

DETECTORS

For Relative and Absolute Dosimetry

Ionization Chambers and Diode Detectors

DOSIMETRY

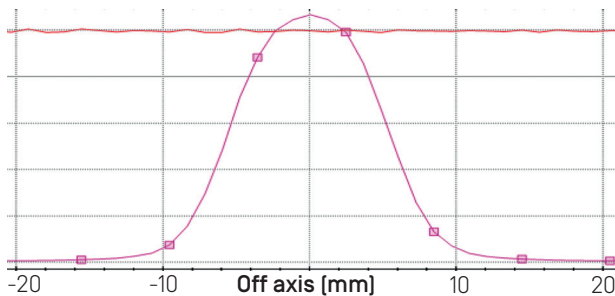
PROTECT +
ENHANCE +
SAVE LIVES

Unique Small Field Dosimetry Solutions

Reference Chamber

Stealth^{CHAMBER}

- New «perturbation free» reference signal chamber
- Avoid returning to the LINAC room frequently and repositioning (compared to standard reference chambers)
- Excellent reproducible reference signal quality, even for SRS/SBRT fields



Profile of 1 x 1 cm field size measured with StealthCHAMBER in continuous measurement mode:



“The new IBA Stealth reference chamber is saving us enormous amounts of time. The scans we performed with the Stealth Chamber were outstanding. It was very obvious that the scans were much smoother with less disturbance, allowing us to speed up scanning motion. Also, due to the hidden chamber we don't have to go back into the vault to reposition, which saves us additional time. ”

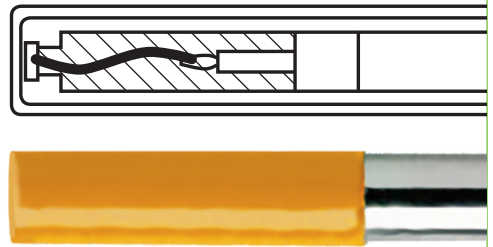
Luis Alberto Vazquez Quino, Phd; Mark Deweese, MS
Medical Physicists at Mid-South Radiation Physics, Inc.

Detectors

RAZOR^{DIODE DETECTOR}

High-performance diode detector

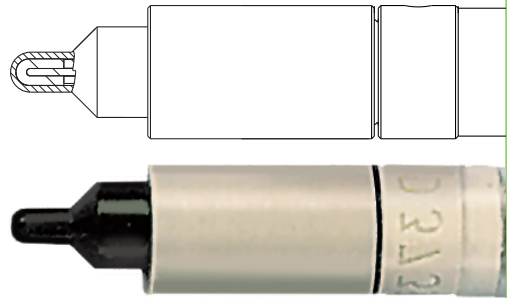
- Chip size: 0.95 x 0.95 mm; t = 0.4 mm
- Sensitive area: \varnothing 0.6 mm
- For Photon and Electron beams in RT



RAZOR^{CHAMBER}

Compact air ionization chamber

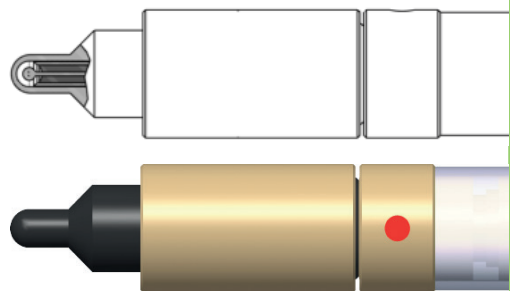
- Cavity volume: 0.01 ccm
- Central electrode material: graphite
- For Photon and Electron beams in RT



RAZOR^{NANO CHAMBER}

Smallest available ionization chamber

- Cavity volume: 0.003 ccm
- Central electrode material: graphite
- For Photon and Electron beams in RT



Detectors for Relative and Absolute Dosimetry

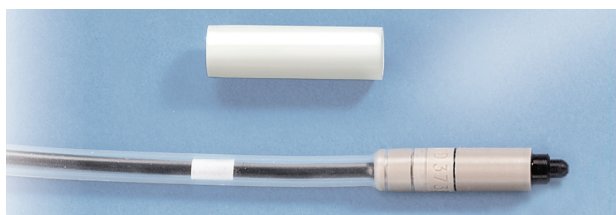
IBA Dosimetry offers a full range of ionization chambers and pSi semiconductor detectors for various 2D and 3D water phantom systems and solid phantoms. All detectors are from our in-house production and have been extensively tested to meet the highest criteria in radiotherapy dosimetry.

