Fast—4 cm ablation in an average of 11 minutes

**StarBurst® Talon RFA Device**

- Ergonomic one hand design provides superb clinician controls
- Four active arrays plus active trocar tip fast, spherical ablations
- Thermocouple in tip of each active array

**StarBurst Talon Semi-Flex RFA Device**

- Bending capacity up to 90 degrees fits easily through the CT gantry
- Rigid section of trocar is 13 cm
- Flexible section of trocar is 12 cm
Scalable Spherical Ablations (1-4 cm)

Diagram is not drawn to scale

BENEFITS

- Side-deployment allows easier penetration of mobile tumors
- Easy to position for both surface and difficult to reach dome lesions
- Integrated disposable main cable and tubing allows for easy set-up
- Solid tip allows easier penetration of hard tumors
- Multi-point temperature feedback provides controlled ablation
- Needle track ablation
- Used for percutaneous, laparoscopic and open cases

“Saline infusion during RFA is associated with lower impedance, higher power delivery and larger lesion size.”

– CARDIOVASCULAR AND INTERVENTIONAL RADIOLOGY

2004; 27(4):361-5 (ISSN: 0174-1551) Gananadha S; Morris DL UNSW Department of Surgery, St. George Hospital, Sydney, Australia.
The Ultimate Micro-Infusion System

**RADIOFREQUENCY ABLATION**

**StarBurst Xli-enhanced RFA Device**

The StarBurst Xli-enhanced RFA electrode offers clinicians the first single placement RFA device designed to create soft tissue ablation sizes of 4-7 cm. It can be used for percutaneous, laparoscopic and intraoperative procedures. This minimally invasive RFA device ensures consistent, sustained target temperatures and enables the precise ablation of predictable volumes of tissue. The StarBurst Xli-enhanced RFA electrode reduces the time required to perform procedures and in many cases, enables patients to resume normal activity within days.

**StarBurst Xli-enhanced Semi-Flex RFA Device**

The StarBurst Xli-enhanced Semi-Flex RFA electrode is designed specifically for Interventional Radiologists. It is a versatile RFA device that features both rigid (metal) and flexible (polymer) trocar sections. The StarBurst Xli-enhanced Semi-Flex offers all the benefits of the Xli-enhanced rigid device, but with the ability to bend up to 90 degrees in all directions which enables easy entrance through the CT gantry.
Because Temperature Matters

This minimally invasive RFA device ensures consistent, sustained target temperatures and enables the precise ablation of predictable volumes of tissue.

**BENEFITS**

- More robust ablations
- Faster ablation times
- Scalable, spherical ablations (4-7 cm)
- Dynamic, real-time temperature readouts
- Needle track ablation
- Superb ergonomics and clinician controls
- Expandable array configuration
- Infusion-based system increases conductivity of ablation zone
- Ergonomic one hand design
- Integrated tubing set allows for easy set up

**SPECIFICATIONS**

- Nine arrays plus active trocar tip
- Four thermocouples
- Pre-attached disposable main cable

---

“With proper electrode placement and technique, a single 15 Ga. multi-tined electrode insertion can be used to cover and destroy 5 cm tumors with appropriate ablative margins.”

— NAHUM GOLDBERG, MD

Algorithm Optimization for Multitined Radiofrequency Ablation: A Comparative Study in ex vivo and in vivo bovine liver

The Ultimate in Array Design
RADIOFREQUENCY ABLATION

**StarBurst XL RFA Device**

Its real-time, multi-point temperature feedback system ensures sustained target temperatures during the procedure. The patented temperature based end point provides predictable volumes of ablation with low local recurrence rates. Needle track ablation, adjustable array size, and temperature based technology of the revolutionary, first-generation StarBurst XL RFA electrode assures a high level of confidence that coagulative necrosis is taking place throughout the targeted radiofrequency interstitial tissue ablation.

