PC is the predominant lipid headgroup found within the outer layer of cell membranes.

PC has a natural affinity for water and binds water tightly around itself.

As a result, the outer layer of the cell membrane does not promote clot formation (thrombosis).



# ORDERING GUIDE

	OXYGENATOR MODULE	 <b>A.L.ONE AF Plus</b> (1.65 m <sup>2</sup> ) code AG5204 (4 pcs/pack)	 <b>AMG</b> (1.81 m <sup>2</sup> ) code AG5012 (4 pcs/pack)
<b>RESERVOIR</b>		<b>REMOWELL2 AF Plus</b> (1.65 m <sup>2</sup> ) code AG5301 (1 pc/pack)	<b>REMOWELL2 AMG</b> (1.81 m <sup>2</sup> ) code AG5103 (1 pc/pack)
 <b>REMOWELL2 CVR</b> code AG5074 (1 pc/pack)		<b>INTEGRATED</b> <b>A.L.ONE AF Plus MODULE</b> and <b>REMOWELL2 CVR</b>	<b>INTEGRATED AMG MODULE and</b> <b>REMOWELL2 CVR</b>

CODE	DESCRIPTION	NO./PACK
EU2331	Adult/paediatric Oxygenator Holder	1
EU2489	Holder for Oxygenator adult light	1
EU2490	Adjustable holder for adult Oxygenator	1
EU2147/P	REMOWELL2 CVR holder	1
EU2257	Holder for A.L.ONE Oxygenator	1

## REFERENCES

- Engström KG. **The embolic potential of liquid fat in pericardial suction blood, and its elimination.** Perfusion. 2003 Mar;18 Suppl 1:69-74.
- William R.Brown et al. **Longer duration of cardiopulmonary bypass is associated with greater numbers of cerebral microemboli.** Stroke2000; 31:707-713
- Björn Brondén et al. **Differential Distribution of Lipid Microemboli After Cardiac Surgery.** Ann Thorac Surgery 2006; 81: 643-9
- Atli Eyjolfsson, Henrik Jonsson et al. **Characterization of Lipid Particles in Shed Mediastinal Blood.** Ann Thorac Surg 2008; 85: 978-81
- AJ de Vries et al. **The rationale for fat filtration during cardiac surgery.** Perfusion 2002; 17: 29-33
- Oliver Warren et al. **The effect of various leukocyte filtration strategies in cardiac surgery.** Eur J Cardiothorac Surg 2007; 31: 665-676
- Shalini Boodramet et al. **Use of Leukocyte-depleting Filters During Cardiac Surgery with Cardiopulmonary bypass: A Review.** JECT 2008; 40: 27-42
- Richard W. Issitt et al. **Quantification of Lipid Filtration and the Effects on Cerebral Injury During Cardiopulmonary Bypass.** Ann Thorac Surg, Sept. 2017, Volume 104, Issue 3, Pages 884–890
- Richard Issitt et al. **Do lipid microemboli induce acute kidney injury during cardiopulmonary bypass?** Perfusion Volume: 32 issue: 6, page(s): 466-473
- Alberto Molardi et al. **The use of Remowell oxygenator integrated device in the prevention of the complications related to aortic valve surgery in the elderly patient: Preliminary results.** European Journal of Preventive Cardiology 2018, Vol. 25(1S) 59–65
- A.dell'Amore et al. **Efficacy of a New Oxygenator-Integrated Fat and Leukocyte Removal Device.** Asian Cardiovasc Thorac Ann 2010;0:1–5

## EUROSETS EUROPE

### ITALY

Eurosets S.r.l.  
Strada Statale 12, 143  
41036 Medolla (MO)  
Italy  
Ph: +39 0535 660311  
Fax: +39 0535 51248  
info@eurosets.com

### BENELUX

Eurosets Benelux  
Winstar Park,  
Rue Provinciale, 62  
1301 Bierges (Wavre)  
Belgium  
Ph: +32 10237993  
info.nl@eurosets.com  
info.be@eurosets.com

### FRANCE

Eurosets France Sarl  
Immeuble LE FONTENOY  
96, Boulevard Vivier  
Merle  
69423 LYON Cedex 03  
Ph: +33 962191542  
Fax: +33 970066573  
info.fr@eurosets.com

### GERMANY

Eurosets GmbH  
Industriestr. 29  
82194 Gröbenzell  
Ph: +49 81426671227  
Fax: +49 81426671229  
info.de@eurosets.com

## EUROSETS ASIA

### CHINA

Eurosets (Suzhou) Medical Device Ltd.  
Suite 1308-2, The Summit (South Block)  
No. 119, Suzhou Avenue West,  
Suzhou Industrial Park - 215000, Greater China.  
苏州工业园区苏州大道西119  
号苏悦广场南楼1308-2, 215000,  
更大的中国  
info.cn@eurosets.com

   [eurosets.com](http://eurosets.com)

Prodotto da  
Manufactured by  
Fabriqué par  
Hersteller  
Fabricado por  
Eurosets s.r.l.  
Strada Statale 12, n°143  
41036 Medolla (MO), Italy  
Tel: +39 0535 660311  
Fax: +39 0535 51248  
E-mail: info@eurosets.com  
eurosets.com

STERILE/LEO



CE 0129

Latex free



Distribuito da  
Distributed by  
Distribué par  
Vertrieb  
Distribuido por



THE MOST GENTLE,  
SAFE AND VERSATILE  
SOLUTION FOR  
ECMO AND ECLS





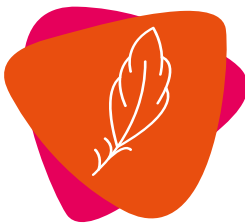
FROST & SULLIVAN

BEST  
2021 PRACTICES  
AWARD

GLOBAL EXTRACORPOREAL  
MEMBRANE OXYGENATION (ECMO)  
NEW PRODUCT INNOVATION AWARD



The most **gentle**, **safe** and **versatile** solution for ECMO (Extracorporeal Membrane Oxygenation), E-CPR ( Extracorporeal Cardiopulmonary Resuscitation) and MCS (Mechanical Circulatory Support) enabling all healthcare professionals to easily manage any situation in different environments



## GENTLE

**Features state of the art technology for optimal biocompatibility**

---

Magnetic Adult, Paediatric and Newborn levitating pump technology to **cover any patient size**

Phosphorylcholine coated circuit for **reduced platelets consumption**

Up to 30 days disposable validation for **long term procedures**



## SAFE

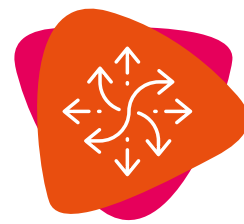
**Designed for optimal patient safety**

---

Non invasive sensing system for **optimal patient monitoring**

Integrated back-up system for **extra safety** in case of failure

Auxiliary external battery for **extra procedural time** in case of emergency



## VERSATILE

**Portable and flexible to address a variety of different practices**

---

Compact design for **easy transport**

**Optimized adult, paediatric and newborn circuits** for ECMO, E-CPR and MCS

**Unique transport options** to address every therapeutic need across different hospital facilities





**GENTLE**

**Features state of the art  
technology for optimal  
biocompatibility**

## ADULT, PAEDIATRIC AND NEWBORN\* MAGNETIC LEVITATING PUMPS TO COVER ANY PATIENT SIZE

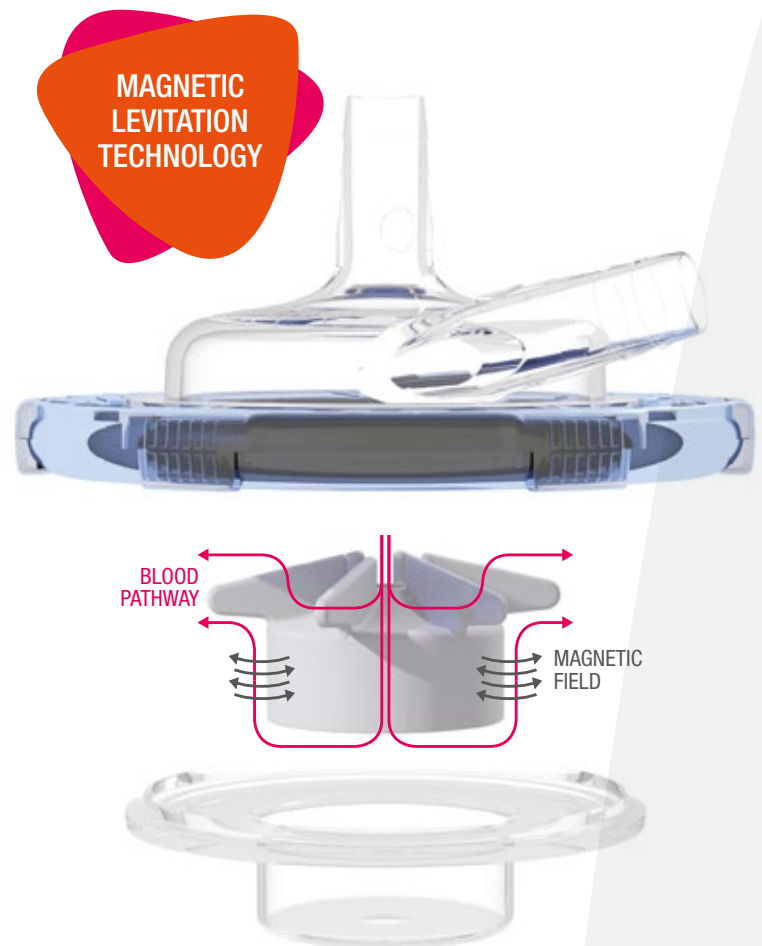
Ecmolife features a fully magnetic-levitated centrifugal pump.

The pump is available both in Adult/Paediatric and Newborn configurations and is characterized by an impeller's contact-free environment that ensures:

- ♥ **Optimal flow dynamics**
- ♥ **Reduced blood stagnation areas**
- ♥ **Minimal friction and shear stress**
- ♥ **Minimized hemolysis<sup>1</sup>**



FULLY PC  
COATED



1. Condello et al. Magnetic levitation pump versus constrained vortex pump: a pilot study on the hemolysis effect during minimal invasive extracorporeal circulation, Journal of Cardiothoracic Surgery, 2021

\*CE-Pending



# Technical Features

## Limitations

Blood flow range:  
Centrifugal pump speed:  
Blood pathway volume:  
Max blood pathway pressure

## Adult and Paediatric

0-10 l/min  
0-5000 rpm  
39 ml  
800 mmHg (107 kPa)

## New Born

0-3.0 l/min  
0-4500 RPM  
22 ml  
800 mmHg (107kPa)

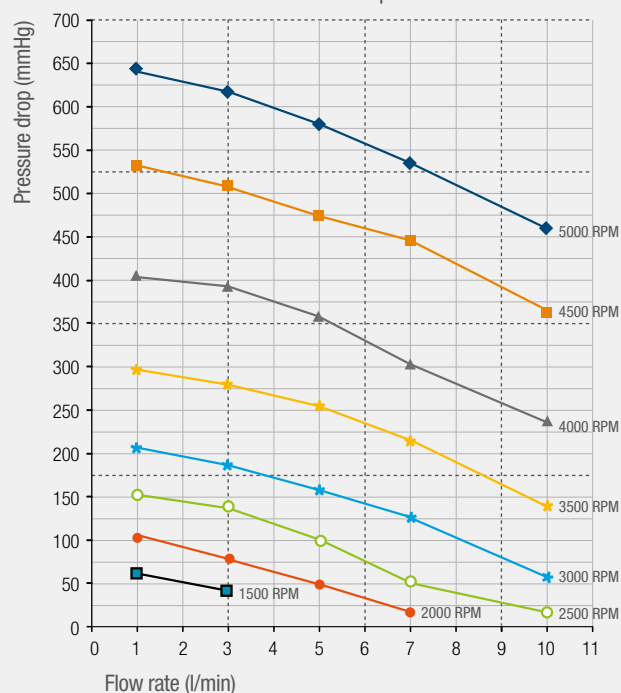
## Ports

Blood inlet: 3/8" (9.53 mm)  
Blood outlet: 3/8" (9.53 mm)

1/4" (6.35 mm)  
1/4" (6.35 mm)

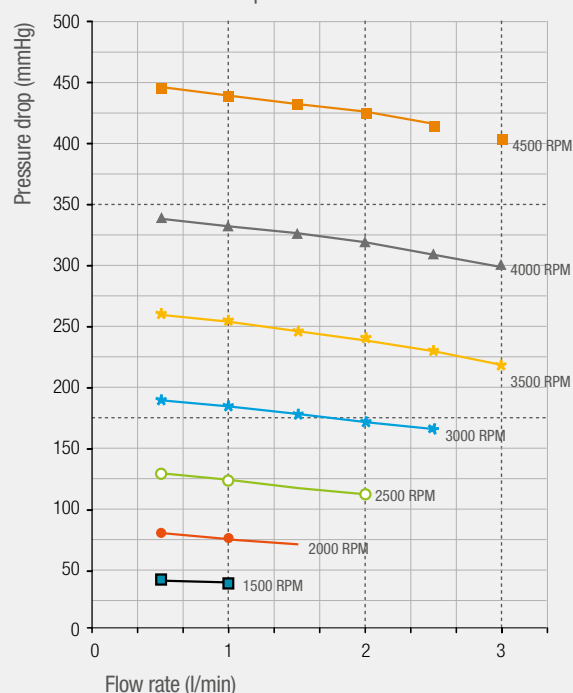
## PERFORMANCE GRAPH 1

Adult and Paediatric Pump



## PERFORMANCE GRAPH 2

Newborn Pump



## Hydraulic performance data: PERFORMANCE GRAPH

1 Pressure differential vs. flow rate (average of TIME 0 samples data). Data gathered from test in accordance with ISO 18242 standard. Conditions: Anticoagulated Bovine Blood, Hb = 12±1 g/dL, Temp. 37±1°C.

2 Pressure differential vs. flow rate (average of TIME 0 samples data). Data gathered from test in accordance with ISO 18242 standard. Conditions: Blood analogue with 3.5 cP dynamic viscosity, Temp. 37±1°C.

## PHOSPHORYLCHOLINE COATED CIRCUIT FOR REDUCED PLATELETS CONSUMPTION

Phosphorylcholine is the predominant lipid headgroup found within the outer layer of cell membranes.

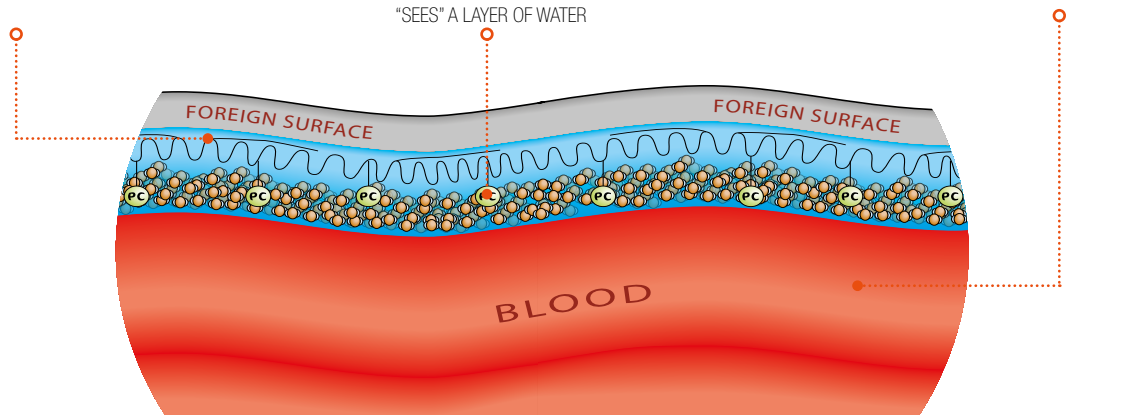
Phosphorylcholine has a natural affinity for water and binds water tightly around itself.

- ♥ **Reduces platelet consumption remarkably.**<sup>1</sup>
- ♥ **Phosphorylcholine coating is suitable for patients with acute HIT (Heparin Induced Thrombocytopenia).**<sup>2</sup>

ALKALINE CHAINS SPREAD ACROSS THE SURFACE YIELDING A STABLE COATING THROUGH HYDROPHOBIC INTERACTIONS

LAYER OF HYDRATION AROUND PC  
- WITH A COATED SUBSTRATE THE BLOOD THEREFORE "SEES" A LAYER OF WATER

ZWITTERIONIC PC GROUPS EXPRESSED OUTWARDS FROM THE SURFACE



1. R. Lorusso et al. Effects of phosphorylcholine coating on extracorporeal circulation management and postoperative outcome: a double-blind randomized study. *Interactive Cardiovascular and Thoracic Surgery* 8 (2009) 7–11.

2. F. Pappalardo et al. *Bioline*® heparin-coated ECMO with bivalirudin anticoagulation in a patient with acute heparin-induced thrombocytopenia: the immune reaction appeared to continue unabated. *Perfusion* 2009; 24: 135–137



## UP TO 30 DAYS\* DISPOSABLE VALIDATION FOR LONG TERM PROCEDURES

The optimized circuits for ECMO and ECLS are validated up to 30 days, ensuring **optimal performance throughout the entire period**



\*CE-Pending





**SAFE**

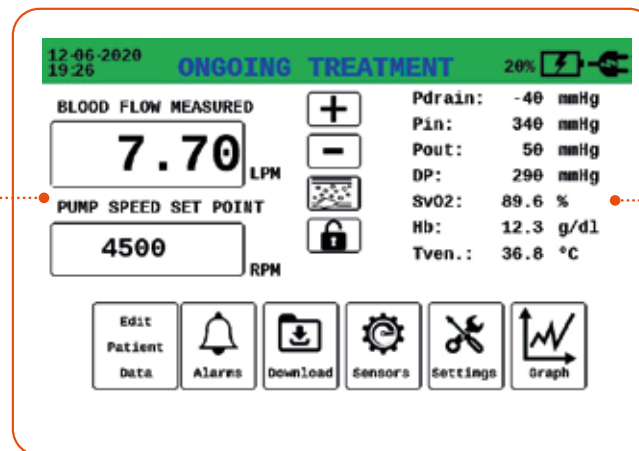
**Designed for optimal  
patient safety**

## NON INVASIVE SENSING SYSTEM FOR OPTIMAL PATIENT MONITORING

The ECMOLIFE system is equipped with 5 non invasive sensors ensuring continuous monitoring of 10 parameters displayed simultaneously and in real time, providing the operator with **full control of the procedure**.

### 10 Parameters displayed

- ① Blood flow (LPM)
- ② Pump speed (RPM)



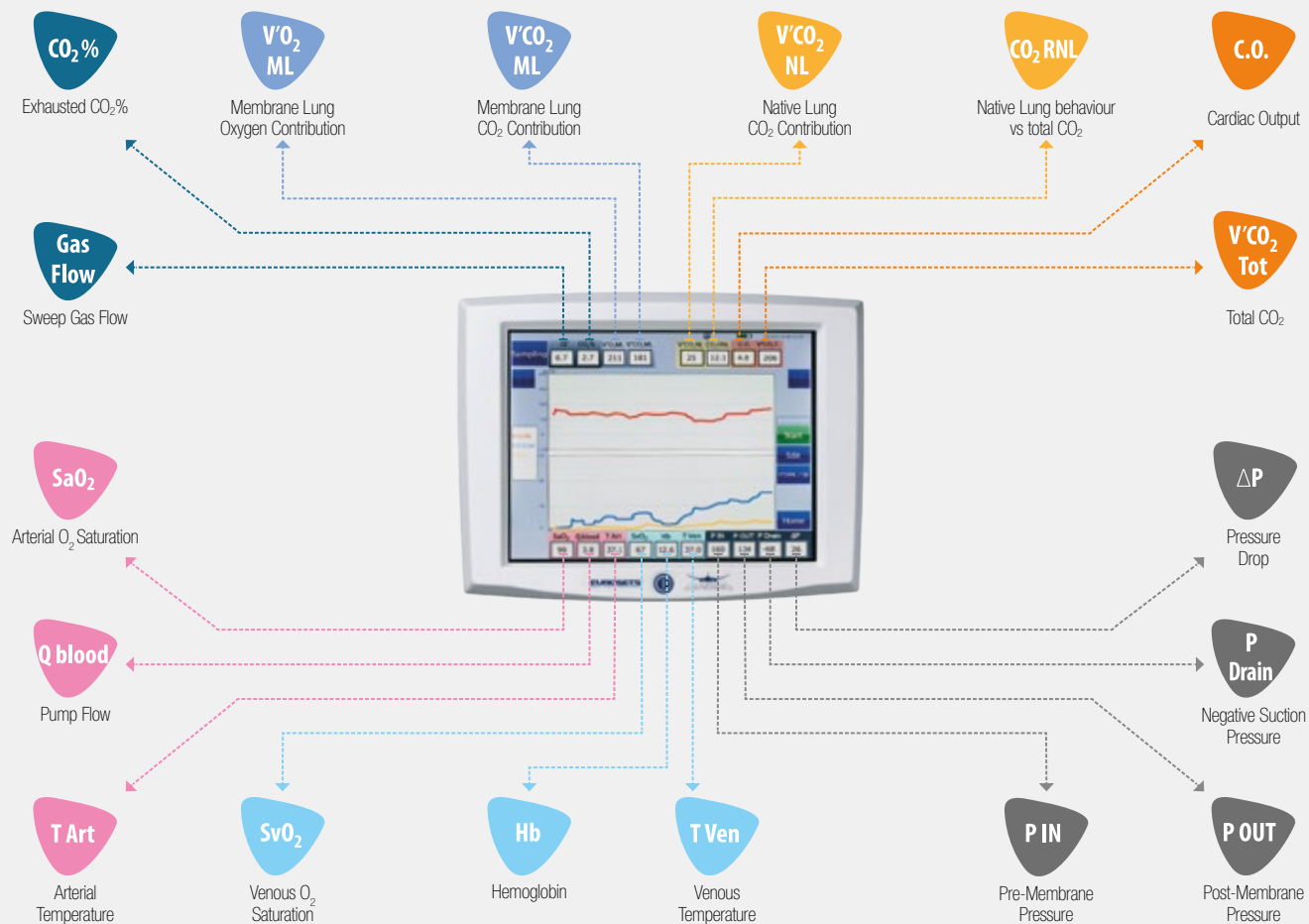
- ③ Drainage pressure (P<sub>DRAIN</sub>)
- ④ Pre oxygenator pressure (P<sub>IN</sub>)
- ⑤ Post oxygenator pressure (P<sub>OUT</sub>)
- ⑥ Oxygenator Pressure drop
- ⑦ Oxygen venous saturation (SVO<sub>2</sub>)
- ⑧ Hemoglobin (HB)
- ⑨ Blood venous temperature (T<sub>VEN</sub>)
- ⑩ Air bubble detector



## ECMOLife circuit can be connected to the LANDING ECMO adding an additional cuvette along the arterial line.

LANDING ECMO displays 18 parameters in real time for optimal patient monitoring. Thanks to these 18 parameters, HCPs can easily evaluate:

- Procedure efficacy
- Metabolic-hemodynamic patient's pattern
- Interdependency between the Membrane Lung and the Native Lung



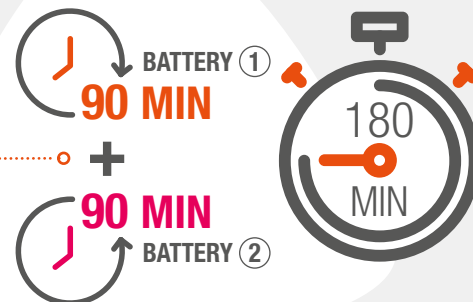
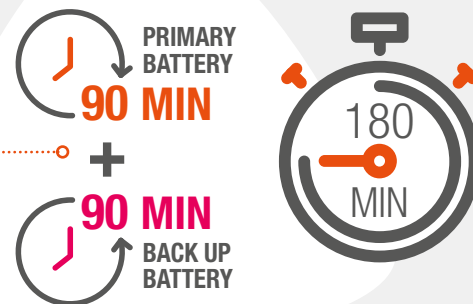
## INTEGRATED BACK UP SYSTEM FOR EXTRA SAFETY IN CASE OF FAILURE

- ♥ The ECMOLIFE Pump is the only device available on the market with an integrated back-up system that acts as a perfectly functioning replacement in case of failure, ensuring increased patient safety.
- ♥ Compared to standard manual hand cranks, the integrated back-up system ensures superior comfort for HCPs.



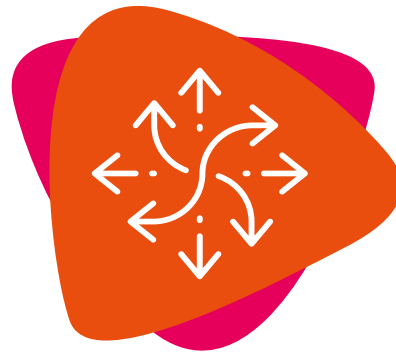


## AUXILIARY EXTERNAL BATTERY FOR EXTRA PROCEDURAL TIME IN CASE OF EMERGENCY



TOTAL 6 HOURS





## VERSATILE

Portable and flexible  
to address a variety  
of different practices

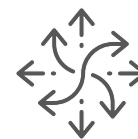


## COMPACT DESIGN FOR EASY TRANSPORT



ECMOLife is approved for both intra and inter hospital transport. The device not only meets the existing mandatory regulations, but also underwent testing according to UNECE Regulation No.10 to further confirm its electromagnetic compatibility.





## OPTIMIZED CIRCUITS FOR ECMO, E-CPR OR MCS

The circuits come completely pre-connected and assembled in a kit.

Oxygenator and pump are located on a dedicated bracket assuring:

- ♥ Easy and quick disposable set up
- ♥ Clear view of circuits integrity



## Dedicated ECMO Oxygenator Module

The Adult, Newborn and Paediatric ECMO oxygenators are clinically proven to be efficient, highly biocompatible, solutions for prolonged cardio-respiratory support<sup>1</sup>.



