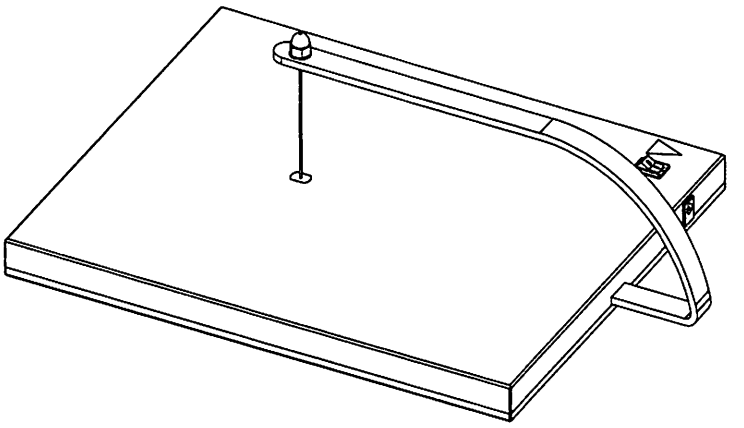
AKTINA
MEDICAL

# Hot Wire Cutter

53-046

For use with Aktina Electron Beam Shaping Systems



## USER MANUAL

CE 0086



DOC 53-046-55 rev 00

# Table of Contents

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Before attempting to work with this device, read the manual thoroughly, paying particular attention to all **Warnings**, **Cautions** and **Notes** incorporated into it. Special attention should be paid to all the information given and procedures described in the Safety section.

Document: 53-046-55, Ver 00
Revised: 5/16/07

Before installing the device and putting it into use, please read this entire manual first.

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# List of Warnings

Make sure to shut the unit off when not in use. Failure to do so may lead to risk of fire.

Do not use the device around flammable items. Failure to do so may lead to risk of fire.

The operator should always ensure that their skin does not come in contact with the hot-wire element. Failure to do so may may cause skin burns.

The device should only be operated by trained or qualified personnel. Failure to do so may result in damage to the equipment or bodily injury.

Do not use the device near flammable substances. Doing so may result in skin burns or fire.

Make sure to trim away any excess cutting wire that can be sticking out from underneath the acorn nut. Failure to do so may result in a sharp object which can seriously harm the user.

# List of Cautions

Federal law restricts this device to sale by or on the order of a physician.

Make sure to cut the foam at a slow pace. Do not force the cutting wire through the foam. Failure to do so can cause damage to the product.

Never use corrosive cleaning agents, solvents or abrasive detergents. Do not use aerosol sprays. If you are unsure of the nature of the cleaning agent, then do not use it.

Do not discard this equipment or any parts of it with industrial or domestic waste. Contact your local distributor or Aktina Medical Corporation for the safe and effective disposal of this equipment.

# Chapter 1 INTRODUCTION

## 1.1 INTENDED USE

The intended use of the Hot Wire Cutter is to provide a means for cutting styrofoam precuts that can be used in Aktina Electron Beam Shaping molds.

**Warning.** The device should only be operated by trained or qualified personnel. Failure to do so may result in damage to the equipment or bodily injury.

**Caution.** Federal law restricts this device to sale by or on the order of a physician.

## 1.2 TRANSPORTATION AND STORAGE CONDITIONS

The device will maintain proper performance with normal use under the least favorable of the following conditions:

- Ambient temperature range from $10°C$ $(50°F)$ to $40°C$ $(104°F)$.
- Relative humidity range of 30% to 75%.
- Atmospheric pressure range of 700hpa to 1060hpa.

The device will not be adversely affected for up to 15 weeks while packed for transport or storage or exposed to:

- Ambient temperature range from $-40°C$ $(-40°)F$ to $70°C$ $(158°F)$.
- Relative humidity range of 10% to 100%.
- Atmospheric pressure range of 500hpa to 1060hpa.

## 1.3 PRODUCT LIFE

The product life of the product is 10 years.

