



Spherical Ionization Chamber TK-30

Type 32005

Spherical ionization chamber with a long rigid stem for radiation protection measurement

Features

- ▶ Vented sensitive volume of 28 cm³
- ▶ Suitable as high precision reference chamber for radiation protection dosimetry
- ▶ Very flat energy response within a wide range

The spherical chamber TK-30 is designed as a reference chamber for absolute dosimetry to be used by secondary standard dosimetry laboratories (SSDL) and users with high quality requirements. It has very small variations of response with radiation quality from low X-ray energies up to high-energy photon radiation. The guard ring is designed up to the sensitive volume. The chamber is constructed with a long rigid stem of approx. 20 cm length for easy mounting in the radiation beam. Air density correction is required for each measurement.

Specification

Type of product	vented spherical ionization chamber
Application	radiation protection measurements
Measuring quantity	photon equivalent dose, exposure
Nominal sensitive volume	27.9 cm ³
Design	not waterproof, vented
Reference point	chamber center
Direction of incidence	radial
Nominal response	900 nC/Gy
Chamber voltage	400 V nominal ± 1000 V maximal
Energy response	≤ ± 5 % (48 keV ... ⁶⁰ Co)
Directional response in air	≤ ± 0.5 % for rotation around the chamber axis and ≤ ± 3 % for tilting of the axis up to ± 45°
Leakage current	≤ ± 5 fA

Materials and measures:

Wall of sensitive volume	3 mm POM (polyoxymethylene, graphite coated)
Total wall area density	453 mg/cm ²
Dimension of sensitive volume	radius 22 mm
Central electrode	graphite coated PMMA, diameter 4.2 mm

Ion collection efficiency at nominal range:

Ion collection time	4.5 ms
Max. dose rate for ≥ 99 % saturation	29.4 Gy/h
≥ 90 % saturation	294 Gy/h
Max. dose per pulse for ≥ 99 % saturation	26 μGy

Useful ranges:

Chamber voltage	± (200 ... 400) V
Radiation quality	25 keV ... 50 MeV
Temperature	(10 ... 40) °C (50 ... 104) °F
Humidity	(10 ... 80) %, max 20 g/m ³
Air pressure	(700 ... 1060) hPa

Ordering information

- TN32005 Spherical chamber TK-30, connecting system BNT
- TW32005 Spherical chamber TK-30, connecting system TNC
- TM32005 Spherical chamber TK-30, connecting system M