

Model PPC40 Plane-Parallel Ionization Chamber

The Model PPC40 plane-parallel ionization chamber is similar to one developed by Dr. Roos for use as a reference chamber for electron dosimetry. The outstanding feature of this chamber is a wide guard ring to exclude any perturbation effect even at low electron energies. The polarity effect also is negligible: <1% for all usable energies, field sizes and depths. The energy dependence is only influenced by the stopping power correction; a type dependent correction is not necessary.

The chamber is watertight for use in water phantoms. The measuring volume is vented to the atmosphere through the connecting cable sheath. The entrance window is flush with the surface so that it can be used with solid phantoms. The external dimensions conform to the Roos® design.

The PPC40 features a 1.4 meter cable and can be delivered with either a triaxial BNC or TNC connector.

Features:

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

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Designed by Dr. Roos, PTB-Braunschweig, Germany.



Specifications

$N_{gas}/(N_x A_{ion})$ (cGy/R):	0.8547
Kecal:	0.901
Volume:	0.4 cc nominal, vented to the atmosphere
Sensitivity:	0.13 nC/cy, nominal
Leakage current:	$< \pm 4 \times 10^{-15}$ A
Entrance window:	acrylic (PMMA), graphite coated, 1 mm thick, 1.18 g/cm ²
Ion collector:	16.0 mm diameter graphite coated acrylic (PMMA) 1.18 g/cm ²
Body material:	acrylic (PMMA)
Electrode separation:	2.0 mm
Guard ring width:	3.8 mm wide
Reference point in water:	1 mm from entrance plane
Bias voltage:	± 300 V
Polarity effect:	<1%
Perturbation effect:	approximate unity
External dimensions:	44 mm diameter x 10 mm
Cable:	1 meter, low-noise triaxial, BNC male triaxial (TNC optional)

Accessories

CH-2	Cradle-type holder with 7 mm diameter stem for Roos® and PPC40 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