## 1.4 AUTHORIZED REPRESENTATIVE TO THE EU

ELEKTA Limited
Fleming Way
Crawley, West Sussex RH10 9RR, UK
Tel: 44 (0) 1293 544422

Fax: 44 (0) 1293 654321

## 1.5 ALERT SYMBOLS

**Warnings are directions, which if not followed, could cause fatal or serious injury to a user, engineer, patient or any other person.**

**Cautions are directions, which if not followed, could cause damage to the equipment.**

**Notes are intended to highlight unusual points as an aid to the user.**

# Chapter 2 SAFETY

**Warning.** Make sure to shut the unit off when not in use. Failure to do so may lead to risk of fire.

**Warning.** Do not use the device around flammable items. Failure to do so may lead to risk of fire.

**Warning.** The operator should always ensure that their skin does not come in contact with the hot-wire element. Failure to do so may may cause skin burns.

**Warning.** Do not use the device near flammable substances. Doing so may result in skin burns or fire.

# Chapter 3 PRODUCT DESCRIPTION

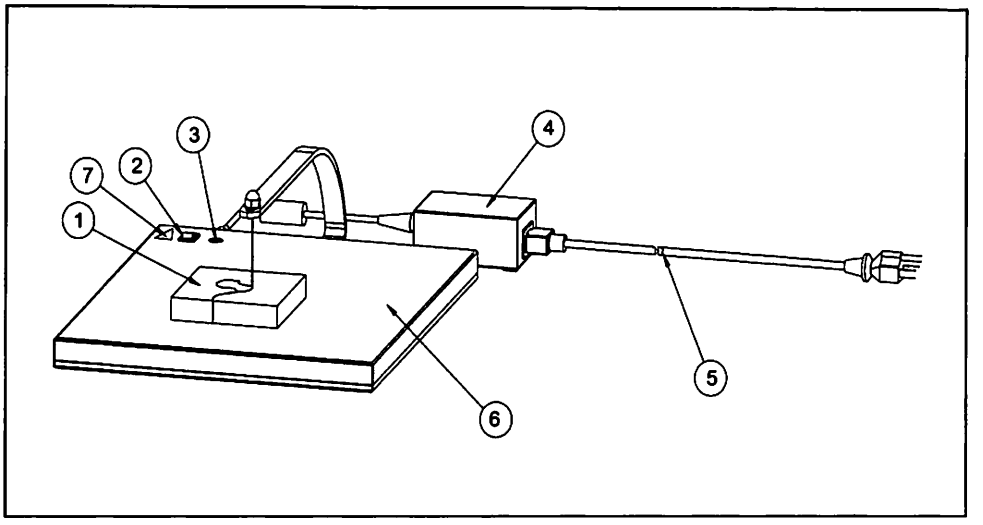


**Figure 1: Overall description of hot-wire cutter.**

| | |
|---|---|
| 1 | Styrofoam Precut (sold seperately) |
| 2 | Power Switch |
| 3 | Power Indicator |
| 4 | Power Supply |
| 5 | Power Cord |
| 6 | Hot-Wire Cutter |
| 7 | Warning Label - Refer to Manual |
| | Extra replacement cutting wire (5 feet), not shown |

## 3.1 TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Weight | 12.24 lbs |
| Device Input Power | 3.3 V, 5A |
| Power Supply Input | 110 - 220 V, 50 - 60 Hz |

# Chapter 4 PRODUCT USE

## 4.1 ASSEMBLY

The only assembly required involves attaching the power cord to the power supply and the power supply to the unit.

## 4.2 TURNING ON / OFF THE UNIT

Turn the unit ON or OFF by toggling the power switch (item 2 in Figure 1). The Power Indicator is illuminated when the unit is powered on.

**Warning.** Make sure to shut the unit off when not in use. Failure to do so may lead to risk of fire.

## 4.3 USING A SAFE ENVIRONMENT

Before using the device, prepare an area where the device can be positioned and used safely. The following should be considered when choosing and preparing a work area:

- The area should be free of flammable substances.
- The area should be close to a power outlet.
- The area should be clean and not cluttered so that other objects do not come in contact with the device.