1. Pieri et al., A new phosphorylcholine-coated polymethylpentene oxygenator for extracorporeal membrane oxygenation: a preliminary experience, Perfusion, 2013

## UNIQUE TRANSPORT OPTIONS TO ADDRESS EVERY THERAPEUTIC NEED ACROSS DIFFERENT HOSPITAL FACILITIES

The Proprietary **Leonardo Trolley**, available in **two different configurations**, is designed as a stable and compact workstation for ECMOLife.

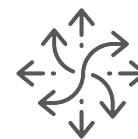


- **Leonardo Trolley** features the unique possibility that part of the trolley can be used as accessory shelf adaptable to any stretchers.

- **Leonardo Slim** is characterized by a minimized footprint and a unique and patented design that allow ECMOLife operations also very narrow environments.



Intra-hospital Transport



## FOIL



**FOIL** is the only device in the market that is **certified and validated to carry ECLS devices on a stretcher** between the patient's legs.

- ♥ High-quality carbon-fiber design for minimized weight
- ♥ Ergonomic tailored wings that increase comfort for patients and operators
- ♥ Can be safely attached to any stretcher
- ♥ Ensures convenient positioning of ECMOLife during any type of transports



ECMO Transport



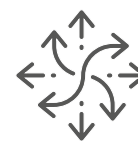
## Seamless interaction between ECMOLife and Colibrì for optimized patient care

Colibrì is the lightest ECLS system in the market ensuring convenient transport in every clinical environment.

At any stage during the procedure, being start-up, during intrahospital transport or after E-CPR performed out-of-hospital, Colibrì can be connected to ECMOLife with one single cable.

In that moment, ECMOLife takes control of the device, making available a bigger screen, an integrated back-up system and all the comfort of the primary console.





Should any movement be needed,  
**Colibrì can be easily disconnected**  
**to easily transport** the device leveraging  
its minimized weight and footprint.



## ORDERING GUIDE

**REUSABLE**





CODE	DESCRIPTION	N°/PACK
<b>EU5086</b>	<b>ECMOLIFE SYSTEM 2.0</b> _____	<b>1</b>
	includes: Console _____	1 <b>(A)</b>
	Motor driver _____	2 <b>(B)</b>
	Clamp on transducer sct 3/8" x 3/32" _____	2
	Bracket _____	1 <b>(C)</b>
	Venous probe _____	1 <b>(D)</b>
	Bubble sensor 3/8" x 3/32" _____	1
	Cable for Colibri-ECMOLife Connection _____	1
	ECMOLife power cord EU _____	2
	3 to 1 SM Holder Plate _____	1
<b>EU5093</b>	<b>LEONARDO Trolley</b> _____	<b>1 (E)</b>
	includes: ECMOLIFE Cable Holder _____	1 <b>(F)</b>
	REOMED 1000 isolating trans-formers 1000VA _____	1
	REOMED Plug C13-C14 _____	2
<b>EU5094</b>	<b>LEONARDO Slim</b> _____	<b>1</b>
	includes: ECMOLife Cable Holder _____	1 <b>(F)</b>
	REOMED 1000 isolating trans-formers 1000VA _____	1
	REOMED Plug C13-14 _____	2



\* Product not manufactured by EUROSETS S.r.l.

- Products in bold are manufactured and certified by Eurosets S.r.l.
- ECMOLife System, ECMOLife Heater Cooler and Single-use codes are CE<sub>0123</sub> Certified

\*\* CE-Pending

REUSABLE			
CODE	DESCRIPTION		N°/PACK
R229P01-010	MAX BLEND 0-15 LPM		1 *
R100P26	Bracket, Pole mount, gas blender		1 *
R129P91	Air Tube		1 *
R129P94	Oxygen Tube		1 *
R219P31	3 in 1 single pack (connector gas outlet)		1 *
EU3941	ECMOLIFE HEATER COOLER		1
	includes: HC Unit _____		1
	UK AND EU Power Supply Cables _____		1
	Hoses 1,5m _____		2
	Hanses connection tube _____		1
	Water Discharge Hose (Female) _____		1
EU3943	Hoses 3m		2
EU3898	ECMOLIFE Ambulance Plate holder		1
EU3996	FOIL Transport System		1
EU6728	ECMOLIFE FLOWMETER 1/4" x 3/32" (only for ECMOLIFE 2.0)		1
EU6729	AUX.AIR/FLOW SENS.P:1/4" x 3/32" (only for ECMOLIFE 2.0)		1
EU1901	CLAMP-ON TRANSDUC. SCT 1/4" x 3/32" (only for ECMOLIFE 1.0)		1
EU3898	ECMOLIFE Ambulance 24V Power		1
EU6734	EDWARDS ECMOLIFE CABLE		1

REUSABLE		
CODE	DESCRIPTION	N°/PACK
EU10775	ECMOLIFE Power Cord GB	1 *
EU10996	ECMOLIFE Power Cord BR	1 *
2M85274	Holder with BAR 25x10 mm	1 (G) *
EU3899	ECMOLIFE Auxiliary batteries Kit with transport bag	1 (H)
EU2511	ECMOLIFE Holder Motor Driver	1 (I)

SINGLE USE		
CODE	DESCRIPTION	N°/PACK
14AG70231	ECMOLIFE VAS tubing set Includes: pump, circuit, press. Transducers Smith Medical	1
14AG70232	ECMOLIFE adult ECMO tubing set Includes: adult Oxy, adult pump, circuit, press. Transducers Metallux 3 to1	1
14AG70232/SM	ECMOLIFE adult ECMO tubing set Includes: adult Oxy, adult pump, circuit, press. Transducers Smith Medical	1
14AG70233	ECMOLIFE pediatric ECMO tubing set** Includes: NB Oxy, ped pump, circuit, press. Transducers Smith Medical	1
14AG70234	ECMOLIFE new born ECMO tubing set Includes: NB Oxy, circuit, press. Transducers Metallux 3 to 1	1
AG70232/PP	ECMOLife 6 hrs Tubing Set Includes: PP Oxy, pump, circuit, press. Transducers Smith Medical	1
EU5083	ECMO ADULT console Sterile (Stand alone ECMO Oxy)	2
AG5078	ECMOLIFE Adult-Paediatric centrifugal pump	1



## NOTES

---

---

---

---

---

---

---

---

---

---





## EUROSETS EUROPE

### ITALY

Eurosets S.r.l.  
Strada Statale 12, 143  
41036 Medolla (MO)  
Italy

Ph: +39 0535 660311  
Fax: +39 0535 51248  
info@eurosets.com

### BENELUX

Eurosets Benelux  
Winstar Park,  
Rue Provinciale, 62  
1301 Bierges (Wavre)  
Belgium

Ph: +32 10237993  
info.nl@eurosets.com  
info.be@eurosets.com

### FRANCE

Eurosets France Sarl  
Immeuble LE FONTENOY  
96, Boulevard Vivier  
Merle  
69423 LYON Cedex 03

Ph: +33 962191542  
Fax: +33 970066573  
info.fr@eurosets.com

### GERMANY

Eurosets GmbH  
Industriestr. 29  
82194 Gröbenzell  
Ph: +49 81426671227  
Fax: +4981426671229  
info.de@eurosets.com

## EUROSETS ASIA

### CHINA

Eurosets (Suzhou) Medical Device Ltd.  
Suite 1308-2, The Summit (South Block)  
No. 119, Suzhou Avenue West,  
Suzhou Industrial Park - 215000, Greater China.

苏州工业园区苏州大道西119  
号苏悦广场南楼1308-2, 215000,  
更大的中国  
info.cn@eurosets.com



Prodotto da  
Manufactured by  
Fabriqué par  
Hersteller  
Fabricado por

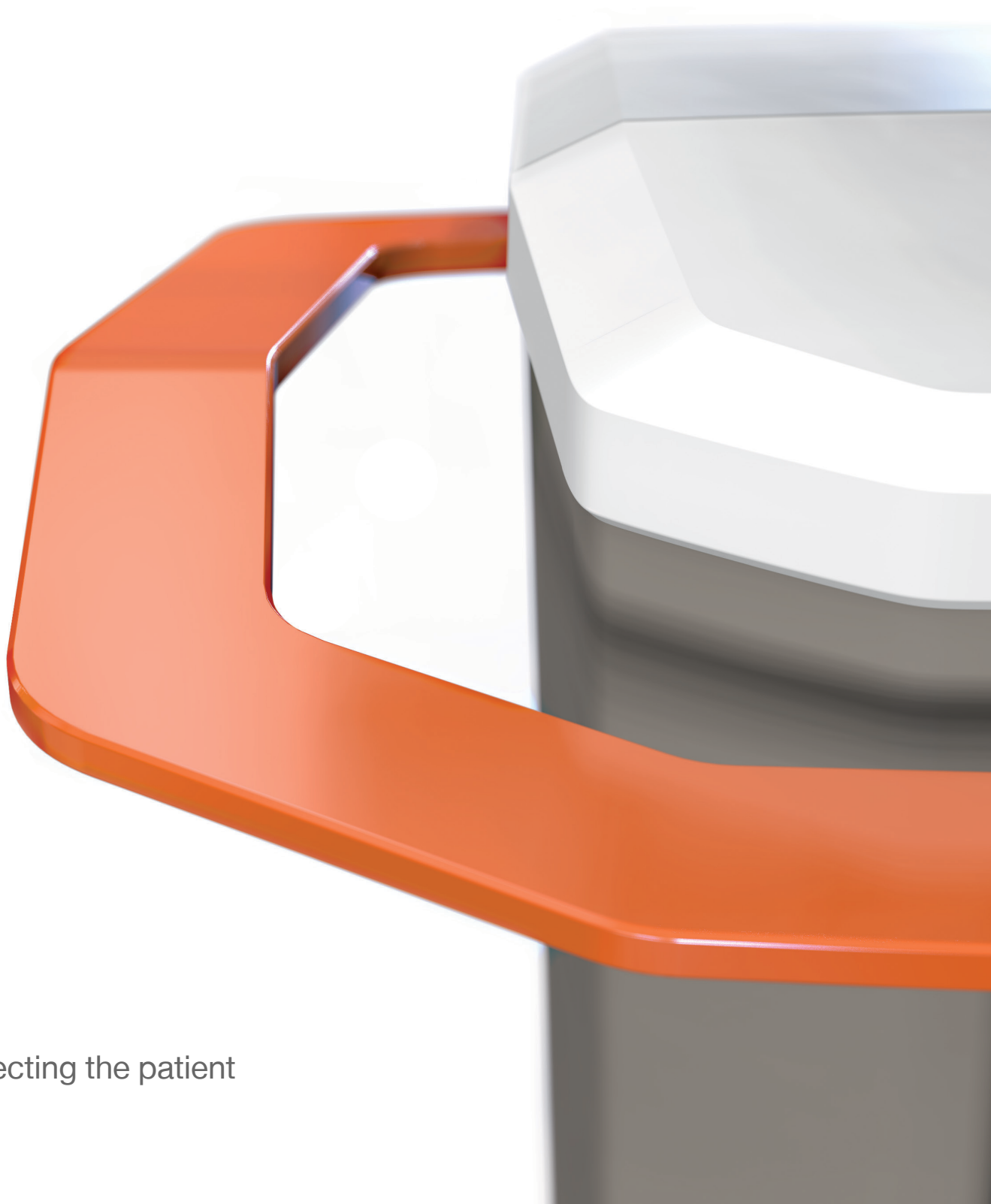
Eurosets s.r.l.  
Strada Statale 12, n°143  
41036 Medolla (MO) Italy  
Tel: +39 0535 660311  
Fax: +39 0535 51248  
E-mail: info@eurosets.com  
eurosets.com



Distribuito da  
Distributed by  
Distribué par  
Vertrieb  
Distribuido por

# MiraQ Cardiac

Intraoperative  
Imaging and TTFM



Protecting the patient

## Use intraoperative ultrasound imaging and flow measurement during cardiac surgery and protect the patient.

The MiraQ™ Cardiac combines ultrasound imaging and transit time flow measurement (TTFM) in a single system that is specifically designed for cardiac surgery.

There is growing support of the idea that checking grafts and anastomoses during cardiac surgery should be standard of care. Reliability and ease of use is a major determinant for this to become reality.

The MiraQ™ Cardiac system has built-in support for Guided Workflows. These are software protocols that assist the user to a standardized approach to quality assessment. Intraoperative quality assessment has become easier to adopt, customizable to the surgeon's needs and enhancing work efficiency.

### Epicardial imaging

Epicardial ultrasound imaging gives a simple, fast and safe imaging of coronary stenoses and graft anastomoses, providing immediate feedback on the quality of the CABG surgery.

### Transit Time Flow Measurement

Performing flow measurements with the MiraQ™ Cardiac is the quickest and most accurate way to verify graft patency while the patient is still in the operating room.

### Epi-aortic imaging

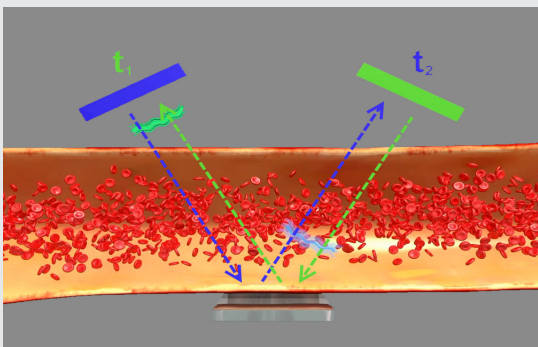
Epi-aortic imaging provides a sensitive and direct diagnosis of aortic disease. This may lead to modifications of the surgical strategy and thus contribute towards reduced rates of major adverse cardiac and cerebrovascular events (MACCE).

### Combining imaging and flow for better quality assessment

The MiraQ™ Cardiac system uses Medistim's flow measurement and high-resolution ultrasound Imaging probes to provide a complete quality assessment.

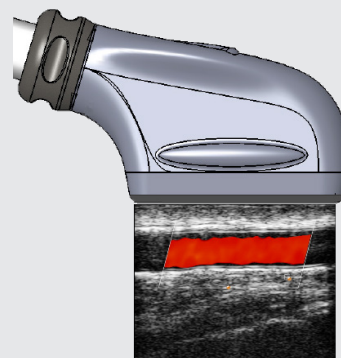
Medistim's L15 High-frequency ultrasound Imaging probe provides high-resolution images that allows the surgeon to assess morphology. Medistim's flow probes utilize transit time technology to accurately measure blood volume flow intraoperatively.

Combining the spatial information from epicardial ultrasound imaging and quantitative data from TTFM enables the surgeon to perform a prompt and accurate assessment, and revise the graft when necessary.



### TTFM

The TTFM principle is based on measuring the difference between upstream and downstream transit time of a wide ultrasound beam. The transit time difference is directly proportional to the blood volume flow. This measurement principle gives an accurate quantification of the real time volume flow that compliments the ultrasound imaging.



### Imaging

Ultrasound imaging generates images by transmitting ultrasound pulses and receiving echoes from the pulses as they travel through the body. The received echoes are used to create an image of the target area. The color flow mode uses the doppler principle to detect and visualize blood flow. Pulsed wave doppler uses the same principle to measure blood flow velocity.

# MiraQ Cardiac

Protecting the patient  
with Imaging and TTFM

Adjustable display arm ensures  
good visibility under all  
conditions

Connect to external screens  
and the hospital information  
systems using the easily ac-  
cessible media panel

Spatial efficient design allows  
for flexible system placement  
and movement in the operating  
room

Easy access to imaging and  
flow data through optimised  
screen view and interactive user  
interface

Use a Guided workflow for a  
standardized approach to quality  
assessment

Practical storage for user manual  
and interface cables

The Medstim MiraQ™ Cardiac  
System may be delivered as a  
'Flow only' system, but can easily  
be upgraded on-site to include an  
Imaging module at a later stage



**Guided Workflow**

Standardized quality assessment

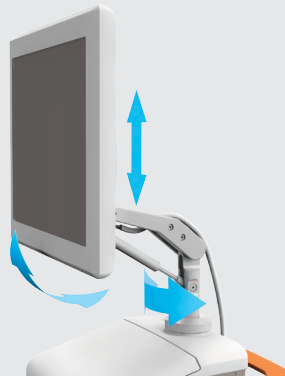


Utilize the Guided workflow software feature for a standardized approach to quality assessment. Create your own Guided workflow that describes your standard operating procedure, or use a community created template.

Minimize user interaction and increase work efficiency with preset measurement definitions and system configurations.

**Full visibility**

Efficient design



Optimize visibility with the flexible monitor display arm.

Rotate the screen to suit both the surgeon and the operators need.

**Operating room integration**

Expanded options



Connect to an external overhead screen using the easily accessible DVI port located on the media panel. The MiraQ™ Cardiac software has native support for configuring screen size and resolution.

Export and import data to the hospital's information system using the MiraQ™ Cardiac DICOM option. All systems come equipped with an isolated network connection, allowing for safe and secure access to the hospital network.

**Upgrade to Imaging**

Modular design

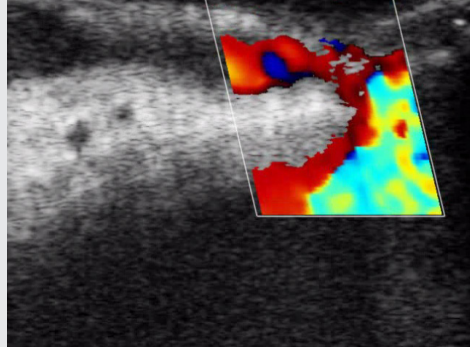


The Medistim MiraQ™ Cardiac System may be delivered as a “Flow only” system, but can easily be upgraded on-site to include an Imaging module at a later stage.

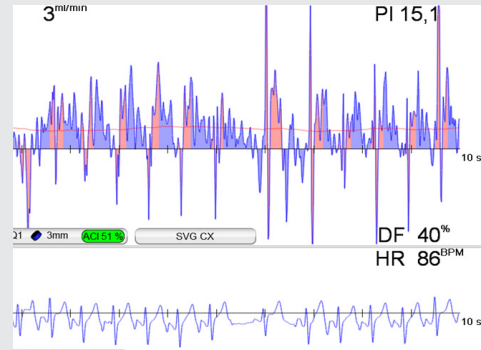
## MiraQ™ Cardiac gives surgeons ultimate control, enabling planning, navigation and verification during cardiac surgery.

### Instant feedback

See and measure



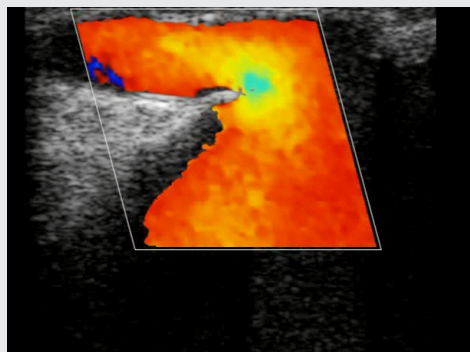
The MiraQ™ Cardiac provides instant feedback on the performance of a graft. Eliminate guesswork with ultrasound imaging visualization and quantifiable TTFM data.



In the SVG-CX measurements presented here, ultrasound imaging was used to scan both the distal and proximal anastomosis for defects. An occluded proximal anastomosis was discovered and verified by a TTFM measurement (PI 15.1, DF 40% and Flow 3 ml/min).

### Revise on the spot

Before closing



When occluded or underperforming grafts are detected they can be revised on the spot. Take every measure to avoid recalls.



The occluded SVG-CX was immediately revised, and the improved result was documented with ultrasound imaging and TTFM. As shown above, the graft flow was significantly improved (PI 1.7, DF 59% and Flow 24 ml/min).

### Protecting the patient

Improved outcomes



Quality assessment with ultrasound imaging and transit time flow measurement during cardiac surgery protects the patient from serious adverse events and death.

**Medistim MiraQ™ Cardiac Systems**

Description	Channel configuration	Part number	System features
<b>MiraQ Cardiac Imaging and Flow</b>	<b>Ultrasound Imaging 2 Flow channels 1 AUX channels</b>	<b>MQC12001</b>	<b>2D – B Mode CFM – Color Flow Mapping PW – Pulsed Wave Doppler TTFM - Flow measurement ECG Guided Workflow software</b>
<b>MiraQ Cardiac Flow</b>	<b>2 Flow channels 1 AUX channels</b>	<b>MQC02001</b>	<b>TTFM - Flow measurement ECG Guided Workflow software Upgradeable to Imaging</b>

**Field Upgrade Module**

Description	Part number
<b>Add Ultrasound Imaging module to a Flow only system</b>	<b>KMQC12001</b>

**Optional features**

Description	Part number
<b>2 Additional flow measurement channels</b>	<b>MQ200107</b>
<b>1 Additional Auxiliary measurement channel</b>	<b>MQ200108</b>
<b>1 Doppler Measurement channel *</b>	<b>MQ200106</b>
<b>Printer Support and Color printer</b>	<b>MQ200094</b>
<b>Printer Support</b>	<b>MQ200035</b>
<b>DICOM Interface</b>	<b>MQ241501</b>

See Medistim's "Probe Application Guide and Product List" for an overview of available Imaging and TTFM probes.

\* Only available on systems without Imaging



PDF download

**Guidelines for Flow and Imaging**

1. Transit Time Flow Measurement (TTFM) should be used to verify graft patency, as recommended by guidelines issued jointly in 2014 by the European Society of Cardiology (ESC) and European Association for Cardio-Thoracic Surgery (EACTS).  
Guidelines on myocardial revascularization.  
*European Heart Journal (2014) doi:10.1093/eurheartj/ehu278b.*
2. Epiaortic imaging guidelines published in 2007 by the American Society of Echocardiography and the Society of Cardiovascular Anesthesiologists have been endorsed by the Society of Thoracic Surgeons.  
Glas et al. Guidelines for the performance of a comprehensive intra-operative epiaortic ultrasonographic examination: recommendations of the American Society of Echocardiography and the Society of Cardiovascular Anesthesiologists; endorsed by the Society of Thoracic Surgeons.  
*J Am Soc Echocardiogr. 2007 Nov;20(11):1227-35.*
3. Medistim's VeriQ™ system recommended by NICE for routine clinical use (Nov 2011):  
The National Institute for Health and Clinical Excellence (NICE) has accepted the health economics derived from routine usage of the VeriQ system for assessing graft blood flow during coronary artery bypass graft (CABG) surgery, compared to clinical assessment alone. NICE reports an estimated cost saving of more than £115 per patient. NICE also support the clinical evidence, suggesting reduction of early graft failure, stroke, myocardial infarction or recurrent angina.  
*Medical technologies guidance MTG8. Issued November 2011.*

Please refer to the User Manual for indications, contraindications, warnings, precautions, and further specifications and descriptions. Specifications may be changed without notice. For a list of probes, contact your Medistim representative.



medistim@medistim.com  
www.medistim.com

**Medistim ASA (Head office)**  
Økernveien 94  
0579 Oslo  
Norway  
Phone +47 23 05 96 60

**Medistim Norge AS**  
Økernveien 94  
0579 Oslo  
Norway  
Phone +47 23 03 52 50

**Medistim Danmark ApS**  
Gøngetoften 13  
2950 Vedbæk  
Denmark  
Phone +45 2276 5669

**Medistim USA Inc.**  
14000 25th Ave N. Ste. 108  
Plymouth, MN 55447  
USA  
Phone +1 763 208 9852

**Medistim Deutschland GmbH**  
Bahnhofstr. 32  
82041 Deisenhofen  
Germany  
Phone +49 (0) 89 62 81 90 33

**Medistim UK Limited**  
34 Nottingham South Ind Est  
Ruddington Lane  
Wilford  
NOTTINGHAM  
NG11 7EP  
Phone +44 (0) 115 981 0871



CATALOGUE 2021

CARDIAC CATHETERS  
AND CANNULAE





# Index

## 2

### Cardiovascular cannulation

- 4 Arterial cannulae
- 10 Aortic catheters
- 12 Flex line venous cannulae
- 14 Flex line two stage venous cannulae

## 16

### Cardioplegia

- 18 Aortic root cannulae
- 20 Retrograde cardioplegia cannulae
- 21 Air aspiration needles
- 22 Ostial perfusion cannulae
- 24 Cardioplegia adapters

## 28

### Paediatric cannulae

- 30 Paediatric arterial cannulae
- 31 Paediatric venous cannulae

## 32

### Vent catheters

- 34 PVC vent catheters
- 37 Silicone vent catheters

## 38

### Suckers

- 40 Rigid sucker
- 40 Flexible and malleable suckers
- 40 Yankauer suction tubes
- 41 Pericardial sumps
- 42 Thoracic drains

## 44

### Gas diffusers

## 48

### Hemoconcentrators

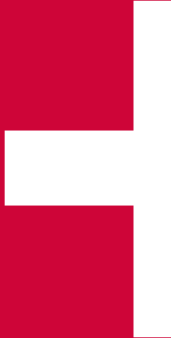
## 52

### Accessories

- 54 Tourniquet sets
- 55 Connectors
- 56 Porous vent plugs
- 56 Vented connector caps
- 56 Vessel cannulae
- 56 Quick prime lines
- 57 Pressure monitoring lines
- 57 Tubing organizers
- 57 Suture organizers
- 58 Blowers/mister

# 1

# Cardiovascular cannulation



## Index

- 4 Arterial cannulae
- 10 Aortic catheters
- 12 Flex line venous cannulae
- 14 Flex line two stage venous cannulae

# Arterial cannulae

REINFORCED, CURVED TIP WITH FLANGE



TYPE A



TYPE B

**TYPE A - BODY LENGTH: 30 CM**

**TYPE B - BODY LENGTH: 21 CM**

Description	Size	TYPE A - BODY LENGTH: 30 CM			TYPE B - BODY LENGTH: 21 CM		
		Standard	With vent plug	With vented red cap	Standard	With vent plug	With vented red cap
Without connector	20 Fr	A2016	A2016V	-	B2016	B2016V	-
	22 Fr	A2216	A2216V	-	B2216	B2216V	-
	24 Fr	A2416	A2416V	-	B2416	B2416V	-
With connector	20 Fr	A20161	-	A20161V	B20161	-	B20161V
	22 Fr	A22161	-	A22161V	B22161	-	B22161V
	24 Fr	A24161	-	A24161V	B24161	-	B24161V
With luer connector	20 Fr	A20162	-	A20162V	B20162	-	B20162V
	22 Fr	A22162	-	A22162V	B22162	-	B22162V
	24 Fr	A24162	-	A24162V	B24162	-	B24162V

## PRODUCT INFORMATION

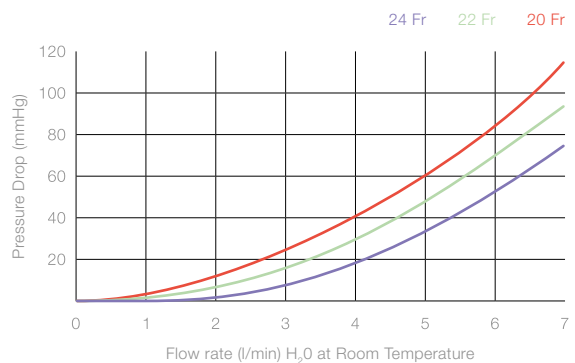
Andocor arterial cannulae are intended for use in perfusion of the ascending aorta during cardiopulmonary bypass.