![Image of StarBurst XL RFA Device](image)

**StarBurst XL Semi-Flex RFA Device**

The StarBurst Semi-Flex RFA electrode is a versatile device that features both rigid (metal) and flexible (polymer) trocar sections. Its ability to bend up to 90 degrees in all directions enables easy gantry entrance for MRI and CT systems. This teaming of innovative needle design with imaging systems compatibility allows the StarBurst Semi-Flex RFA electrode to be used in percutaneous procedures. With multiple spherical ablation size capabilities of up to 5 cm in diameter at 1 cm increments, the Semi-Flex covers a broad spectrum of applications.

![Image of StarBurst XL Semi-Flex RFA Device](image)
Because Temperature Matters

This minimally invasive RFA device ensures consistent, sustained target temperatures and enables the precise ablation of predictable volumes of tissue.

BENEFITS

- A single device with the capability to produce scalable, spherical ablations (3-5 cm)
- Patented expandable, multi-array space filling configuration
- Predictable, repeatable ablations²
- Multi-point temperature feedback with dynamic, real-time readouts
- 5 mm active tip allows for needle track ablation
- Slim handle design
- Small minimally invasive incision with no soft tissue introducer required
- Fits both CT and MRI gantries
- Beveled surgical tip for easier penetration of hard tumors

SPECIFICATIONS

- Nine arrays plus active trocar tip
- Five thermocouples

Scalable Spherical Ablations (3-5 cm)

Diagram drawn to scale

<table>
<thead>
<tr>
<th>Size (cm)</th>
<th>Volume (cm³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0 †</td>
<td>65.5</td>
</tr>
<tr>
<td>4.0 † †</td>
<td>33.5</td>
</tr>
<tr>
<td>3.0 † †</td>
<td>14.1</td>
</tr>
</tbody>
</table>

† The Cannula tip should be 1.5 cm from the center of the ablation
† † The Cannula tip should be 1.0 cm from the center of the ablation

531 ablated lesions in 154 patients confirmed the optimal algorithms for creating dependable, reproducible zones of ablation up to 5 cm with the StarBurst XL RFA device.


StarBurst SDE RFA Device

The StarBurst SDE RFA electrode features a first in the industry: unique, side-deployed arrays that allow physicians to precisely position the trocar tip and see its location with greater ease. It is designed for small lesions, where a finer gauge may be of benefit. With the StarBurst SDE RFA electrode, stage deployment is not required. Instead, physicians deploy the device to the desired size and maintain the prescribed temperature and duration to complete the ablation. Like all StarBurst RFA devices, the SDE features controlled temperature monitoring, through multi-point temperature feedback.

SDE Scalable Spherical Ablations (2 cm)

Diagram drawn to scale

<table>
<thead>
<tr>
<th>Size (cm)</th>
<th>Volume (cm³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0 †</td>
<td>14.2</td>
</tr>
</tbody>
</table>

† The Cannula tip should be 1.5 cm from the center of the ablation

SDE BENEFITS

- Straight needle with side-deployed arrays
- Small needle gauge and sharper trocar tip for easier access into the lesion site
- Smaller spherical ablations (2 cm)
- Dynamic, real-time temperature readouts
- Multi-point temperature feedback
- Patented side-deployment array design

SDE SPECIFICATIONS

- Three arrays plus active trocar tip
- Three thermocouples
The Ultimate in Linear Deployment
RADIOFREQUENCY ABLATION

UniBlate RFA Device

The UniBlate® RFA electrode provides linear, scalable ablations from 1 to 3 cm in length and 1 to 2.5 cm in diameter. The benefits of ablation scalability with the same electrode are lower product stocking costs and the ability to spare the most normal tissue possible.

The UniBlate electrode provides a very low profile for CT gantry compatibility. A built-in thermocouple provides full temperature feedback and RF power control, as well as a cool down cycle and track ablation capabilities.