## 4.4 CUTTING FOAM.

The technique for preparing foam cut-outs is shown in Figure 2.

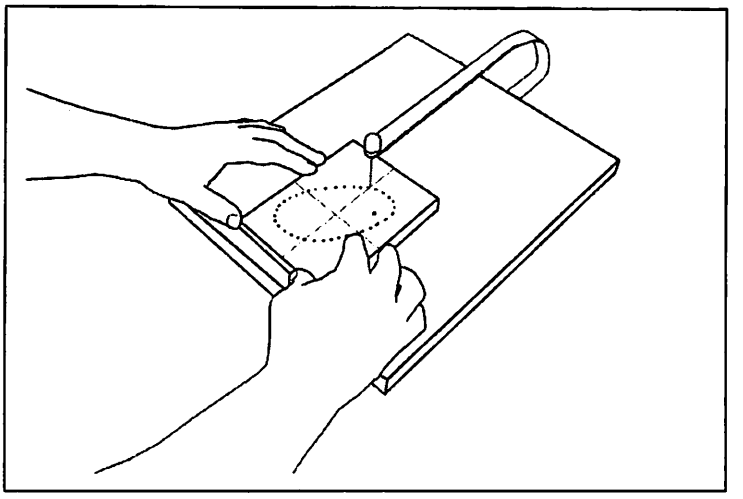

**Figure 2: Technique for preparing foam cut-outs.**

**Warning.** The operator should always ensure that their skin does not come in contact with the hot-wire element. Failure to do so may may cause skin burns.

**Cautions.** Make sure to cut the foam at a slow pace. Do not force the cutting wire through the foam. Failure to do so can cause damage to the product.

**Warning.** Do not use the device near flammable substances. Doing so may result in skin burns or fire.

# Chapter 5 MAINTENANCE & SERVICE

## 5.1 REPLACING THE CUTTING WIRE

Inspect the Hot Wire Cutter wire periodically for damage resulting from normal use. The system is shipped with approximately 4 feet of extra cutting wire (this should be sufficient for 4-5 replacements). Follow the instruction below for replacing the wire.

**Required Tools:**

- 3/32" hex socket key (allen)
- cutting pliers for steel wire
- small adjustable wrench (3/4" or 20mm opening)

1. Unplug the power from the Hot Wire cutter.
2. Make sure that the wire cutting element has cooled off before proceeding.
3. Using open end wrench remove the top acorn nut
4. Remove top washer and unwrap the wire from the stud. Pull out the wire and remove the bottom washer .

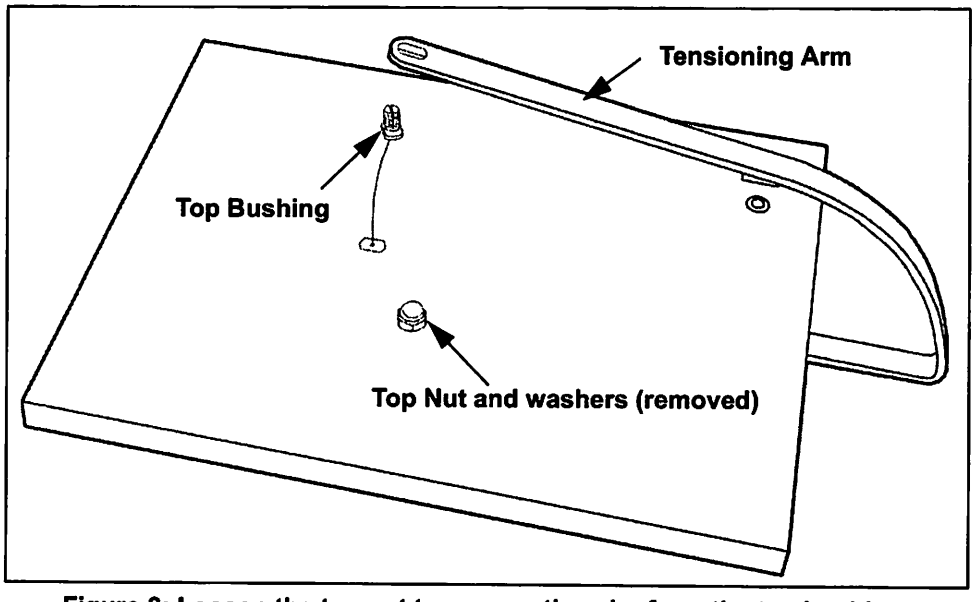


**Figure 3: Loosen the top nut to unwrap the wire from the top bushing.**

5. Remove the bottom plate and loosen the bottom nut. Unwrap the wire from the bottom bushing. Do not discard the bottom nut or washer.

