

# TECHICAL SPECIFICATION / RADON MEASUREMENTS

**Throughput of the system: 2000 dosimeters per week or more**

## Detector specification

### Radiation sensitive component

Type: PADC/CR-39 radon and thoron sensitive plastic material  
Typical background/transit track density value: 0.2 tracks per mm<sup>2</sup>  
Dimension: 10x10x1mm at RSK type detector  
21x23x1mm at RSG type detector  
Extra feature: Double ID code, for both visual and automatic reading.  
Note 1.: This type of CR-39 chip is compatible with the Radosys system only.  
Note 2.: The CR-39 chips supplied to the N-DOSYS product line are not compatible with the radon product line.

### Radon Detectors

All types of diffusion chambers are made of conductive plastics  
All types are delivered with exact calibration information  
**RSKS standard type for indoor radon tests:**  
Individually sealed into radon-proof pouch  
Tamper-proof design  
Applicable for long-term (80 days) tests.  
Metrology information: Range of detection from 40 to 8,000 kBq/m<sup>3</sup>  
**RSGS special type:**  
Applicable for both long-term (80 days) and short term (10 days) tests.  
Dedicated to regions with low action level regulation  
**RSFV special type:**  
Subtype of RSFS  
Double chamber technology  
Dedicated to tests in environment with Unpredictable level of radon activity  
Metrology information: Range of detection from 40 to 80,000 kBq/m<sup>3</sup>  
**RSFW special type:**  
Subtype of RSFV  
Equipped with water/humidity protection  
Dedicated to test in humide environment, for instance in spa, cave, mine or soil  
**RADUET special type:**  
Radon-Thoron Discriminating Detector  
Unique, double-detector structure, according to NIRS, Japan & Radosys  
**RSFK special type:**  
Dedicated to cost sensitive radon survey projects. This type is not available at every market territory.  
**Other available options:**  
Custom-designed labels  
Ready-made, assembled dosimeters

## Detector Development Process

### Etching Unit (RB4)

Type of developed tracks: Circular tracks typically  
Etching substance: 25% /6.25 molar sodium-hydroxide solution  
Etching temperature: 90 centigrade, factory default setting  
Etching time: 4.5 hours, factory default  
Number of detectors developed at the same time:432  
Etching solution volume: 5000g  
Bath operation specialties: Temperature regulation, automatic liquid stirring  
Other standard features: Set of accessory items for solution handling  
Control features: Advanced programmable options by front-panel keyboard  
Front panel LCD display with process information and temperature data  
Regional power versions: EU 220/240 VAC or USA/Japan 90/120 VAC;50/60 Hz  
Packaged weight: 15 kg  
Dimension: 400x400x600 mm

## Evaluation process (Radometer 2000 and Radometer DH models, versions RSV10/RSV100)

### Microscope Unit with Embedded Computer

Imaging component: 3 Megapixel CCD camera  
Objective magnification: 4x / 10x  
Object movement: Automatic XYZ directional movement  
Extra feature: Automatic image focusing  
Feeding capacity: 12 detectors at RSV10 version  
240 detectors at RSV100 version  
Packaged weight: 35kg at RSV10 version  
45 kg at RSV100 version  
Dimension without package: 500mmx500mmx300mm at RSV10 version  
500mmx800mmx300mm at RSV100 version  
Power: 90 to 240 VAC, 50/60 Hz  
User interface: Front panel touch display  
Optional tablet computer with wireless connection  
Optional external screen and keyboard/mouse

### Operational Characteristics

Evaluation time per detector: 20 sec at RSK detector  
Track recognition capability: Single and double/tripe overlapping tracks  
Area of detector scanned for track analysis: 50mm<sup>2</sup> at RSK detector  
from 150 mm<sup>2</sup> to 355 mm<sup>2</sup> configurable at RSG detector  
System Accuracy, Total System Imprecision:  
10% at 6-point non-linear calibration  
20% at linear calibration  
Data report displayed: Chart of track density  
ID code recognition: Automatic dot code reading  
Data access: By advanced data-base operation