All versions with a vented red cap can be equipped with a vent plug. Upon request the luer connector can be mounted at an angle 180° - facing up.

**Q** Connection site: 3/8"  
Qty/box: 20 Pcs

**+** Kink resistant reinforced tubing  
Easy tip orientation thanks to indexing marker  
Smooth plastic tip

## ARTERIAL CANNULA PRESSURE DROP VS FLOW



# Arterial cannulae

REINFORCED, STRAIGHT TIP WITH RING



TYPE A



TYPE B

**TYPE A - BODY LENGTH: 30 CM**

**TYPE B - BODY LENGTH: 21 CM**

Description	Size	TYPE A - BODY LENGTH: 30 CM			TYPE B - BODY LENGTH: 21 CM		
		Standard	With vent plug	With vented red cap	Standard	With vent plug	With vented red cap
Without connector	20 Fr	A2013	A2013V	-	B2013	B2013V	-
	22 Fr	A2213	A2213V	-	B2213	B2213V	-
	24 Fr	A2413	A2413V	-	B2413	B2413V	-
With connector	20 Fr	A20131	-	A20131V	B20131	-	B20131V
	22 Fr	A22131	-	A22131V	B22131	-	B22131V
	24 Fr	A24131	-	A24131V	B24131	-	B24131V
With luer connector	20 Fr	A20132	-	A20132V	B20132	-	B20132V
	22 Fr	A22132	-	A22132V	B22132	-	B22132V
	24 Fr	A24132	-	A24132V	B24132	-	B24132V

## PRODUCT INFORMATION

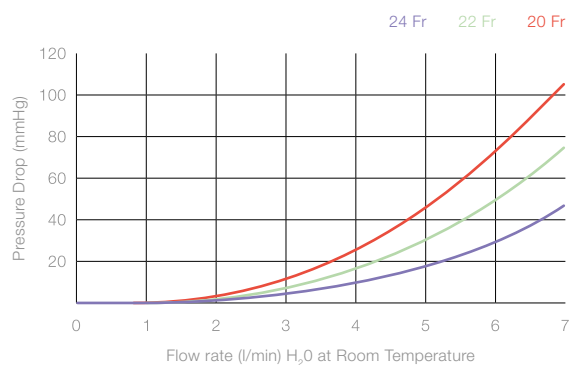
Andocor arterial cannulae are intended for use in perfusion of the ascending aorta during cardiopulmonary bypass.

All versions with a vented red cap can be equipped with a vent plug. Upon request the luer connector can be mounted at an angle 180° - facing up.

**Q** Connection site: 3/8"  
Qty/box: 20 Pcs

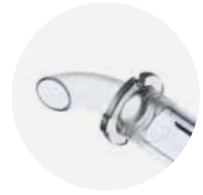
**+** Kink resistant reinforced tubing  
Easy tip orientation thanks to indexing marker  
Smooth plastic tip

## ARTERIAL CANNULA PRESSURE DROP VS FLOW



# Arterial cannulae

NON-REINFORCED, CURVED TIP WITH FLANGE



BODY LENGTH: 22 CM

Description	Size	Standard	With vented red cap
Without connector	20 Fr	A2006	-
	22 Fr	A2206	-
	24 Fr	A2406	-
With connector	20 Fr	A20061	A20061V
	22 Fr	A22061	A22061V
	24 Fr	A24061	A24061V
With luer connector	20 Fr	A20062	A20062V
	22 Fr	A22062	A22062V
	24 Fr	A24062	A24062V

## PRODUCT INFORMATION

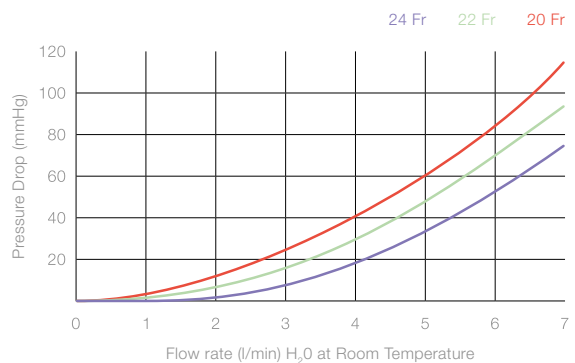
Andocor arterial cannulae are intended for use in perfusion of the ascending aorta during cardiopulmonary bypass.

All versions with a vented red cap can be equipped with a vent plug. Upon request the luer connector can be mounted at an angle 180° - facing up.

**Q** Connection site: 3/8"  
Qty/box: 20 Pcs

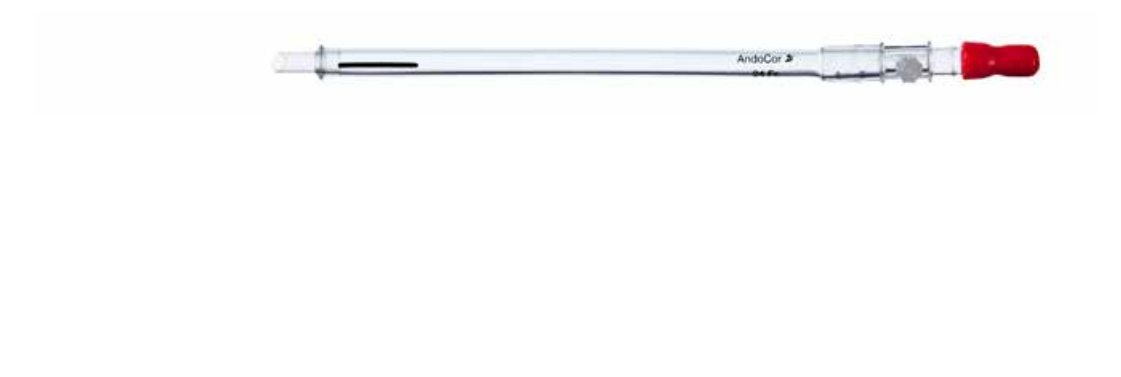
**+** Kink resistant non-reinforced tubing  
Easy tip orientation thanks to indexing marker  
Smooth plastic tip

## ARTERIAL CANNULA PRESSURE DROP VS FLOW



# Arterial cannulae

NON-REINFORCED, STRAIGHT TIP WITH RING



BODY LENGTH: 22 CM

Description	Size	Standard	With vented red cap
Without connector	20 Fr	A2003	-
	22 Fr	A2203	-
	24 Fr	A2403	-
With connector	20 Fr	A20031	A20031V
	22 Fr	A22031	A22031V
	24 Fr	A24031	A24031V
With luer connector	20 Fr	A20032	A20032V
	22 Fr	A22032	A22032V
	24 Fr	A24032	A24032V

## PRODUCT INFORMATION

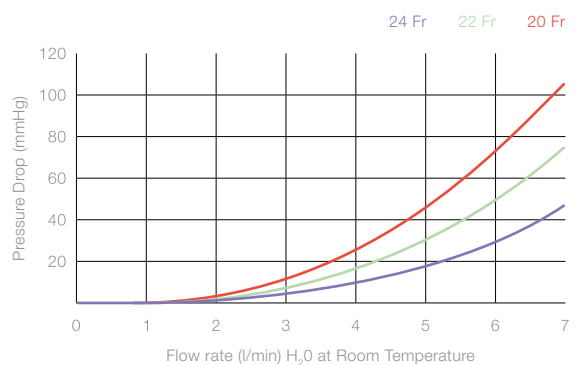
Andocor arterial cannulae are intended for use in perfusion of the ascending aorta during cardiopulmonary bypass.

All versions with a vented red cap can be equipped with a vent plug. Upon request the luer connector can be mounted at an angle 180° - facing up.

**Q** Connection site: 3/8"  
Qty/box: 20 Pcs

**+** Kink resistant non-reinforced tubing  
Easy tip orientation thanks to indexing marker  
Smooth plastic tip

## ARTERIAL CANNULA PRESSURE DROP VS FLOW



# Arterial cannulae

NON-REINFORCED, ONE PIECE BODY



BODY LENGTH: 22 CM

Description	Size	Reference
Without connector, with suture ring	18 Fr	A1826
	20 Fr	A2026
	21 Fr	A2126
	22 Fr	A2226
	24 Fr	A2426

## PRODUCT INFORMATION

The cannula consists of kink-resistant PVC tubing, it is constructed of a conical, single piece body terminating in a bevelled, curved tip. Each cannula is supplied with a fixed depth ring and has a blue indexing marker to allow precise positioning of the cannula.



Connection site: 3/8" - 18 Fr: 1/4"  
Qty/box: 20 Pcs



Kink resistant pvc tubing  
Easy tip orientation thanks to indexing marker



# Aortic catheters



BODY LENGTH: 21 CM

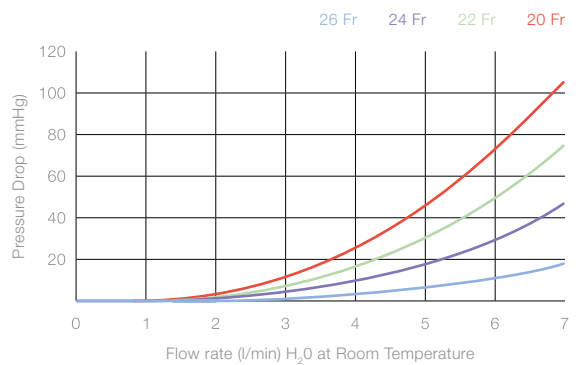
Description	Size	Standard	With vented red cap
With connector	20 Fr	AC201341	AC201341V
	22 Fr	AC221341	AC221341V
	24 Fr	AC241341	AC241341V
	26 Fr	AC261341	AC261341V
	30 Fr	AC301341	AC301341V
With luer connector	22 Fr	AC221342	AC221342V
	24 Fr	AC241342	AC242342V
	26 Fr	AC261342	AC261342V
	30 Fr	AC301342	AC301342V

## PRODUCT INFORMATION

Andocor aortic catheters are intended for perfusion of the ascending aorta during cardiopulmonary bypass.

- Q** Connection site: 3/8"  
Qty/box: 20 Pcs
- +** Easy tip orientation thanks to indexing marker  
Smooth bevelled tip  
Moveable suture ring

## AORTIC CATHETER PRESSURE DROP VS FLOW



# Special configurations

## HARD TIP

BODY LENGTH: 21 CM

Description	Size	Standard	With vented red cap
With connector	24 Fr	AC241341H	AC241341VH
With luer connector	24 Fr	AC241342H	AC241342VH

## WITH SMALL RING, HARD TIP



BODY LENGTH: 21 CM

Description	Size	Standard	With vented red cap
With connector	24 Fr	-	AC241341VHS
With luer connector	24 Fr	-	AC241342VHS

## HARD TIP, LONG



BODY LENGTH: 36 CM

Description	Size	With vent plug	With vented red cap
With luer connector	22 Fr	AC221342HL	AC221342VHL
	24 Fr	AC241342HL	AC241342VHL
With luer connector and side holes	22 Fr	AC221342HLW	AC221342VHLW
	24 Fr	AC241342HLW	AC241342VHLW

# Flex line venous cannulae

REINFORCED WITH LIGHTHOUSE TIP



## PRODUCT INFORMATION

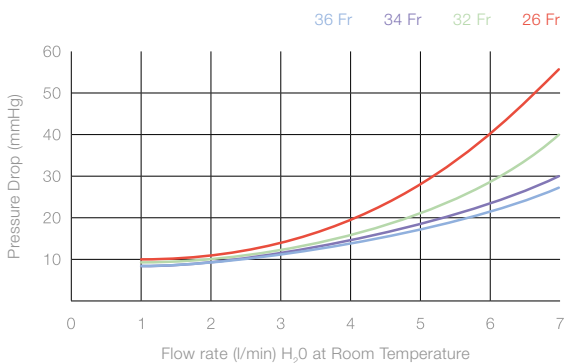
Andocor venous cannulae are intended to drain venous blood from the right atrium and caval veins.

**Q** Connection site: 3/8" - 36 Fr: 1/2"  
Length: 39 cm  
Qty/box: 20 Pcs

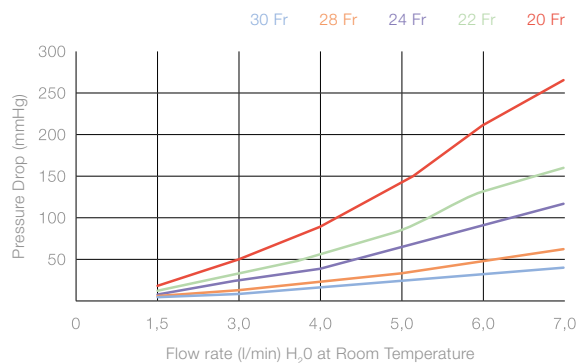
**+** Single piece construction  
Open and flexible lighthouse tip  
Easy positioning  
Insertion depth marker

Size	Straight tip	Right angled 90° tip
20 Fr	01V201L8	01V201L9
22 Fr	01V221L8	01V221L9
24 Fr	01V241L8	01V241L9
26 Fr	01V261L8	01V261L9
28 Fr	01V281L8	01V281L9
30 Fr	01V301L8	01V301L9
32 Fr	01V321L8	01V321L9
34 Fr	01V341L8	01V341L9
36 Fr	01V361L8	01V361L9

## VENOUS CANNULA PRESSURE DROP VS FLOW



## VENOUS CANNULA PRESSURE DROP VS FLOW



# Special configurations

## CONNECTION SITE 3/8"



Size	Straight tip	Right angled 90° tip
36 Fr	01V362L8	01V362L9

## NON-REINFORCED



Size	Straight tip
32 Fr	VC3208

# Flex line two stage venous cannulae

PROXIMAL AND DISTAL REINFORCED WITH LIGHTHOUSE TIP



ROUND BODY



FLAT BODY



ROUND BODY

FLAT BODY

Size	Length	ROUND BODY			FLAT BODY		
		Without connector	With connector	With luer connector	Without connector	With connector	With luer connector
32/40	36	01V32L40	01V32L401	01V32L402	01V32L40FB	01V32L401FB	01V32L402FB
34/40	36	01V34L40	01V34L401	01V34L402	01V34L40FB	01V34L401FB	01V34L462FB
34/46	40	01V34L46	01V34L461	01V34L462	01V34L46FB	01V34L461FB	01V34L462FB
36/46	40	01V36L46	01V36L461	01V36L462	01V36L46FB	01V36L461FB	01V36L462FB
36/51	40	01V36L51	01V36L511	01V36L512	01V36L51FB	01V36L511FB	01V36L512FB

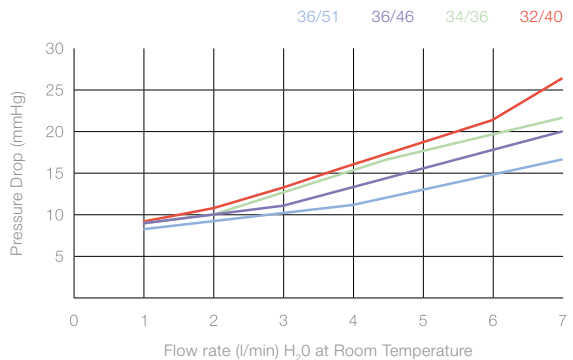
PRODUCT INFORMATION

Andocor two stage venous cannulae are intended for use in venous drainage via the right atrium and inferior vena cava simultaneously during cardiopulmonary bypass surgery up to six hours or less.

**Q** Connection site: 1/2"  
Qty/box: 20 Pcs

**+** Single piece construction  
Open and flexible lighthouse tip  
Easy positioning  
Insertion depth marker

VENOUS CANNULA PRESSURE DROP VS FLOW



# Special configurations

CONNECTION SITE: 3/8"



Size	Length	With connector
32/40	36	01V32L403
34/46	40	01V34L463

# 2

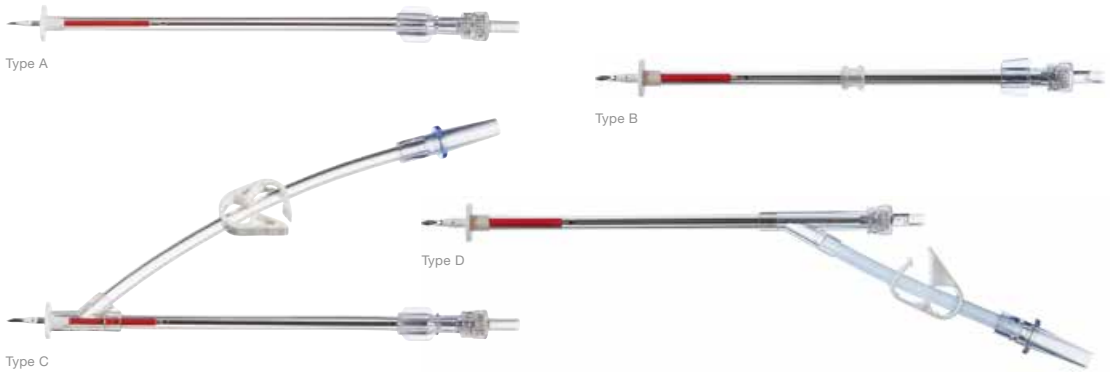
# Cardioplegia



## Index

- 18 Aortic root cannulae
- 20 Retrograde cardioplegia cannulae
- 21 Air aspiration needles
- 22 Ostial perfusion cannulae
- 24 Cardioplegia adapters

# Aortic root cannulae



Description	Tip size	Needle size	Reference
Type A Without vent line	6 Fr	16 G	ARC07
	7 Fr	14 G	ARC04
	9 Fr	12 G	ARC01
Type B Without vent line With suture ring	6 Fr	16 G	ARC07R
	7 Fr	14 G	ARC04R
	9 Fr	12 G	ARC01R
Type C With vent line	6 Fr	16 G	ARC08
	7 Fr	14 G	ARC05
	9 Fr	12 G	ARC02
Type D With vent line	6 Fr	16 G	ARC08S
	7 Fr	14 G	ARC05S
	9 Fr	12 G	ARC02S

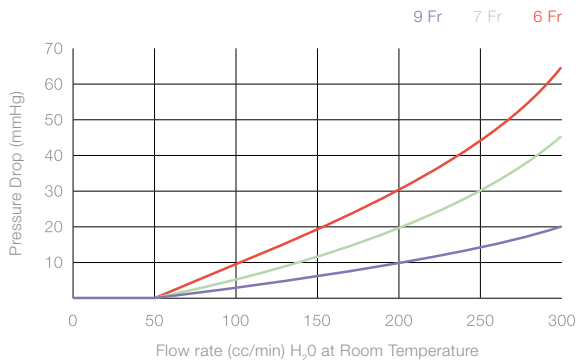
**PRODUCT INFORMATION**

Andocor aortic root cannulae are intended for use during cardiopulmonary bypass for antegrade delivery of cardioplegia solutions and venting of the heart. The cannula may also be used to aspirate air from the aorta at the conclusion of the cardiac procedure.

**Q** Length: 15 cm  
 Connection size vent line: 1/4"  
 Qty/box: 20 Pcs

**+** Easy of use  
 Anti-bleeding valve helps reduce blood loss

**AORTIC ROOT CANNULAE PRESSURE DROP VS FLOW**



WITH 2 CLAMPS



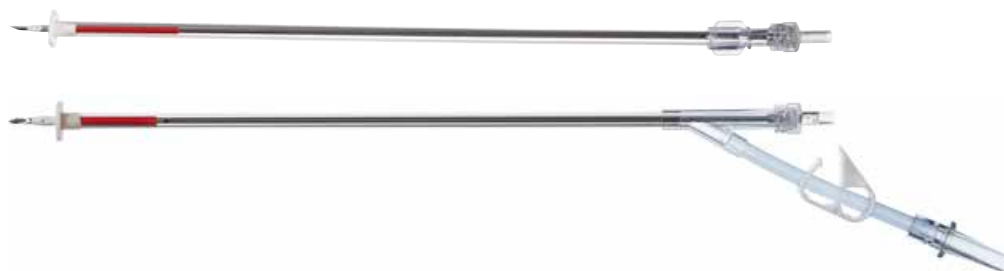
Description	Tip size	Needle size	Reference
With vent line	7 Fr	14 G	ARC10

WITH ANTI-BEELDING VALVE



Description	Tip size	Needle size	Reference
Without vent line	6 Fr	16 G	ARC07V
	7 Fr	14 G	ARC04V
	9 Fr	12 G	ARC01V
With vent line	6 Fr	16 G	ARC08V
	7 Fr	14 G	ARC05V
	9 Fr	12 G	ARC02V

MINIMAL INVASIVE TYPE, LENGTH: 28 CM



Description	Tip size	Needle size	Standard	With anti-bleeding valve
Without vent line	7 Fr	14 G	ARC14	ARC14V
With vent line	7 Fr	14 G	ARC15S	-

# Retrograde cardioplegia cannulae



Size	Balloon diameter	Reference
14 Fr	18 mm	RCC01

**PRODUCT INFORMATION**

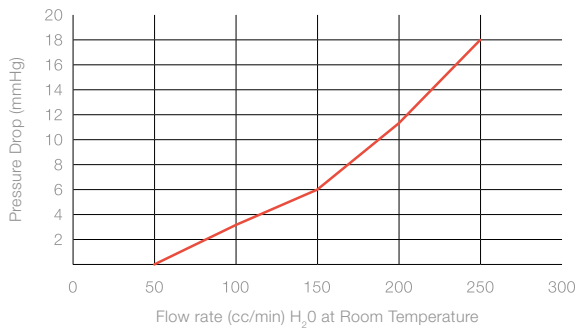
Andocor retrograde cardioplegia cannulae are intended to be connected to the cardioplegia line in order to infuse cardioplegic solution and blood into the patient's coronary sinus during open heart procedures.

**Q** Length: 31 cm  
Qty/box: 20 Pcs

**+** Self-inflating  
Silicone balloon  
Malleable stylet

**RETROGRADE CARDIOPLEGIA CANNULA  
PRESSURE DROP VS FLOW**

14 Fr



# Air aspiration needles




---


Needle length	Needle size	Reference
1,4 cm	16 G	CN16

---

## PRODUCT INFORMATION

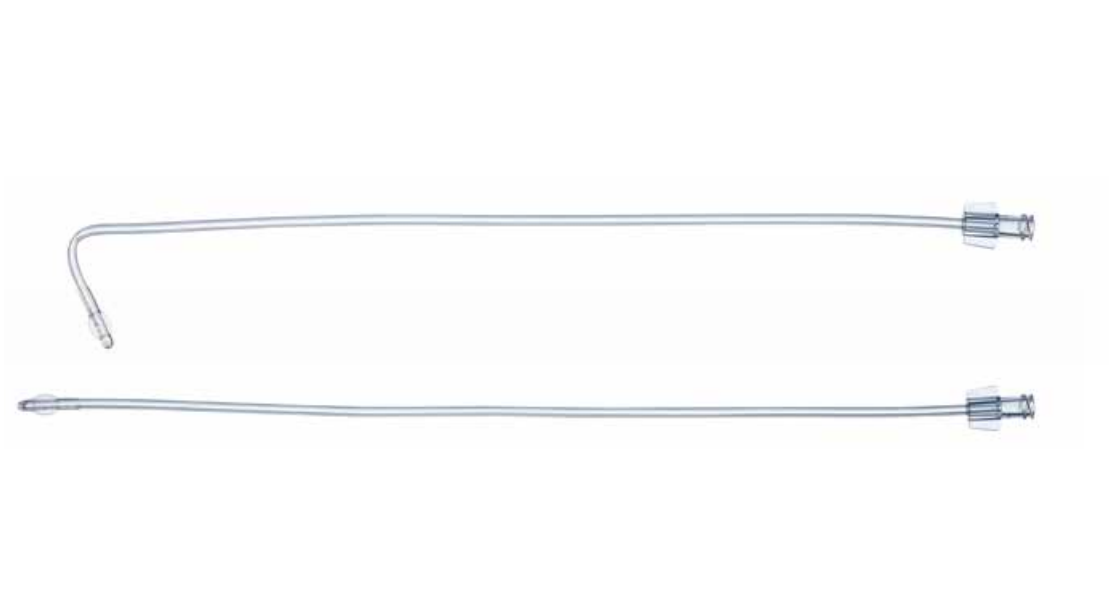
Andocor cardioplegia needles work as air aspirators and are intended for use in delivery of cardioplegia solution during cardiopulmonary bypass surgery.