FEATURES & BENEFITS
• UniBlate exclusive linear deployment electrode feature allows user to "dial in" the desired length of active electrode
• The most CT-gantry compatible electrode available with right angle cable connection
• Built in cool down process after each ablation
• Provides full track ablation capabilities
• Eliminates the need to stock multiple electrodes for multiple ablation volumes
• Fully compatible with the AngioDynamics 1500X RF Generator
• Added safety near critical structures

SPECIFICATIONS
• Single 17 gauge cannula electrode with scalable active length from 1-2.5 cm
• One thermocouple

3. In Vivo Porcine Ablation Data per UniBlate IFU
Model 1500X RF Generator

The 1500X Electrosurgical Radiofrequency Generator supplies radiofrequency (RF) energy for the partial or complete coagulation and ablation of soft tissue. The 1500X is specifically designed to be compatible with the full family of AngioDynamics RFA based electrodes. The innovative electrosurgical devices can be utilized in percutaneous, open or laparoscopic surgical procedures.

**BENEFITS**

- Generator is equipped with computer driven protocols that automatically adjust wattage to maintain optimal temperatures during the ablation.
- Temperature monitoring is in real time, which gives immediate visibility of the ablation zone and repeatable, reliable procedure endpoints.
- 250 Watts of power combined with the IntelliFlow saline infusion pump allows faster and larger ablations.
- Immediately recognizes the full family of AngioDynamics electrosurgical devices as they are plugged in and automatically sets the system to pre-loaded soft tissue protocols.
- Remote foot pedal available for hands-free device activation.
- “Smart Card” Technology means that upgrades can be accomplished with little or no additional capital expense.

**SPECIFICATIONS**

- Dimensions: 14.75”w x 17.0”d x 5.25”h (37.5 cm x 43 cm x 13.5 cm)
- Weight: 23 lbs (10 kg)
- Power: 1–250 Watts
- Frequency: 460 kHz
- Power Delivery Accuracy: 20%
- Power Supply: 110–240 volts, 50–60 Hz, universal power supply
- Temperature Control Range: 15–125°C, ±3°C, up to 8 independent channels
- Efficiency Range: 1–10

Compatible with the StarBurst and Habib families of devices
IntelliFlow Pump

The IntelliFlow peristaltic infusion pump is used in conjunction with the 1500X radiofrequency generator for the coagulation and ablation of soft tissue. The IntelliFlow offers the ultimate in ease of use, while delivering infused saline with automated precision. The IntelliFlow pump is specifically designed to be used with all infusion based StarBurst electrosurgical devices.

BENEFITS

• Automated communication with 1500X generator
• Integrated IV pole
• No battery to recharge
• No additional settings required
• Easy loading & securing of tubing sets
• Storage drawer for accessories
• Tubing sets are sterile and pre-attached to StarBurst family of infusion devices
• Occlusion bed offers easy device set up

SPECIFICATIONS

• Dimensions: 14.75”w x 8.8”d x 6.25”h (37.46 cm x 22.35 cm x 15.90 cm)
• Weight: 10 lbs (4.5 kg)
• Power: 100 – 240 VAC
• Frequency: 50 or 60 Hz
• Operating Temperature: 15°C – 35°C
• Speed/Flow Rate: 1– 40 rpm (.05 –.7ml/min)

Occlusion Bed

Compatible with all StarBurst infusion-based devices
### STARBURST TALON ELECTRODES

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Length</th>
<th>UPN</th>
<th>Outer Diameter (O.D.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>StarBurst Talon Electrode</td>
<td>15 cm</td>
<td>700-102847</td>
<td>14 gauge/6.4 French</td>
</tr>
<tr>
<td>StarBurst Talon Electrode</td>
<td>25 cm</td>
<td>700-102846</td>
<td>14 gauge/6.4 French</td>
</tr>
</tbody>
</table>

### STARBURST TALON SEMI-FLEX ELECTRODE

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Length</th>
<th>UPN</th>
<th>Outer Diameter (O.D.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>StarBurst Talon Semi-Flex Electrode</td>
<td>25 cm</td>
<td>700-102845</td>
<td>14 gauge/6.4 French (rigid portion)</td>
</tr>
</tbody>
</table>

