



0.02 cm³ Soft X-Ray Chamber

Type 23342

Thin window plane parallel chamber for dose measurements in superficial radiation therapy

Features

- ▶ Ultra thin entrance window
- ▶ For low-energy photons from 8 keV to 35 keV
- ▶ Sensitive volume 0.02 cm³, vented to air
- ▶ Radioactive check device (option)

The 23342 soft X-ray chamber is the golden standard for absolute dose measurements in low-energy photon beams as used in superficial radiation therapy. Correction factors needed for the determination of absorbed dose to water are available. The chamber is designed for the use in solid state phantoms.

Specification

Type of product	vented plane parallel ionization chamber acc. IEC 60731
Application	absolute dosimetry in low-energy photon beams
Measuring quantities	absorbed dose to water, air kerma, exposure
Reference radiation quality	30 kV, HVL 0.37 mm Al (T30)
Nominal sensitive volume	0.02 cm ³
Design	not waterproof, vented
Reference point	in chamber center of entrance foil underside
Direction of incidence	perpendicular to chamber plane
Nominal response	1 nC/Gy
Long-term stability	≤ 1 % per year
Chamber voltage	300 V nominal ± 500 V maximal
Directional response	≤ ± 1 % for chamber tilting up to ± 20°
Leakage current	≤ ± 10 fA
Cable leakage	≤ 1 pC/(Gy·cm)

Materials and measures:

Entrance foil	0.03 mm PE
Total window area density	2.76 mg/cm ²
Sensitive volume	radius 1.5 mm depth 1 mm

Ion collection efficiency at nominal voltage:

Ion collection time	30 μs
Max. dose rate for ≥ 99.5 % saturation	175 Gy/s
≥ 99.0 % saturation	350 Gy/s
Max. dose per pulse for ≥ 99.5 % saturation	1.8 mGy
≥ 99.0 % saturation	4.5 mGy

Useful ranges:

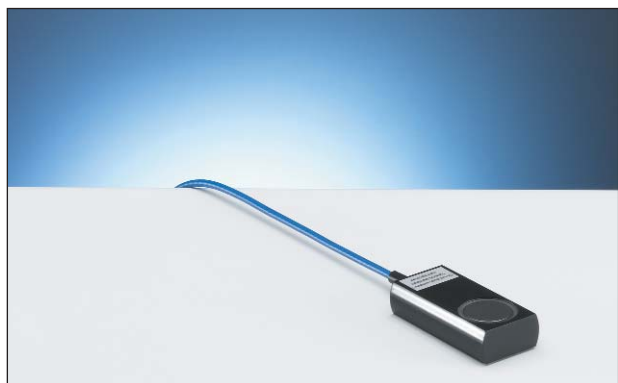
Chamber voltage	± (100 ... 400) V
Radiation quality	(8 ... 35) keV X-rays
Field size	(1 x 1) cm ² ... (40 x 40) cm ²
Temperature	(10 ... 40) °C (50 ... 104) °F
Humidity	(20 ... 80) %, max 20 g/m ³
Air pressure	(700 ... 1060) hPa

Ordering Information

- TN23342 Soft X-ray chamber 0.02 cm³,
connecting system BNT
- TW23342 Soft X-ray chamber 0.02 cm³,
connecting system TNC
- TM23342 Soft X-ray chamber 0.02 cm³,
connecting system M

Options

- T48010 Radioactive check device ⁹⁰Sr
- T23238 Chamber holding device for check device



0.2 cm³ Soft X-Ray Chamber

Type 23344

Thin window plane parallel chamber for dose measurements in superficial radiation therapy

Features

- ▶ Ultra thin entrance window
- ▶ For low-energy photons from 8 keV to 35 keV
- ▶ Sensitive volume 0.2 cm³, vented to air
- ▶ Radioactive check device (option)

The 23344 soft X-ray chamber is used for absolute dose measurements in low-energy photon beams as used in superficial radiation therapy. The sensitive volume is larger than that of the 23342 chamber, giving a higher signal at the cost of a lower spatial resolution. Correction factors needed for the determination of absorbed dose to water are available. The chamber is designed for the use in solid state phantoms.