 Length: 5 cm  
Qty/box: 20 Pcs

 Protective cap  
Stainless steel needle  
Luer lock connection

# Ostial perfusion cannulae

## CORONARY ARTERY OSTIAL CANNULA WITH BALLOON



Balloon size	Tip size	Curved	Straight
4 mm	2,1 mm	OC04A	OC04S
5 mm	2,1 mm	OC05A	OC05S
6 mm	3 mm	OC06A	OC06S
7 mm	3 mm	OC07A	OC07S
8 mm	3,5 mm	OC08A	OC08S

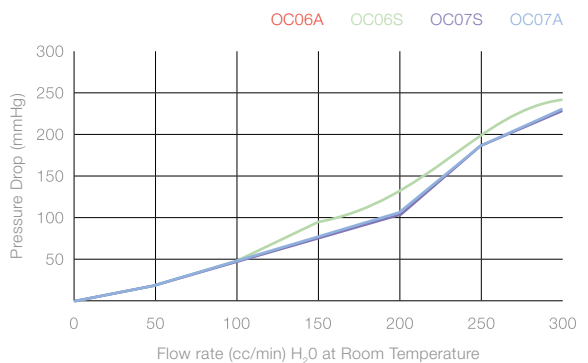
### PRODUCT INFORMATION

Andocor ostial perfusion cannulae are intended for use in delivery of cardioplegia solution directly to the coronary arteries during cardiopulmonary bypass surgery.

**Q** Connection: Female luer lock  
 Length: 30 cm  
 Qty/box: 20 Pcs

**+** Self-inflating silicone balloon  
 Female luer lock connection

### CORONARY ARTERY OSTIAL CANNULA PRESSURE DROP VS FLOW



# Ostial perfusion cannulae

CORONARY ARTERY OSTIAL CANNULA, BASKET TIP WITH FLANGE



Tip size	45° angled	90° angled
10 Fr	OC1045	OC1090
12 Fr	OC1245	OC1290
14 Fr	OC1445	OC1490

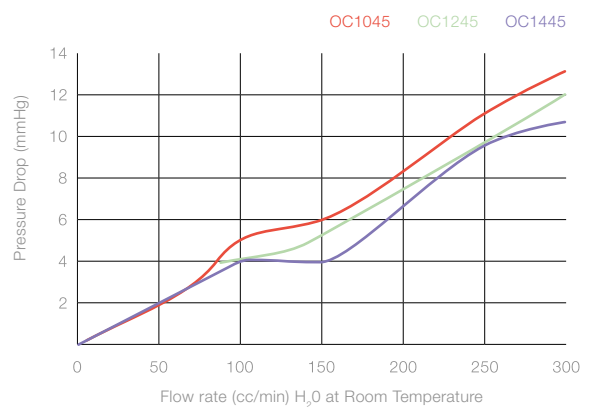
## PRODUCT INFORMATION

Andocor ostial perfusion cannulae are intended for use in delivery of cardioplegia solution directly to the coronary arteries during cardiopulmonary bypass surgery.

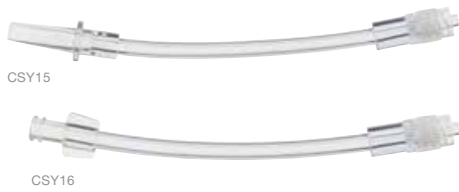
**Q** Connection: Female luer lock  
Length: 21 cm  
Qty/box: 20 Pcs

**+** Soft basket tip  
Different configurations  
Stainless steel shaft

## CORONARY ARTERY OSTIAL CANNULA PRESSURE DROP VS FLOW



# Cardioplegia adapters



## STRAIGHT ADAPTERS

Description	Tubing length	Reference
1/4" / male luer connection	10 cm	CSY15
Female / male luer connection	10 cm	CSY16

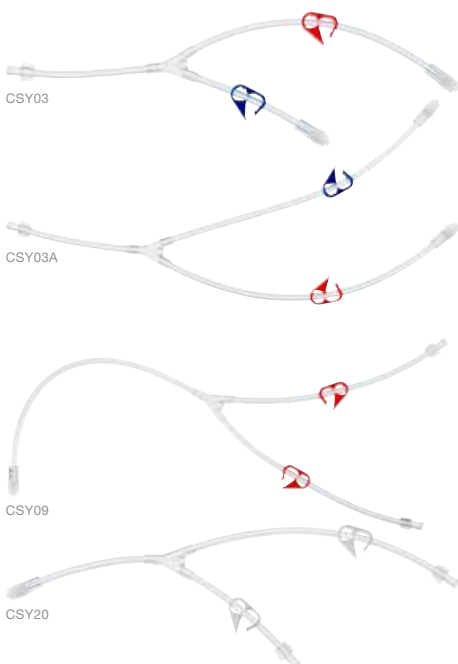


## PERFUSION ADAPTERS

Description	Length	Reference
1/4" to male luer connector	7 cm	CSY17
3/8" to male luer connector	7 cm	CSY18



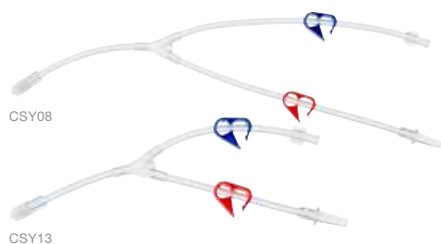
Description	Length	Reference
1/4" to male luer connector with stopcock	10 cm	CSY19



## PERFUSION Y-ADAPTERS

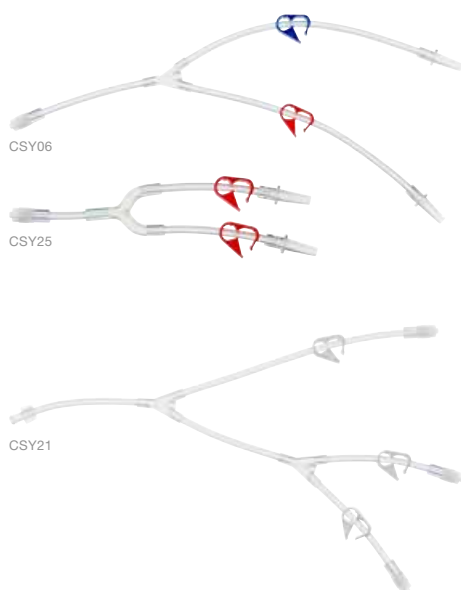
Description	Tubing length	Reference
Female luer lock in combination with 2 male luer lock connectors.	30 cm	CSY03
	35 cm	CSY03A

Description	Tubing length	Reference
Male luer lock in combination with 2 female luer lock connectors.	45 cm	CSY09
	30 cm	CSY20



PERFUSION SET WITH VENT LINE

Description	Tubing length	Reference
Male luer lock in combination with 1 female luer lock and 1 cone connector.	30 cm	CSY08
	18 cm	CSY13




PERFUSION RECIRCULATION ADAPTERS

Description	Tubing length	Reference
Male luer lock in combination with 2 cone connectors.	30 cm	CSY06
	13,5 cm	CSY25

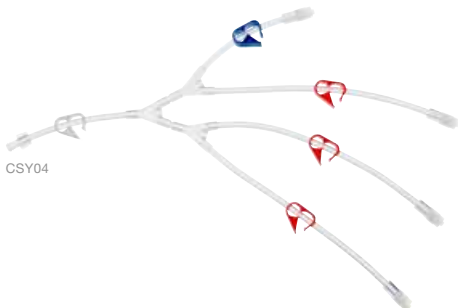
Description	Tubing length	Reference
Female luer lock in combination with 3 male luer lock connectors	30 cm	CSY21

PRODUCT INFORMATION

Andocor cardioplegia adapters connect to the aortic root cannula or vessel cannula and are intended for the delivery of cardioplegia solution or venting the heart during cardiopulmonary bypass surgery.

 Qty/box: 20 Pcs

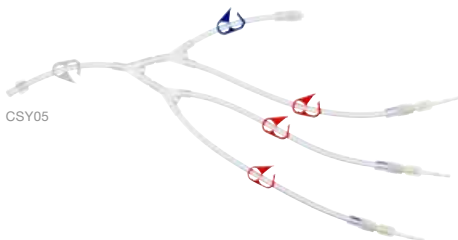
# Cardioplegia adapters



CSY04

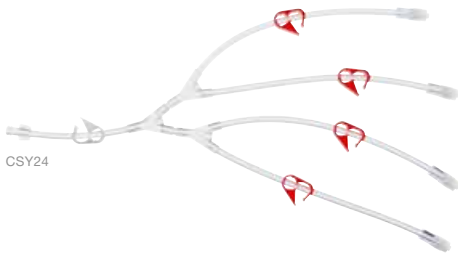
## MULTIPLE PERFUSION ADAPTER FOR AORTIC ROOT AND THREE VEIN GRAFTS

Tubing length: 32 cm	Reference
Female luer lock in combination with 4 male luer lock connectors	CSY04



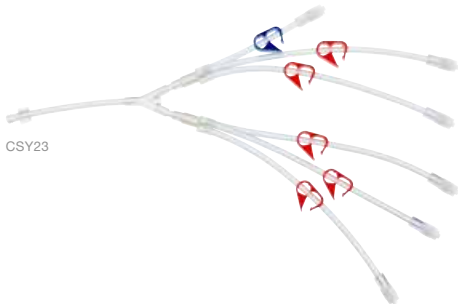
CSY05

Tubing length: 32 cm	Reference
Female luer lock in combination with 4 male luer lock connectors with 3 attached vessel cannula	CSY05



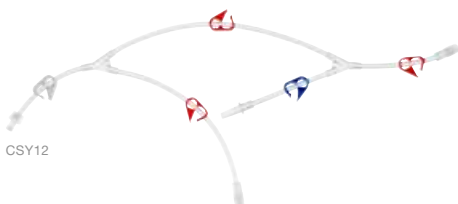
CSY24

Tubing length: 32 cm	Reference
Female luer lock in combination of 4 male luer lock connectors	CSY24



CSY23

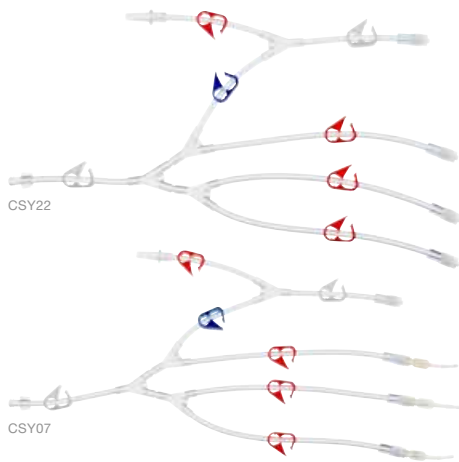
Tubing length: 32 cm	Reference
Female luer lock in combination with 6 male luer lock connectors	CSY23



CSY12

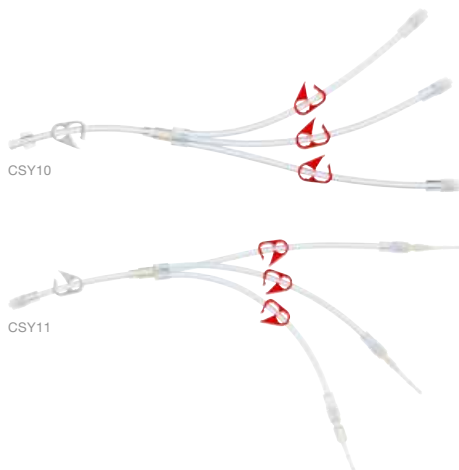
## MULTIPLE PERFUSION ADAPTER FOR RETROGRADE AND AORTIC ROOT WITH VENT LINE

Tubing length: 45 cm	Reference
Female luer lock in combination with 2 male luer lock connectors and cone connector	CSY12



MULTIPLE PERFUSION ADAPTER WITH VENT LINE

Tubing length: 32 cm	Reference
Female luer lock in combination with 4 male luer lock connectors and cone connector	CSY22
Tubing length: 32 cm	Reference
Female luer lock in combination with 4 male luer lock connectors with 3 attached vessel cannula and cone connector	CSY07



MULTIPLE PERFUSION SET FOR THREE VEIN GRAFTS

Tubing length: 30 cm	Reference
Female luer lock in combination with 4 male luer lock connectors and cone connector	CSY10
Tubing length: 30 cm	Reference
Male luer lock in combination with 3 male luer lock connectors with attached vessel cannula	CSY11

PRODUCT INFORMATION

Andocor cardioplegia adapters connect to the aortic root cannula or vessel cannula and are intended for the delivery of cardioplegia solution or venting the heart during cardiopulmonary bypass surgery.

 Qty/box: 20 Pcs

# 3

---

# Paediatric cannulae

## Index

- 30 Paediatric arterial cannulae
- 31 Paediatric venous cannulae

# Paediatric arterial cannulae

REINFORCED WITH 90° METAL TIP



**PRODUCT INFORMATION**

**BODY LENGTH: 23 CM**

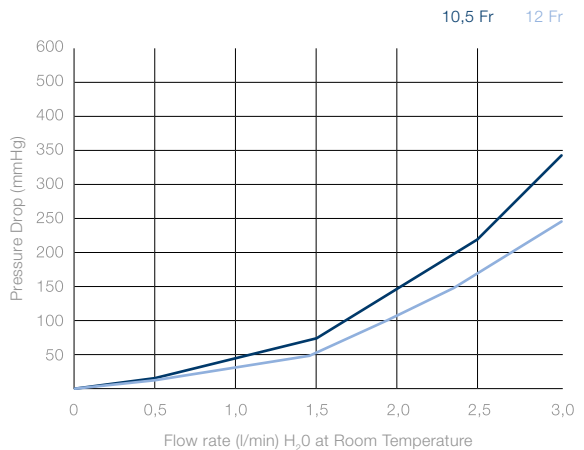
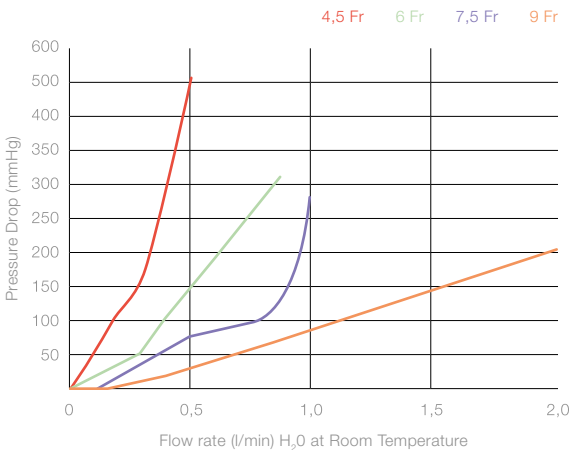
Andocor paediatric arterial cannulae are intended for perfusion of the ascending aorta during cardiopulmonary bypass surgery up to six hours or less.

**Q** Connection: 3/16" - 1/4"  
Qty/box: 20 Pcs

**+** Kink resistant wire reinforced PVC tubing  
Steel tip with thin wall for high flow rates

Description	Size	With vent plug
90° metal tip	4,5 Fr	AP04519V
	6 Fr	AP06019V
	7,5 Fr	AP07519V
	9 Fr	AP09019V
	10,5 Fr	AP10519V
	12 Fr	AP12019V

**METAL TIP ARTERIAL CANNULA PRESSURE DROP VS FLOW**



# Paediatric venous cannulae

REINFORCED WITH 90° METAL TIP



PRODUCT INFORMATION

BODY LENGTH: 35 CM

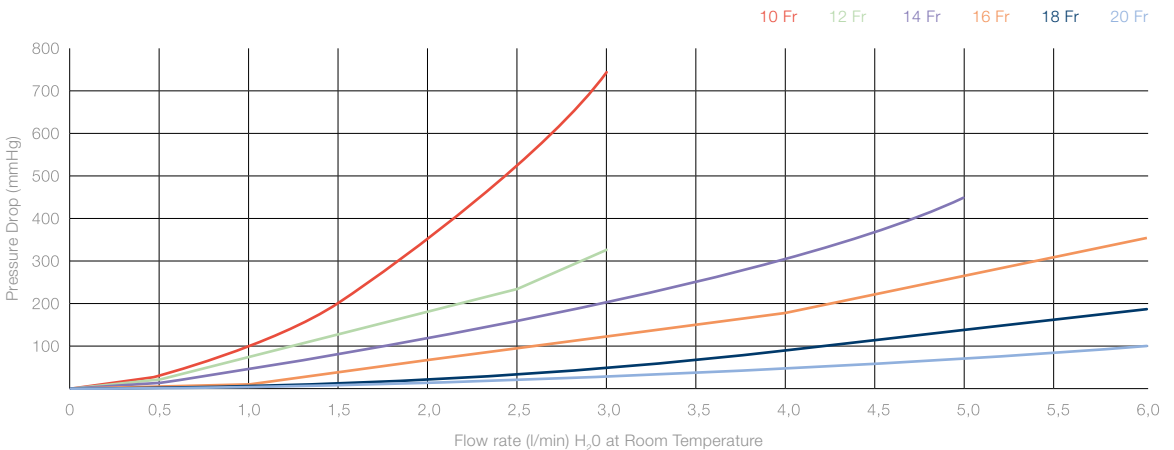
Andocor paediatric venous cannulae are intended for drainage from the superior and inferior vena cava during cardiopulmonary bypass surgery up to six hours or less.

**Q** Connection: 10-12 Fr: 3/16" - 1/4" | Other: 1/4"  
Qty/box: 20 Pcs

**+** Kink resistant wire reinforced PVC tubing  
Steel tip with thin wall for high flow rates  
Additional side holes for improved drainage

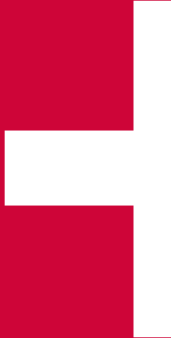
Description	Size	Reference
90° metal tip	10 Fr	01V101L7
	12 Fr	01V121L7
	14 Fr	01V141L7
	16 Fr	01V161L7
	18 Fr	01V181L7
	20 Fr	01V201L7

METAL TIP VENOUS CANNULA PRESSURE DROP VS FLOW



# 4

# Vent catheters



## Index

- 34 PVC vent catheters
- 37 Silicone vent catheters

# PVC vent catheters

ANGLED



TUBING LENGTH: 32 CM

TUBING LENGTH: 34 CM

Description	Size	Tip perforation size 3,8 cm	Tip perforation size 10 cm
		Without stylet	13 Fr
	20 Fr	-	PVBA20

## PRODUCT INFORMATION

Andocor vent catheters are medical devices to decompress or vent the heart during cardiopulmonary bypass cannulation. Vent catheters are used as a suction catheter to assist in the complete evacuation of blood.



Connection: 1/4"  
Qty/box: 20 Pcs



Kink resistant reinforced tubing  
Insertion dept marker

# PVC vent catheters

STRAIGHT, OPEN TIP



TUBING LENGTH: 32 CM

Description	Size	Tip perforation size			
		2,5 cm	6 cm	8 cm	9 cm
Type A Without stylet	17 Fr	PVSO170	PVSO171	-	PVSO172
	18 Fr	PVSO180	PVSO181	-	PVSO182
Type B With plastic stylet	17 Fr	PVSOR170	PVSOR171	PVSOR173	PVSOR172
	18 Fr	PVSOR180	PVSOR181	-	PVSOR182
Type C With guidewire stylet	17 Fr	-	PVSOG171	-	-
	18 Fr	-	PVSOG181	-	-

# PVC vent catheters

STRAIGHT, CLOSED TIP



Type A



Type B



Type C

TUBING LENGTH: 32 CM

Description	Size	Tip perforation size			
		2,5 cm	3,8 cm	6 cm	9 cm
Type A Without stylet	13 Fr	-	PVSB134	-	-
	18 Fr	PVSB180	-	PVSB181	PVSB182
	20 Fr	-	-	PVSB201	-
Type B With plastic stylet	17 Fr	PVSBR170	-	PVSBR171	PVSBR172
	18 Fr	PVSBR180	-	PVSBR181	PVSBR182
	20 Fr	-	-	PVSBR201	-
Type C With guidewire stylet	13 Fr	-	PVSBG134	-	-
	17 Fr	PVSBG170	-	PVSBG171	PVSBG172
	18 Fr	PVSBG180	-	PVSBG181	PVSBG182
	20 Fr	-	-	PVSBG201	-

# Silicone vent catheters



Size	Tip perforation size	Length	Reference
16 Fr	6,5 cm	38 cm	SV16
20 Fr	7,2 cm	39 cm	SV20

## PRODUCT INFORMATION

Andocor vent catheters are medical devices to decompress or vent the heart during cardiopulmonary bypass cannulation. Vent catheters are used as a suction catheter to assist in the complete evacuation of blood.



Connection: 1/4"  
Qty/box: 20 Pcs



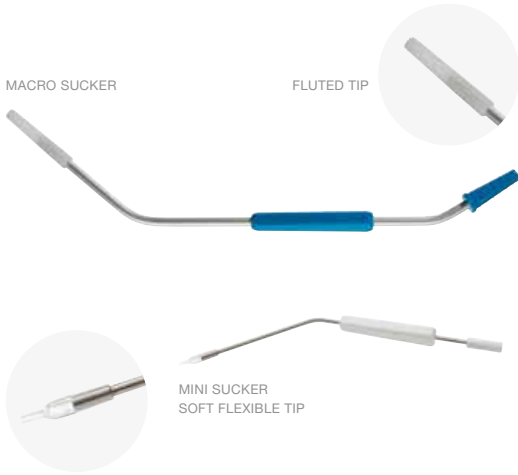
Guidewire stylet  
Soft and flexible silicone tubing  
Soft tip

# 5

# Suckers

## Index

- 40 Rigid sucker
- 40 Flexible and malleable suckers
- 40 Yankauer suction tubes
- 41 Pericardial sumps
- 42 Thoracic drains



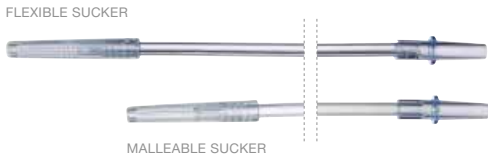
RIGID SUCKER

Tip	Length	Reference
Macro sucker	36 cm	RS01
Mini sucker	25 cm	RS02

PRODUCT INFORMATION

Andocor suckers are used for the removal of excess fluid from the surgical field.

- Q** Connection: 1/4"  
Qty/box: 20 Pcs
- +** Metal suction tube with plastic handle  
Easy and comfortable directing



FLEXIBLE AND MALLEABLE SUCKERS

Tubing	Size	Length	Reference
Flexible	17 Fr	36 cm	FS300
Malleable	17 Fr	25 cm	FS301

PRODUCT INFORMATION

Andocor suckers are used for the removal of excess fluid from the surgical field.

- Q** Connection: 1/4"  
Qty/box: 20 Pcs
- +** Provides continuous suction  
Flexible or malleable tubing



YANKAUER SUCTION TUBES

Tubing	Length	Open tip 22 Fr	Bulb tip 30 Fr
Vented	25 cm	ST04	ST02
Non-vented	25 cm	ST03	ST01

PRODUCT INFORMATION

Andocor yankauer suction tubes are intended to aspirate body waste fluid during surgery.

- Q** Connection: 1/4"  
Qty/box: 20 Pcs

# Pericardial sumps



Type A



Type B




Type C

Description	Size	Tubing	Tip length	Tubing length	Reference
Type A Metal tip	18 Fr	Flexible	2 cm	30 cm	PS40M
	18 Fr	Hard	2 cm	30 cm	PS40MH
	18 Fr	Flexible	2 cm	79 cm	PS40ML
	18 Fr	Hard	2 cm	79 cm	PS40MLH
Type B Perforated pool tip	23 Fr	Flexible	3,5 cm	30 cm	PS40M1
Type C Perforated pool tip	15 Fr	Flexible	2 cm	30 cm	PS40M2
	15 Fr	Hard	2 cm	79 cm	PS40MLH2

## PRODUCT INFORMATION

Andocor suckers are used for the removal of excess fluid from the surgical field.

 Connection: 1/4"  
Qty/box: 20 Pcs

 Smooth design  
Weighted tip  
Stainless steel tip

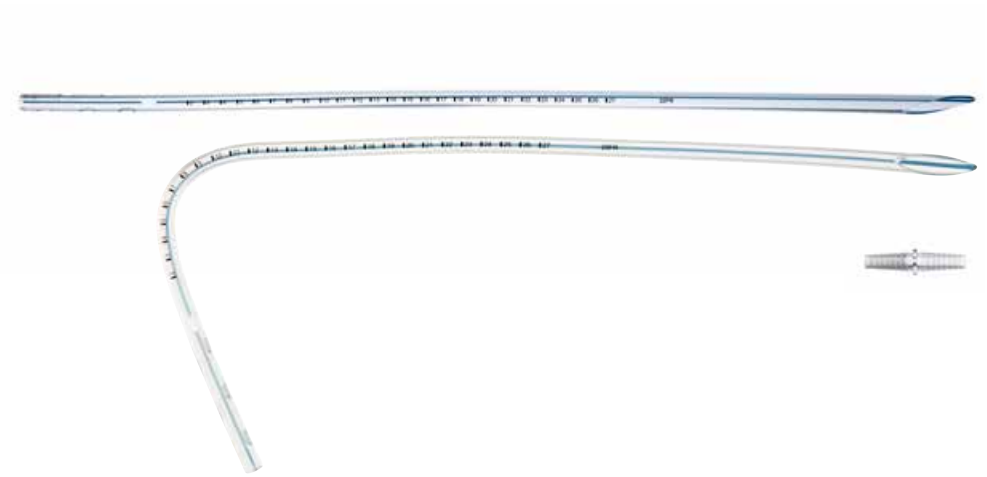
## WIREWOUND TIP

Description	Size	Tubing	Tip length	Tubing length	Reference
Wirewound tip	16 Fr	Flexible	4 cm	30 cm	PS40



# Thoracic drains

## HARD TUBING



Description	Size	Without connector	With connector
Right angled	20 Fr	TC20B	TC20BC
	24 Fr	TC24B	TC24BC
	28 Fr	TC28B	TC28BC
	32 Fr	TC32B	TC32BC
Straight	20 Fr	TC20S	TC20SC
	24 Fr	TC24S	TC24SC
	28 Fr	TC28S	TC28SC
	32 Fr	TC32S	TC32SC

### PRODUCT INFORMATION

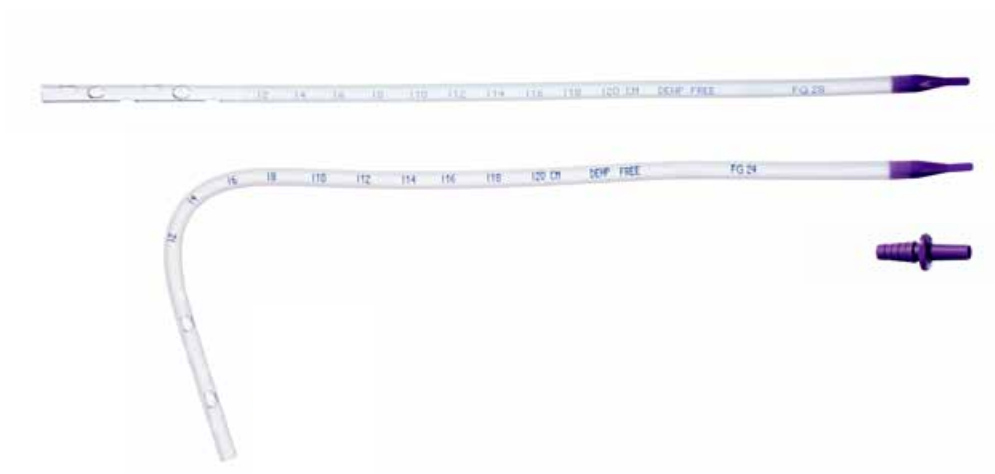
Andocor thoracic drainage catheters are intended for the removal of air or fluid from the intrathoracic space. The smooth bevelled connection site facilitates the insertion. They are constructed of a clear and kink-resistant PVC tubing. Can be provided with a matching size connector for connection to the drainage system.

