

Semiflex™ Ionization Chamber, 0.125 cm³, Waterproof Model 30-344



- Suitable for use in water phantoms or solid state phantoms
- Measuring volume is fully vented via the connector
- Fully guarded up to measuring volume
- Touchable parts free of high voltage
- Extension cables up to 100 meters in length are available

The 0.125 cm³ ionization chamber type (Model 30-344) is designed for measurements in the useful beam of high energy photon and electron fields. The chamber is waterproof and is used mainly for relative measurements in a water phantom or in an air scanner. The measuring volume is approximately spherical resulting in a flat energy response over an angle of 160° and a uniform spatial resolution, in all three axes, during measurements in a phantom. The chamber includes a 4.3 ft (1.3 m) cable, BNC Triax connector, PMMA buildup cap, and a short (36 mm) rigid stem for easy mounting.

Specifications

- Volume** 0.125 cm³
- Response** $4 \cdot 10^{-9}$ C/Gy
- Leakage** $\pm 4 \cdot 10^{-15}$ A
- Polarizing voltage** Maximum 500 V
- Cable length** 4.3 ft (1.3 m)
- Cable leakage** 10^{-12} C/(Gy • cm)
- Wall material** PMMA (C₅H₈O₂), Graphite (C)
- Wall density** 1.19 gm/cm³ (PMMA), 0.82 gm/cm³ (C)
- Wall thickness** 0.55 mm PMMA, 0.15 mm C
- Area density** 78 mg/cm²
- Electrode** Aluminum, 1.0 mm Ø, 5.0 mm long
- Nominal useful range** 30 keV to 50 MeV
- Range of temperature** 10° to 40°C
- Range of relative humidity** 10% to 80%

Ion collection time

- 300 V: 0.14 ms
- 400 V: 0.10 ms
- 500 V: 0.08 ms

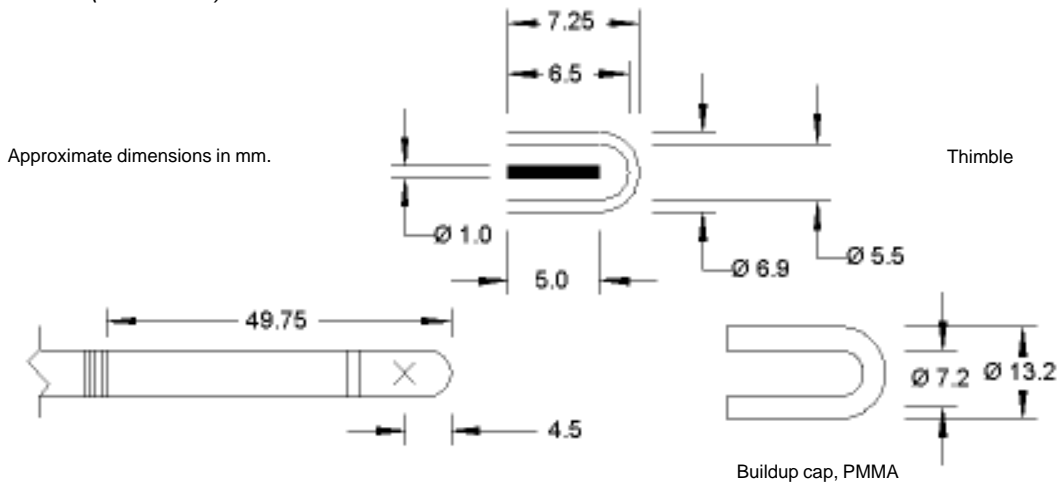
Saturation behavior

Saturation behavior	Polarizing voltage	99.0% saturation	99.5% saturation
Maximum dose rate at continuous irradiation	300 V	5.6 Gy/s	2.8 Gy/s
	400 V	10.0 Gy/s	5.0 Gy/s
	500 V	15.0 Gy/s	7.5 Gy/s
Maximum dose rate per irradiation pulse	300 V	0.7 mGy	0.4 mGy
	400 V	1.0 mGy	0.5 mGy
	500 V	1.2 mGy	0.6 mGy

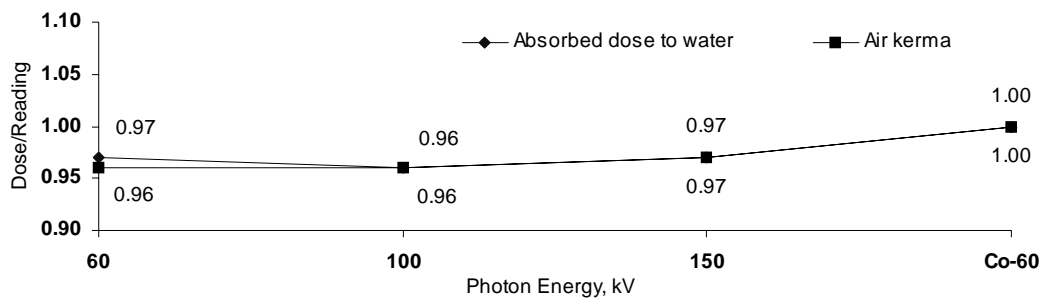
See next page for more specifications.

Specifications (continued)

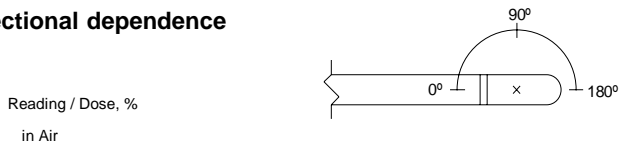
Diagram



Energy dependence



Directional dependence



Reading / Dose, %
in Air

	6°	12°	18°	24°	30°	60°	90°	120°	150°	162°	174°	180°
100 kV	3	20	44	67	80	97	100	99	96	95	94	93
140 kV	10	32	55	76	87	99	100	99	97	97	96	96
280 kV	33	62	78	87	93	99	100	101	101	101	100	100
Co-60	79	89	93	95	97	100	100	100	100	100	100	100

in PMMA

	6°	12°	18°	24°	30°	60°	90°	120°	150°	162°	174°	180°
100 kV	56	63	71	81	88	98	100	100	100	100	100	100
140 kV	58	68	77	87	93	99	100	100	100	100	100	100
280 kV	67	83	91	95	97	99	100	101	101	101	101	100
Co-60	85	95	99	100	100	100	100	100	100	100	100	100

100 kV, 0.17 mm Cu HVL; 140 kV, 0.49 mm Cu HVL; 280 kV, 3.4 mm Cu HVL

Optional accessories

Check Source, ⁹⁰Sr, 33 MBq (892 μCi) (Model 30-657)

Available model(s)

30-344 Semiflex Ionization Chamber, 0.125 cm³, Waterproof, includes BNC Triax connector, PMMA buildup cap, and 36 mm rigid stem for mounting

Other types of triaxial cable connectors available