Ameda Penguin® Nutritional Warmer

Going Beyond Warming Breast Milk
Delivering Breast Milk at Body Temperature Makes a Real Difference in Infant Health and Nutrition

- Promotes greater feeding tolerance, especially in very low birth weight preterm infants.\(^1\,2\)
- Leads to significantly lower gastric residual in preterm infants compared with when fed breastmilk below ideal temperature.\(^2\)
- May lead to indigestion and poor nutritional absorption.\(^1\)
- May affect body temperature, especially in very low birth weight preterm infants.\(^1\)
- Preterm infants may be subjected to cold stress that may affect thermoregulation when feedings are delivered cold.\(^2\)
- May adversely affect growth and weight gain.\(^2\)
- Compromises the nutritional and immunological properties of breast milk.\(^1\)
- High temperatures can also induce fat profile variations as compared with fresh breastmilk.\(^1\)
- Overheating causes considerably reduced fat absorption.\(^1\)
- Adversely affects bioactive enzymes that help with digestion in the infant's gut.\(^1\)

### When Breast Milk is Delivered:

<table>
<thead>
<tr>
<th>Below Ideal Temperature</th>
<th>Above Ideal Temperature</th>
</tr>
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<td>• May lead to indigestion and poor nutritional absorption.(^1)</td>
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- Promotes greater feeding tolerance, especially in very low birth weight preterm infants.\(^1\,2\)
- Leads to significantly lower gastric residual in preterm infants compared with when fed breastmilk below ideal temperature.\(^2\)

- During heating, it is not only the temperature that breastmilk may reach that is important for enzyme activity, but the time of exposure to heat is also critical.\(^1\)
- The North American Human Milk Banking Association (HMBANA) advocates warming feeds to body temperature for premature infants, particularly those at risk for necrotizing enterocolitis (NEC).\(^1\)
For Gentle and Uniform Warming to Human Physiological Temperature, Choose Ameda Penguin

1. Penguin Warms to Ideal Temperature Range

**Ameda Penguin**
- Penguin delivers feedings at ideal temperature range at the end of warming cycle.

**Competing Brand**
- Does not reach 98.6°F by the end of cycle or the hold time.

2. Penguin Is Faster

**Ameda Penguin**
- 37-40 mins to reach 98°F
- Reaches 98°F about 2 minutes prior to end of heating cycle (Frozen to Feed).

**Competing Brand**
- Fails to reach 98°F
- Reaches 98°F about 22 minutes after the end of the 55 minute heating cycle (Frozen to Feed).

3. Penguin is More Uniform and Even

**Ameda Penguin**
- Reduced temperature variability enabling a more uniform and even heating due to multi-directional surround heating and gentle vibration technology.

**Competing Brand**
- Larger temperature variability due to unidirectional heating from the top and lack of gentle mixing during the warming process.

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### Warmer Comparison

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<thead>
<tr>
<th></th>
<th>Ameda Penguin</th>
<th>Competing Brand</th>
</tr>
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<tr>
<td>Warms based on temperature sensor feedback loop</td>
<td>✔️</td>
<td>🔫</td>
</tr>
<tr>
<td>Gently mixes while warming, eliminating the need for shaking or rolling</td>
<td>✔️</td>
<td>🔫</td>
</tr>
<tr>
<td>Multi-directional, surround warming for a more uniform and even outcome</td>
<td>✔️</td>
<td>🔫</td>
</tr>
<tr>
<td>Feedings safely warmed in closed system bag</td>
<td>✔️</td>
<td>🔫</td>
</tr>
<tr>
<td>Warm from refrigerator to feeding temperature</td>
<td>✔️</td>
<td>🔫</td>
</tr>
<tr>
<td>Warm from frozen to thawed temperature</td>
<td>✔️</td>
<td>🔫</td>
</tr>
<tr>
<td>Warm from frozen to feeding temperature</td>
<td>✔️</td>
<td>🔫</td>
</tr>
<tr>
<td>Easy to clean with common hospital disinfectant</td>
<td>✔️</td>
<td>🔫</td>
</tr>
<tr>
<td>Accommodates feeding containers to 270 ml and syringes from 1ml to 100ml</td>
<td>✔️</td>
<td>🔫</td>
</tr>
<tr>
<td>Compatible with most makes, models, and sizes of breast milk storage bags, syringes, and bottles</td>
<td>✔️</td>
<td>🔫</td>
</tr>
<tr>
<td>Space-saving four wells for pods or nutritional preparation area/rooms</td>
<td>✔️</td>
<td>🔫</td>
</tr>
<tr>
<td>Quiet operation that meets NICU environment guidelines</td>
<td>✔️</td>
<td>🔫</td>
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</table>

