

MultiSource®

Cost Efficient Brachytherapy Solution



The MultiSource® HDR afterloader system is designed for the entire range of HDR brachytherapy applications using a Co-60 or an Ir-192 source.

■ Application

MultiSource® HDR is a 20 channel afterloader, specially developed for safe, accurate and cost efficient intraluminal, interstitial, intracavitary, intra-operative and surface mould treatments. A complete range of applicators, catheters, needles and templates is available.

■ Miniaturised Co-60 Source

IBt Bebig's proven expertise in the manufacturing of sealed sources has resulted in a miniaturised high activity Co-60 source, which is the same size as a conventional Ir-192 source. A miniaturised Co-60 afterloader source can be used for the same applications and

delivers equivalent treatment results as the standard Ir-192, but at a lower operating cost per treatment.

■ Lower Operating Costs with Co-60

To provide the clinic with a very cost efficient solution, MultiSource® HDR can be equipped with a Co-60 source. Just one source exchange per 10 years of operation is usually required, compared to 35 to 40 source exchanges for conventional Ir-192. This results in a significant reduction in expenses for sources, transport, service and patient treatment.

■ Integrated Calibration System

An integrated fixed-length path guarantees a precise calibration of the source transportation system. In addition, source position accuracy can be independently verified with the integrated camera.

■ Automatic Length Verification

MultiSource® HDR measures every applicator, catheter and needle length

automatically. This unique feature guarantees precise treatment and ensures that only the preselected applicator is connected to the treatment unit.

■ Integrated Dosimetry System

IBt Bebig offers an optional In-Vivo dosimetry system which is fully integrated into the MultiSource® HDR afterloader. This built-in system saves space and provides a more comfortable handling. The MultiSource® Software directly controls the dosimetry system and allows for the specification of dose limits and the display of rectum and bladder doses.

■ Choice of different sources

The MultiSource® HDR can be equipped with a Co-60 or an Ir-192 source. IBt Bebig offers two different versions of the MultiSource® HDR with the corresponding shielding: One version is designed for the use with a Co-60 or an Ir-192 source, the other version is designed for use with only an Ir-192 source.

■ Control Unit Features

- Data import from external brachytherapy planning system via network or storage medium
- Automatic adjustment of treatment time based on current source activity
- Control and monitoring of entire treatment process
- Programming and editing of source movement
- Synchronisation of electronic timers in control and treatment unit
- Recording and exporting of treatment data
- Support of max. 100 dwell points for treatment length of 600 mm and minimum stepping distance of 1 mm
- User friendly software
- Authorisation management for safer use

■ Co-60 Source Characteristics

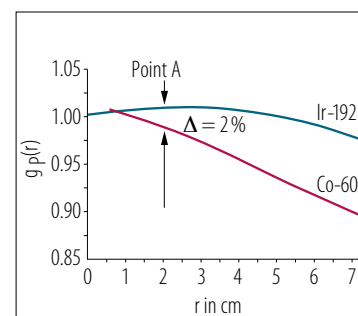
- Co-60 sources already introduced by Henschke in 1960
- Proven clinical results – equivalent treatment results to the standard Ir-192
- Miniaturised sources for entire range of brachytherapy treatments
- Predictable treatment times due to long half-life
- Tested per ISO 2919 – classification C65444
- Anisotropic and radial function fitting tested as per PTB standards
- Anisotropic characteristics better than with Ir-192

■ Safety Features

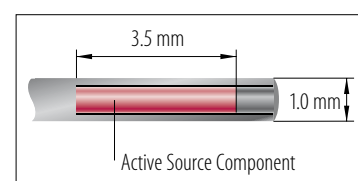
- Integrated calibration system for easy and accurate daily verification
- Automatic Length Verification for precise measurement of applicator length
- Battery backup system for safe source retraction in the event of a power failure
- Hand crank for power independent, emergency source retraction
- Two different monitoring systems for treatment time and source position

■ Technical Data

Main Unit	
Dimensions (W x D x H)	710 x 668 x 1010–1310 mm
Weight: Co-60/Ir-192 version	270 kg
Ir-192 version	170 kg
Standing surface / Base plate	0,47 m ²
Voltage range	95–135 V / 190–264 V, 1/N/PE, 47–63 Hz
Power	460 VA
Recommended fuse value	16 A, characteristic C
Classification	Class I, Type B equipment according to IEC 601-2-17
Working Environment	
Temperature	10 to 40 °C / 50 to 110 °F
Relative air humidity	30–75 %
Air pressure	70 kPa–110 kPa
Radiation Shielding IEC 601-2-17	
Dose rate in 1 m distance for Co-60	< 0.01 mSv/h
Dose rate in 1 m distance for Ir-192	< 0.001 mSv/h
Radioactive Sources	
74 GBq Co-60 and 370 GBq Ir-192	
Active Source Component	
∅ 0,6 x 3,5 mm Co-60 and ∅ 0,6 x 3,5 mm Ir-192	



Radial Dose Rate Function



Miniaturised Co-60 Source



Calibration of In-Vivo dosimetry system

IBt Bebig

Belgium

Zone Industrielle C
7180 Seneffe
Telephone +32 (0) 64 52 08 20
Telefax +32 (0) 64 52 08 21

Germany

Robert-Rössle-Strasse 10
13125 Berlin
Telephone +49 (0) 30 94 10 84-130
Telefax +49 (0) 30 94 10 84-112