Air Ionization Chambers

Compact Chambers

Applications:

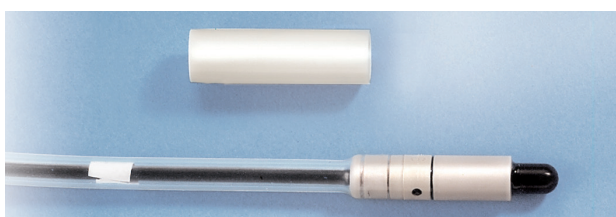
All compact chambers are designed for measurements with high reproducibility in air, solid, or water phantoms. They are suitable for relative dosimetry of photon, electron and proton fields in radiotherapy.



CC04

CC04

The CC04 is the conventional ionization chambers for measurements of small fields and of ranges with high dose gradients, e.g. stereotactic fields.



CC08 / CC13

CC08

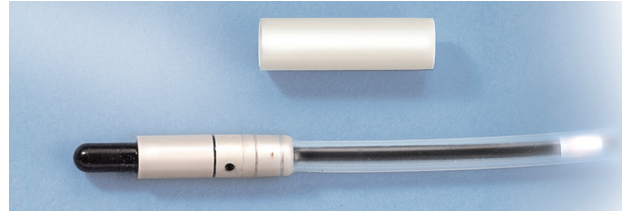
CC08 is used for customized applications during manufacturing and installation of linear accelerators (e.g. "Buddelship").

CC13

CC13 is the standard chamber for clinical use in water phantoms and for output factor measurements.

CC25

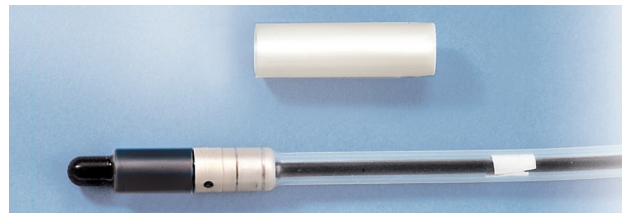
CC25 is mainly used for quality assurance in air and for low dose measurements in water phantoms.



CC25

CC13-S

The CC13-S is the replacement for the RK chamber used as the standard ionization chamber for RFA phantoms. Parameters of the CC13-S are similar to the CC13.



CC13-S

Features

	Waterproof	Vented through waterproof sleeve	Fully guarded	High uniform spatial resolution	Used for radial and axial beam incidence
CC04	■	■	■	■	
CC08	■	■	■		■
CC13	■	■	■		■
CC25	■	■	■		
CC13-S	■	■	■		■

Farmer Type Chambers

Applications:

All farmer type chambers are designed for measurements with high reproducibility in air, solid, or water phantoms. They are suitable for absolute dosimetry of photon, electron and proton beams in radiotherapy.



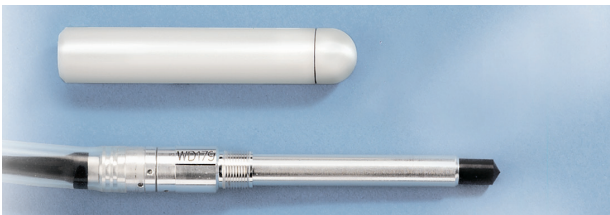
FC65-G

FC65-G and FC65-P

FC65-G and FC65-P are the standard reference chambers for clinical reference dosimetry of high-energy photon and electron beams and scientific applications.



FC65-P



FC23-C

FC23-C

FC23-C yields higher precision in measuring of isodose contours.

Because of their robust plastic construction, FC65-P and FC 23-C can be used for daily routine beam check.

Features	Waterproof	Vented through waterproof sleeve	Fully guarded	Wall material	Robust plastic construction for daily beam check	Higher spatial resolution
FC65-G	■	■	■	Graphite		
FC65-P	■	■	■	POM	■	
FC23-C	■	■	■	C552	■	■

Plane Parallel Chambers

Applications:

All plane parallel chambers are designed for measurements with high reproducibility in air, solid, or water phantoms.

PPC05 and PPC40

PPC05 and PPC40 are suitable for absolute dosimetry of electron, photon and proton beams in radiotherapy.



PPC05



PPC40

NACP

The NACP is designed according to recommendations of the Nordic Association of Clinical Physicists (NACP), Acta Radiologica Oncology 19,55. The chamber is used for absolute dosimetry of electron beams 2-50 MeV. A thinner front wall minimizes contamination of the beam, allows measurements at shallow depths, and guarantees high accuracy even at low electron energies.



