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authorized distributor**

RPD Product Information

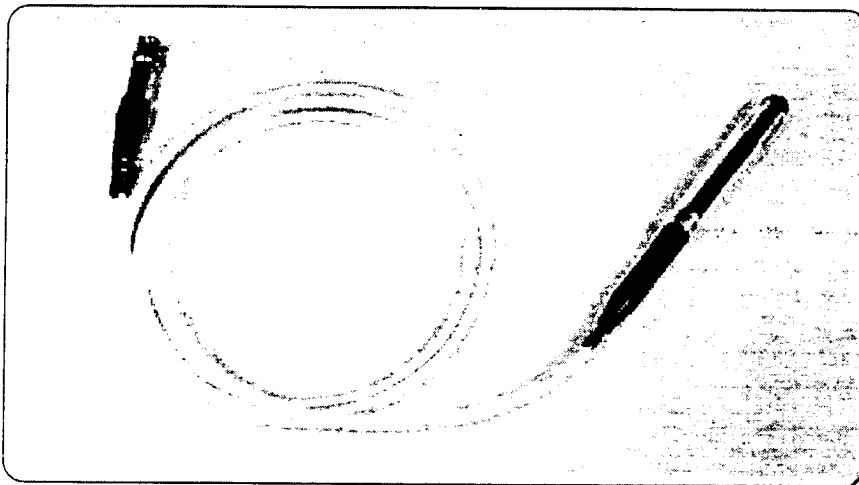
Item Number Description

300-410 * Innovision 580-006WP - 0.6cc Farmer Type Waterproof



Victoreen Model 580-006-WP

Farmer-type Radiation Therapy Waterproof Ionization Chamber



Stable, reproducible absolute dosimetry measurements

In-air calibration of brachytherapy sources

Precision machined thimble for flat energy response

Hemispherical electrode design, no electrical field distortion

Rugged **replaceable** PMMA thimble, 0.5 mm thick

Non-Waterproof version available, Model 580-006

INTRODUCTION

The Victoreen Model 580-006-WP Radiation Therapy Ionization Chamber is modeled after the traditional 0.6 cm³ Farmer-type chamber used for absolute dosimetry measurements of medical linear accelerators and ⁶⁰Co machines. Each chamber includes an energy response for M-80, M-100, M-250, and ⁶⁰Co for both linear accelerator and brachytherapy applications as illustrated in the table below. Also supplied with each chamber is a PMMA ⁶⁰Co build-up cap, a convenient low noise one meter cable with triaxial BNC connector and a Victoreen custom carrying case. A non-waterproof version is available as Model 580-006.

APPLICATIONS

This chamber is equivalent to a 0.6 cc acrylic walled chamber with the following published values of $k_{0,0}$ for accelerator photon beams as a function of $\%dd(10)_x$ for cylindrical ion chambers commonly used for clinical reference dosimetry.

	$\%dd(10)_x$					
	58.0	63.0	66.0	71.0	81.0	93.0
$k_{0,0}$	1.000	0.996	0.992	0.984	0.967	0.948

See AAPM's TG-51 Protocol for Clinical Reference Dosimetry of High Energy Photon and Electron Beams, Table I, PTW N30001 (0.6 cc Farmer)

FEATURES

- Completely Waterproof, does not require protective sleeve
- Pure aluminum electrode 1 mm in diameter, 20.0 mm long
- Fully guarded up to the collection volume
- Vented to air
- Compatible with existing phantoms

Typical Energy Dependence

NIST Technique	kVCP	Added Filter Al (mm)	Added Filter Cu (mm)	HVL (mm Al)	Energy keV	Typical Calibration Factor (Gy/C)
M-80	80	0.5	0.1	2.97	36	4.99E-07
M-100	100	0.5	0.1	3.02	46	4.92E-07
M-250	250	0.5	0.2	3.58	90	2.83E-07
⁶⁰ Co	1250	0	0	12.5	1250	1.00E-07