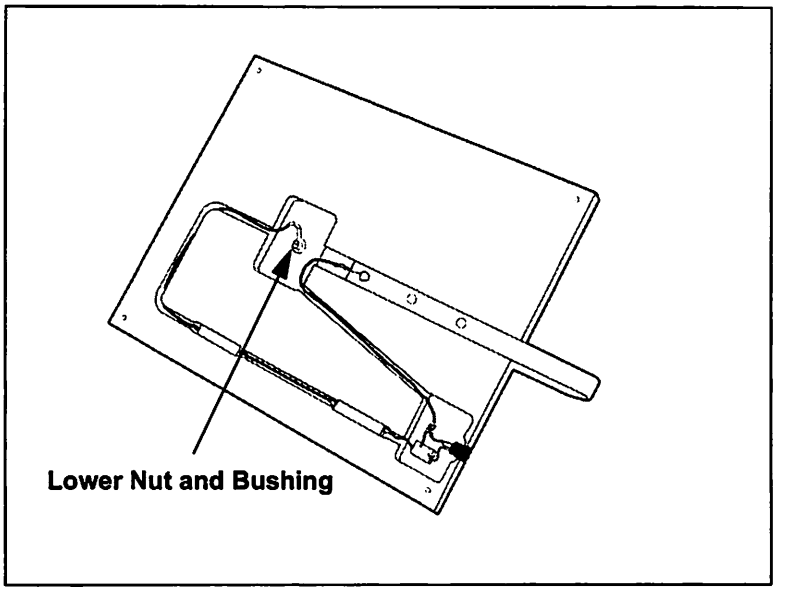


**Figure 4: Loosen the bottom nut to unwrap the wire from the bottom bushing.**

6. Remove the cutting wire.
7. Prepare approximately 10 inches of the spare wire (supplied with the unit). Contact an Aktina representative for additional wire.
8. From the top-side of the plate, push approximately 3 inches of the cutting wire through the hole in the bottom bushing (7 inches should be left on the top side of the plate).
9. From the bottom-side of the plate, wrap the wire around the bottom bushing, making sure to "sandwich" the crimp-on eye-connector between the cutting wire and the plate.
10. Replace the washer and tighten the bottom flange nut onto the bushing and replace the bottom plate and tighten firmly.
11. From the top side of the plate, pull the cutting wire trough the top bushing of the tension arm. Slide one washer over the wire and the threaded portion of the bushing. Push the tension arm downward with one hand and using the other hand wrap the tail of the resistor wire around the threads two to three times above the washer (see Figure 5, page 10). When the wire is securely wound, bend the end down and continue holding it. Release the arm, slide second washer, and thread and tighten the acorn nut. The wire should not be securely squeezed between two washers..

**Note.** Make sure the cutting wire is tight after wrapping it around the top bushing. If it is not, un-wrap it from the top bushing and bend the Tensioning Arm downward before re-wrapping it around the top bushing.