Specification

Type of product	vented plane parallel ionization chamber acc. IEC 60731
Application	absolute dosimetry in low-energy photon beams
Measuring quantities	absorbed dose to water, air kerma, exposure
Reference radiation quality	30 kV, HVL 0.37 mm Al (T30)
Nominal sensitive volume	0.2 cm ³
Design	not waterproof, vented
Reference point	in chamber center of entrance foil underside
Direction of incidence	perpendicular to chamber plane
Nominal response	7 nC/Gy
Long-term stability	≤ 1 % per year
Chamber voltage	400 V nominal ± 500 V maximal
Directional response	≤ ± 1 % for chamber tilting up to ± 20°
Leakage current	≤ ± 10 fA
Cable leakage	≤ 1 pC/(Gy·cm)

Materials and measures:

Entrance foil	0.03 mm PE
Total window area density	2.76 mg/cm ²
Sensitive volume	radius 6.5 mm depth 1.5 mm

Ion collection efficiency at nominal voltage:

Ion collection time	30 μs
Max. dose rate for ≥ 99.5 % saturation	60 Gy/s
≥ 99.0 % saturation	120 Gy/s
Max. dose per pulse for ≥ 99.5 % saturation	1.1 mGy
≥ 99.0 % saturation	2.7 mGy

Useful ranges:

Chamber voltage	± (100 ... 400) V
Radiation quality	(8 ... 35) keV X-rays
Field size	(2 x 2) cm ² ... (40 x 40) cm ²
Temperature	(10 ... 40) °C (50 ... 104) °F
Humidity	(20 ... 80) %, max 20 g/m ³
Air pressure	(700 ... 1060) hPa

Ordering Information

TN23344 Soft X-ray chamber 0.2 cm³,
connecting system BNT

TW23344 Soft X-ray chamber 0.2 cm³,
connecting system TNC

TM23344 Soft X-ray chamber 0.2 cm³,
connecting system M

Options

T48010 Radioactive check device ⁹⁰Sr

T23236 Chamber holding device for check device



0.005 cm³ Soft X-Ray Chamber Type 34013

Thin window plane parallel chamber for dose measurements in superficial radiation therapy

Features

- ▶ Ultra thin entrance window
- ▶ For low-energy photons from 8 keV to 35 keV
- ▶ Extremely small size
- ▶ Sensitive volume 0.005 cm³, vented to air

The 34013 soft X-ray chamber is used for absolute dose measurements in low-energy photon beams as used in superficial radiation therapy. The chamber's small size enables the user to perform measurements with excellent spatial resolution. Correction factors needed for the determination of absorbed dose to water are available. The chamber is designed for the use in solid state phantoms.

Specification

Type of product	vented plane parallel ionization chamber
Application	absolute dosimetry in low-energy photon beams
Measuring quantities	absorbed dose to water, air kerma, exposure
Reference radiation quality	30 kV, HVL 0.37 mm Al (T30)
Nominal sensitive volume	0.005 cm ³
Design	not waterproof, vented
Reference point	in chamber center of entrance foil underside
Direction of incidence	perpendicular to chamber plane
Nominal response	200 pC/Gy
Long-term stability	≤ 1 % per year
Chamber voltage	400 V nominal ± 400 V maximal
Directional response	≤ 5 % for chamber tilting up to ± 10°
Leakage current	≤ ± 10 fA
Cable leakage	≤ 1 pC/(Gy·cm)

Materials and measures:

Entrance foil	0.03 mm PE
Total window area density	2.76 mg/cm ²
Sensitive volume	radius 1.45 mm depth 0.9 mm

Ion collection efficiency at nominal voltage:

Ion collection time	0.03 ms
Max. dose rate for ≥ 99.5 % saturation	0.99 kGy/s
≥ 99.0 % saturation	1.9 kGy/s
Max. dose per pulse for ≥ 99.5 % saturation	4 mGy
≥ 99.0 % saturation	10 mGy

Useful ranges:

Chamber voltage	± (100 ... 400) V
Radiation quality	(8 ... 35) keV X-rays
Field size	(0.5 x 0.5) cm ² ... (40 x 40) cm ²
Temperature	(10 ... 40) °C (50 ... 104) °F
Humidity	(20 ... 80) %, max 20 g/m ³
Air pressure	(700 ... 1060) hPa

Ordering Information

TN34013 Soft X-ray chamber 0.005 cm³,
connecting system BNT

TW34013 Soft X-ray chamber 0.005 cm³,
connecting system TNC

TM34013 Soft X-ray chamber 0.005 cm³,
connecting system M