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### Noise Level Comparison

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</tr>
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<tbody>
<tr>
<td>1 well/ Single Unit</td>
<td>31 db</td>
<td>45 db</td>
</tr>
<tr>
<td>4 Well/ 4 Units</td>
<td>35 db</td>
<td>52 db</td>
</tr>
</tbody>
</table>

*Third-party testing per ISO 3741:2010 performed per 503.0 EPA 2018*
360° surround, even, gentle warming to ideal temperature range.

Leverages thermal transfer properties of water – the most efficient and controlled method for heat exchange.

Gentle vibrating technology mixes feedings throughout the warming cycle.

Smart Warming
- The Penguin uses proprietary software and temperature feedback sensor technology unlike most competitors that are pre-programmed, countdown systems based on averages and assumptions.
- Utilizes multi-directional gentle warming to ensure the feeding container and milk are never exposed to heat greater than 104°F (40°C), as opposed to unidirectional heat from top down.
- Guarantees each feeding will remain at the ideal target temperature for up to 30 minutes after it reaches the end of the warming cycle.
- Multiple warming profiles allows for customization – Penguin® not only warms frozen or refrigerated milk to physiological temperature, it also thaws frozen milk to refrigerator temperature.

Quiet and Safe Warming
- Penguin operates silently at 31dB (single well) and 35dB (four well) and is safer for bedside compared with competing brand. More importantly, the American Academy of Pediatrics (AAP) and US Environmental Protection Agency (US EPA) recommend against noise levels exceeding 45dB in the NICU³.
- Features a patented Therma-Liner™ to achieve a protective closed system. The proprietary “bag-in-bag” design isolates the milk container from an outer layer that contains water for a true 360° safe warming.
- Therma-Liner also acts as a buffer between the heating element and feeding, preventing any direct exposure to heat.
- Ameda Penguin leverages thermal transfer properties of water – the most efficient and controlled method for heat exchange because water is a superior conductor of heat than dry air.

Helps Prevent Potential Nutritional Degradation
- Exposure to low and indirect heat helps maintain the unique nutritional and immunological qualities of breast milk and human milk fortifiers.
- A feature unique to Penguin – it gently mixes feedings throughout the warming cycle preserving the nutritional value of each feeding. This proprietary technology minimizes chances of potential loss of lipids and enzymes associated with improper shaking/rolling, commonly used to even out hot spots.

• Bransburg-Zabary S, et al. suggests a smarter method to warm breast milk is required to ensure that temperatures not exceed 40° C (104° F), so its unique properties will be better preserved. Possible solutions may include a mechanism by which human milk would be constantly steered during heating¹, similar to technology in Ameda Penguin warmers.
• Bransburg-Zabary S, et al. also showed that it was difficult to determine when milk reaches the desired temperature due to lack of steering and creates heat zone islets of high temperatures¹.
• The World Health Organization (WHO) also recommends constant steering for a period of 20 minutes¹.
Ameda Penguin Products

Best-in-class, two-year warranty!

1. Deluxe Penguin Nutritional Warmer – Single Well PNW00115

2. Deluxe Penguin Nutritional Warmer – Four Well PNW00145

3. Therma-Liner™ (6 boxes/50ct/Total 300) PNWZIP2DCS

   (Product not pictured)

5. Perche Shelf – Deluxe & Original PNWTKSHLV15 & PNWTKSHLV10

For business-to-business orders and questions, please contact our Ameda CustomerCare™ representatives.
1-866-992-6332 • orders@ameda.com • Hours of Operation: Monday - Friday, 8:00 a.m. – 5:00 p.m. CST

For questions, inquiries or requests for in-service appointments, contact our sales team at sales@ameda.com.

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Ameda, Inc.
485 Half Day Road
Buffalo Grove, IL 60089
1.866.99.AMEDA (26332) • www.ameda.com

Distributed in Canada by:
Mothers Choice Products Ltd
2133-11871 Horseshoe Way
Richmond BC V7A 5H5
1.800.604.6225 • www.motherschoiceproducts.com

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References