



# Ameda Penguin<sup>®</sup> Nutritional Warmer

Going Beyond  
Warming Breast Milk

# 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 37°C (98.6°F) by the end of cycle or the hold time.

## 2. Penguin Is Faster



### Ameda Penguin

#### 37-40 mins to reach 37°C

Reaches 32°C about 2 minutes prior to end of heating cycle (Frozen to Feed).

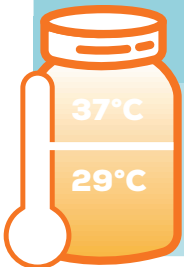


### Competing Brand

#### Fails to reach 37°C

Reaches 32°C about 22 minutes after the end of the 55 minute heating cycle (Frozen to Feed).

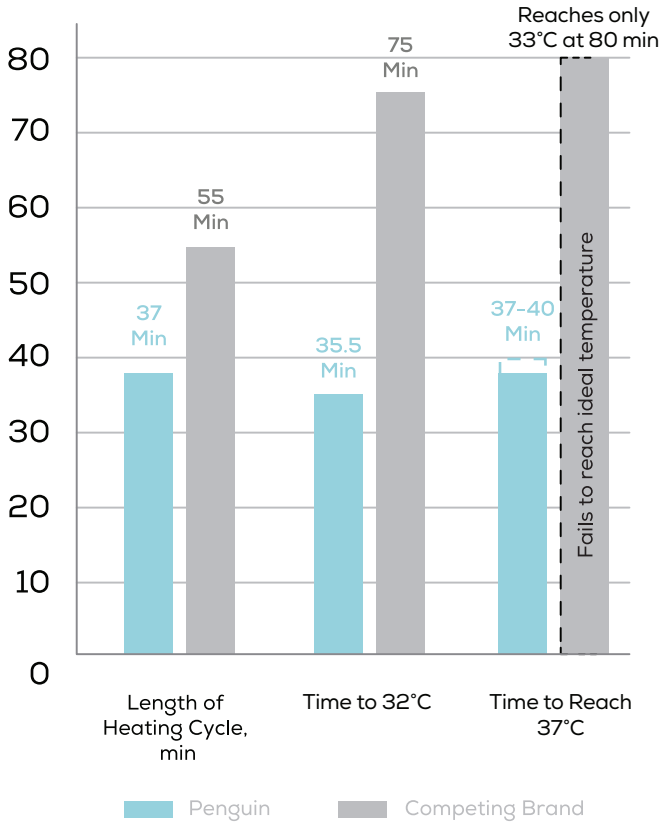
## 3. Penguin is More Uniform and Even



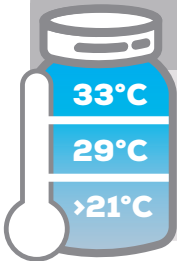
### Ameda Penguin

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

# Frozen to Feed



(120 mL of Human Milk in 4oz Ameda plastic bottle vs 120 mL of Human Milk in 5oz of competing brand plastic bottle)



## Competing Brand

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

Devices tested: Ameda Penguin unit: P/N unknown S/N1.520161.503087238 Software version 3.08. Medela Unit P/N 87115 S/N 1427088. 4 ounces- standard bottle of pasteurized donor human milk was used in the instrumented bottles in the comparative tests. 295 ml of tap water was added to the Therma-Liner bag. All warming profiles were tested.

# The Ameda Penguin is the Only Warmer That:

- Warms to physiological temperature for proper absorption
- Operates quietly below the AAP noise level for proper neurodevelopment
- Prepares feedings in half the time
- Provides continuous gentle mixing throughout warming as recommended by WHO

## Warmer Comparison

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

## Noise Level Comparison

Penguin operates quietly, much below AAP and US EPA recommended noise levels for NICUs

	Ameda	Competing Brand
1 Well/ Single Unit	31 dB	45 dB
4 Well/ Single Unit	35 dB	52 dB

(Third-party testing. The test was performed per ISO 3741:2010.)