 

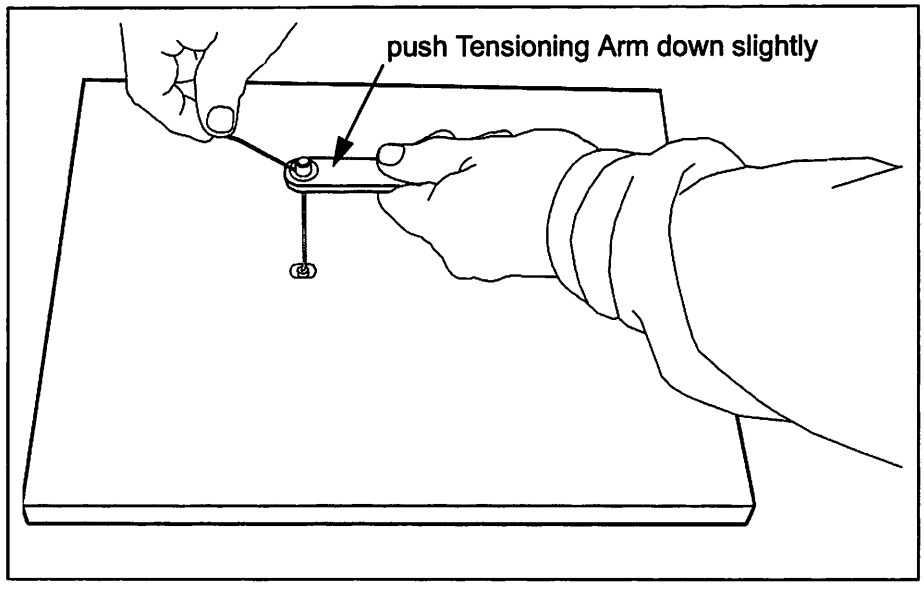


**Figure 5: Technique for wrapping the cutting wire around the top bushing.**

12. Hold the wire back with one hand and use the other hand to apply and tighten the top acorn nut (see Figure 6).

**Note.** Don't forget to use the washer below the acorn nut.

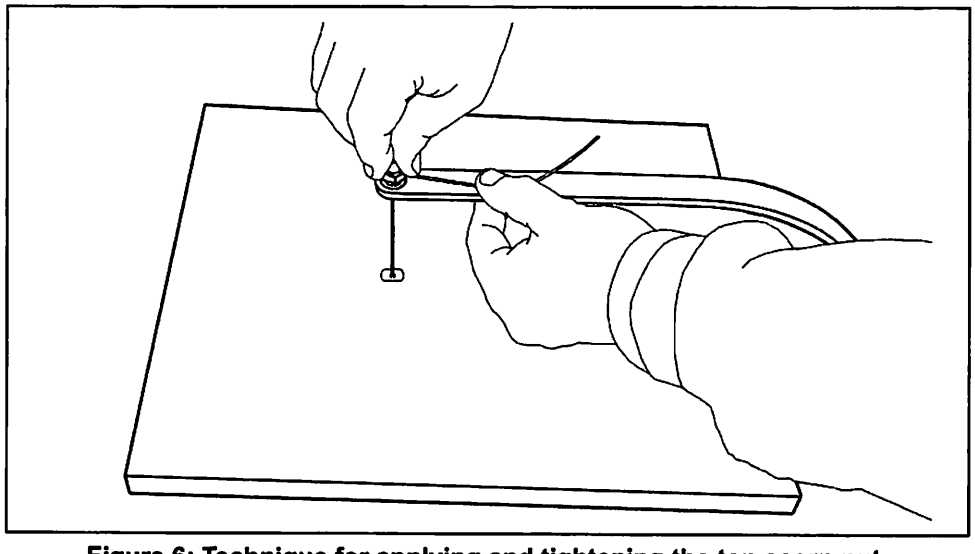

**Figure 6: Technique for applying and tightening the top acorn nut.**

13. Trim away any excess cutting wire from the top arm.

**Warning.** Make sure to trim away any excess cutting wire that can be sticking out from underneath the acorn nut. Failure to do so may result in a sharp object which can seriously harm the user.

# Chapter 6 CLEANING

In the event of contamination with bodily fluids (blood, urine, vomit, etc.), the product should be disinfected. If cleaning is required, the product should be cleaned with a damp cloth and a germicidal cleaning agent (some examples are Citrus II, Sani-Cloth, LpH or Biozide). After cleaning, rub down the table top with a dry cloth.

**Caution.** Never use corrosive cleaning agents, solvents or abrasive detergents. Do not use aerosol sprays. If you are unsure of the nature of the cleaning agent, then do not use it.