**Q** Length: 58 cm  
 Connection: For 20-24 Fr 1/4", for 28-32 Fr 3/8"  
 Qty/box: 20 Pcs

**+** Kink resistant PVC tubing  
 Side holes and open rounded tip on distal end  
 Depth markings and radiopaque stripe

# Thoracic drains

## SOFT TUBING



Description	Size	With connector
Right angled	20 Fr	TCS20B
	24 Fr	TCS24B
	28 Fr	TCS28B
	32 Fr	TCS32B
Straight	20 Fr	TCS20S
	24 Fr	TCS24S
	28 Fr	TCS28S
	32 Fr	TCS32S

### PRODUCT INFORMATION

Andocor thoracic drainage catheters are intended for the removal of air or fluid from the intrathoracic space. The tapered tongue at the proximal end facilitates the insertion. They are constructed of a frosted and kink-resistant PVC tubing. Provided with matching size connector for connection to the drainage system.

**Q** Length: 45 cm  
Qty/box: 20 Pcs

**+** Kink resistant PVC tubing  
Side holes and open rounded tip on distal end  
Depth markings and radiopaque stripe

# 6

# Gas diffusers



# Gas diffusers



Description	Configuration	Tubing length	Reference
Malleable tubing: 40 cm	Standard	225 cm	GAS225
	Long	325 cm	GAS225L
	Double packed	225 cm	GAS225DP
	Without filter	200 cm	GAS225W
Flexible tubing: 30 cm	Standard	225 cm	GAS225F

## PRODUCT INFORMATION

Andocor gas diffuser is a medical device for intraoperative wound ventilation with CO<sub>2</sub> to prevent air embolism and bacteriological contamination during surgery. By creating a continuous flow of CO<sub>2</sub> in the intraoperative wound, air and bacteriological particles are removed.

**Q** Connection: 1/4" on proximal end  
 Qty/box: 20 Pcs  
 10 Pcs for GAS225L and GAS225L1

**+** Innovative microporous diffuser tip  
 Hydrophobic diffuser tip remains functional even when wet  
 Bacterial filter  
 Malleable section allows precise placement  
 Flanged tip directs gas into patient

## SPECIAL CONFIGURATION

Description	Tubing length	Reference
With connector	325 cm	GAS225L1

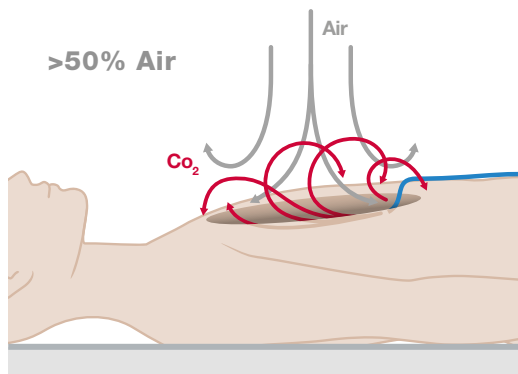
**+** The PMC Coupling insert 1/4" (male) connector facilitates correct connection to the CO<sub>2</sub> wall port.

THE ANDOCOR GAS DIFFUSER CAN BE USED FOR ALL OPEN HEART SURGERY PROCEDURES TO REDUCE THE RISK OF AIR EMBOLISM.

**HYDROPHOBIC  
DIFFUSER TIP**

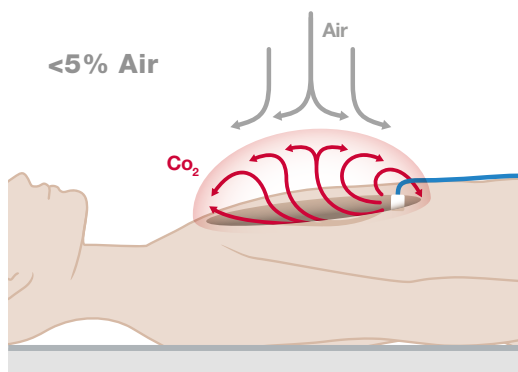


The hydrophobic diffuser tip offers smooth diffusion of CO<sub>2</sub>. The small pores ensure that the carbon dioxide is diffused over the majority of its surface, avoiding any risk of turbulence. The technology of the tip ensures high CO<sub>2</sub> concentration in the thoracic wound area, reducing the risk of contamination.



**CO<sub>2</sub> DIFFUSION WITH  
MULTI-PERFORATED DRAIN**

- Turbulence: gas spray
- Entrainment of air
- 100% CO<sub>2</sub> unlikely



**ANDOCOR'S GAS DIFFUSER  
WITH DIFFUSER TIP**

- Laminar flow: fills bottom to top
- Air pushed away
- 100% CO<sub>2</sub> with sufficient flow

5 L/min on tube = >95% CO<sub>2</sub> in the thorax

# 7

# Hemoconcentrators



# Hemoconcentrators



Technical features	03HC0250 03HP0250	03HC0600 03HP0600	03HC0900 03HP0900	03HC1000 03HP1000	03HP1500
Intended use	Paediatric	Adult	Adult	Adult	Adult
Hollow fiber material	Polyethersulfone				
Membrane area	0,3 m <sup>2</sup>	0,7 m <sup>2</sup>	0,9 m <sup>2</sup>	1,2 m <sup>2</sup>	1,5 m <sup>2</sup>
Fiber wall thickness	30 µm	30 µm	30 µm	30 µm	30 µm
Fiber internal diameter	200 µm	200 µm	200 µm	200 µm	200 µm
Priming blood volume	21 ml	49 ml	57 ml	75 ml	87 ml
Max transmembrane pressure	600 mmHg				
Cartridge Blood Connectors	Twist Lock				
Potting compound	Polyurethane				
KUF (ml/h/mmHg)	14	32	41	55	63
Unit length	180 mm	180 mm	180 mm	265 mm	265 mm

## PRODUCT INFORMATION

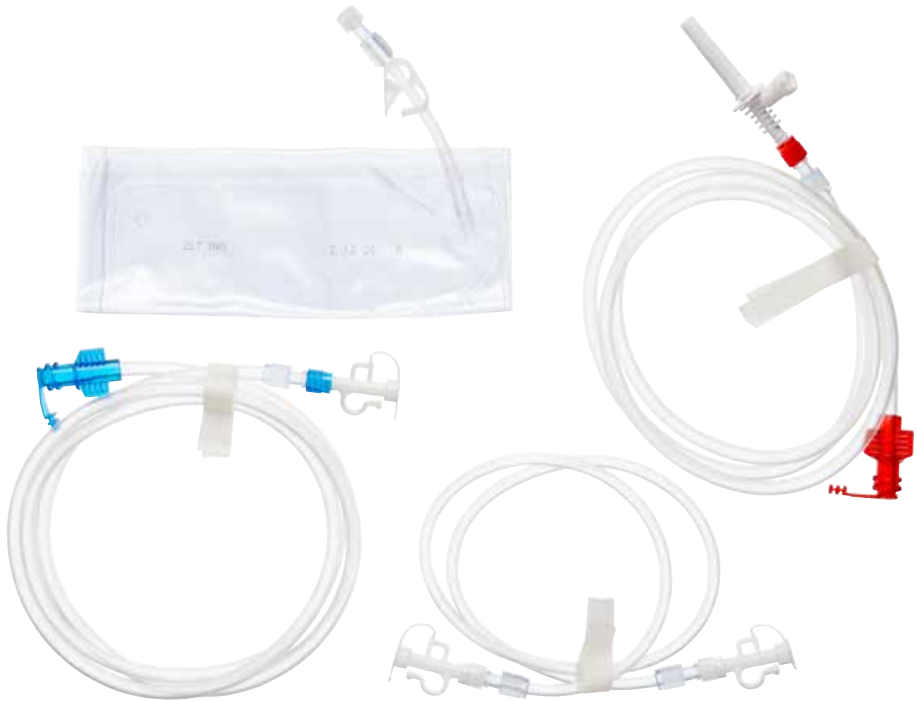
Andocor hemoconcentration filters are intended to relieve or mitigate overhydration in patients undergoing cardiopulmonary procedures and to increase concentrations of cells and proteins in the blood.

**+** Pre-rinsed and non-rinsed filter  
Standard or custom-made blood lines



Connection: Female luer lock

Qty/box	Non-rinsed	Pre-rinsed
10 Pcs	03HC0250	03HP0250
6 Pcs	03HC0600	03HP0600
6 Pcs	03HC0900	03HP0900
6 Pcs	03HC1000	03HP1000
6 Pcs		03HP1500



Tubing sets	Qty/box	Reference
Tubing set for hemoconcentrator HC0250/HC0600/HC01000	40	03HCS001
Set for hemoconcentrator HP1000 - preconnected	20	03HP1000PC
Set for hemoconcentrator HC1000 - not preconnected	20	03HC1000P

# 8

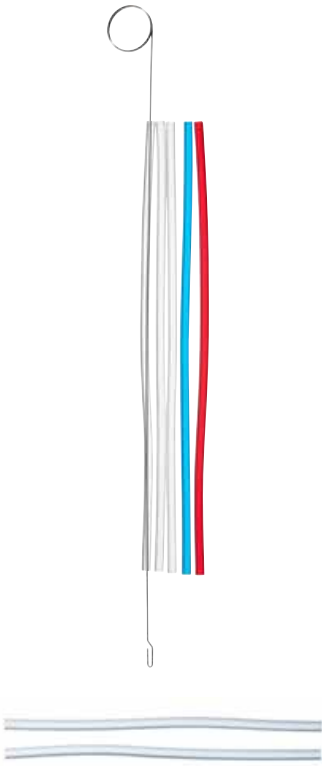
---

# Accessories

## Index

- 54 Tourniquet sets
- 55 Connectors
- 56 Porous vent plugs
- 56 Vented connector caps
- 56 Vessel cannulae
- 56 Quick prime lines
- 57 Pressure monitoring lines
- 57 Tubing organizers
- 57 Suture organizers
- 58 Blowers/mister

# Tourniquet sets



## CANNULATION TOURNIQUET SET

Description	Snare	Red tube	Blue tube	Clear tube	Reference
Tube size: 11 Fr Tube length: 17 cm Snare length: 25 cm	1	1	1	3	CT01
	1	1	2	3	CT02
	2	1	2	5	CT03
	1	1	1	-	CT04
	1	2	1	-	CT05
	2	2	2	4	CT06
	2	4	2	2	CT07
	1	5	-	-	CT08
	1	-	-	3	CT09

### PRODUCT INFORMATION

Andocor cannulation tourniquet sets are used to secure arterial and venous cannulae during cardiopulmonary bypass.

**Q** Tubing: flexible PVC  
Qty/box: 20 Pcs

	Clear Tube	
Tube size: 21 Fr, Tube length: 20 cm	2	CT10

## VASCULAR TOURNIQUET SET



PVC Tube with plug on one end	Plastic snare	Umbilical tapes	Reference
2	2	2	VT01

### PRODUCT INFORMATION

The Andocor vascular tourniquet set is an accessory product during cardiopulmonary bypass procedures. It is intended for securing cardiopulmonary bypass cannulae.

**Q** PVC tube length: 12 cm  
Qty/box: 20 Pcs

# Connectors


## STRAIGHT CONNECTORS



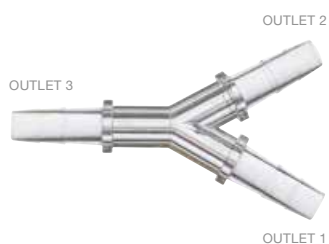
Outlet 1	Outlet 2	Without luer connector	With luer connector
1/2"	1/2"	04CS001	04CS0012
3/8"	3/8"	04CS002	04CS0022
1/4"	1/4"	04CS003	04CS0032
3/8"	1/2"	04CS004	04CS0042
1/4"	3/8"	04CS005	04CS0052
3/16"	1/4"	04CS006	04CS0062
3/16"	3/16"	04CS007	04CS0072
3/8"	3/16"	04CS008	-

### PRODUCT INFORMATION

Andocor connectors are accessories for the connection of cannulae to the extracorporeal cardiopulmonary bypass system and to connect tubing.

 Qty/box: 20 Pcs

## Y-CONNECTORS



Outlet 1	Outlet 2	Outlet 3	Without luer connector	With luer connector
3/8"	3/8"	3/8"	04CY001	04CY0012
1/4"	1/4"	1/4"	04CY002	04CY0022
3/8"	3/8"	1/2"	04CY003	-
1/4"	1/4"	3/8"	04CY004	-
1/2"	1/2"	1/2"	04CY005	-
3/8"	1/4"	3/8"	04CY006	-
1/2"	1/4"	1/2"	04CY007	-
3/16"	3/16"	3/16"	04CY008	-
1/4"	1/4"	1/2"	04CY009	-

### PRODUCT INFORMATION

Andocor connectors are accessories for the connection of cannulae to the extracorporeal cardiopulmonary bypass system and to connect tubing.

 Qty/box: 20 Pcs

POROUS VENT PLUGS



Connection	QTY/Box	Reference
1/4"	40	VP14
3/8"	40	VP38

VENTED CONNECTOR CAPS



Connection	QTY/Box	Reference
3/8"	40	VCC01


VESSEL CANNULAE



Description	Configuration	Length	Standard
Transparent flexible	Standard	5 cm	VC3
	Closed back check valve	6,5 cm	VC3B
White rigid	Standard	5 cm	VC04

PRODUCT INFORMATION

Andocor vessel cannulae are used to help check for leaks in a harvested vein that will be used in a graft with sterile saline solution. Additionally, the vessel cannula can be used for antegrade cardioplegia administration.

 Connection: Female luer connector  
Qty/box: 40 Pcs

QUICK PRIME LINES



Length	QTY/Box	Reference
100 cm	20	QPL100

PRODUCT INFORMATION

Andocor quick prime lines facilitate the transfer of fluids during the priming of the extracorporeal circuit.



## PRESSURE MONITORING LINES



Pressure	Connection	Reference
800 psi	Male/Male	PML180MM
800 psi	Male/Female	PML180MF

### PRODUCT INFORMATION

Andocor pressure monitoring lines are used for extending medical tubing and pressure monitoring.

**Q** Length: 180 cm  
Qty/box: 20 Pcs

## TUBING ORGANIZERS



Slots and type	Length	QTY/Box	Reference
1 slot for tube 1/8" 6 slots for tube 1/4" 2 slots for tube 3/8" 1 slot for tube 1/2"	20 cm	10	TO10

## SUTURE ORGANIZERS



	A&B slots	Length	Qty/pouch	Reference
Small	4	12 cm	4	SO08
Standard	8	21 cm	3	SO16

### PRODUCT INFORMATION

Suture Organizers enable comfortable and organized access to sutures in heart valve surgery. The suture material stays organized and is ready for immediate use.

**Q** Qty/box: 4 pouches

- +** For heart valve surgery
- For aortic and mitral valve reconstruction
- Quickly organizes and secures sutures
- Quick counting and facilitates sorting
- A & B slots prevent entanglement and reduce clutter



## BLOWER/MISTER

Shaft length	Reference
15 cm	BM001

### PRODUCT INFORMATION

The Andocor blower/mister is intended for clearing a wound or surgical site by non-contact means for improved visibility at the site.

- Q
 Tubing length: 320 cm  
 Qty/box: 10 Pcs
- +
 Plastic handle and malleable shaft for easy positioning  
 Soft distal tip  
 Roller and clamp to adjust the flow  
 Slip connector for connection to gas source





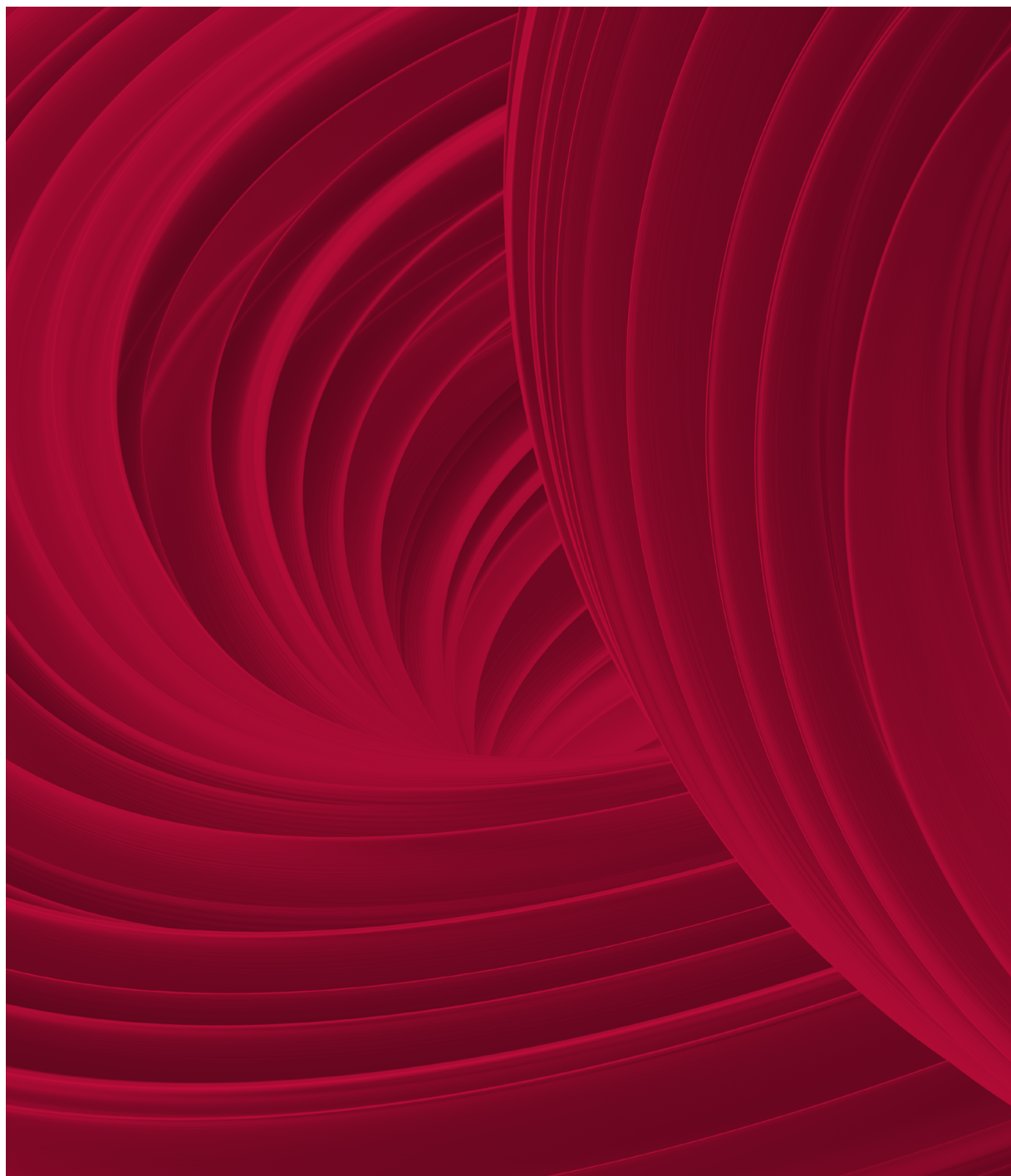




KWIKAAARD 104  
2980 ZOERSEL  
BELGIUM

T +32 (0)3 380 15 95  
INFO@ANDOCOR.COM

[WWW.ANDOCOR.COM](http://WWW.ANDOCOR.COM)



Gruppo

**MEDICA**

Group

# HEMOCONCENTRATORS



# HEMOCONCENTRATORS

## FEMALE LUER LOCK FILTRATE CONNECTION

TECHNICAL FEATURES	DP03HC	DP07HC	DP09HC	DP12HC	DP15HC
Intended Use	Paediatric	Adult	Adult	Adult	Adult
Hollow fiber Material/Cut Off	HIGH FLUX <b>PUREMA</b>				
Membrane Area (m <sup>2</sup> )	0.3	0.7	0.9	1.2	1.5
Fiber internal diameter (µm)	200	200	200	200	200
Fiber external diameter (µm)	260	260	260	260	260
Fiber Wall thickness (µm)	30	30	30	30	30
Fiber length (mm)	140	140	140	225	225
Number of fibers	3.600	9.300	11.000	9.300	11.000
Filter housing internal diameter (mm)	24	38	38	38	38
Priming blood volume (ml)	21	49	57	75	87
Max transmembrane pressure (mmHg)	600	600	600	600	600
Potting compound	Polyurethane				
Cartridge housing material	Polycarbonate (PC) / Copolyester - BPA Free				
Cartridge blood ports material	Polycarbonate (PC) / Copolyester - BPA Free				
Cartridge blood connectors	Twist Lock	Twist Lock	Twist Lock	Twist Lock	Twist Lock
Cartridge filtrate/dialysate connectors	Female Luer Lock				
Unit length (mm)	180	180	180	265	265
Ultrafiltration Rate** (ml/h/mmHg)	14	32	41	55	63
Product code ETO sterilised	M03957	M03958	M03959	M03960	M03961
Product code sterilised by irradiation	M03967	M03968	M03969	M03970	M03971
Packaging (q.ty/box)	10	6	6	6	6

Hemoconcentrators are used during cardiac bypass surgery to control hemodilution and hematocrit levels during the surgery procedure.

Medica manufactures a complete range of hemoconcentrators based on **PUREMA** membrane; The range includes the following models:

- DP03HC, DP07HC, DP09HC, DP12HC, DP15HC with FLL filtrate connection;
- DP60HC, DP120HC, DP150HC, DP190HC, DP230HC with HANSEN filtrate connection.

## HANSEN FILTRATE CONNECTION

TECHNICAL FEATURES	DP60HC	DP120HC	DP150HC	DP190HC	DP230HC
Intended Use	Adult	Adult	Adult	Adult	Adult
Hollow fiber Material/Cut Off	HIGH FLUX <b>PUREMA</b>				
Membrane Area (m <sup>2</sup> )	0.6	1.2	1.5	1.9	2.3
Fiber internal diameter (µm)	200	200	200	200	200
Fiber external diameter (µm)	260	260	260	260	260
Fiber Wall thickness (µm)	30	30	30	30	30
Fiber length (mm)	140	260	260	260	260
Number of fibers	7.200	7.200	9.300	11.800	14.400
Filter housing internal diameter (mm)	32	32	36	40	44
Priming blood volume (ml)	39	69	87	115	133
Max transmembrane pressure (mmHg)	600	600	600	600	600
Potting compound	Polyurethane				
Cartridge housing material	Polycarbonate (PC) / Copolyester - BPA Free				
Cartridge blood ports material	Polycarbonate (PC) / Copolyester - BPA Free				
Cartridge blood connectors	Twist Lock	Twist Lock	Twist Lock	Twist Lock	Twist Lock
Cartridge filtrate/dialysate connectors	Hansen				
Unit length (mm)	180	300	300	300	300
Ultrafiltration Rate** (ml/h/mmHg)	28	55	63	75	87
Product code ETO sterilised	M03962	M03963	M03964	M03965	M03966
Product code sterilised by irradiation	M03972	M03973	M03974	M03975	M03976
Packaging (q.ty/box)	10	28	28	20	20

Medica Hemoconcentrators Are available pre-rinsed to avoid the priming procedure.

Furthermore, based on the available hemoconcentrators Medica manufactures complete preassembled hemoconcentration tubing sets.

