

RC0.6

X-Ray Beam Measurements

This high dose rate chamber provides an excellent response at therapy and other high energy, high dose rate applications. The fully guarded chamber is mounted at the end of a 12 m low noise triax cable.



Exposure Rate Dependence:	±2%, 5e-4 mGy/s to 2e+3 mGy/s
Energy Dependence:	±5%, 40 keV to 1.33 MeV
Bias:	Nominal +300 VDC (max +600 VDC)
Electrical Leakage:	<5e-15 A with +300 VDC bias
Construction:	C552 air-equivalent walls & electrode; polyacetal exterior cap; 0.6 cm ³ active volume; 12 m, low-noise triax cable; 0.28 kg

RC6

General Purpose X-Ray Measurements

The RC6 is an unsealed cylindrical 6 cm³, general-purpose ion chamber, designed for general purpose x-ray measurements. It has excellent energy response throughout the diagnostic energy range and with an appropriate build-up cap (optional), the energy range can be extended to ⁶⁰Co. *NOTE: Extended Stem length of 15 cm makes for convenient fixture positioning.*



Exposure Rate Dependence:	<5% to 150 mGy/s, up to 4 Gy/s for 10 ms pulses
Energy Dependence:	±5%, 30 keV to 1.33 MeV (with build-up material)
Bias:	Nominal +300 VDC (max +600 VDC)
Electrical Leakage:	<5e-15 A with +300 VDC bias
Construction:	Guarded (3-terminal) concentric cylinder with polycarbonate walls and conducting graphite interior coating. Nominal 6 cm ³ active volume; 0.05 kg

RC60

X-Ray Beam Measurements

The RC60 is an unsealed thin cross-section, parallel plate 60 cm³ ion chamber suitable for x-ray beam measurements with low to intermediate dose rates. It has excellent energy response throughout the diagnostic energy range and with the application of appropriate build-up materials, the energy range can be extended to ⁶⁰Co.



Exposure Rate Dependence:	<5% to 30 mGy/s
Energy Dependence:	±5%, 30 keV to 1.33 MeV (with build-up material)
Bias:	Nominal +300 VDC (max +600 VDC)
Electrical Leakage:	<5e-15 A with +300 VDC bias
Construction:	Guarded (3-terminal) parallel plate, polycarbonate walls; conductive graphite interior & exterior coating; nominal 60 cm ³ active volume, 0.5 m low-noise triax cable; 0.13 kg.

Note: The chamber assembly shown in the image depicts the chamber with the Radcal Model 8230M chamber support, optional, ordered separately.

RC180

Low Dose Rate X-Ray Beam or Scatter Measurements

The RC180 is an unsealed parallel plate 180 cm³ ion chamber suitable for low dose rate x-ray beam or scatter measurements. It has an effective cross section of 100 cm² and has excellent energy response throughout the diagnostic energy range. With the application of appropriate build-up materials, the energy range can be extended to ⁶⁰Co.

NOTE: Extended Stem length of 15 cm makes for convenient fixture positioning.



Exposure Rate Dependence:	<5% to 5 mGy/s
Energy Dependence:	±5%, 33 keV to 1.33 MeV (with build-up material)
Bias:	Nominal +300 VDC (max +600 VDC)
Electrical Leakage:	<5e-15 A with +300 VDC bias
Construction:	Guarded (3-terminal) parallel plate, with polycarbonate walls and electrode; conducting graphite interior and exterior coating; nominal 180 cm ³ active volume; 0.11 kg

RC0.6CT

The Chamber for Computed Tomography Dose Index (CTDI)

0.6cc thimble chamber as described in AAPM Report No. 111 "Comprehensive Methodology for the Evaluation of Radiation Dose in X-ray Computed Tomography".



