

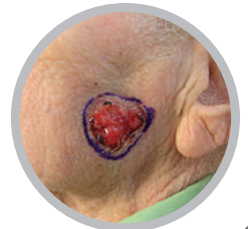
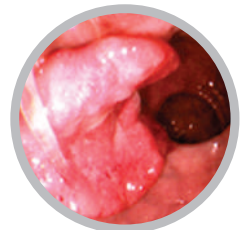
# Ariane<sup>TM</sup>

MEDICAL SYSTEMS

## P+ X-ray Brachytherapy



Breast  
+  
Rectal  
+  
Skin



# P+ X-ray Brachytherapy

*A new name for a technique that offers the advantages of Ir-192 Brachytherapy and Contact X-ray therapy*

Beam characteristics are readily optimised for each application and of course the use of low energies minimises radiation protection requirements.

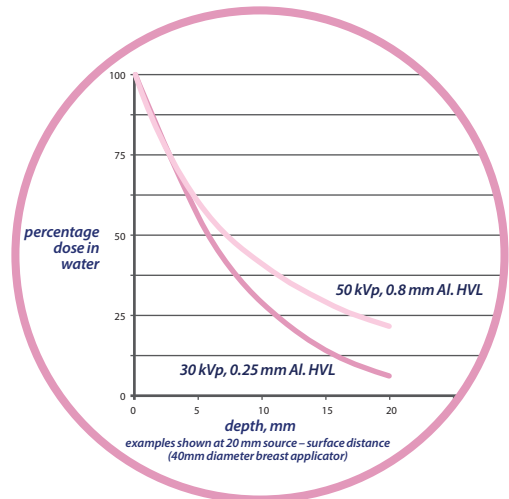
## Breast Treatment

>310° Isotropic beam direction with energy and filter combinations to reproduce Ir-192 or TARGIT trial depth dose characteristics

30 kVp 0.25 mm Al. HVL

50 kVp 0.8 mm Al. HVL

Applicators from 25 - 50 mm diameter are available.

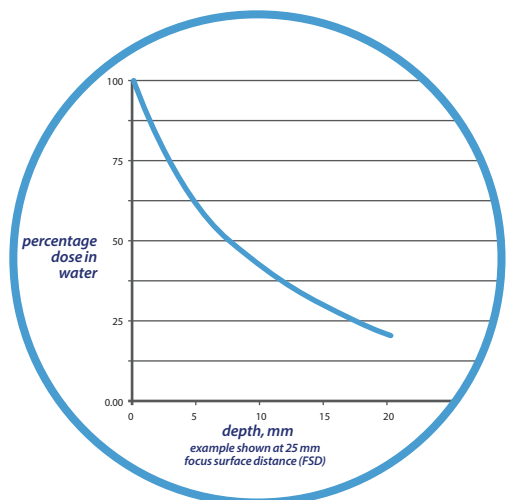


## Rectal Treatment

Classic Papillon depth dose curve.  
Beam uniformity on a planar surface with the aid of a flattening filter.

50 kVp 0.6 mm Al. HVL

Applicators from 20 - 30 mm diameter are available.

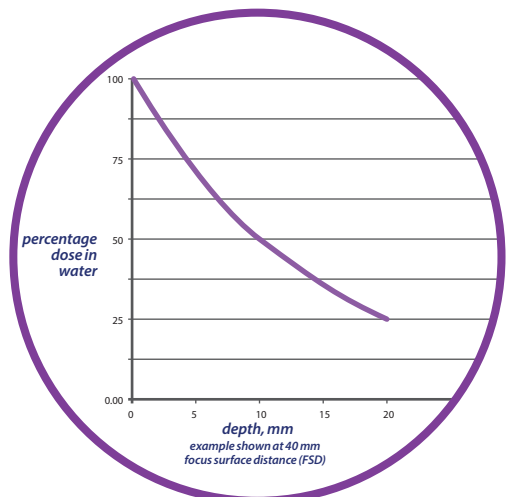


## Skin Treatment

Simple shielding is achieved with lead foil when treating irregular shapes.  
An extended treatment distance is used for large planar field sizes and to achieve increased % dose beyond 10 mm

50 kVp 0.6 mm HVL

Applicators from 10 - 60 mm diameter are available.



# Treatment of **Breast** Cancer with **P+** X-ray Brachytherapy

## 1 Local excision of the tumour (lumpectomy)

## 2 Insert and correctly position the “Nice Breast Applicator”™

Position the applicator, guided by direct vision, having selected the size that fits the cavity.

Spherical applicators are available in sizes 25 to 50mm diameter.