\*\*Average UF rate 42 ml/h/mmHg/m<sup>2</sup> (for albumin solution)

**PUREMA** is a registered trademark of Membrana GmbH

Technical features are subject to change without prior notice. This document does not have contractual value

Manufactured by:

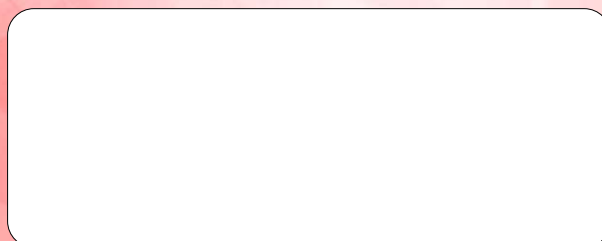
# MEDICA

MEDICA S.p.A.  
Via degli Artigiani, 7  
I - 41036 Medolla  
(Modena) Italy  
Phone +39 0535 51159  
Fax +39 0535 52605  
info@medica.it  
www.medica.it



UNI EN ISO 9001:2008  
UNI CEI EN ISO 13485:2012

Distributed by:



MZ7076 rev.05 ME140514B

Flexible Solutions for all of your  
Cardiopulmonary Bypass  
Procedures



*The story of Spectrum Medical is now 20 years old and our total commitment to the care of our critically ill patients can be seen in every single one of our revolutionary technologies described within this brochure. Nothing is compromised, no technology is ever considered complete, and minor details matter in the pursuit of CPB perfection.*

*At Spectrum Medical we have one goal and that is to be your “trusted partner” both clinically and commercially. We understand that our new technologies do push the envelope, they do question current clinical practise and therefore, they drive new learning opportunities. Additionally, it is self-evident that for this process to work successfully a traditional vendor mentality by both parties is simply not fit for purpose.*

*In this brochure, we present to you three critical technologies as a unified solution. We begin the journey as a trusted partner and together we can change the current status quo and take patient safety, patient outcomes and healthcare efficiency to the next level.*

*At Spectrum Medical we are proud of where we started all those years ago with the development of non-invasive SO<sub>2</sub> technology to being a full solutions provider today. We have proven that CPB is an exciting place to integrate ground-breaking technology and Spectrum Medical is dedicated to its future.*

*Yours Sincerely,  
Steve Turner  
C.E.O & Founder*

# Quantum Perfusion Technologies

The ultimate representation of Performance,  
Functionality and Ease of use.



# Quantum Perfusion Systems for the O.R.

Spectrum Medical proudly presents a modular range of Quantum Perfusion Modules and Patient Safety Systems for a wide range of ECLS procedures used in Cardiopulmonary Bypass.



The New York HLM Frame



The Cheltenham HLM Frame

# Quantum Space Frame Technology

Committed to Clinical Ergonomics and patient-centric solutions.

- The robust and compact Stainless Steel Space Frame construction improves usability by significantly reducing both footprint and weight. The independent placement of system modules allows fine-tuning of overall ergonomics, which leads to improved patient focus and safety.
- The compact modular design and customization opportunities offer an unprecedented degree of flexibility in the optimization of perfusion circuits focused on lowering hemodilution for improved patient outcomes.
- Integrated into the Stainless Steel Space Frame is the Quantum Power Management Module with approximately four hours of battery life. The Power Management Module can support a maximum of fifteen Quantum Modules.
- All power management cabling is contained within the stainless steel frame to improve both ergonomics and system durability. Integrated software provides for efficient power regulation and auto-recognition of connected Quantum Modules.



The Cheltenham HLM Frame

# The Principles of Quantum Directed Perfusion (QDP)

Quantum Directed Perfusion (QDP) provides the next generation capabilities beyond basic Goal Directed Perfusion (GDP) techniques and the simplistic approach of measuring  $DO_2$ .

## Real-Time Diagnostics:

The starting point for QDP is the use of Spectrum Medical's non-invasive diagnostic technology for the measurement of Oxygen Delivery ( $DO_2$ ), Oxygen Consumption ( $VO_2$ ),  $CO_2$  Production ( $VCO_2$ ), and multiple other calculations and indices. The monitoring of real-time total Oxygen Deficit is an entirely new and critically important concept to the world of Perfusion. The Quantum technology displays the real-time reporting of total time and percentage of case time when actual  $DO_2$  is below target  $DO_2$ .



## Visualising Real-Time Information:

Spectrum Medical's Critical Care Scoring technology supports a proactive clinical risk assessment using recognized AKI markers such as age, gender, Pre-op Hct /Hb, EF, DM, and existing renal issues, and the subsequent deployment of an individual patient care strategy. Using Quantum Informatics and its LIVE VUE technology, patient care is improved with the seamless integration of "multiple information feeds" into a real-time display system.



## References

1. Alshaikh, et al. Financial Impact of Acute Kidney Injury After Cardiac Operations in the United States. *Ann Thoracic Surg.* 2018 Feb;105(2):469-475.
2. de Somer, et al.  $O_2$  Delivery and  $CO_2$  Production During Cardiopulmonary Bypass as Determinants of Acute Kidney Injury: Time for a Goal-Directed Perfusion Management? *Critical Care* 2011; 15:R192.

This multifaceted approach to QDP provides the clinical team with the methodologies to improve the quality of bypass management that can lead to the reduction of AKI, and the higher costs associated with extended I.C.U. Time. <sup>1,2,3,4</sup>



### Oxygen Deficit:

It is accepted that the potential of AKI is significantly increased with large  $DO_2$  deficits.<sup>4</sup> Calculating the Oxygen Deficit and then equating it to actual patient outcomes is a relatively straight forward process when using Spectrum Medical's Quantum Informatics technology.

The Quantum Directed Perfusion calculation of Oxygen Deficit is expressed as the total "Area Under the Curve", and is a product of the accumulation of an actual deficit value (target  $DO_2$  minus actual  $DO_2$ ) multiplied by a unit of time.

### Metabolic Compensation:

To further increase the precision of patient  $DO_2$  requirements Spectrum Medical includes the capability to apply a percentage reduction per degree C to reflect decreasing metabolic activity as patients are cooled during Cardiac Bypass Surgery. The reduction per degree C is fully programmable and dependent on hospital based protocols. For example, if a  $DO_2$  of 270mL/kg/m<sup>2</sup> at 37°C is the standard target and hospital protocols indicate a 7% / degree C as the change in Oxygen demand, the target  $DO_2$  would be 251mL/kg/m<sup>2</sup> when the patient is at 36° C.

#### References

3. Dasta JF, Kane-Gill SL, Durtschi AJ, et al. Costs and Outcomes of Acute Kidney Injury (AKI) Following Cardiac Surgery. *Nephrol Dial Transplant.* 2008;23:1970-1974.
4. Ranucci M, Romitti F, Isgro G, et al. Oxygen Delivery During Cardiopulmonary Bypass and Acute Renal Failure After Coronary Operations. *Ann Thorac Surg.* 2005;80:2213-20.

# The Family of Quantum Workstations

Your gateway into the management of the World's most advanced Perfusion Patient Safety System. Highly configurable, integrated software applications (Apps) and advanced Quantum Modules extend perfusion management and functionality well beyond today's conventional technologies.



15" Quantum Workstation with optional Pump Control Module

## The 15" Quantum Workstation

The 15" Quantum Workstation has been designed to support complex perfusion procedures utilized during Cardiac Surgery. Using its high-resolution touch screen technology the 15" Quantum Workstation supports the centralization of critical patient data, optional EMR generation and advanced perfusion management functions with single-level user navigation.

The 15" Quantum Workstation is supplied with Spectrum Medical's proven non-invasive measurement of O<sub>2</sub> Saturations and Hb/Hct and supports connectivity to a wide range of Quantum modules, including the Ventilation and Sensor modules.

Systems interoperability and patient safety are fundamental to Spectrum Medical and its commitment to partnering with customers to improve patient outcomes. The new 15" Quantum Workstation has an integrated 3<sup>rd</sup> party device connectivity solution that enables the central display and transfer of critical real-time continuous clinical information.



Quantum Pump Control Module

The system also includes a range of safety and best practice systems. Compliance is supported by the Best Practice App and patient safety through our Checklist and Complications Apps. Spectrum Medical's Live Vue technology and Critical Care Scoring systems functionality is available when the Quantum Workstation is network connected to a Quantum Informatics server installation.

## The Quantum Pump Control Module

The Quantum Pump Control Module provides complete manual support of your Quantum Perfusion System with functionality that includes alarm management, pump management and the delivery of cardioplegia.

# The Quantum Ventilation System

Finally, a fully integrated “single solution” Ventilator technology designed to provide the safe delivery of patient ventilation and the management of vacuum during Cardiopulmonary Bypass.



## The Quantum Ventilation System

The second-generation Quantum Ventilation System is a world first solution designed to manage extracorporeal patient ventilation including the blending of gases, the management of vacuum, integrated patient safety systems, perfusion diagnostics, delivered anaesthesia gas concentration and a calculated MAC value.

The ultra-compact Quantum Ventilation System employs the very latest gas blending technologies to provide the user with Atmospheric or Hypobaric patient ventilation capability.

In Atmospheric mode, the Quantum Ventilation System delivers precision regulated  $\text{FiO}_2$ ,  $\text{CO}_2$  with a sweep flow range from 0.025 to 10 L/m when flowing a single gas e.g.  $\text{O}_2$  and up to a maximum flow rate of 20 L/m when modulating the delivery of two gases. e.g. 60%  $\text{FiO}_2$ .

In Hypobaric mode, the Quantum Ventilation System regulates the delivery of two channels of  $\text{O}_2$  to Spectrum Medical's new Ventilator technology with a sweep flow range of 0.025 to 10L/m per channel.

To ensure system performance and safety the ventilation system has a fully integrated secondary monitoring system that continuously compares actual measured values with user defined set-points and activates an alarm when the discrepancy between the two systems is greater than 10%.

In 'Patient Ventilation Mode' the Quantum Ventilation System, combined with its patented  $\text{PaO}_2$  and  $\text{PaCO}_2$  measurement technologies, provides a

decision support capability and an auto regulation function for the modulation of gas flows and gas concentrations when setting  $\text{PaO}_2$  and  $\text{PaCO}_2$  target values. The Quantum Ventilation System provides precision modulation and monitoring of WAG and VAVD.

To further improve patient safety the Quantum Ventilation System provides real-time monitoring of the following gas-ventilation parameters:

- Incoming Supply Pressures of Air,  $\text{O}_2$ ,  $\text{CO}_2$ , & Vacuum Channels
- $\text{O}_2$  and  $\text{CO}_2$  Gas Concentrations & Pressures to the Oxygenator
- Overall Gas Flow to the oxygenator (SWEEP)
- $\text{CO}_2$  concentrations measured from the WAG line

Integrated within the Quantum Ventilation System is Spectrum Medical's full range of Non-Invasive Diagnostic and Calculated Physiologic Measurements.

To further improve usability, the system includes the measurement of Flow (including bubble detection), Pressure, Temperature and Reservoir Level Management.

The second-generation Ventilation System has been further modified to allow the hospital to connect to two independent vacuum sources for both WAG and VAVD. Furthermore, and to reduce routine servicing requirements, the system now includes a new "long-life"  $\text{O}_2$  measuring technology.

# The Quantum Centrifugal Pump CP37

The world's latest and most advanced Centrifugal Pump technology setting new standards for patient safety, hydraulic performance and hemolysis.

Spectrum Medical's next generation Quantum Centrifugal Pumps provide exceptional levels of performance along with significantly reduced prime volumes. The integration of a single sapphire bearing and patented hydro-dynamic balancing technology ensures levitation at low RPMs leading to significantly reduced heat generation and hemolysis.

The CP37 is integrated directly with the Quantum Perfusion System and can be connected to any port location within the Quantum Console to optimize the design of cardiopulmonary bypass circuits.



Quantum CP37 Hand Crank



Quantum CP37 Motor Drive

# Perfusion Roller Pump

A Quantum leap in usability and perfusion systems' functionality.



The compact range of Quantum direct drive peristaltic roller pumps are provided with 4", 6" and 8" raceway diameters which maximize both flexibility and compactness when optimizing HLM design. In particular, the introduction of the mid-range 6" pump option eliminates the current compromise that compels users to use 8" pumps in medium flow applications.

The Quantum Universal Clamping System supports the mounting of pumps into multiple locations and pump change times of less than 60 seconds. Importantly, Quantum's pump detection software eliminates user intervention when adding or exchanging pumps.

Smart LEDs enable visual identification of pump function and color coordination with both the Quantum Workstation and the Quantum Pump Control Module

Spectrum Medical's universal tube clamping system is designed to eliminate the frustration of using current tube clamping solutions and color coded plastic inserts. A single 'bobbin' solution allows for the clamping of all tubing diameters associated within the selected size of raceway.

# Intelligent Tube Occlusion

Enhancing patient safety with precision solutions for complex phases of care during cardiopulmonary bypass.



The Quantum Smart Occluder is a revolutionary new approach to the management of perfusion-tube occlusion during bypass surgery. The Quantum Smart Occluder replaces the guess-work associated with conventional technologies by utilizing precise user inputs for the setting of flow; a critical requirement during certain phases of care.

The introduction of closed-loop flow control ensures flow control within +/- 2% of the requested set point. System-wide communication allows the user to combine the Smart Occluder with other Quantum

Modules to deliver levels of functionality new to the world of Perfusion, such as automated Initiation, Weaning and RAP.

Continuing the Quantum philosophy of seeking to improve system ergonomics, wherever possible, the Smart Occluder module includes two channels of flow measurement and bubble detection, two channels of pressure measurement and a two position reservoir level detection system.

An interlocking lid, color-coded LEDs and a mechanical override system maximize system safety.

# The Quantum Sensor Module

Proven non-invasive measurement technologies provide flexible cost-effective management of Cardiopulmonary Bypass.



## The Quantum Sensor Module

The Quantum Sensor Module is designed to provide the complete range of perfusion circuit parameters required for the safe management of Cardiopulmonary Bypass and the measurement of DO<sub>2</sub>.

The sensor module includes:

- Three temperature measurements
- Three pressure measurements
- Three flow measurements (including emboli and bubble detection)
- A two-position reservoir level detection system

Offering complete flexibility, the Quantum Sensor Module can be connected directly to the Quantum Workstation or to any locations on the Quantum Perfusion Console.

Something New for 2022

## The Quantum Micro-Cardioplegia Delivery System



# Heater-Cooler Technologies

A new future in patient safety.



# The Mr. Frosty Patient Safety Strategy

A multi-level active patient safety strategy in a single system.

## A Multi-Level Patient Safety Strategy

Guidance issued by the world's Regulatory Authorities has confirmed that current water-based heater-cooler systems have the potential to infect patients with Mycobacterium Chimera. Significant investigatory work has been undertaken to develop cleaning protocols to improve patient safety. However, anecdotal evidence indicates that these protocols are often ineffective and short term at best.

A key principle within a risk mitigation strategy is that it is required to be active for the life cycle of the product. A contamination event can occur at any time which means that formulating a patient safety strategy on a fixed cleaning cycle will be problematic. This is further complicated by the simple fact that there is no continuous monitoring technology that can alert the user when a contamination event has occurred.

Therefore, an implemented risk management process must eliminate the need for regular cleaning cycles and is continuous in operation.

## The Mr. Frosty Patient Safety Strategy

The Spectrum Medical "Mr. Frosty" Heater-Cooler technology employs a multi-level safety strategy to minimize, if not eliminate, patient mortality rates associated with Mycobacterium Chimera infections.

### Level 1) A "base-level" Bio Static Capability

To achieve a "base-level" Biostatic capability i.e., creating an environment that stops the growth of Mycobacterium Chimera colonies, Spectrum Medical has selected Glycol for its Heat Transfer Fluid (HTF). Glycol is a well-accepted technology used in applications requiring a Biostatic capability.

### Level 2) A Mitigation Strategy in the event of Cross-Contamination

The Spectrum Medical solution is to reformulate its Biostatic HTF into a Biocidal HTF. This is accomplished with the addition of Monomeric Glutaraldehyde (MGA). Spectrum Medical has confirmed with long-term testing, equivalent to 6 years of clinical usage that Biocidal HTF performs in excess of Log 6 Reduction. Considering that for a fluid to be classified Biocidal, it needs to perform greater than Log 4 Reduction, this is a noteworthy achievement.

### Level 3) Containment

The concept of Containment is the ultimate risk mitigation strategy which assumes that Safety Levels 1 and 2 have failed i.e., Mycobacterium Chimera can be detected, living, in the HTF.

However, in the unlikely event that there is cross contamination, a critical question that must be answered is whether the Mycobacterium Chimera within the HTF compromises patient safety by being released into the Operating Room and more importantly the sterile field?

Central to the Mr. Frosty technology is the concept of containment. To eliminate the potential unlikely aerosolization of Mycobacterium Chimera the hydraulic system has been designed to be a sealed system which operates without large circulatory fans.

Independent testing by Virginia Tech has confirmed a world first that there is NO detectable aerosolization from grossly contaminated Mr. Frosty Heater-Coolers. It's a fascinating report and well worth the read.

# Quantum Heater-Cooler

## System Overview

The Quantum Heater-Cooler unit provides thermal energy to two independent circuits facilitating the simultaneous delivery of either hot or cold energy to both the patient and cardioplegia heat exchangers.

Simply connect the hoses to the single-use Quantum sterile heat exchangers using Spectrum Medical's drip-free connectors and with the simple and intuitive user interface, initiate the priming function. During the priming phase, the air contained within the single-use PureFlow heat exchangers will be replaced with Glycol heat transfer fluid.

To end the process, simply press the de-prime button and when the de-prime cycle is complete remove the hoses from the heat exchangers. The maintenance of the Glycol heat transfer fluid volume within Mr. Frosty is managed automatically during the re-charging process.

The Heater-Cooler is a fully functional standalone device or can be integrated within the Quantum Perfusion System and controlled directly from the Quantum Workstation.

Mr. Frosty works with both 110v and 220v AC supplies. In a fully charged condition, the stored cold energy is equivalent to 2.1 kW.



# Quantum Heater-Cooler

## System Charging

The recharging of the Heater-Cooler's stored cold energy is accomplished by using Spectrum Medical's "Igloo" Chiller system. The required number of chiller systems will be dependent on the number of Heater-Cooler systems in daily use and the customer specified Heater-Cooler re-charge times.

The Spectrum Medical Igloo Chiller system has been designed to support the simultaneous charging of two Quantum Heater-Cooler systems. Alternatively, and for larger hospital installations, the Igloo Chiller system can be integrated into a ring-main circuit with the expanded potential to support the simultaneous charging of up to five Quantum Heater-Cooler systems.

Ring main configuration and installation design is a "partnership process" between the hospital and Spectrum Medical's engineering support team. Factors requiring consideration will be the number of Quantum Heater-Coolers in use, the available area within the hospital, power distribution, etc.



# Sterile Technologies

A “Quantum leap” in Perfusion best practise



# The Quantum CPB SuperPAC

The Quantum CPB SuperPAC represents Spectrum Medical's total commitment to patient safety, patient outcomes and the ultimate in Perfusion clinical best practice.

The Quantum SuperPAC is an uncompromising combination of innovative sterile technologies and a key system within Spectrum Medical's "Quantum Perfusion" strategy. What makes the SuperPAC different to currently available "tubing circuits" is the revolutionary approach to world first innovation and its integration with Spectrum Medical's Quantum CPB & Informatics Technologies.

- The elimination of Gaseous Microemboli
- Improved Gross Air Management
- Minimal Time to Prime
- Anti-Thrombotic Strategies
- No Blood Re-Circulation
- Low Hemolysis & Low Heat Generation
- Lowest Pressure Drop
- Minimal Blood Contacting Surface Area
- Integrated Pressure and Temperature Measurement
- Durable Bio Compatibility Coating

How we do all this is summarized in the following pages. Alternatively, for more detailed information please refer to the Spectrum Medical website.

## SuperPAC Configuration

The Quantum SuperPAC is available in a range of sizes to support Adult, Paediatric and Neonate patient populations. SuperPACs are supplied coated with Spectrum Medical's cross linked bio compatibility PC1036. Superior adhesion qualities, elasticity and surface smoothness maximizes antithrombotic performance throughout the life of the product.

The SuperPAC is supplied with its own priming kit that is easy to use and duplicates current clinical practise.

For Reference: The Quantum Dual Chamber Oxygenator and the Quantum range of centrifugal pumps are not included within the SuperPAC and will need to be purchased separately.

# The Quantum Dual Chamber Oxygenator

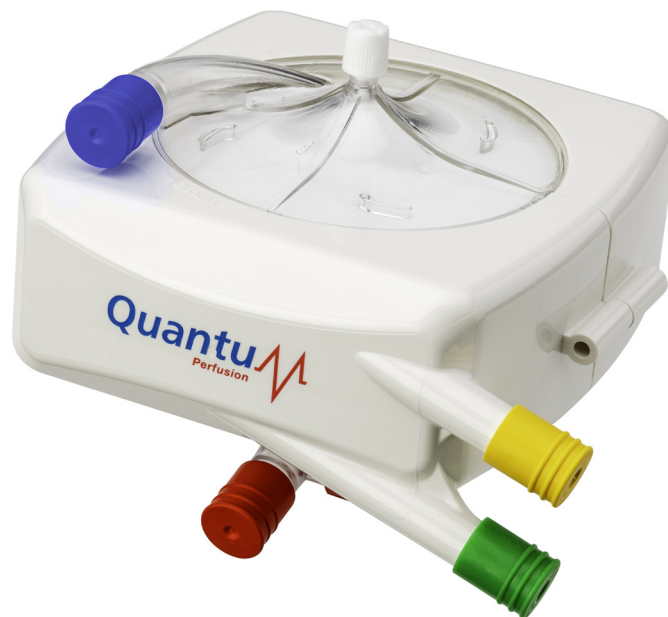
Spectrum Medical's Extracorporeal Membrane Ventilation Technology is another world first technology combining a revolutionary fluid path design with a dual chamber gas transfer technology.

## Sizes available:

Large Adult  
Paediatric

Small Adult  
Neonate (availability Q3-2022)

Spectrum Medical's revolutionary Dual Chamber Oxygenator technology takes patient ventilation to the next level. Working in conjunction with the Quantum Ventilation Module clinicians are offered the opportunity to continue current practice with the blending of  $\text{FiO}_2$  or transition to a Hypobaric Ventilation strategy.



## Hypobaric Ventilation – Future Innovations

When all the gases combined equal less than one atmosphere, it is called hypobaric. The Quantum Dual Chamber Oxygenator creates a hypobaric condition by only using oxygen and controlling Patient  $\text{PaO}_2$  through a V/Q mismatch within the independent laminated fibre chambers. The V/Q mismatch supports the management of partial pressure significantly below atmospheric pressure, without the use of Nitrogen. This unique technology creates a large gas diffusion gradient and space within the patient's blood volume to absorb significant volumes of gaseous micro emboli.

# The Quantum Dual Chamber Oxygenator

Changing the world with safe ventilation for Patients undergoing CPB Support.

## Total Surface Area (Ventilation Efficiency)

Spectrum Medical's revolutionary laminated membrane construction significantly increases gas exchange efficiency, minimizes pressure drop and priming volume. The unique construction eliminates the current compromise between fibre bundle compression and low priming volume. Individually all fibre layers within the fibre bundle are separated by ten microns, leading to a significant advantage in that, the individual fibres within the laminated bundle construction are in contact with flowing patient blood and providing gas exchange. This significant increase in gas transfer efficiency leads to a reduction in blood contact surface area, and by default, a lower priming volume and pressure drop.

## Superior Air Handling

Spectrum Medical continues its commitment to patient safety with the integration of its patented Quantum Vortex Flow technology. This innovation in fluid dynamics ensures that blood flow passing through the laminated bundle construction is centrifugal in nature which generates a fluid vortex to support the separation of gross air from flowing patient blood. This separation of gross air from patient blood ensures almost instantaneous priming and minimizes or eliminates venous air being passed through to the arterial circuit.

## Maximum Fluid Dynamic Performance

The elimination of low velocity sections and dead space within the fluid path has been at the forefront of Spectrum Medical's "anti-thrombotic" strategy. This unique design concept in conjunction with the Quantum Vortex Flow and Fibre Separation technologies guarantees that the total surface area of the laminated bundle construction is subjected to a circulating blood flow with a guaranteed total volume wash out of approximately 4 seconds when flowing blood at 5 lpm.

## Biocompatibility

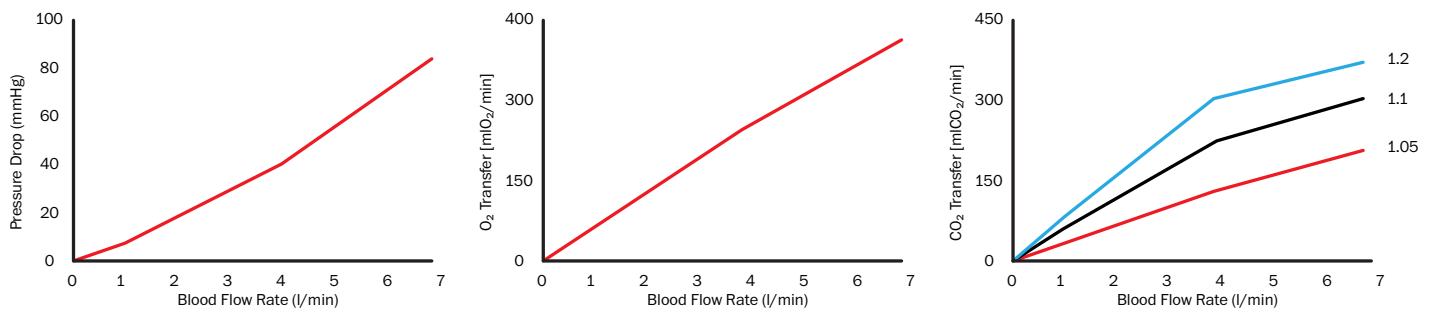
Resulting from significant process research, a world first is the application of PC1036 cross-linked biocompatibility coating to a fibre membrane construction. Superior adhesion qualities, elasticity and surface smoothness maximizes antithrombotic performance throughout the life of the product.

## Materials free from DEHP

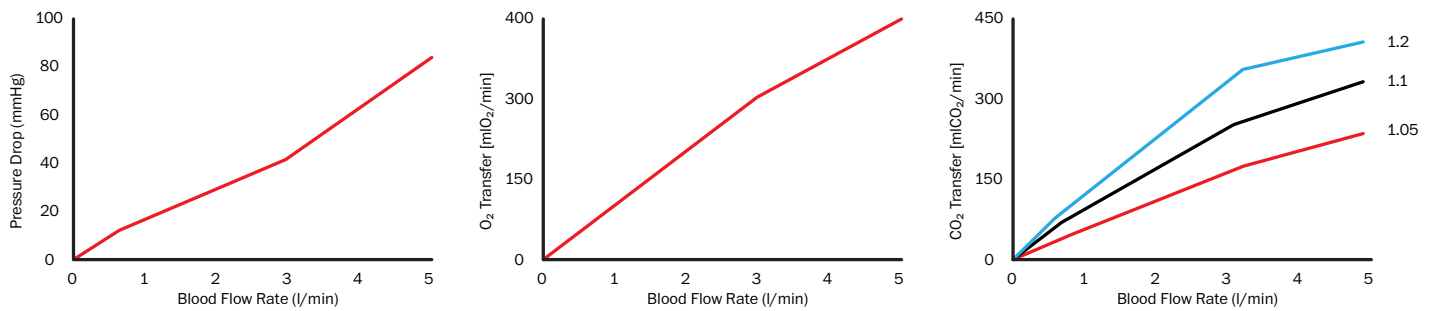
Commitment is again emphasised with all internal blood contacting surfaces being made from materials free from plasticizers.

