Affinity™ NT
OXYGENATION SYSTEM

Clearly the Choice for Consistent Performance and Reliable Results
Consistent performance starts with an oxygenator design that has set the standard for the industry. The Affinity NT's radial flow design and proprietary fiber winding technique provide the reliable results you desire in a constantly changing cardiac surgery environment.

Indication: The oxygenator is indicated for use in an extracorporeal circulation circuit to oxygenate and remove carbon dioxide from the blood and to cool and warm the blood during cardiopulmonary bypass procedure, up to 6 hours in duration.

Affinity—the **first** oxygenator with a radial blood flow design and use of computational flow dynamics to optimize the blood flow path.

Affinity—the **only** oxygenator with graduated fiber winding technique for optimized bundle efficiency and manufacturing consistency.

**Smart Design that Sets the Standard for Oxygenators**

**Continued optimization** in the manufacturing process contributes to the consistent performance you have come to expect. With over 4 million oxygenators produced on a single manufacturing line, you—and your patients—can rest assured. The goal of our precision manufacturing is to minimize surprises for you in the operating room.
Versatile Cardiotomy Turret
• 3/8” and 1/4” filtered ports for priming ease
• Multiple filtered luer ports
• Cardiotomy ports on rotating turret
• Rotating turret easily clears manifold

Optimum Operating Levels
• Maximum capacity of 4000 ml for maximum patient versatility
• Low minimum operating level of 200 ml
• Designed for excellent low-level visualization with color-coded volume measurements and low-level warning label

Excellent Air Handling Capabilities
• Separate venous and cardiotomy inlets
• Designed to prevent blood contact with defoamer unless foam is present
• Final screen provides additional barrier intended to remove air and other emboli

Hollow Fiber Oxygenator
• Plasma resistant fiber intended for greater resistance to plasma breakthrough
• Total visibility pre-membrane and post-membrane for your priming confidence

Coatings
• Available with heparin biocompatible surfaces

Simple Drop-in Holder
• Articulated design is compatible with left- and right-hand setup

Totally Clear Design for Unobstructed Visibility of Blood, Gas and Water Phases

Optimal Visibility Achieved
• Clear lid and the elimination of “outer sock” design
• Excellent visibility of venous inlet column on the outside of the cardiotomy

Vacuum-Assisted Venous Drainage (VAVD) Compatible
• A negative/positive pressure-relief valve is built into the lid -150 mm Hg/0-5 mm Hg, which features a special obturator valve cap engineered to ensure valve patency
• Non-venting caps for ease of set-up for VAVD procedures (except inlet, outlet, vacuum and recirculation caps)

Removable Sampling Manifold
• High-flow stopcocks and color-coded sampling lines

Affinity NT Bench Test Performance Information

Heparin biocompatible surfaces offered on Medtronic oxygenation systems mimic critical characteristics of the vascular endothelium. Around the world, leading cardiovascular surgery teams adopt biocompatible surfaces as a critical component of comprehensive, multi-modality strategies to achieve the best possible outcomes for their patients undergoing extracorporeal circulation.

**Cortiva™ BioActive Surface**

Featuring durable, non-leaching, End Point Attached Heparin, Cortiva™ BioActive Surface has the largest body of peer-reviewed clinical and scientific evidence of any biocompatible surface used for cardiopulmonary bypass today. It is an important component of routine as well as complex extracorporeal circulation procedures.

- Non-leaching heparin molecules are covalently bonded onto the surface using an End Point Attachment process
- The End Point Attached method assures that the heparin active binding sites are properly oriented to remain free to participate in biological reactions, similar to the orientation of heparin sulfate molecules naturally found on the vascular endothelium
- A high degree of bioactivity is consistently delivered due to the unique Cortiva™ BioActive Surface chemistry and its sophisticated manufacturing process

**Trillium® Biosurface**

Trillium® Biosurface provides a blood-contacting surface with heparin, a negative charge and hydrophilic properties.

- Non-leaching heparin molecules are covalently bonded into the surface
- Sulphate and sulfonate groups are incorporated into the Trillium® Biosurface functional layer to provide a negatively charged surface
- Polyethylene oxide (PEO) chains are a component of the functional layer. PEO chains are extremely hydrophilic along the entire chain, creating an “insulating” water layer structure between the blood and artificial surface

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**Warning:** A strict anticoagulation protocol should be followed and anticoagulation should be routinely monitored during all procedures. The benefits of extracorporeal support must be weighed against the risk of systemic anticoagulation and must be assessed by the prescribing physician. **Contraindication:** This device used for any other purposes than for the indicated use is the responsibility of the user. **Warning:** Gas emboli must be cleared from the extracorporeal circuit before initiating bypass. Gas emboli are hazardous to the patient. If leaks are observed during priming and/or operation, this may result in an embolism to the patient and/or fluid loss. The extracorporeal circuit must be continually monitored. Do not use the device if these conditions are observed.