# Chapter 7 REPLACEMENT PARTS

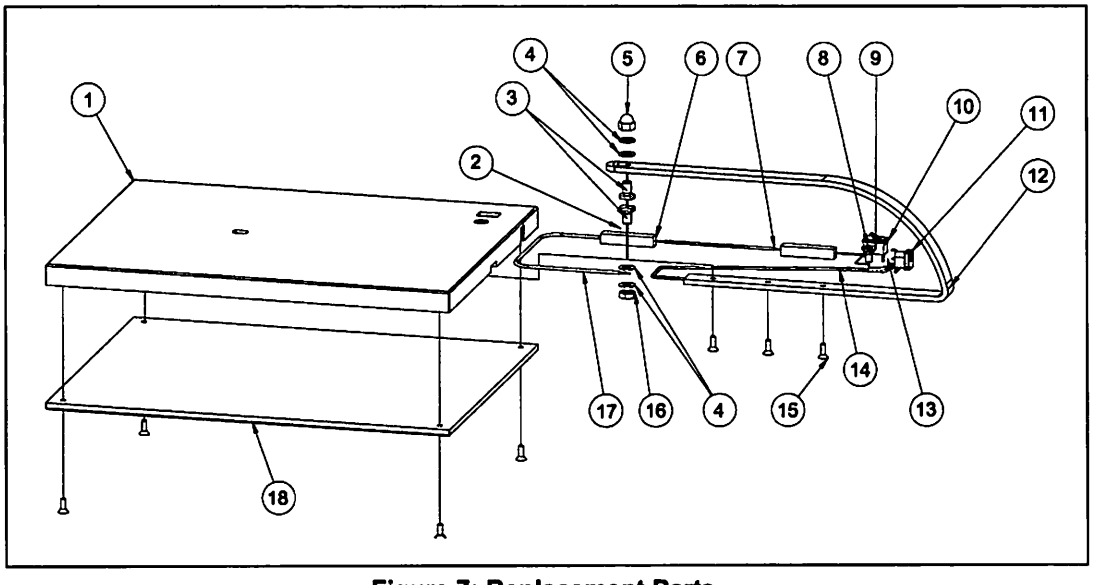


**Figure 7: Replacement Parts.**

 

| | Description | PN / Specification |
|---|---|---|
| 1 | Base | 53-046-01 |
| 2 | Bushing | 53-046-05 |
| 3 | Cutting Wire | 53-046-12 |
| 4 | Washer | .56X.32X.032 SS 18-8 |
| 5 | Acorn Nut | 5/16-18 Cr.Pltd. |
| 6 | Resistor | 10W |
| 7 | Insulated Wire | Cu, AWG 18 |
| 8 | LED Housing, Green | 35F3720 |
| 9 | Washer, Black | 6.4mmx12.5mm |
| 10 | ON/OFF Switch | 10M5262 |
| 11 | Power Jack, DC, Panel Mount | 806-KLDPX-0207-A |
| 12 | Arm | 53-046-03 |
| 13 | Insulated Wire | AWG 18, High Temp. PTFE Rated |
| 14 | Insulated Wire | AWG 18, High Temp. PTFE Rated |
| 15 | Flat Head Cap Screw | 8-32 x 0.50" L |
| 16 | Jamnut | 5/16-18 |
| 17 | Insulated Wire | AWG 18, High Temp. PTFE Rated |
| 18 | Base, Bottom Plate | 53-046-02 |

# Chapter 8 ACCESSORIES

| Part Number | Description |
|---|---|
| 53-923 | Styrofoam Precuts |
| 53-459 | Electron Transparency Templates |
| 53-460 | Electron Applicator Plates. |
| Q125-ND | North American Power Cord |
| 53-046-11 | Power Supply |

# Chapter 9 END OF LIFE DISPOSAL

**Caution.** Do not discard this equipment or any parts of it with industrial or domestic waste. Contact your local distributor or Aktina Medical Corporation for the safe and effective disposal of this equipment.