# The Quantum Dual Chamber Oxygenator

## Quantum Perfusion Blood Oxygenator VT200



## Quantum Perfusion Blood Oxygenator VT160



Performance of the device were obtained in agreement with ISO 7199 Standard (37 °C)

# Centrifugal Pump



CP37

The CP37 is Spectrum Medical's most powerful Centrifugal Pump and is designed to support applications in the O.R.

With its 3/8 port and a prime volume of only 37cc, the CP37 is rated to 8 liters/min at 800 mmhg.

PC1036 biocompatibility coating and the availability of a hand crank further improves patient safety.

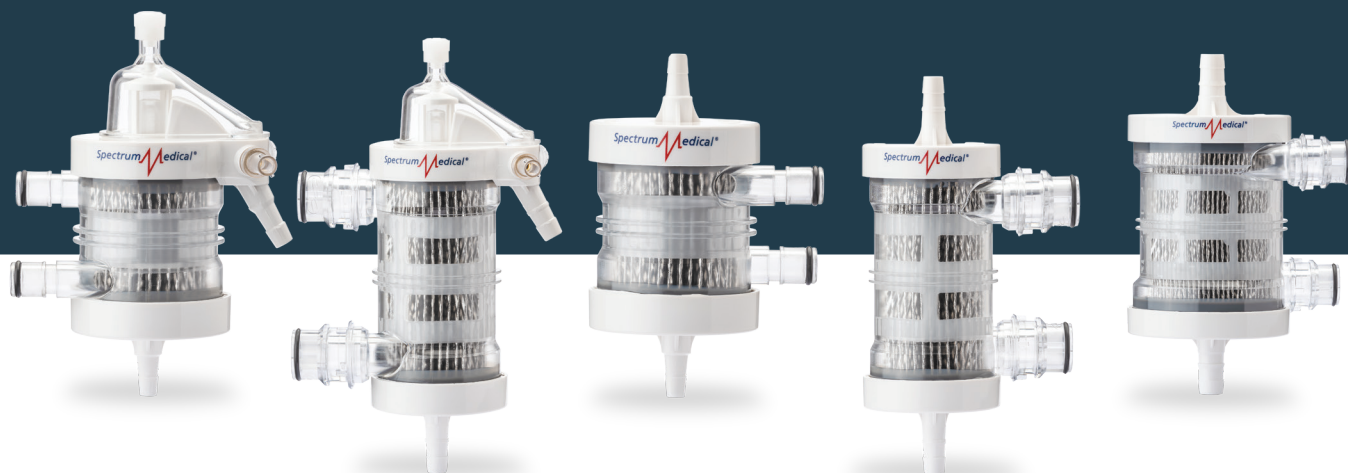
To support the introduction of the Quantum Heater-Cooler Technology and to minimise circuit complexity Spectrum Medical has integrated its stainless-steel PureFlow Venous heat exchanger and the CP37 Centrifugal Pump into a single disposable assembly.

Mounted directly to CP37 motor drive system, the CP37 with its integrated Venous heat exchanger is used exclusively with the Quantum Heater-Cooler technology and its Glycol heat transfer fluid.



CP37 with Integrated Heat Exchanger

# Quantum Heat Exchangers



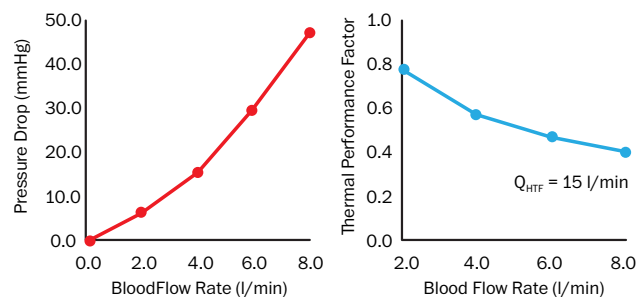
The Quantum range of sterile disposable heat exchangers have been designed by Spectrum Medical to provide the safest solution for eliminating the growth environment for the Mycobacterium Chimaera bacteria.

Specifically developed to operate exclusively with the Quantum Heater-Cooler technology and its Glycol heat transfer fluid. Both the patient and the cardioplegia heat exchangers are compact in design, with low priming volumes and minimal pressure drops.

## Technical Specifications

### Standard Heat Exchanger: High Flow (adult size)

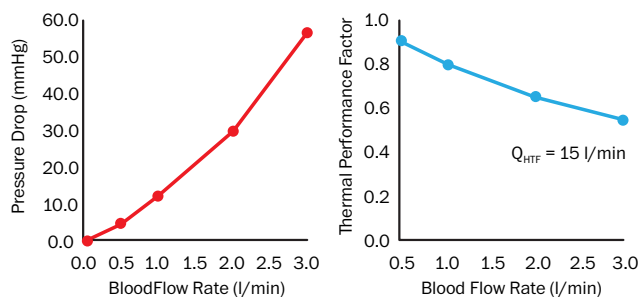
- Priming volume blood side: 55 ml
- Exchange Surface: 0.12 m<sup>2</sup>
- Priming volume HTF side: 70 ml
- Maximum flow rate: 8 l/min



Pressure drop curves were generated using bovine blood (Hct: 32±2% - Hb: 12±1[g/dl]) at 37±1°C

### Standard Heat Exchanger: Medium Flow (pediatric size)

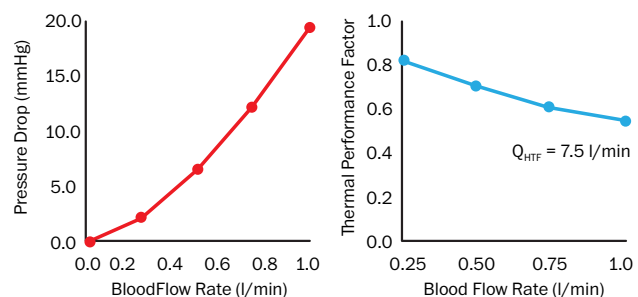
- Priming volume blood side: 22 ml
- Exchange Surface: 0.05 m<sup>2</sup>
- Priming volume HTF side: 38 ml
- Maximum flow rate: 3 l/min



Pressure drop curves were generated using bovine blood (Hct: 32±2% - Hb: 12±1[g/dl]) at 37±1°C

### Standard Heat Exchanger: Low Flow (neonatal size)

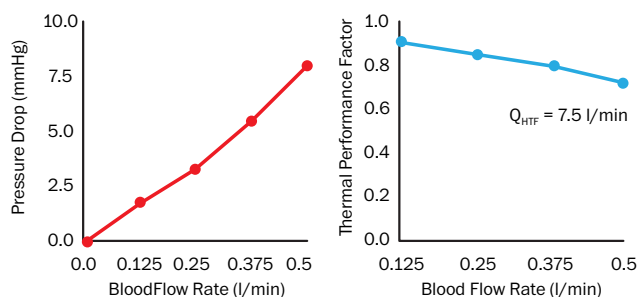
- Priming volume blood side: 11 ml
- Exchange Surface: 0.028 m<sup>2</sup>
- Priming volume HTF side: 22 ml
- Maximum flow rate: 1 l/min



Pressure drop curves were generated using bovine blood (Hct: 32±2% - Hb: 12±1[g/dl]) at 37±1°C

### Cardioplegia Heat Exchanger

- Priming volume blood side: 22 ml
- Exchange Surface: 0.028 m<sup>2</sup>
- Relief Valve Opening Pressure: 500 mmHg
- Priming volume HTF side: 22 ml
- Maximum flow rate: 0.5 l/min



Pressure drop curves were generated using bovine blood (Hct: 32±2% - Hb: 12±1[g/dl]) at 37±1°C

# Hybrid Reservoir

Next generation Reservoir, bringing benefits of Mini-CPB to everyday usage.

Spectrum Medical continues to provide new technologies specifically designed to improve performance and therefore improve patient outcomes.

The Hybrid Cardiotomy-Venous Reservoir is as easy to use as a traditional hard shell system. It primes quickly and familiar Vacuum Assist approaches are easily used.

The Hybrid Reservoir also provides the inherent safety of a soft bag while minimizing the need for manual air removal techniques.

Whether a Team currently uses Mini-bypass, has not yet attempted Mini-bypass, uses a Soft-bag or a Hard-shell reservoir, all will appreciate the easy to use Hybrid Reservoir Technologies. The improvements provide: gross venting of venous line air, control of patient volume, options to separately handle vented and suctioned blood, utilization of common Vacuum assist techniques while avoiding the complexity of a kinetic venous assist device, and elimination of the difficulties of converting from a Mini-bypass circuit to full drainage during unpredictable clinical situations. The Hybrid Reservoir is developed to successfully address a wide variety of challenging clinical situations.



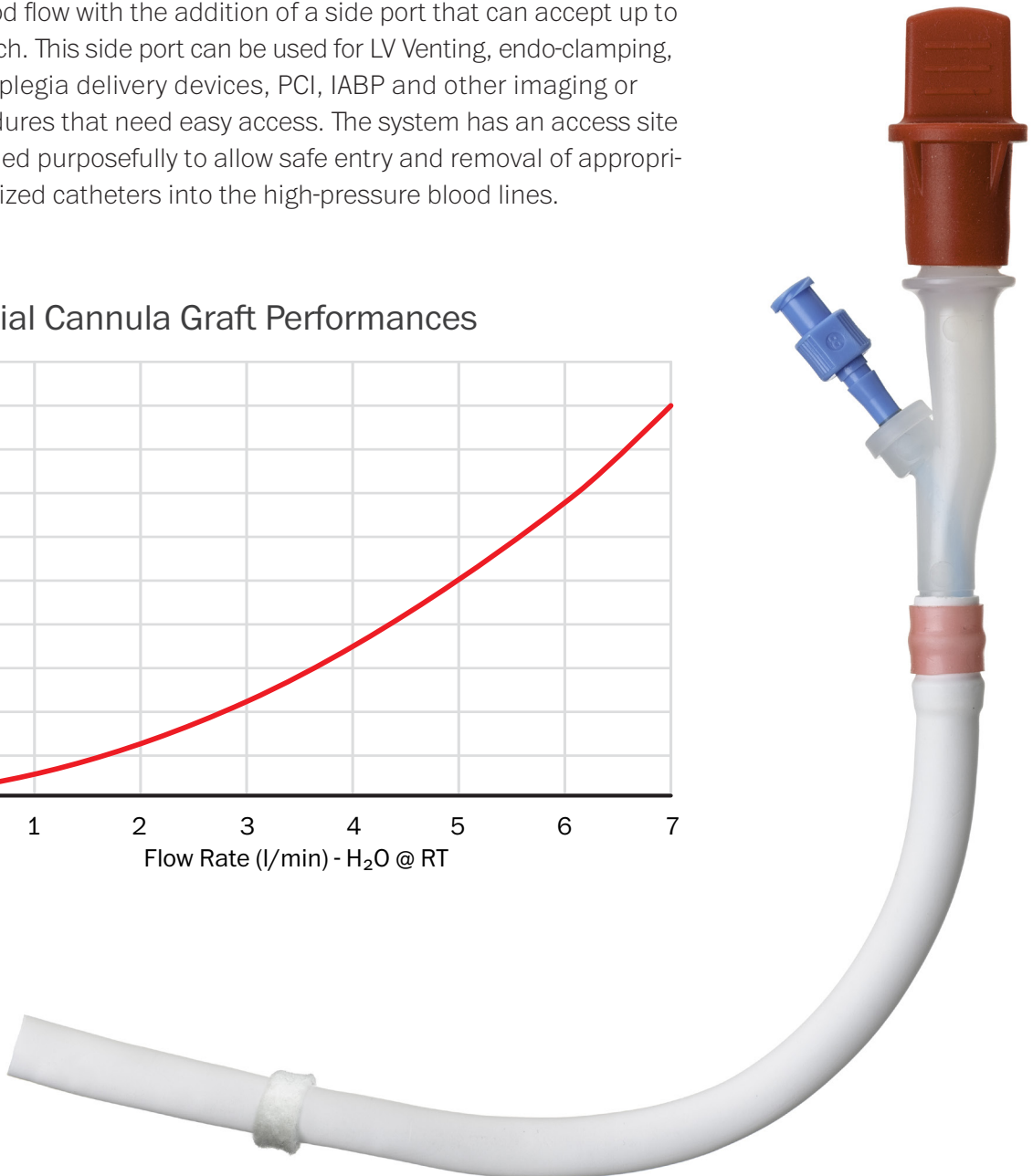
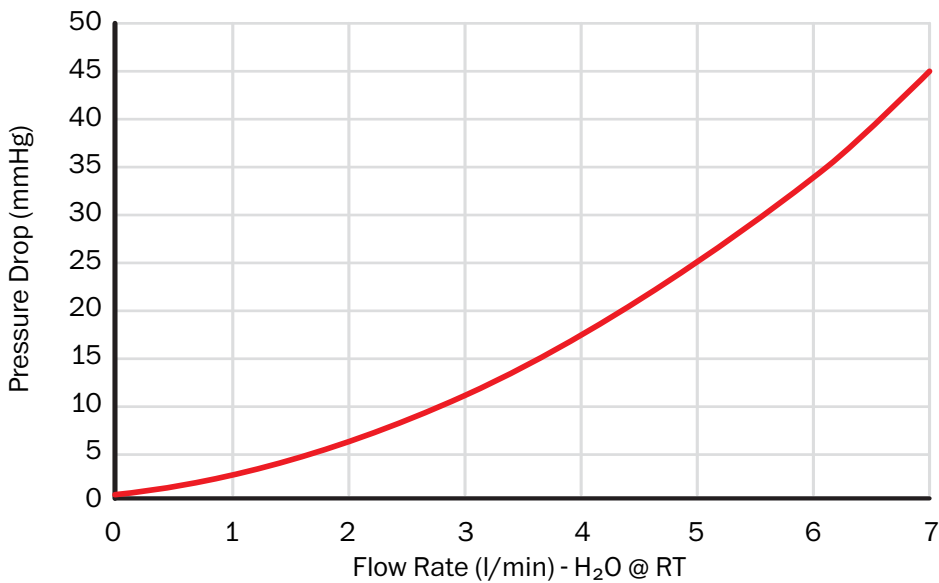
# The Quantum SuperPAC with Side Port Technology

The world's first Axillary Artery Graft with a built-in access side port for VA extracorporeal life support.

The world's first Axillary Artery Graft with a built-in access side port for VA extracorporeal life support.

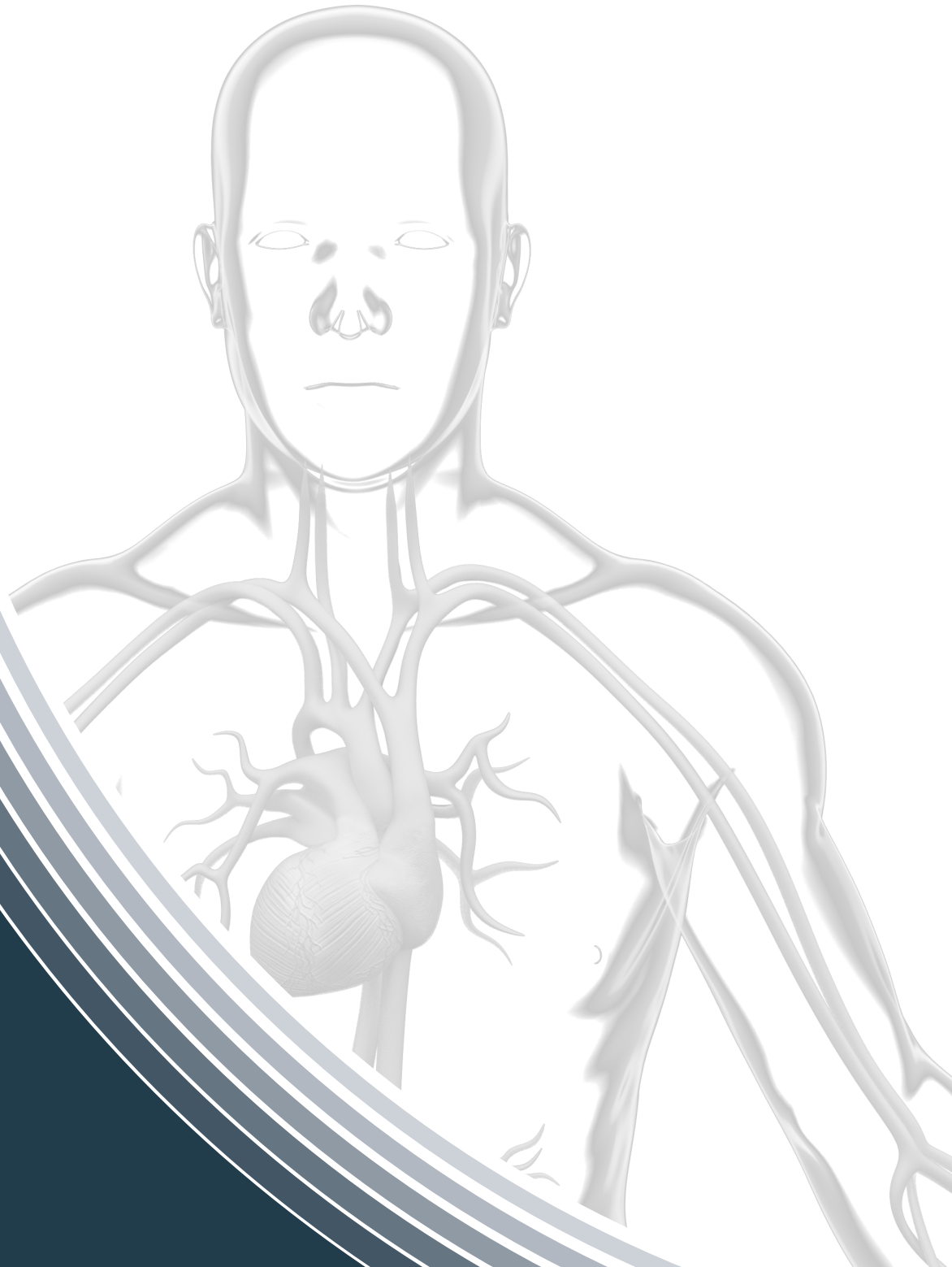
Spectrum Medical's revolutionary 8mm Graft provides up to 7lpm of blood flow with the addition of a side port that can accept up to 9 French. This side port can be used for LV Venting, endo-clamping, cardioplegia delivery devices, PCI, IABP and other imaging or procedures that need easy access. The system has an access site designed purposefully to allow safe entry and removal of appropriately sized catheters into the high-pressure blood lines.

Arterial Cannula Graft Performances



# Quantum Informatics - 21

Revolutionizing real-time patient safety and  
the development of clinical best practise.



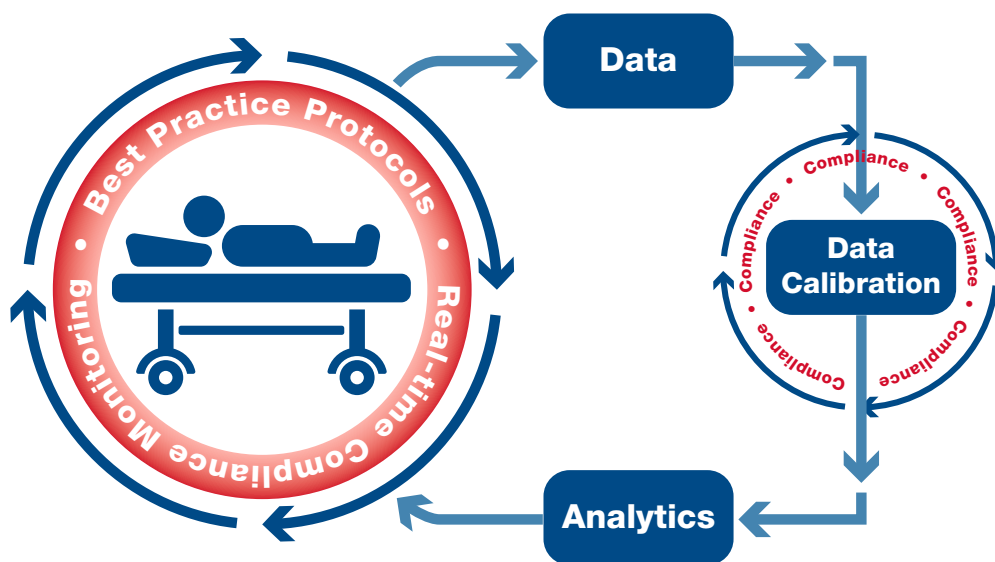
# Quantum Informatics - 21

Quantum Informatics - 21 is Spectrum Medical's latest generation software solution that revolutionizes real-time patient safety and the future development of clinical best practice for the high-risk patient population within the O.R and the I.C.U.

The seamless integration of "multiple information feeds" supports the real-time distribution of critical patient information and the deployment of advanced "active Patient Safety Systems" and Clinical Best Practice. Integrated compliance, complication and critical care scoring systems combined with sophisticated alerting systems improves support for the avoidance of adverse events.

Access to data is made possible using Spectrum Medicals intuitive data search engine and report generator. Big data queries, the scheduling of routine reporting and quality performance metrics are all possible with Quantum Informatics - 21.

The concept of an active Patient Safety Strategy (aPSS) is a significant new development within the Quantum Informatics Technology. Central to the aPSS philosophy is its ability to support the physician deployment of clinical best practice directly to the patient and in real-time.



Real-time compliance reporting systems combined with various Best Practice and Evidenced Based Protocol Apps provide a flexible approach to the consistent delivery of quality and safe patient care. The functionality of the Quantum Informatics technology ensures that clinicians are made aware of best practice violations as they happen and in near real-time. Intra-case compliance tools ensure that non-compliance data can be analysed in near-real time during clinically relevant time periods, such as change of shift or following clinical interventions.

# Active Patient Safety System

The Compliance, Complications, and Checklists applications combine clinical best practice and evidence-based protocols into a real-time Patient Safety System that supports the consistent delivery of quality and enhanced patient safety.

Best Practices

Measurement	Level	Critical Low	Critical High	Sustained Low	Sustained High	Decrease Rate	Increase Rate	Latest Value
Art Flow (L/min)	L1		7.5	2L/min / 2.0min				
CVP (mmHg)	L1							
FEMMean (mmHg)	L1	50	110					
LRADMean (mmHg)	L1	50	110					
MAP (mmHg)	L1	50	110	50mmHg / 2.0min				
SaO <sub>2</sub> (%)	L1	70						
SvO <sub>2</sub> (%)	L1	50	80	59% / 00s				
Art Flow (L/min)	L2	0.5	4.5					
CVP (mmHg)	L2	-25	25					
FEMMean (mmHg)	L2	50	85					
LRADMean (mmHg)	L2	50	85					
MAP (mmHg)	L2	50	85					
SaO <sub>2</sub> (%)	L2	70						
SvO <sub>2</sub> (%)	L2	50	100					

Adult Pediatric

Stop Record Case Info Procedures Intra-Op Event Chart Checklist Record Closing Toolbox

## Compliance

The Best Practice app is an integral part of Quantum's active Patient Safety System which supports the real-time deployment of a bedside, patient-specific surveillance profile. Multiple surveillance profiles can be created within a hospital and stored within the Quantum Informatics System. Furthermore, clinicians with system privileges can make changes to a surveillance profile in real-time to further enhance individual care strategies and reduce alarm fatigue.

Creating surveillance profiles is a simple process in which real-time physiological data and discreet blood gas data is combined with a specific alerting strategy to create an individual surveillance profile. Alerting parameters can be configured individually or in combination using high/low limits, sustained limits or percentage rates of change limits.

LIVE VUE Spectrum Medical

Departments: ICU, Anesthesia, Perfusion, Test

Perfusion

Location C - QD1000027 Location A - VV2

Set Compliance Limits

Location: PH1000013

Measurement	Critical Low	Critical High	Sustained Low	Sustained High	Sustained High Seconds	Decrease Rate (%)	Increase Rate (%)
Art Flow (L/min)	8						
Bld Temp (°C)	33	37.5		35	50		
Card. Press (mmHg)	80	3					
FiO <sub>2</sub> (%)	40	100	50	30			
Line Press (mmHg)	1	300		300	30	5	60
PiCO <sub>2</sub> (mmHg)	30	55			50	60	
PO <sub>2</sub> (mmHg)	130	400				10	60
Pump Flow (l/min)		7.5					
Swamp (L/min)	1	6					

Update

ECG HR 79, RR 12, SpO2 94, FEM 100, Cardiac 100

ECG HR 80, RR 9, SpO2 99, FEM 100, Cardiac 100

ECG HR 81, RR 12, SpO2 100, FEM 100, Cardiac 100

ECG HR 80, RR 11, SpO2 91, FEM 100, Cardiac 100

Renal 91, Metabolic 100, Hematological 100, Pulmonary 63, Cardiac 100, Renal 81, Metabolic 94, Hematological 100, Pulmonary 63

ICU Anesthesia Perfusion Test

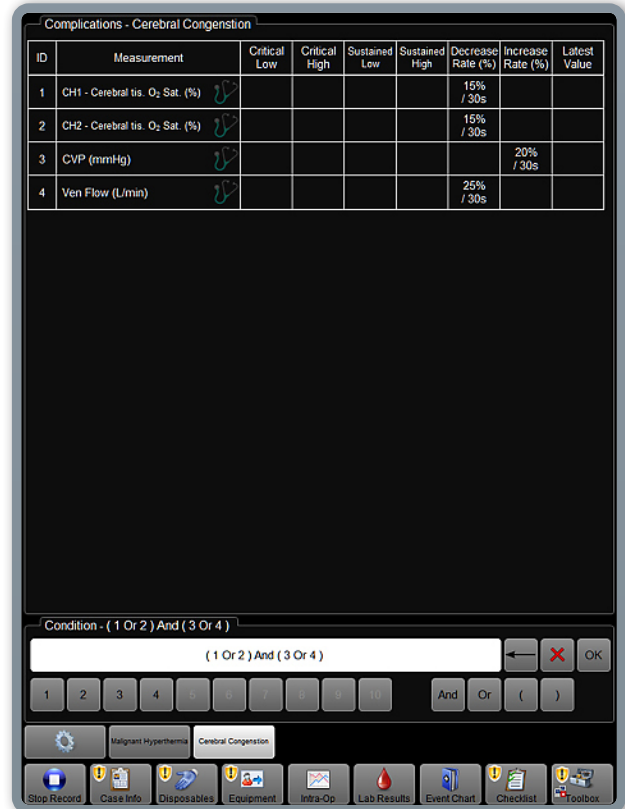
3:15:00 PM

# Active Patient Safety System

## Complications

The Complications application provides a real-time capability that combines the surveillance of multiple information feeds with a range of complication algorithms. When activated, the complication algorithm generates a Complication Alert which is supported by a pre-agreed Complication Response.

