ATOMTEX SPE

Instruments and technologies for nuclear measurements and radiation monitoring
Scientific and Production Enterprise ATOMTEX was established as a daughter division of Minsk Scientific and Research Instrument-Making Institute in 1995. The main activities are development and manufacture of instruments and equipment for nuclear measurements and radiation monitoring for more than 40 years.
ATOMTEX SPE is a company with a high skilled staff creating highly automated modern equipment with good quality and design, which meets International standards. The company is one of the world's leaders in the field of radiation monitoring equipment.
The main application fields:

- Nuclear industry and NPSs
- Radioecology
- Emergency
- Civil defense
- Monitoring of illicit trafficking of radioactive and nuclear materials
- Nuclear medicine
- Radiology
- Monitoring of x-ray equipment
- Monitoring of radioactive waste
- Geophysics
- Metrology
- Scientific research
- Special equipment and others

Our product range includes more than 70 items.

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Our products are delivered to 70 countries:

- Belarus
- Australia
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- Algeria
- Argentina
- Bangladesh
- Bulgaria
- Brazil
- Great Britain
- Vietnam
- Ghana
- Germany
- Hong Kong
- Greece
- Georgia
- Egypt
- Estonia
- Ethiopia
- Israel
- Jordan
- India
- Indonesia
- Italy
- Spain
- Kazakhstan
- Canada
- Cameroon
- Qatar
- China
- Congo
- Korea
- Cote d’Ivoire
- Kuwait
- Kyrgyzstan
- Latvia
- Lithuania
- Morocco
- Malta
- Macedonia
- Moldova
- Mongolia
- Nigeria
- Netherlands
- Norway
- UAE
- Poland
- Portugal
- Romania
- Russia
- Saudi Arabia
- Serbia
- Singapore
- Syria
- Slovakia
- Slovenia
- Spain
- USA
- Sudan
- Tajikistan
- Taiwan
- Tunisia
- Turkey
- Uzbekistan
- Ukraine
- Finland
- France
- Montenegro
- Switzerland
- RSA
- Japan
Whole body counters:

- AT1316 – $^{137}\text{Cs}$ and other radionuclides in whole human body
- AT1322, AT1322/1 – $^{131}\text{I}, ^{133}\text{I}$ in human thyroid
The whole body counter (WBC) AT1316 is a chair-configured device which is intended for fast screening and quantifying the levels of activity of gamma-emitting radionuclides within the human body as well as for evaluating the doses from internal contamination.

Operation

The operation algorithm is based on detecting gamma radiation from incorporated radionuclides, measuring instrument spectra and processing measured data to evaluate the levels of internal contamination taking into account the anthropometric features of the examined person.
**Application**

- Internal population and personnel contamination monitoring
- Population and personnel screening at nuclear incidents
- Personnel screening in nuclear facilities
- NPP personnel safety

**Features**

- Stabilized spectrometric channel
- Spectrometric and radiometric channels
- Efficient spectra processing by the maximum-likelihood method
- User-selectable radionuclides to be examined in the radiometric mode
- Annual effective dose from incorporated Cs-137
- Automated software for data analysis, database support and reporting of the examination results
- Radionuclide identification in the spectrometric mode
- Chair-configured device
- Saving operational background spectra for fast responding to the radiation background change
- Suited for being a part of a Mobile radiation monitoring laboratory in a microbus
- USB link for PC host
# Whole body counter AT1316

<table>
<thead>
<tr>
<th>Specification</th>
<th>AT1316</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detector</td>
<td>Scintillation, NaI(Tl) – ∅150x100 mm</td>
</tr>
<tr>
<td>Energy range</td>
<td>0.05 – 1.5 MeV</td>
</tr>
<tr>
<td>Minimum measured radioactivity value for 3 min ($^{137}$Cs in a human body)</td>
<td>300 Bq</td>
</tr>
<tr>
<td>Gamma radiation activity measuring range ($^{137}$Cs in a human body)</td>
<td>74 – 7.5\texttimes10^5 Bq</td>
</tr>
<tr>
<td>Check-up at express control</td>
<td>15 persons/hour</td>
</tr>
<tr>
<td>MCA</td>
<td>512</td>
</tr>
<tr>
<td>Relative energy response on $^{137}$Cs</td>
<td>not more then 9.5 %</td>
</tr>
<tr>
<td>Integral non-linearity</td>
<td>not more than 1 %</td>
</tr>
<tr>
<td>Operation mode setup time</td>
<td>10 min</td>
</tr>
<tr>
<td>Weight</td>
<td>70 kg</td>
</tr>
</tbody>
</table>
The whole body counters (WBCs) AT1322 and AT1322/1 are the chair-configured fixed installations featuring the levels of internal contamination from I-131 and I-133 in the thyroid.

**Operation**

The operation algorithm is based on detecting gamma radiation from I-131 and I-133 in the thyroid by the NaI(Tl) spectrometric smart probe and processing spectra on PC by automated applied software.
Application

- Internal contamination from I-131 and I-133 for personal dosimetry monitoring purposes
- Laboratories of internal contamination monitoring in NPPs and other nuclear authorities
- Population screening
- Laboratories of radiation diagnostics in medical authorities

Features

- Stabilized spectrometric channel
- Fast screening – 3 minutes for one person
- LED stabilization
- Automated software for data analysis, database support and reporting of the examination results
- Simple design
- USB link for PC host
- Join using of AT1316 & AT1322
### Specification

<table>
<thead>
<tr>
<th>Specification</th>
<th>AT1322</th>
<th>AT1322/1</th>
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</thead>
<tbody>
<tr>
<td>Detector</td>
<td>Scintillation, NaI(Tl) – Ø40x40 mm</td>
<td>Scintillation, NaI(Tl) – Ø63x63 mm</td>
</tr>
<tr>
<td>Energy range</td>
<td>0.05 – 1.5 MeV</td>
<td></td>
</tr>
<tr>
<td>Minimum measured radioactivity value for 3 min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$^{131}$I in the thyroid</td>
<td>200 Bq</td>
<td>80 Bq</td>
</tr>
<tr>
<td>$^{133}$I in the thyroid</td>
<td>240 Bq</td>
<td>100 Bq</td>
</tr>
<tr>
<td>Gamma radiation activity measuring range</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$^{131}$I in the thyroid</td>
<td>$85 – 10^5$ Bq</td>
<td>$30 – 10^5$ Bq</td>
</tr>
<tr>
<td>$^{133}$I in the thyroid</td>
<td>$110 – 10^5$ Bq</td>
<td>$40 – 10^5$ Bq</td>
</tr>
<tr>
<td>Check-up at express control</td>
<td>15 persons/hour</td>
<td></td>
</tr>
<tr>
<td>MCA</td>
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INSTRUMENTS AND TECHNOLOGIES FOR NUCLEAR MEASUREMENTS AND RADIATION MONITORING
Whole body counters

Instruments may be used by different ways and means:

- Join using of AT1316 & AT1322
- Location in a car

Measuring modes

AT1316

AT1322
AT1322/1

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