



1 Liter Spherical Ionization Chamber Type 32002

Spherical ionization chamber for radiation protection

Features

- ▶ Vented sensitive volume of 1 liter
- ▶ Suitable for survey meter calibration and low level measurements
- ▶ Superior energy response, reproducibility, directional dependence and long-term stability
- ▶ Radioactive check device (option)

The spherical chamber is designed for the measurement of ionizing radiation in radiation protection. Superior features make the chamber suitable as standard chamber for calibration purposes. It fulfills the requirement for excellent reproducibility and long-term stability of the sensitive volume. The spherical construction ensures a nearly uniform response to radiation from every direction. The energy response is very flat. This is achieved by the thin layer of aluminum on the inner wall surface, which provides for an increased photoelectric yield to compensate for the absorption of soft X-rays. The outer chamber diameter is 140 mm.

Specification

Type of product	vented spherical ionization chamber
Application	radiation protection measurements
Measuring quantity	photon equivalent dose
Nominal sensitive volume	1 l
Design	not waterproof, vented
Reference point	chamber center
Nominal response	40 $\mu\text{C}/\text{Gy}$
Chamber voltage	400 V nominal ± 500 V maximal
Energy response	$\leq \pm 4$ % (32002)
Leakage current	$\leq \pm 10$ fA

Materials and measures:

Wall of sensitive volume	3 mm POM (polyoxymethylene)
Total wall area density	453 mg/cm ²
Central electrode	graphite coated polystyrene, diameter 50 mm
Outer dimension	diameter 140 mm

Ion collection efficiency at nominal range:

Ion collection time	37 ms
Max. dose rate for ≥ 99.5 % saturation	210 mGy/h
≥ 99.0 % saturation	420 mGy/h
Max. dose per pulse for ≥ 99.5 % saturation	1.6 μGy
≥ 99.0 % saturation	3.1 μGy

Useful ranges:

Chamber voltage	$\pm (300 \dots 500)$ 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

TN32002 Spherical chamber 1 l, connecting system BNT
 TW32002 Spherical chamber 1 l, connecting system TNC
 TM32002 Spherical chamber 1 l, connecting system M

Options

T48010 Radioactive check device ⁹⁰Sr
 T48001 Chamber holding device for check device