Complication Specific Algorithms and a Complication Response are easily configured using a “decision tree” format or a checklist. Complication alerts can be triggered automatically via the active Patient Safety System or manually by the clinician. In both cases the clinician gains access to the pre-configured Complication Response. Furthermore, the alert is communicated to all active participants within the Clinician Alert System.



## Checklists

A Checklist application within Quantum’s active Patient Safety System supports the creation of multiple checklist formats and their real-time deployment to the bedside. Checklists can be configured to be triggered by any number of specific event types such as a complication alert, patient hand-off etc. Furthermore, Checklist functionality can be time-synchronized with a change of shift or current rounding practice.

# Critical Care Scoring

Patient Safety Technologies, revolutionizing real-time clinician patient connectivity in the I.C.U. and O.R.



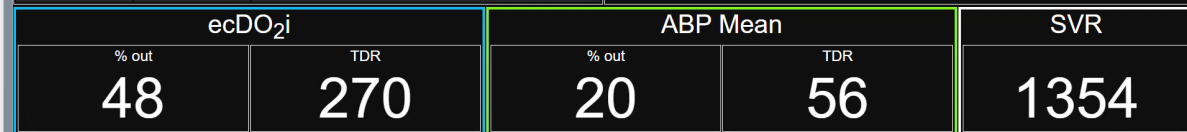
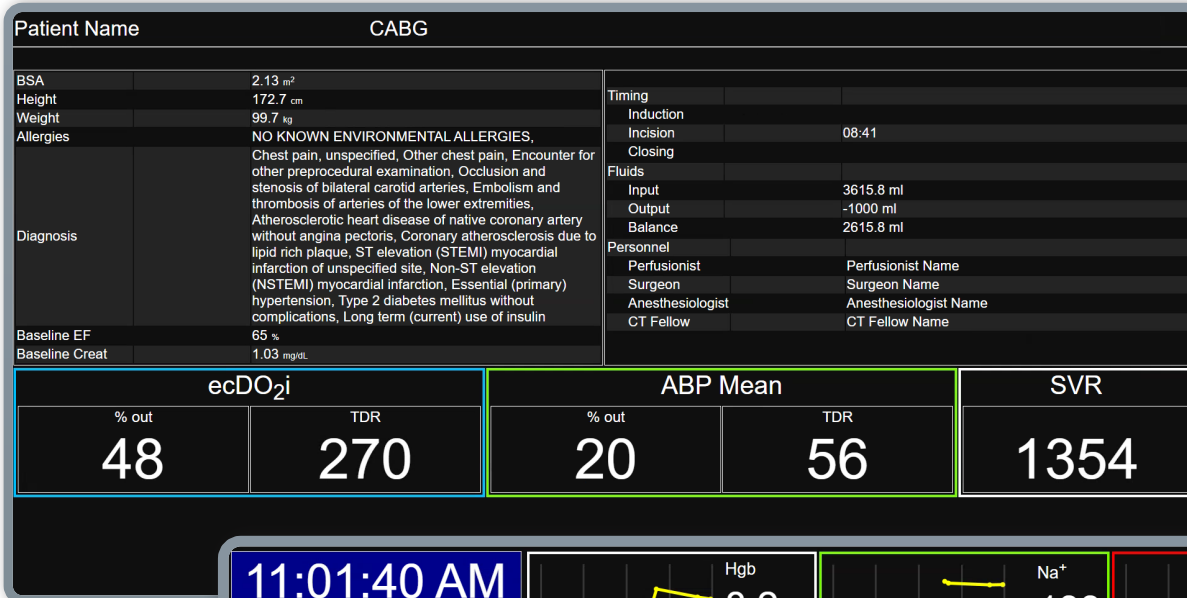
The Quantum Informatics Critical Care Scoring technology has been designed to support instant access to a highly visual representation of patient status and then to alert the clinical team via the Quantum Informatics' system when a patient status becomes critical.

At the heart of the Critical Care Scoring functionality is the development of a hospital configured scoring system that's specific to a physiologic system such as Renal, Respiratory, Cardiac etc. Analysing data at the system level allows the

instant summary of multiple data points to both speed response and patient triage.

Initial system configuration and subsequent modifications are both easy and only possible with Admin level access. Real-time data combined with ADT feeds from the Hospital Management System facilitates the active calculation of a patient system status. Additionally, ADT feeds allow the introduction of pre-specified patient weighting factors into the system scoring calculation.

# Custom Dashboards for the I.C.U. and O.R.



Custom dashboards are used by the clinical team to visualize data that is critical to clinical practice and patient safety. Dashboards have been used in the operating room to create real-time custom views and clinical decision trees relevant to the surgical procedure. Dashboards have also been

used in the I.C.U. to allow clinical teams to monitor patients and share data to multiple clinicians to support real-time response to real-time adverse events. These dashboards can consist of live streaming data from 1<sup>st</sup> and 3<sup>rd</sup> party devices, ADT. Labs and information from the HIS.

# Centralized & Remote Tele-Health and Integrated Alerting Systems

With the seamless integration of “multiple information feeds” and the intuitive input of ADT data, Spectrum Medical is committed to maximizing patient safety with real-time responses to real-time adverse events.

When Spectrum Medical’s revolutionary app based Patient Safety System on the Quantum Workstation are integrated with our next generation server based Quantum Informatics technology, clinical safety and real-time physician response is taken to the next level.

Quantum Informatics LIVE VUE is the name given to the software system designed to visualize real-time clinical information in both graphical and textual formats to clinicians within the clinical setting or from a remote location. LIVE VUE will provide the clinical team with a “wide area, real-time perspective” of all patients within the care setting. This presentation of data is further enhanced with the integration of system alerts associated with the deployed active Patient Safety System.

System alerts for Complications, Compliance, Critical Care Scoring and Checklist, if active, will

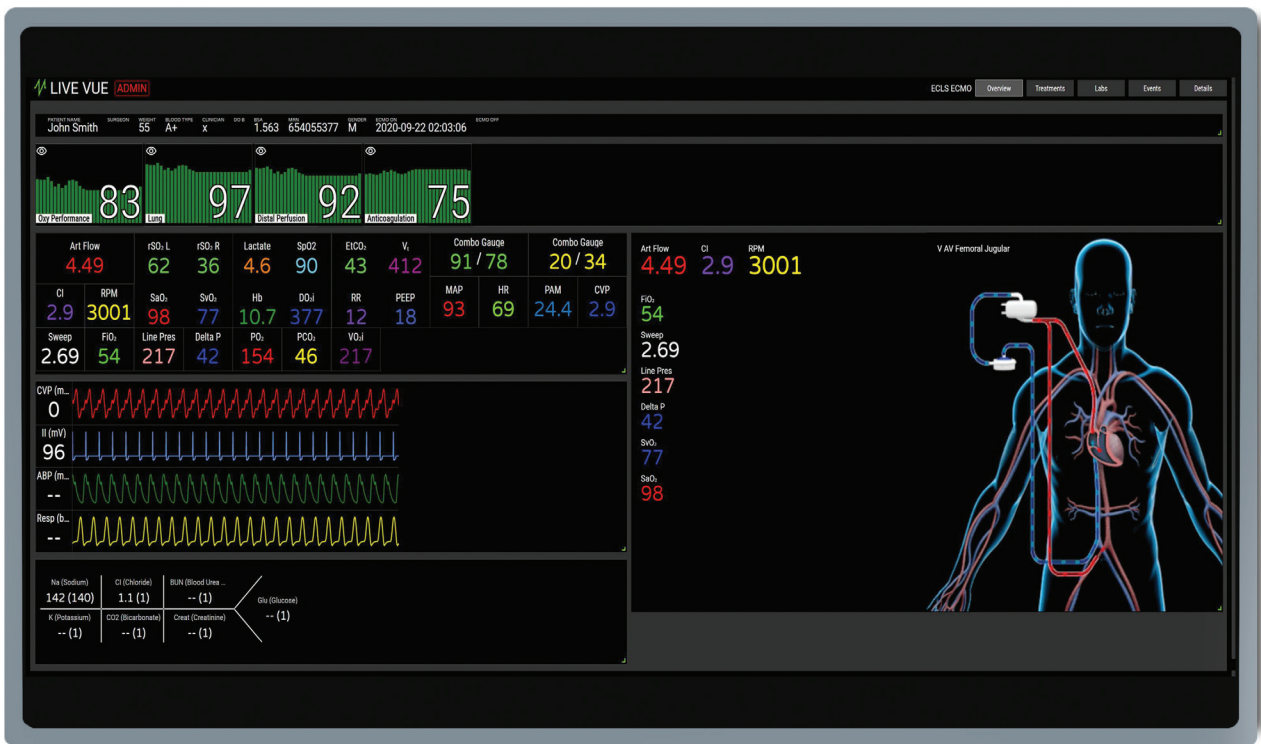
be communicated to the summary information screen and to the clinician’s personnel comms device in real-time.

Access to patient-specific granular trending information is made possible by selecting a patient displayed in the LIVE VUE dashboard. This data can include waveforms, trending physiologic data, intermittent blood gas data etc. In fact, the presentation of discreet patient data can be further enhanced by extending the exchange of information to include relevant data within the Hospital Information System.

The LIVE VUE interface is also used for the selection and deployment of both surveillance profiles and checklists. The LIVE VUE interface is also used for the individual setting of alerts within an active patient surveillance profile.

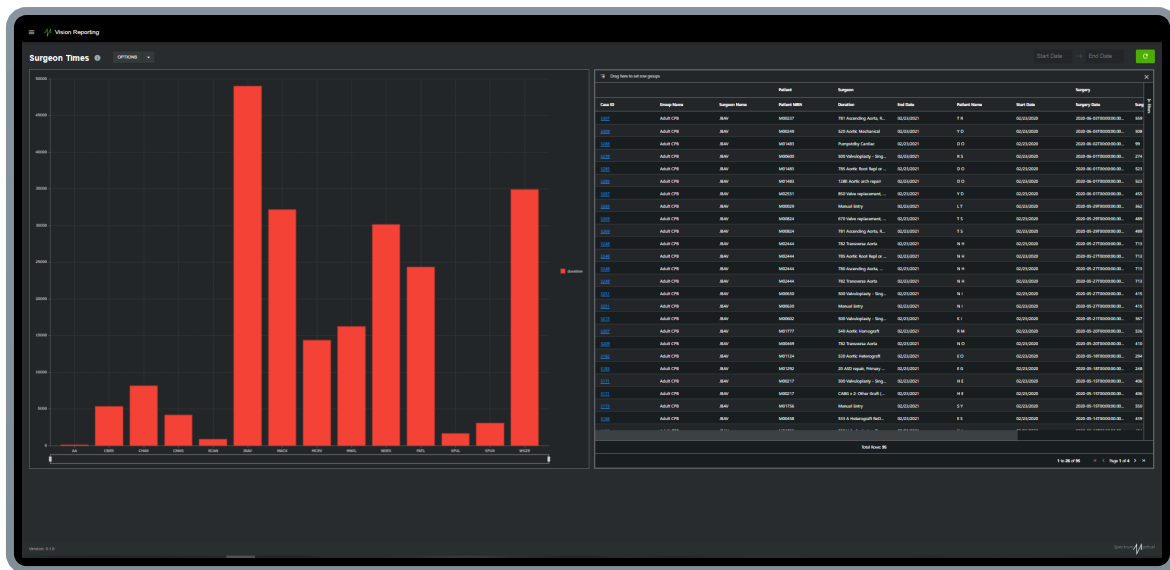


# Centralized & Remote Tele-Health and Integrated Alerting Systems



# System Architecture and H.I.S. Integration (VISION)

The Powerhouse behind Spectrum Medical's Quantum Informatics technology.



## About VISION Server

VISION is a sophisticated server application that is the gateway into Spectrum Medical's Quantum Informatics Technology. VISION automates the system-wide distribution of software upgrades, windows and security updates, a web-based remote access capability plus the management of user passwords and system privileges. VISION will also support integration with Active Directory.

The VISION server application operates on a hospital-supplied server. It supports two-way communication with the Hospital Information Systems (H.I.S.) and 3<sup>rd</sup> party gateway servers using an integrated communications interface engine supplied by MIRTH Inc. In addition to its system management functionality, the VISION server application includes a SQL database for the long-term storage of data and for the real-time distribution of active patient

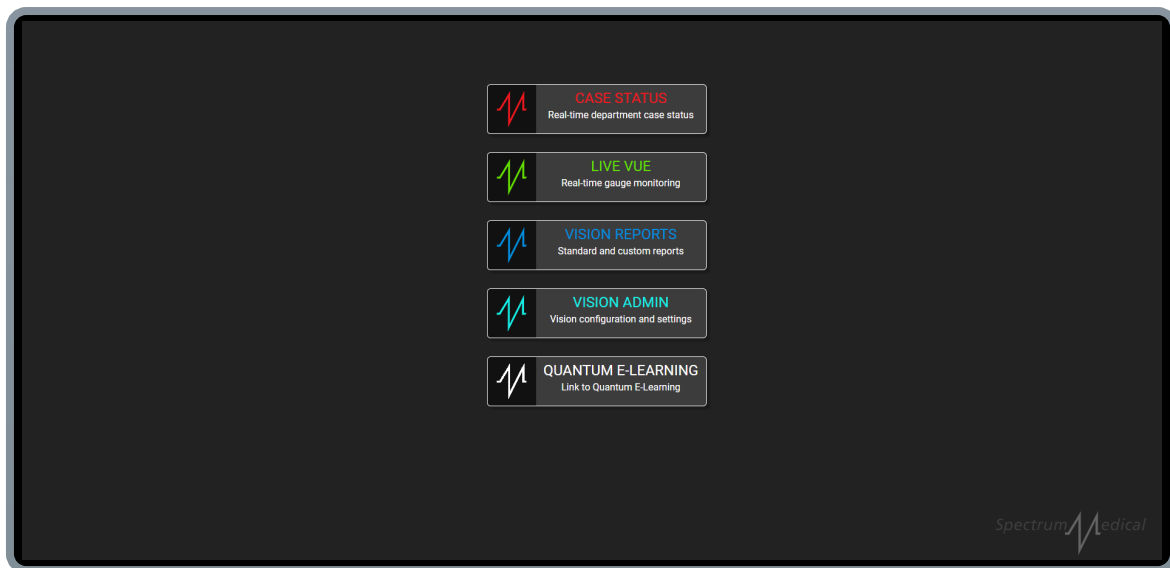
data to both LIVE VUE and the clinician-deployed active Patient Safety Systems.

## Medical Device Connectivity

To ensure the seamless integration of clinical information, the Quantum Informatics VISION Server application includes a world-leading Medical Device Connectivity solution that can eliminate the need for a 3<sup>rd</sup> party middle-ware solution. The VISION server application can support connectivity to the following systems:

- 3<sup>rd</sup> Party Gateway Servers (e.g. Philips & GE)
- Direct device connectivity to a range of Physiologic Monitors Ventilators etc.
- Connectivity to middle-ware solutions
- Hospital Information Systems (via Mirth)
- The Quantum Workstation Platform

# System Architecture and H.I.S. Integration (VISION)



## System Analytics & Case Playback

Initially developed to support the training environment as well as Morbidity and Mortality meetings, the Case Playback technology provides the capability to retrospectively replay stored patient data from the VISION SQL database in real-time. Continuous information includes waveforms, trending physiological and blood gas data. Additionally and dependent on the H.I.S. integration, case playback can include case related events such as medication delivery, best practice alerts, personnel activity etc.

## System Administration

Spectrum Medical has long recognised that the success of any deployed QA / QI platform is dependent on the maintenance of Physician engagement, which in itself is largely dependent

on utility and the ability to introduce system-wide changes quickly.

The day-to-day management of Quantum Informatics is at the physician level. VISION's web interface supports the real-time management of the active Patient Safety System, including, profile creation, profile modification and profile deployment.

## Dashboards / Management Reporting

Spectrum Medical recognizes that dashboards and active reporting systems are core to delivering information and clinical analytics across the continuum of healthcare. To deliver this, Spectrum Medical has partnered with LOGI Analytics, a recognized leader in the field of data visualization and data analytics. The LOGI "tool-set" is now a standard module within Quantum Informatics.

# Sentinel Total Care

Absolute dedication to customer support  
and a total solutions approach to a “trusted  
partner status”



# In-service Customer Support

Sentinel Total Care defines Spectrum Medical's approach to a total solutions support program that maximizes equipment availability with the very latest system functionality.

## Software Updates:

Spectrum Medical is committed to the continuous improvement of both system functionality and the enhancement of capital value. We continually review, enhance, and add software functionality driven by evidence-based clinical usage and trends. Our 3rd party device driver software is regularly updated to ensure compatibility with both established and new systems. All software updates are included at no additional cost to the customer. Any software deployment is subject to prior customer approval and training via Spectrum Medical's web-based electronic Learning Management System (Quantum eLearning).

## On-Site Customer Support:

A Spectrum Medical Product Specialist will perform all required routine servicing to ensure optimum performance of your Quantum Perfusion System. Visiting Product Specialists will also provide additional user training and support changes to systems configuration to enhance clinical practice. Using dedicated Product Specialists as opposed to

traditional service personnel is a unique strategy within the CPB space. Additionally, Sentinel Total Care covers all associated service visit costs (travel, labour, and spare parts).

## Extended Warranty:

Sentinel Total Care includes comprehensive protection in the event of any breakdown of your Quantum System. Coverage includes modules, sub-assemblies, and any associated accessories (sensors, cables, clamp assemblies, batteries, etc.). Quantum products beyond economical repair will be replaced with the latest 'new build' technologies at no additional cost.

## Accidental Damage:

No questions asked, unintentional damage protection, including all Quantum accessories. Quantum products beyond economical repair will be replaced with the latest 'new build' technologies at no additional cost. Sentinel Total Care allows you to effectively manage your budget with no sudden large Purchase Order requirements.

# In-service Customer Support

Real-Time Customer support 24 hours, seven days a week.

## Remote Real-Time Support (QuantumChat):

Integrated, as part of Sentinel Total Care, users have access to Spectrum Medical's comprehensive 24/7 remote real-time support application, QuantumChat.

QuantumChat puts customers in direct contact with our product, clinical and technical specialists located globally. Ask a question anytime, anywhere and get an immediate response back. Share pictures, videos or even start a live video chat with a product expert using your mobile device. Each user is given a dedicated login and grouped within your clinical team. Follow or respond to questions asked by fellow team members. Get device information about your Quantum System by simply scanning the QR barcode found on any Quantum module/sensor. Accessed via the app, our knowledge-based libraries such as documents, manuals, software release notes and various troubleshooting help tips. QuantumChat makes troubleshooting and resolving issues easy and fast. QuantumChat supports multiple languages and is compatible with either Apple or Android mobile devices.

Additionally, with the inclusion of our VISION Server System and with VPN access, Spectrum Medical can provide remote monitoring and fault diagnosis of all Quantum system networks connected to the local VISION server intraoperatively.



## Emergency Loan Equipment:

Spectrum Medical will dispatch complimentary loan equipment if your defective equipment cannot be rectified within 24 hours of being returned to a Spectrum Medical Service Centre. To maximize equipment uptime our loan equipment stays with you until you receive a repaired or new replacement module from Spectrum Medical.

## Quantum Sterile Products Support:

Partnering with hospitals in the provisioning of care is at the core of the Sentinel relationship and providing dedicated customer support for sterile disposable technologies is another exciting world first for Spectrum Medical.

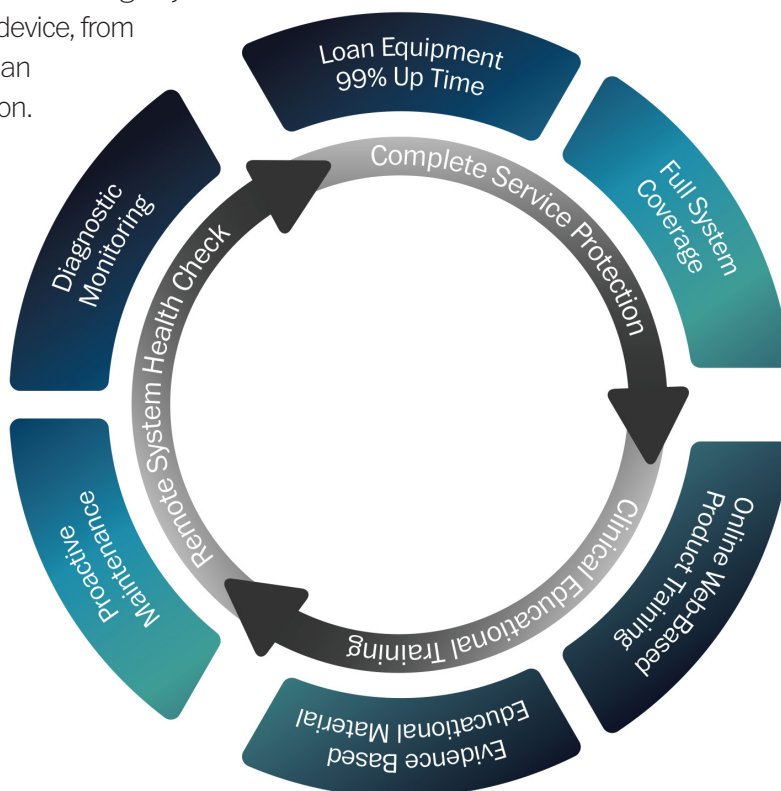
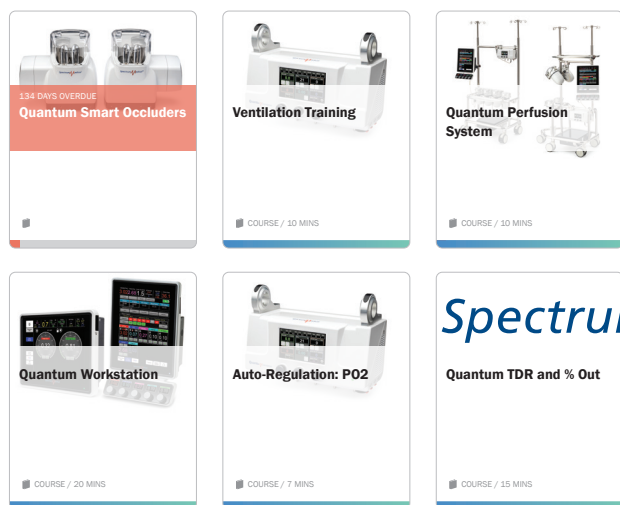
Quantum sterile products supplied by Spectrum Medical that have exceeded their expiration date can be returned to Spectrum Medical and exchange for new replacements products free of charge.

# In-service Customer Support

Sentinel provides access to a wide range of structured Training, Educational and Re-Certification resources.

## On-Line Learning Support (Quantum eLearning):

All users have access to Spectrum Medical's web-based eLearning management platform, Quantum eLearning. Quantum eLearning will complement any existing training or re-certification program. Each Spectrum Medical module, product or technology, has its own dedicated course. Each course content is available in multiple languages and designed to ensure that the user's product and clinical knowledge is both relevant and up-to-date. Topics covered include clinical benefits of hypobaric oxygenation, safety features for Mini-Bypass mode, and auto-regulation of PO<sub>2</sub> and PCO<sub>2</sub>. Quantum eLearning is an easily accessible resource library. Access Quantum eLearning day or night, on any device, from any location with an internet connection.





UK Headquarters:  
Call +44 (0) 1242 650120  
[enquiries@spectrummedical.com](mailto:enquiries@spectrummedical.com)

US Headquarters:  
Call 800 265 2331  
[ussales@spectrummedical.com](mailto:ussales@spectrummedical.com)

ANZ Headquarters:  
Call +613 9562 8063  
[Sales.ANZ@spectrummedical.com](mailto:Sales.ANZ@spectrummedical.com)

[www.spectrummedical.com](http://www.spectrummedical.com)



SPECTRUM MEDICAL LIMITED  
Registered to:  
ISO13485:2016  
File No. A14554

Not available for commercial sale in certain regions, please check with your regional manager for availability.

SMM-008 v4

# **Tau Medical Supplies**

## **Contact information**

**Evette Beck (Country Manager) – 082 309 1626**

**Samantha Potgieter (Sales Manager) – 082 334 2876**

**Antoinette Roux (ECMO Specialist) – 078 875 2714**

**Kayla Coccusulis (Technical Trainer) – 071 870 6999**

**Nondumiso Sangweni (Gauteng Rep) – 072 853 8119**

**Jessigan Perumal (Durban) – 083 238 0824**

**Yaseen Essop (Durban) – 074 263 5433**