5  
MINUTES

## 3 The applicator position is locked

An articulated arm supports the applicator, ensuring its position is maintained throughout the treatment.

Sterile and radiation protection barriers are fitted over the support arm and patient.

2  
MINUTES

## 4 Connect the Micronode™ X-ray generator and deliver 20Gy

The transmission anode of the X-ray tube is automatically located at the centre of the spherical applicator to ensure homogenous irradiation of the excised cavity wall.

3  
MINUTES



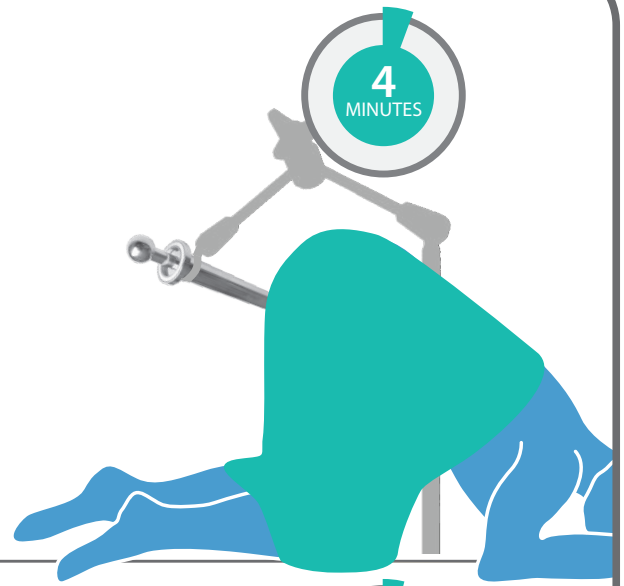
Breast  
Treatment  
Applicators



# Treatment of Rectal Cancer with P+ X-ray Brachytherapy

## 1 Insert Rectal Applicator

Following a simple out patient preparation procedure an applicator of appropriate size is inserted into the rectum with minimum discomfort.



## 2 Position

A video microscope is used to align the applicator onto the treatment site.

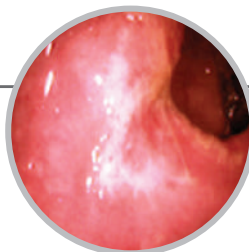
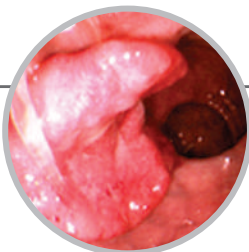
The support arm is locked to maintain the correct position and if necessary the treatment site is cleaned.



## 3 Radiation Delivery

The Micronode®. X-ray source is coupled to the applicator and the radiation dose is delivered.

The applicator position is monitored with a video microscope incorporating movement detection throughout the treatment.



Rectal  
Treatment  
Applicators



Papillon<sup>™</sup>  
X-ray Brachytherapy

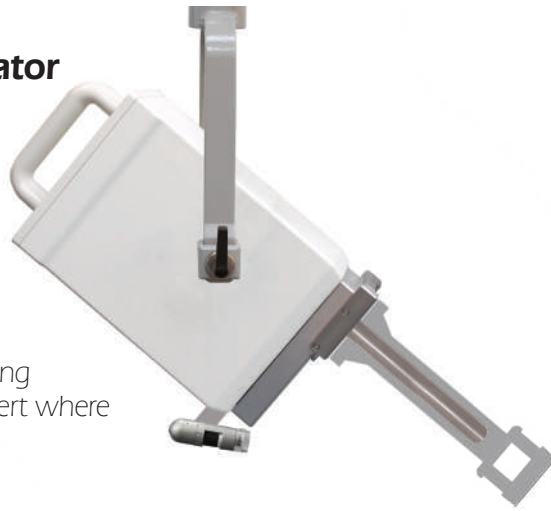
# Treatment of *Skin* Cancer with P+ X-ray Brachytherapy

1

## Mount the Applicator

3  
MINUTES

Fit the applicator to the Micronode generator having attached a collimation insert where needed.



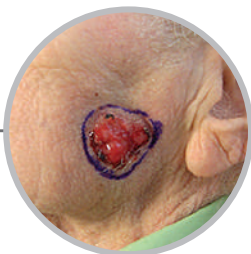
2

## Radiation Delivery

4  
MINUTES

Align the applicator with the treatment site and apply the brakes.

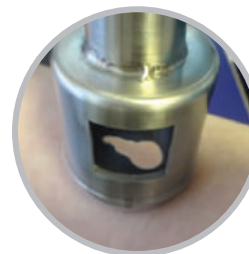
The applicator position is monitored with a video microscope incorporating movement detection throughout the treatment.