**Caution:** Federal law (USA) restricts this device to sale by or on the order of a physician. For a complete listing of indications, contraindications, precautions and warnings please refer to the instructions For Use which accompany each product.

* Cortiva™ BioActive Surface, formerly marketed under the Carmeda® brand name. Carmeda is a registered trademark of Carmeda AB (Sweden).
** Technology licensed under agreement from Biointeractions, Limited, United Kingdom.
**Affinity NT® Oxygenator**

Membrane Type:  
Microporous Polypropylene Hollow Fibers  
Membrane Surface Area: 2.5 m²  
Static Priming Volume: 270 ml  
Recommended Blood Flow Rate: 1-7 L/min  
Maximum Water Side Pressure: 30 psi  
Arterial Outlet Port: 3/8"  
Venous Inlet Port: 3/8"  
Arterial Sample Port: Female Luer Port  
Access Port: Female Luer Port  
Recirculation Port: 1/4"  
Gas Inlet Port: 1/4"  
Gas Outlet Port: 3/8" Nonbarbed  
Water Ports: 1/2" Quick Disconnects (Right- and left-hand orientations available when connected to the Affinity CVR NT Reservoir)

**Affinity CVR NT**

Reservoir Volume Capacity: 4000 ml  
Recommended Blood Flow Rate: 1-7 L/min  
Minimum Operating Level: 200  
Cardiotomy Filtration: 30-micron filter  
Venous Inlet Screen: 200 micron  
Final Reservoir Screen: 150 micron  
Size: Adult

**Affinity Venous Reservoir Bag**

Reservoir Capacity: 1250 ml  
Faceplate Volume Settings:  
Setting 1: 900 ml  
Setting 2: 550 ml  
Screen: 105 micron  
Venous Inlet: 1/2"  
Venous Outlet: 3/8"  
Recirculation: 1/4"  
Cardiotomy Inlet: 3/8"

**MVR Venous Reservoir Bag**

<table>
<thead>
<tr>
<th>MVR800</th>
<th>MVR1600</th>
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<tbody>
<tr>
<td>Reservoir Capacity:</td>
<td>800 ml</td>
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<tr>
<td>Faceplate Volume Settings:</td>
<td></td>
</tr>
<tr>
<td>Setting 1:</td>
<td>450 ml</td>
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<tr>
<td>Setting 2:</td>
<td>650 ml</td>
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<tr>
<td>Screen:</td>
<td>105 micron</td>
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<tr>
<td>Venous Inlet:</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>Venous Outlet:</td>
<td>3/8&quot;</td>
</tr>
<tr>
<td>Recirculation:</td>
<td>1/4&quot;</td>
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</table>
| Cardiotomy Inlet: | 3/8" | 3/8"

**Oxygenator**

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<th>Product Number</th>
<th>Product Description</th>
<th>Units/case</th>
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<tbody>
<tr>
<td>511</td>
<td>Affinity NT Hollow Fiber Oxygenator (uncoated)</td>
<td>4</td>
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<tr>
<td>511T</td>
<td>Affinity NT Oxygenator with Trillium Biosurface</td>
<td>4</td>
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<tr>
<td>CB511</td>
<td>Affinity NT Oxygenator with Cortiva BioActive Surface</td>
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**Oxygenator w/Reservoir**

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<td>541</td>
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<tr>
<td>541T</td>
<td>Affinity NT Integrated Uncoated CVR/Oxygenator with Trillium Biosurface</td>
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</tr>
<tr>
<td>541TT</td>
<td>Affinity NT Integrated Trillium CVR/Oxygenator with Trillium Biosurface</td>
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<tr>
<td>CB541</td>
<td>Affinity NT Integrated Uncoated CVR/Oxygenator with Cortiva BioActive Surface</td>
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**Reservoirs**

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<th>Product Description</th>
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<tr>
<td>540</td>
<td>Affinity NT Cardiotomy/Venous Reservoir (CVR)</td>
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<tr>
<td>540T</td>
<td>Affinity NT Cardiotomy/Venous Reservoir (CVR) with Trillium Biosurface</td>
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<tr>
<td>321</td>
<td>Affinity Venous Reservoir Bag</td>
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<tr>
<td>MVR800</td>
<td>MVR Venous Reservoir Bag • 800 ml</td>
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<tr>
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<tr>
<td>CBMVR800</td>
<td>Cortiva® MVR Venous Reservoir Bag • 800 ml</td>
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<tr>
<td>CBMVR1600</td>
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For information on other Medtronic technologies for extracorporeal circulation, blood processing and diagnostics, visit: [www.perfusion.medtronic.com](http://www.perfusion.medtronic.com)

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