



## Model N34045 Advanced Markus® Plane-Parallel Ion Chamber

The Model N34045 Advanced Markus® chamber is the latest development in electron chambers, with improved performance compared to the well-known Markus® chamber. The chamber features a flat energy response within the nominal useful range from 2 MeV to 45 MeV.

The Model N34045's design is similar to the Markus® chamber, having the same external dimensions. This allows it to fit into existing solid phantom cavities made for the Markus® chamber. The internal dimensions are similar to the Markus®, with the exception of an improved guard ring design and 1 mm electrode spacing. The high degree of guarding greatly reduces the influence of scattered radiation from the housing and makes it possible to perform absolute electron dosimetry without perturbation effects. The small sensitive volume makes the chamber ideal for dose distribution measurements in water phantoms, giving a good spatial resolution. The entrance window material is polyethylene of 0.03 mm thickness.

The Model N34045 comes with a protective acrylic cover, 0.87 mm thick, for use in water. The chamber is vented to the atmosphere, therefore density correction must be made for each measurement. It is supplied with a 1 m cable, choice of connectors, and a foam padded case.

The Advanced Markus® chamber was developed in cooperation with Prof. Rosenow, Göttingen University, Germany. Markus® is a registered trademark of PTW Freiburg & PTW New York.

### Features:

- ▶ Waterproof
- ▶ Wide guard ring designed for negligible polarity and perturbation effects
- ▶ 5 mm diameter collector
- ▶ Characterized for TG-51

### Specifications

$N_{gas}/(N_x A_{ion})$ (cGy/R):	..... 0.8564
Kecal :	..... 0.896
Volume:	..... 0.02 cc, nominal, vented to the atmosphere
Sensitivity:	..... 0.0067 nC/cGy, nominal
Leakage current:	..... $< 4 \times 10^{-15}$ A
Entrance window:	..... 0.03 mm polyethylene 2.5mg/cm <sup>2</sup>
Ion collector:	..... 5 mm diameter, acrylic, graphite coated
Guard Ring Width:	..... 2 mm
Electrode separation:	..... 1 mm
Bias voltage:	..... $\pm 300$ V typical, 400 V maximum
External dimensions:	..... 30 mm diameter x 14 mm
Protective cap:	..... acrylic, 0.87 mm thick, 102.6 mg/cm <sup>2</sup>
Cable:	..... 1 meter, low-noise triaxial, BNC male connector (TNC optional)

### Accessories

CH-1	..... Cradle-type holder with 7 mm diameter stem for Markus®, PPC05, A10 and NACP chambers
3BM-F10	..... 10 m extension cable, triax BNC, male/female with caps and chains (also available in custom lengths and/or mounted in a reel)
3BF-3TMF	..... Triaxial BNC to TNC adapter