SPECIFICATIONS

Volume 0.61 cm³

Sensitivity 2.0×10^5 CGy⁻¹

Leakage $< 4 \times 10^{-12}$ A

Optimum Polarizing Voltage
+300 VDC

Maximum Polarizing Voltage
500 VDC

Minimum Exposure
0.4 Gy

Ion Collection Time
300 V: 0.14 ms
400 V: 0.11 ms
500 V: 0.09 ms

Wall Material
PMMA (CH₂O)_n acrylic with graphite layer

Total Wall Density
1.57 g/cm³

Wall Thickness
0.5 mm

Wall Area Material Density
78.5 mg/cm²

Electrode Pure aluminum, 1 mm dia., 20.0 mm long

Cable 1.6 m with triaxial BNC connector

Cable Leakage
 10^{-10} CGy⁻¹cm

Range of Temperature
-10 C to +40 C

Range of Relative Humidity
20% to 75%

Build-up Cap
PMMA for ⁶⁰Co - ⁶⁰Co

Weight 4.4 oz (125 gm)

Case Vietreen custom foam lined

Saturation Behavior

Max. Dose Rate at Continuous Irradiation		
Polarizing Voltage	99% Saturation	99.5% Saturation
300 V	6.0 CG/s	7.0 CG/s
400 V	10.7 CG/s	12.0 CG/s
500 V	16.6 CG/s	18.0 CG/s

Max. Dose Rate per Irradiation Pulse		
Polarizing Voltage	99.0% Saturation	99.5% Saturation
300 V	2.0 mG/s	2.3 mG/s
400 V	3.8 mG/s	4.3 mG/s
500 V	5.9 mG/s	6.6 mG/s

Vent Tubing Material

Polyethylene-lined ethyl vinyl acetate tubing

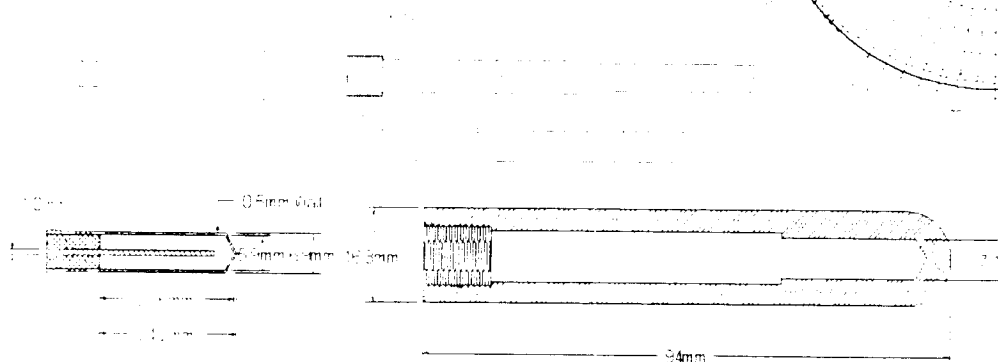
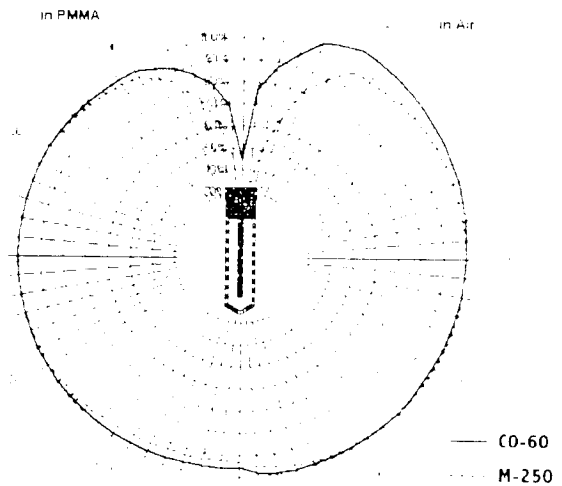
Optional Accessories

Extension cables Model 500-102, length 10 m, (male to female triax BNC)

Acrylic build-up caps available upon request (M11x1 Thread)

Waterproof Rubber Sleeve Model 580-006-1 for use with Model 580-006 non-waterproof chamber

Directional Dependence



Specifications are subject to change without notice.
580-006-WP-DS Rev. 1 08 NOV 00

INOVISION