# Delivering Breast Milk at Body Temperature Makes a Real Difference in Infant Health and Nutrition<sup>1</sup>

## When Breast Milk is Delivered:



### Below Ideal Temperature

- May lead to indigestion and poor nutritional absorption.<sup>1</sup>
- May affect body temperature, especially in very low birth weight preterm infants.<sup>1</sup>
- Preterm infants may be subjected to cold stress that may affect thermoregulation when feedings are delivered cold.<sup>2</sup>
- May adversely affect growth and weight gain.<sup>2</sup>



### Above Ideal Temperature

- Compromises the nutritional and immunological properties of breast milk.<sup>1</sup>
- High temperatures can also induce fat profile variations as compared with fresh breastmilk.<sup>1</sup>
- Overheating causes considerably reduced fat absorption.<sup>1</sup>
- Adversely affects bioactive enzymes that help with digestion in the infant's gut.<sup>1</sup>



### Within Ideal Temperature

- Promotes greater feeding tolerance, especially in very low birth weight preterm infants.<sup>1,2</sup>
- Leads to significantly lower gastric residual in preterm infants compared with when fed breastmilk below ideal temperature.<sup>2</sup>

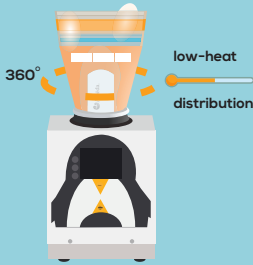
• During heating, it is not only the temperature that breastmilk may reach that is important for enzyme activity, but the time of exposure to heat is also critical.<sup>1</sup>

• 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).<sup>1</sup>

# The Ameda Penguin Advantage

## Gentle Multi-Directional Warming

360° surround, even, gentle warming to ideal temperature range.



## Quiet Operation

Well-below AAP recommended noise levels in NICU.



## Closed System

Patented "Bag-in-Bag" closed system design preventing contamination from water.

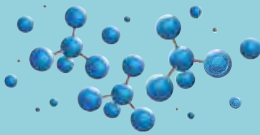


Water housed in the outside compartment allows heating to occur from all directions

Feedings are protected in the inside compartment of the bag

## Efficient Heat Exchange

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



## No Shaking Needed

Gentle vibrating technology mixes feedings throughout the warming cycle.



- 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 heating<sup>1</sup>, 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 temperatures<sup>1</sup>
- The World Health Organization (WHO) also recommends constant steering for a period of 20 minutes<sup>1</sup>



## 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 40°C (104°F), 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 NICU<sup>3</sup>.
- 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.

# Ameda Penguin Products



**1** Deluxe Penguin  
Nutritional Warmer  
–Single Well PNW00115

**2** Deluxe Penguin  
Nutritional Warmer  
–Four Well PNW00145

**3** Therma-Liner™  
(6 boxes/50ct/Total  
300) PNWZIP2DCSB

**4** Perche Shelf  
PNWTKSHLV15 & PNWTKSHLV10

**Best-in-class, two-year warranty!**

For questions and inquiries please contact your  
Territory Manager or call Mothers Choice Products  
1-800-604-6225  
[www.motherschoiceproducts.com](http://www.motherschoiceproducts.com)



## References

1. Bransburg-Zabary S, Virozub A, Mimouni F. Human milk warming temperatures using a simulation of currently available storage and warming methods. 2015. PLoS ONE 10(6): e0128806. doi:10.1371/journal.pone.0128806
2. Gonzales, Irene & J Duryea, E & Vasquez, E & Geraghty, N. (1995) Effect of enteral feeding temperature on feeding tolerance in preterm infant
3. Casavant SG, Bernier K, Andrews S, Bourgoin A. Noise in the neonatal intensive care unit: What does the evidence tell us? *Adv Neonatal Care.* 2017;17(4):265-73.

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