### COAXIAL ACCESS SYSTEM INTRODUCERS

<table>
<thead>
<tr>
<th>Introducer Type</th>
<th>Length</th>
<th>UPN</th>
<th>Talon 15 cm</th>
<th>Talon 25 cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard Introducer</td>
<td>6 cm</td>
<td>700-102330</td>
<td>to 12 cm mark</td>
<td>to 12 cm mark</td>
</tr>
<tr>
<td>Hard Introducer</td>
<td>11 cm</td>
<td>700-102331</td>
<td>not compatible</td>
<td>to 17 cm mark</td>
</tr>
</tbody>
</table>

### STARBURST XLI-ENHANCED ELECTRODES

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Length</th>
<th>UPN</th>
<th>Outer Diameter (O.D.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>StarBurst Xli-enhanced Electrode</td>
<td>12 cm</td>
<td>700-103027</td>
<td>14 gauge/6.4 French</td>
</tr>
<tr>
<td>StarBurst Xli-enhanced Electrode</td>
<td>25 cm</td>
<td>700-103024</td>
<td>14 gauge/6.4 French</td>
</tr>
</tbody>
</table>

### STARBURST XLI-ENHANCED SEMI-FLEX ELECTRODE

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Length</th>
<th>UPN</th>
<th>Outer Diameter (O.D.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>StarBurst Xli-enhanced Semi-Flex Electrode</td>
<td>25 cm</td>
<td>700-104077</td>
<td>14 gauge/6.4 French (rigid portion)</td>
</tr>
</tbody>
</table>

### COAXIAL ACCESS SYSTEM INTRODUCERS

<table>
<thead>
<tr>
<th>Introducer Type</th>
<th>Length</th>
<th>UPN</th>
<th>Xlie 12 cm</th>
<th>Xlie 25cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard Introducer</td>
<td>6 cm</td>
<td>700-102330</td>
<td>to 10 cm mark</td>
<td>to 10 cm mark</td>
</tr>
<tr>
<td>Hard Introducer</td>
<td>11 cm</td>
<td>700-102331</td>
<td>not compatible</td>
<td>to 15 cm mark</td>
</tr>
</tbody>
</table>
### STARBURST XL ELECTRODES

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Length</th>
<th>UPN</th>
<th>Outer Diameter (O.D.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>StarBurst XL Electrode</td>
<td>10 cm</td>
<td>700-101930</td>
<td>14 gauge/6.4 French</td>
</tr>
<tr>
<td>StarBurst XL Electrode</td>
<td>15 cm</td>
<td>700-101320</td>
<td>14 gauge/6.4 French</td>
</tr>
<tr>
<td>StarBurst XL Electrode</td>
<td>25 cm</td>
<td>700-101317</td>
<td>14 gauge/6.4 French</td>
</tr>
<tr>
<td>StarBurst XL Electrode w/ attached cable</td>
<td>10 cm</td>
<td>700-103903</td>
<td>14 gauge/6.4 French</td>
</tr>
<tr>
<td>StarBurst XL Electrode w/ attached cable</td>
<td>15 cm</td>
<td>700-103902</td>
<td>14 gauge/6.4 French</td>
</tr>
<tr>
<td>StarBurst XL Electrode w/ attached cable</td>
<td>25 cm</td>
<td>700-103901</td>
<td>14 gauge/6.4 French</td>
</tr>
<tr>
<td>Main Cable (Green - 9 to 14 pin)</td>
<td>n/a</td>
<td>700-101892</td>
<td>n/a</td>
</tr>
</tbody>
</table>

### STARBURST XL SEMI-FLEX ELECTRODES

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Length</th>
<th>UPN</th>
<th>Outer Diameter (O.D.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>StarBurst XL Semi-Flex Electrode</td>
<td>25 cm</td>
<td>700-102615</td>
<td>14 gauge/6.4 French</td>
</tr>
<tr>
<td>StarBurst XL Semi-Flex Electrode w/ attached cable</td>
<td>25 cm</td>
<td>700-103909</td>
<td>14 gauge/6.4 French</td>
</tr>
</tbody>
</table>