Exposure Rate Dependence:	±2%, 5e-4 mGy/s to 2e+3 mGy/s
Energy Dependence:	±5%, 40 keV to 1.33 MeV
Bias:	Nominal +300 VDC (max +600 VDC)
Electrical Leakage:	<5e-15 A with +300 VDC bias
Construction:	C552 air-equivalent walls & electrode; polyacetal exterior cap; 0.6 cm ³ active volume; 3 m, low-noise triax cable; 0.28 kg

RC6M

Low Energy X-Ray Measurements

The RC6M is an unsealed parallel plate 6 cm³ ion chamber specifically designed for low-energy x-ray measurements. It has a thin entrance window and is suitable for x-ray energies in the range of 10 to 40 keV.



NOTE: Extended Stem length of 15 cm makes for convenient fixture positioning.

Exposure Rate Dependence:	<5% to 90 mGy/s
Energy Dependence:	±5%, 10 keV to 40 keV
Bias:	Nominal +300 VDC (max +600 VDC)
Electrical Leakage:	<5e-15 A with +300 VDC bias
Construction:	Guarded (3-terminal) parallel plate, with 0.7mg/cm ² metalized polyester window; polyacetal exterior; nominal 6 cm ³ active volume; 0.08 kg

RC3CT

CT X-Ray Beam Measurements

The RC3CT is an unsealed cylindrical, 10 cm pencil ion chamber with a 3 cm³ volume. It is designed specifically for CT x-ray beam measurements, either free-in-air or mounted in a head or body phantom. It has excellent energy and partial volume response along its entire 10 cm length.



Exposure Rate Dependence:	<5% to 350 mGy/s
Energy Dependence:	±5%, 3-20 mm Al hvl
Bias:	Nominal +300 VDC (max +600 VDC)
Electrical Leakage:	<5e-15 A with +300 VDC bias
Construction:	Guarded (3-terminal) 10 cm long cylindrical, with C552 air-equivalent walls and electrode; polyacetal exterior cap; nominal 3 cm ³ active volume; 1.5 m, low-noise triax cable; 0.11 kg

RC1800

Low Dose Rate Radiation Applications

The RC1800 is an unsealed cylindrical 1800 cm³ ionization chamber intended for low dose rate radiation applications such as shielding leakage, low-level irradiator output and environmental measurements.



NOTE: Extended Stem length of 15 cm makes for convenient fixture positioning.

Exposure Rate Dependence:	<5% to 50 uGy/s, <10% to 160 uGy/s (bias +300 VDC)
Energy Dependence:	±5%, 33 keV to 1.33 MeV
Bias:	Nominal +300 VDC (max +600 VDC)
Electrical Leakage:	<1e-14 A with +300 VDC bias
Construction:	Guarded (3-terminal) parallel plate, polycarbonate walls and electrode; conducting graphite interior and exterior coating; 1800 cm ³ active volume; 0.54 kg

Nominal Chamber Volumes and Sensitivity ($\pm 10\%$)

All specifications subject to change.

MODEL	Volume cm ³	C/mGy 20 °C	C/mGy 22 °C	C/R 20 °C	C/R 22 °C
RC0.6	0.6	2.1E-11	2.1E-11	1.9E-10	1.9E-10
RC0.6CT	0.6	2.1E-11	2.1E-11	1.9E-10	1.9E-10
RC6	6	2.1E-10	2.1E-10	1.9E-09	1.9E-09
RC6M	6	2.1E-10	2.1E-10	1.9E-09	1.9E-09
RC60	60	2.1E-09	2.1E-09	1.9E-08	1.9E-08
RC3CT	3	1.1E-10	1.1E-10	9.3E-10	9.3E-10
RC180	180	6.4E-09	6.3E-09	5.6E-08	5.6E-08
RC1800	1800	6.4E-08	6.3E-08	5.6E-07	5.6E-07

When ordering, please specify the following:

1. Disconnect cable length: 2,3,5 or 10 Meters
2. Electrometer termination
 - TRB (triaxial BNC)
 - 2-lug BNC standard, 3-lug optional upon request
 - TRT (triaxial TNC)

NOTE: A protective storage case is included with each chamber.

