



## CT Chamber

### Type 30009

*Vented cylindrical pencil chamber for dose length product measurements in computed tomography*

#### Features

- ▶ Pencil type chamber for measurements within a CT head or body phantom or free in air
- ▶ Provides a sensitive measuring length of 10 cm
- ▶ Shows a homogeneous response over the whole chamber length

The CT chamber is a vented cylinder chamber designed for dose length product and dose length product rate measurements in computed tomography. The chamber allows the determination of the  $CTDI_{100}^1$ ,  $CTDI_w^2$  and  $CTDI_{vol}^3$  according to IEC 61223-2-6 and IEC 61223-3-5.

#### Specification

Type of product	vented pencil type chamber
Application	dosimetry in computed tomography
Measuring quantities	air kerma length product, exposure length product
Reference radiation quality	120 kV, HVL 8.4 mm Al (RQT9)
Nominal sensitive volume	3.14 cm <sup>3</sup>
Design	not waterproof, vented, pencil type
Reference point	chamber center
Direction of incidence	radial
Nominal response	14 nC/(Gy·cm)
Chamber voltage	- 100 V nominal ± 500 V maximal high voltage to be connected only with active current-limiting device ( $I_{max} < 0.5$ mA)
Energy response	≤ ± 5 % for (70 ... 150) kV
Leakage current	≤ ± 10 fA
Cable leakage	≤ 1 pC/(Gy·cm)

#### Materials and measures:

Wall material	1 mm PMMA, graphite coated
Wall area density	119 mg/cm <sup>2</sup>
Dimension of sensitive volume	radius 3.5 mm length 100 mm
Electrode	Al tube, graphited outer diameter 3 mm

#### Ion collection efficiency at nominal voltage:

Ion collection time	274 μs
Max. dose rate for ≥ 95.0 % saturation	12.4 Gy/s
Max. dose per pulse for ≥ 95.0 % saturation	2.26 mGy

#### Useful ranges:

Chamber voltage	± (100 ... 400) V
Radiation quality	(50 ... 150) kV
Temperature	(10 ... 40) °C (50 ... 104) °F
Humidity	(10 ... 80) %, max 20 g/m <sup>3</sup>
Air pressure	(700 ... 1060) hPa

#### Ordering Information

TN30009 CT chamber 3.14 cm<sup>3</sup>, connecting system BNT  
 TW30009 CT chamber 3.14 cm<sup>3</sup>, connecting system TNC  
 TM30009 CT chamber 3.14 cm<sup>3</sup>, connecting system M  
 TL30009 CT chamber 3.14 cm<sup>3</sup>, connecting system L

<sup>1</sup>CTDI<sub>100</sub> = Computed Tomography Dose Index 100

<sup>2</sup>CTDI<sub>w</sub> = Weighted CTDI<sub>100</sub>

<sup>3</sup>CTDI<sub>vol</sub> = Volume CTDI<sub>w</sub>