### COAXIAL ACCESS SYSTEM INTRODUCTORS

<table>
<thead>
<tr>
<th>Introducer Type</th>
<th>Length</th>
<th>UPN</th>
<th>XL 10 cm</th>
<th>XL 15 cm</th>
<th>XL 25 cm</th>
<th>XL Semi-Flex 25 cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard Introducer</td>
<td>6 cm</td>
<td>700-102330</td>
<td>to hub</td>
<td>to 10 cm mark</td>
<td>to 10 cm mark</td>
<td>to 10 cm mark</td>
</tr>
<tr>
<td>Hard Introducer</td>
<td>11 cm</td>
<td>700-102331</td>
<td>not compatible</td>
<td>to hub</td>
<td>to 15 cm mark</td>
<td>to 15 cm mark</td>
</tr>
</tbody>
</table>

### STARBURST SDE ELECTRODES

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Length</th>
<th>UPN</th>
<th>Outer Diameter (O.D.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>StarBurst SDE Electrode</td>
<td>12 cm</td>
<td>700-102486</td>
<td>17 gauge/4.5 French</td>
</tr>
<tr>
<td>StarBurst SDE Electrode w/ attached cable</td>
<td>12 cm</td>
<td>700-103908</td>
<td>17 gauge/4.5 French</td>
</tr>
</tbody>
</table>

### UNIBLATE ELECTRODES

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Length</th>
<th>UPN</th>
<th>Outer Diameter (o.d.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UniBlate</td>
<td>10 cm</td>
<td>700-103598</td>
<td>17 gauge / 5 French</td>
</tr>
<tr>
<td>UniBlate</td>
<td>15 cm</td>
<td>700-103597</td>
<td>17 gauge / 5 French</td>
</tr>
<tr>
<td>UniBlate</td>
<td>25 cm</td>
<td>700-103530</td>
<td>17 gauge / 5 French</td>
</tr>
</tbody>
</table>
### MODEL 1500X RF GENERATOR AND ACCESSORIES

<table>
<thead>
<tr>
<th>Product Name</th>
<th>UPN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1500X RF Generator</td>
<td>700-101731</td>
</tr>
<tr>
<td>Main Cable (Green–9 to 14 pin)</td>
<td>700-101892</td>
</tr>
</tbody>
</table>

### MODEL 1500X RF GENERATOR REPLACEMENT PARTS

<table>
<thead>
<tr>
<th>Product Name</th>
<th>UPN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foot Switch</td>
<td>400-100453</td>
</tr>
<tr>
<td>Power Cord</td>
<td>400-100702</td>
</tr>
</tbody>
</table>

### INTELLIFLOW PUMP

<table>
<thead>
<tr>
<th>Product Name</th>
<th>UPN</th>
</tr>
</thead>
<tbody>
<tr>
<td>IntelliFlow Pump</td>
<td>700-102941</td>
</tr>
</tbody>
</table>

### INTELLIFLOW PUMP REPLACEMENT PARTS

<table>
<thead>
<tr>
<th>Product Name</th>
<th>UPN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump Communication Cable</td>
<td>700-102801</td>
</tr>
<tr>
<td>Power Cord</td>
<td>400-100702</td>
</tr>
<tr>
<td>Occlusion Bed</td>
<td>700-102938</td>
</tr>
</tbody>
</table>
INDICATIONS FOR USE: The IntelliFlow Infusion Pump, Tubing Set and Reusable Occlusion Bed is designed for use in conjunction with the 1500X Radiofrequency (RF) Generator to provide local delivery of saline through the irrigation ports of the electrosurgical device during radiofrequency ablation procedures. The 1500X Generator (with software version 8.10 or higher) provides monopolar RF energy and is indicated for use in percutaneous, laparoscopic, or intraoperative coagulation and ablation of soft tissue.

CAUTION: Federal (USA) law restricts the sale of these devices by or on the order of a physician.