Place scaling dot next to the tumour and take an image using a digital camera.



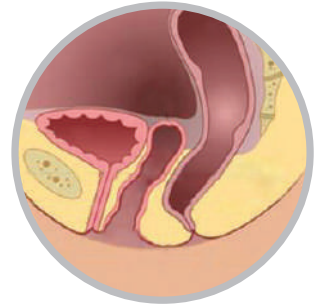
Fit computer cut shielding insert into holding cover and align with tumour.



Position collimating applicator on to the holding cover and treat.

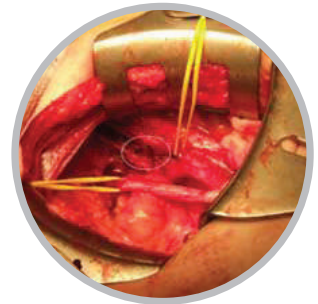
# *Further treatment modalities under development ..*

## *Intra Vaginal*



The P+ X-ray Brachytherapy radiation characteristics that mimic Ir-192 at short distances are ideally suited to post operative vaginal cuff treatment. A “step and shoot” technique is being developed to deliver a uniform axial dose via a disposable applicator system.

## *IORT*



The P+ X-ray Brachytherapy offers a simple and accurate means of delivering a local “boost” treatment during surgery to complement regional external beam radiation therapy. The oblique applicators that are under development facilitate access to the most difficult treatment sites.

## *Intra Oral*



The P+ X-ray brachytherapy offers a simple and accurate means of delivering a local “boost” treatment. With the integral viewing system this provides accurate positioning. The oblique applicators that are under development facilitate access to the most difficult treatment sites.



# ***A Turnkey Solution***

## ***Monitus Door Warning System***

An optional system with radiation on alert lights, PIR sensors and incorporates a wireless communication module that interfaces with door warning units and an encrypting multiplexer that combines warning status information with X Ray generator, activation switch and Prefectus QA control.

**Monitus !**  
Safety System

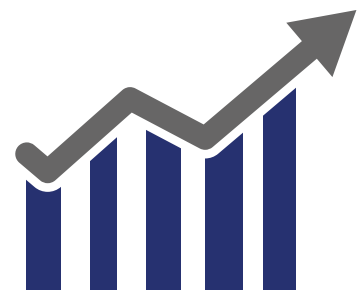
## ***Prefectus QA***

The on-board system provides a convenient means to confirm dose, energy and beam characteristics have not deviated from the reference measurements prior to treatment.

**Prefectus**  
**QA** ✓

## ***Business Case***

The P+ X-Ray Brachytherapy is a low cost, mobile, delivery system which offers single or multiple treatment options within one platform. The rectal 'Papillon' treatment option offers reduced surgical and hospital time care cost reductions along with ongoing Stoma and nurse expenses, all based around an outpatient clinic set-up. The IORT breast treatment can deliver the trial affirmed treatment dose in just a couple of minutes, freeing up valuable Operating Room and staffing time compared to other systems on market. The Skin application is perfect for the ever growing number of superficial cancer cases and by utilising our new Irregular field shielding technique it ensures a quick treatment delivery without surgical cost whilst, freeing up expensive Linac or HDR time being used. The low level shielding requirements along with a remote door security and QA systems allow for safe room use without any capital expenditure on OR modifications. One system – Multiple treatments.



## Product Specification

Energy (kVp)	30 or 50
HVL (mm Al.)	0.25 - 0.8
Focal spot diameter	4 mm
Dose-rate at 20 mm FSD	>8 Gy/min, 30 kVp >20 Gy/min, 50 kVp
Treatment termination, primary	Pseudo dose (anode MAS)
Treatment termination, secondary	Independent timer with battery back up supply
Useful anode rod length	17 cm
Anode rod diameter, total	17 mm
Beam angle, maximum	310 degrees
Tumour viewing	Applicator-mounted video microscope with local viewing screen (rectal only)
Duty cycle @ 25 degrees C. ambient	Continuous
Power requirement	X Ray Generator, battery powered. Workstation battery powered. (Battery charger included)
Applications	Breast, Rectal, Skin, Vaginal, general IORT (all require the appropriate accessory package)
For further details please see product specification documents and site planning guide	

### Represented by:

**[www.arianemedicalsystems.com](http://www.arianemedicalsystems.com)**

*We reserve the right to make changes to the products described in this material without giving prior notice*

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Brochure design. [www.eleydesign.co.uk](http://www.eleydesign.co.uk)