The world’s gold standard for non-invasive infant body composition assessment

"Numbers you can trust"
ADP is a noninvasive, reliable, and accurate technique to measure infants’ body composition in both research and clinical settings\(^{(1)}\).

- Gold Standard accuracy using whole-body densitometry
- Testing pre-term and term infants (1 to 8 kg)
- Fat and Fat-Free Mass measurements
- Accomodates most infant behaviors (crying, movement, etc.)
- Safe, non-invasive, and ideally suited for frequent testing
- Excellent test-retest reliability
- Fast test time (only 2 minutes inside the chamber)

Researchers widely recognize that the accurate assessment and tracking of body composition in the critical period immediately following birth and throughout early life can provide key information in both clinical and research settings. This includes developing nutrition guidelines, NICU release criteria, dosage requirements, and acquiring normative growth data.

The PEA POD is the world’s only Air Displacement Plethysmography system using whole body densitometry to determine body composition (Fat and Fat-Free Mass) in infants weighing between 1 and 8 kg.

Each PEA POD is a complete turnkey system based on the same Gold Standard operating principle as hydrostatic (underwater) weighting.

The PEA POD is extremely simple to use and does not require a license to operate. It is also completely non-invasive and ideal for frequent, longitudinal tracking of body composition.

Main Applications
The PEA POD is an important tool that enables a better understanding of fetal programming, the assessment of efficacy of nutritional therapies, and the development of normative body composition data among other applications. It is used in a wide variety of segments:
- Academic and Medical Research
- Neonatology Departments
- Nutrition Assessment Centers

Proven Accuracy
The PEA POD uses the principles of whole-body densitometry to determine body composition. In this technique, body mass and body volume are measured (both performed within the unit). Once body density (Density = Mass/Volume) is determined, the PEA POD uses known (or user customized) densitometric equations to calculate percent Fat and Fat-Free Mass. The accuracy of the PEA POD has been shown to be very high against reference techniques in a number of research publications.

Test Sequence
The PEA POD is extremely simple to operate, with software prompts guiding the operator through each step of the process. From start to finish, a PEA POD test takes about 7 minutes:
- Basic information is entered into the software program while the automatic volume calibration takes place.
- Body mass is measured with a high precision electronic load cell scale embedded in the unit (its accuracy is assured by calibrations at regular intervals).
- Infant is placed in the PEA POD test chamber tray and enters the warmed test chamber for a 2-minute volume measurement. During the entire period the infant is clearly visible at all time through the unit window.
- Test results are computed, displayed and printed.

Software Features

- Longitudinal reports of body composition changes.
- Customizable body composition ranges.
- Customizable density models based on ethnicity and gender.
- Data export capability.

Maintenance

The PEA POD is designed for durability over time. Each PEA POD has an internal diagnostic test function to analyze system performance and provide feedback to service personnel. Extended service agreements are available to insure optimal performance for long term use.

Safety

The PEA POD is manufactured in compliance with the strictest quality standards required for medical devices.

The PEA POD adopts the same safety criteria of an incubator. The chamber is kept in constant temperature, constantly ventilated, and an integrated sensor monitors continuously the level of CO2 inside the chamber to activate visual and audible alarms to alert the user of any abnormal function. In addition, the PEA POD has a HEPA filter to protect against airborne disease transmission.

The PEA POD has also a redundant safety system, consisting of a Cancel Test button and an Emergency STOP knob the operator can use to immediately stop/cancel a test and remove the subject.

User-friendly and straightforward software interface

Reports can be created showing longitudinal changes in body composition over time with reference values for comparison.

High precision scale embedded in the unit

The infant is easily placed in the warmed test chamber

The infant is clearly visible at all time through the unit window.
## Technical Specifications

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>REF</th>
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<tbody>
<tr>
<td>PEA POD</td>
<td>Infant ADP body composition tracking system</td>
<td>A-661-230-025</td>
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### Standard Packaging
- PEA POD unit
- Computer/monitor
- Software Disk
- Volume phantoms
- 2 Kg calibration weight
- Chamber tray allen key
- Door strap (placed on PEA POD door)
- Subject cap (10 pcs.)
- Window cleaner
- Window cleaning cloths (5 pcs.)
- Keyboard membrane
- Printer
- Air intake pre-filter (4 pcs.)
- Operator’s manual

### Standard Tests

#### Body Composition
- Body Weight, Body Fat (mass and %), Body Fat-Free (mass and %), Body surface area, Thoracic Gas Volume (estimated)

#### Accuracy
- The mean difference of measured body fat percentage is < 0.6 % when compared to reference techniques (such as deuterium dilution method and four compartment models)

#### Maximum Patient Weight
- 8 kg

#### Mass Measurement (with built-in digital scale)
- Weight range: up to 10 Kg
- Accuracy: ±2g

#### Calibration
- Certified 2 Kg weight

### Volume Measurement

#### Dimensions & Weight (Pod)
- 156.2x79.8x122.4 cm / 300 kg

#### Chamber Volume
- ≈ 36 L

#### Accuracy
- ±6 ml

#### Calibration
- Automatic with an internal calibration volume

### Hardware

#### Power Requirements
- 100-240V ± 10% 50/60 Hz

#### Environmental Conditions
- Temperature: 20 to 28°C (operating); -21 to 75°C (storage)
- Humidity: 20-70% (non-condensing)
- Barometric Pressure: 75-106 KPa (562-795 mm Hg)

### Software

#### PEA POD Suite

#### Available Languages
- English

#### PC Configuration
- Windows XP Pro (32 bit) or Windows 7 (32 bit); 256 MB RAM (XP Pro), 2 GB RAM (Windows 7)

### Safety & Quality Standards

- MDD (93/42 EEC); FDA 510(k); EN 60601-1 (safety) / EN 60601-1-2 (EMC)

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**Validation articles**

- More scientific studies on www.cosmed.com/bibliography

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![Diagram of PEA POD](image-url)