CONTRAINDICATIONS: Do not use the IntelliFlow Pump for drug delivery, for intravascular, intra-articular or epidural delivery of fluids, or during MRI procedures. The use of the 1500X Generator is contraindicated in the presence of flammable anesthetics, oxygen-enriched or explosive atmospheres.

WARNINGS AND PRECAUTIONS: Do not use the IntelliFlow Pump if four or more tubes become occluded, as improper or unpredictable lesion size may result. Do not use the IntelliFlow Pump if damage is suspected. Electric shock hazard: do not saturate the IntelliFlow Pump with liquids or allow liquids to run inside the unit, or immerse the IntelliFlow Pump in water; do not use the RF Generator if it has been dropped or damaged, and do not remove the cover of the RF Generator. There are no user-serviceable parts inside the RF Generator. Refer all service to AngioDynamics, Inc. Use of the 1500X Generator may interfere with the operation of other electronic medical equipment. In the case of a pacemaker, a theoretical hazard exists because interference with the action of the pacemaker may occur, and the pacemaker may reset to its factory default; it is recommended that a patient see a cardiologist after the procedure to verify functionality of the pacemaker. It is important to read, understand and follow the instructions, warnings and precautions supplied with the equipment in order to enhance procedure safety and effectiveness.

POTENTIAL COMPLICATIONS: Possible complications include bleeding, infection, wound dehiscence, gas embolism, nerve damage, electric shock or thermal injury.

Indications, contraindications, warnings and instructions for use can be found in the instructions for use supplied with each device. Observe all instructions prior to use. Failure to do so may result in patient complications.

CAUTION: Federal (USA) law restricts the sale of the device by or on the order of a physician.

The StarBurst Talon, StarBurst Xli-enhanced, StarBurst XL, StarBurst MRI and StarBurst SDE Electrosurgical Devices are tools to transmit monopolar radiofrequency energy (provided by the 1500X RF Generator) in conjunction with the IntelliFlow Infusion pump. They are indended for use in percutaneous, laparoscopic, or intraoperative coagulation and ablation of soft tissue including the partial or complete ablation of non-resectable liver lesions, osteoid osteoma, and palliation of pain associated with metastatic lesions involving bone in patients who have failed or are not candidates for standard therapy.

DESCRIPTION: The UniBlate device consists of an insulated primary trocar with two infusion holes and a temperature sensor positioned at the distal end. The UniBlate device is designed to fit in a CT gantry, is available in 10mm, 15mm & 25mm lengths and has a integrated main cable and tubing set. To be used in conjunction with the RITA 1500X RF Generator and IntelliFlow Infusion pump for the ablation of soft tissue.

WARNINGS: The distal 4 mm of the device is NOT Radio opaque and will not appear under CT imaging. If the Tubing Set becomes occluded, improper or unpredictable lesion size may result. Do not attach anything (i.e., clamps, etc.) to the device. This may damage the insulation, which could contribute to patient injury. Patients with peripheral vascular deficiency are at increased risk of thermal injury from Dispersive electrodes. Patients with frail skin are at increased risk of skin damage from the adhesive on the Dispersive pads. Reuse of single-use devices creates a potential risk of patient or user infections. Contamination of the device may lead to injury, illness or death of the patient. Reprocessing may compromise the integrity of the device and/or lead to device failure. PRECAUTIONS: Do not bend or kink the trocar. This may cause damage and result in a nonfunctional device. If the device is being used in a laparoscopic procedure, care must be taken to avoid a gas embolism. If the device is being used in a laparoscopic procedure, activation of the device when not in contact with target tissue may cause capacitive coupling. Having RF power on at the same time as infusion using a method different from these instructions may alter the path of the electrical energy away from target tissues.

Refer to individual product IFUs and/or User Manual to see full Indications, contraindications, warnings and precautions. Observe all instructions prior to use. Failure to do so may result in patient complications.

CAUTION: Federal (USA) law restricts the sale of the device by or on the order of a physician.

Consult your AngioDynamics representative for country specific product availability.