NACP

Features	Waterproof	Vented through waterproof sleeve	Fully guarded	Higher spatial resolution (depth dose)	Superior physics characteristics: - stabilization time after polarity change approx. 30 s - polarity effect < 1% for all usable energies, field sizes and depths at linear accelerators	Low polarity effect
PPC05	■	■	■	■		
PPC40	■	■	■		■	
NACP	■	■	■			■

Diode Detectors

Applications:

The IBA Dosimetry diode detectors are designed for depth dose and profile measurements in water and air and for output factor measurements in small photon beams.



The diode detectors from IBA Dosimetry are an excellent choice in relative field analysis as well as output factor measurements. They are based on the 3rd generation of pSi semiconductors. Since their introduction in 1992, the high doped p-type silicon detector chips, specifically designed for radiation therapy applications, have been the natural choice for measurements where high spatial resolution is required. The accuracy and lifetime of the diode detectors is unsurpassed in the field of radiation therapy today.

Features

	Waterproof	Proven dose rate and energy independence	High uniform spatial resolution in the beam plane and precise definition of the measurement depth (accurately shaped penumbras in the whole beam plane using the same detector orientation)	Direct electron depth dose, no need for ionization to dose conversion	Independent of bias, pressure and moisture, very robust – always reliable, no "warm-up" time	High durability: 3 year warranty – low lifetime costs
PFD ³⁶ Photon	■	■	■		■	■
EFD ³⁶ Electron	■	■	■	■	■	■
RFD ³⁶ Reference	■	■	■		■	■
RAZOR DIODE Small Fields	■	■	■	■	■	■

Technical specifications

Compact Chambers

	Cavity volume (cm ³)	Cavity length (mm)	Cavity radius (mm)	Wall material	Wall thickness (g/cm ²)	Central electrode material	Water-proof
CC04	0.04	3.6	2.0	C552	0.070	C552	Y
CC08	0.08	4.0	3.0	C552	0.070	C552	Y
CC13	0.13	5.8	3.0	C552	0.070	C552	Y
CC25	0.25	10.0	3.0	C552	0.070	C552	Y
CC13-S	0.13	5.8	3.0	PEEK/C552	0.154	C552	Y

Farmer Type Chambers

	Cavity volume (cm ³)	Cavity length (mm)	Cavity radius (mm)	Wall material	Wall thickness (g/cm ²)	Central electrode material	Water-proof
FC65-G	0.65	23.1	3.1	Graphite	0.073	Aluminium	Y
FC65-P	0.65	23.1	3.1	POM ¹	0.057	Aluminium	Y
FC23-C	0.23	8.8	3.1	C552	0.070	C552	Y

Various build-up caps for compact chambers and farmer type chambers in PMMA or other materials on request.

Farmer type chambers: For Cobalt energies the protection cap can be used as build-up caps.

Plane Parallel Chambers

	Materials	Window thickness (mg/cm ²)/(mm)	Active volume (cm ³)	Electrode spacing (mm)	Collecting electrode diameter (mm)	Guard ring width (mm)	Water-proof
PPC05	Window and body C552; graphited (PEEK) electrode	176 / 1	0.05	0.5	10	3.5	Y
PPC40	PMMA	118 / 1	0.40	2.0	16	4.0	Y
NACP	Mylar foile and graphite window; body PMMA; electrode graphited	104 / 0.6	0.16	2.0	10	3.0	Y

¹ Poly Oxy Methylene (CH₂O). A trade name is Delrin.

Diode Detectors

	Effective measurement point	Chip size (side/thickness)	Geometric form of active area	Diameter of active area	Thickness of active volume
PFD ³⁶ Photon	< 0.9 mm	2.5 / 0.5 mm	circled	2 mm	0.06 mm
EFD ³⁶ Electron	< 0.9 mm	2.5 / 0.5 mm	circled	2 mm	0.06 mm
RFD ³⁶ Reference	n. a.	2.5 / 0.5 mm	circled	2 mm	0.06 mm
RAZOR DIODE	0.8 ± 0.2 mm	0.95 / 0.4 mm	circled	0.6 mm	0.02 mm

Technical data is subject to change without prior notice.



IBA offers innovative high-quality solutions and services with a focus on patient safety in cancer diagnosis and therapy.

Medical Imaging: Safer Imaging, Earlier Cancer Detection

Innovative Quality Assurance (QA) devices for x-ray dose and image quality checks, as well as QA of diagnostic displays

Patient dose monitoring solutions for x-ray imaging systems

Radiation Therapy: Fighting Cancer Safely and Precisely

Industry-leading dosimetry and QA solutions that maximize efficiency and minimize errors for better outcomes

Flexible soft tissue imaging markers (VISICOIL™) enable precise tumor targeting and tracking for pinpoint RT, IGRT and SBRT treatment accuracy and patient safety

Undisputed leader in Proton Therapy delivery systems:
Providing highly precise and effective radiation therapy

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