

Diamond Detector



Waterproof diamond detector for dose measurements in high-energy photon and electron beams

Features

- ▶ Very small sensitive volume of 1 to 6 mm² and typically 0.3 mm thickness
- ▶ Good tissue-equivalence
- ▶ Suitable for dose scanning in IMRT and stereotactic fields because of its excellent spatial resolution
- ▶ The angular response in water is better than $\pm 2\%$
- ▶ Suitable for use in remote controlled water phantoms

The Diamond Detector¹, based on a naturally grown diamond, is a nearly tissue-equivalent radiation detector. It is designed for dose distribution measurements in high-energy photon and electron beams, featuring a favorable signal-to-noise ratio. Because of its small sensitive volume, the detector is applied for IMRT, stereotactic beams, brachytherapy and water phantom scanning, and is especially well suited for beams with very small field sizes or steep fluence gradients. The Diamond Detector responds with an excellent spatial resolution, low energy and temperature dependence, high sensitivity, nearly no directional dependence and high resistance to radiation damage. The nominal photon range of the detector is from 100 keV up to 20 MeV. The nominal electron range is 4 to 20 MeV. The detector has a short stem for mounting to a water phantom mechanism and a flexible cable of 1.5 m in length to be connected to a dosimeter with connecting system M, which supplies the required bias voltage of 100 V.

¹ The Diamond Detector was developed in cooperation with the IPTP Institute, Riga.

Ordering Information

TM60003 Diamond Detector, connecting system M

- ▶ TANDEM Dual Channel Electrometer *page 14*
- ▶ Detector Extension Cables *page 28*
- ▶ TBA Detector Holding Devices *page 46*