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RPD is an
authorized distributor

RPD Product Information

Item Number Description

300-640-BNC-M   * PTW Model 30001 / 30010 - 0.6cc Farmer Chamber

IONIZATION CHAMBER TYPE 30001

Radiation Therapy
Diagnostic Radiology
Nuclear Medicine
Radiation Protection

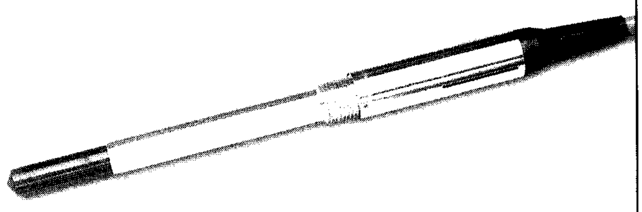
„Farmer" Chamber 0.6 cm³

Description

The 0.6 cm^3 ionization chamber type 30001 is the standard chamber for absolute dosimetry for use with therapy dosemeters. This chamber is of rugged construction and equipped with an acrylic cap and an aluminium central electrode. It is fully guarded up to the measuring volume.
The outer dimensions are fully compatible with the Farmer chambers of other manufacturers.

Technical data

Volume:	0.6 cm^3
Response:	$2 \cdot 10^{-8}$ C/Gy
Leakage:	$\leq 4 \cdot 10^{-15}$ A
Polarizing voltage:	max. 500 V
Cable leakage:	10^{-12} C/(Gy · cm)
Wall material:	PMMA $(C_5H_8O_2)_n$
Wall density:	1.18 g/cm^3
Wall thickness:	0.45 mm
Area density:	53.1 mg/cm^2
Electrode:	Aluminium; 1 mm Ø; 21.2 mm long
Range of temperature:	+ 10° C ... + 40° C
Range of rel. humidity:	20 % ... 75 %
Ion collection time:	300 V: 0.18 ms 400 V: 0.14 ms 500 V: 0.11 ms



- Guard ring up to measuring volume
- Suitable for use in solid state phantoms
- Guard ring at potential of the collecting electrode. Touchable parts free of high voltage
- High voltage to be connected only with active current-limiting device (I_{max} < 0.5 mA)
- Open measuring volume, without check device air density correction is necessary
- Lengthening cable up to 100 m available

Saturation behaviour	Polarizing voltage	99.0 % saturation	99.5 % saturation
Max. dose rate at continuous irradiation	300 V	5.3 Gy/s	2.3 Gy/s
	400 V	9.4 Gy/s	4.6 Gy/s
	500 V	14.5 Gy/s	6.5 Gy/s
Max. dose per irradiation pulse	300 V	0.5 mGy	0.2 mGy
	400 V	0.7 mGy	0.3 mGy
	500 V	0.9 mGy	0.35 mGy

PTW

PTW

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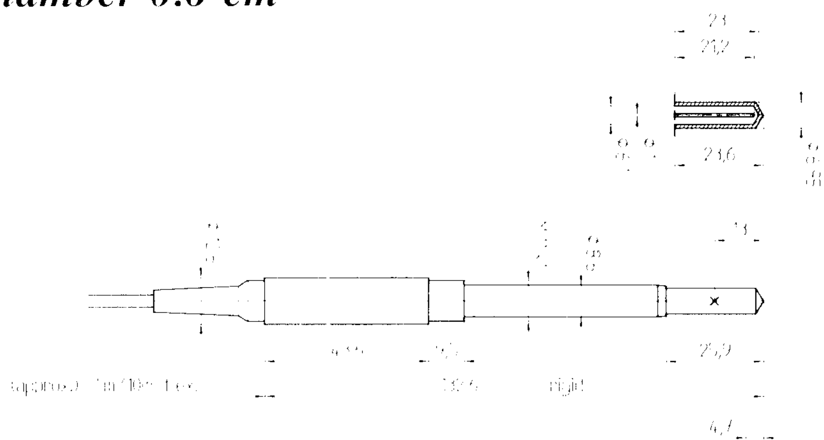
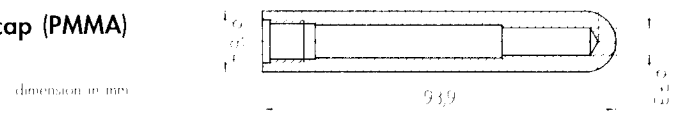
„Farmer“ Chamber 0.6 cm³

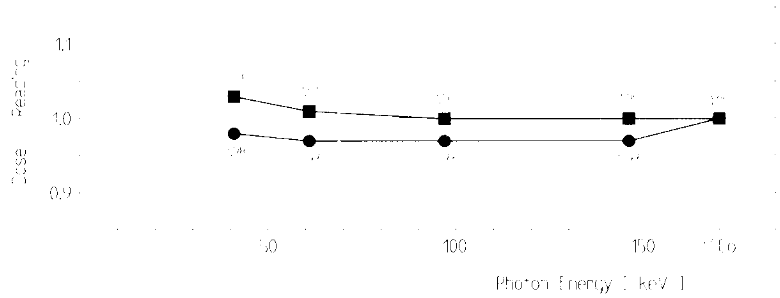
Design



build-up cap (PMMA)



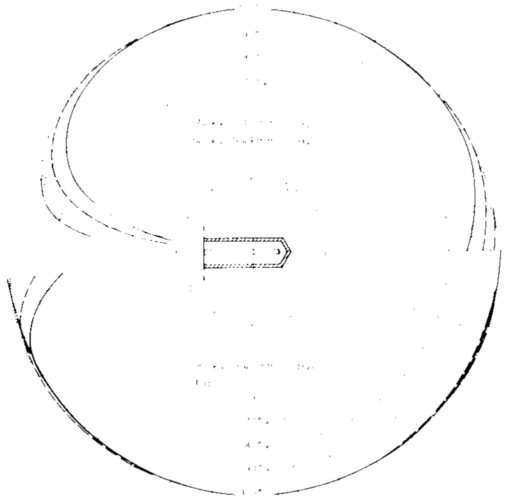
Energy Dependence



■ Absorbed dose to water
● Air kerma

Directional Dependence

in air



in PMMA

Reading / Dose [%]

	6°	12°	18°	24°	30°	60°	90°	120°	150°	162°	174°	180°
70 kV	20	48	69	81	88	99	100	100	98	96	91	88
140 kV	36	66	82	90	94	100	100	100	100	98	96	94
280 kV	57	80	90	94	96	100	100	100	100	99	98	97
^{60}Co	67	85	91	95	97	100	100	100	100	99	99	98

	6°	12°	18°	24°	30°	60°	90°	120°	150°	162°	174°	180°
70 kV	78	88	96	100	101	100	100	100	100	101	102	102
140 kV	90	97	101	102	103	101	100	100	99	100	102	102
280 kV	100	102	103	103	103	101	100	100	100	101	102	102
^{60}Co	102	101	101	101	101	100	100	100	101	102	102	102

The values given in the diagrams are typical for the construction

PTW