



# Giraffe™ Carestations

**Support neurodevelopmental growth  
for newborns with our family-centered  
care environments.**

Giraffe™ Incubator Carestation and  
Giraffe™ OmniBed™ Carestation

# Care that can deliver clinical confidence

We designed the Giraffe Incubator Carestation and Giraffe OmniBed Carestation to nurture the close connection between babies and their caregivers. Our solutions allow parents comfortable, close access to their babies and family-friendly information about their babies' progress. The solutions also include innovative features that enable clinicians to care closely for their newborn patients while minimizing negative stimulation.

## Giraffe Carestation platform highlights



Provides a neutral thermal environment



Minimizes negative touches



Manages sound and promotes normal growth and development



Manages light to help minimize stress



Provides family-centered developmental support



Enhances the user experience





## Why baby's thermal environment matters

Cold stress and heat stress may have serious consequences for all newborns.<sup>1,2,3</sup> In small-for-gestational-age and preterm infants (<2500 g) these consequences may be devastating and may increase mortality rates.<sup>4</sup> All infants need to maintain specific thermal control and more specifically, their core body temperature within a narrow range, in order to survive.<sup>5</sup> For both healthy and medically challenged babies<sup>4,5</sup> careful attention must be paid to the thermal environment from the moment of birth to the time they are capable of temperature regulation.

## Thermoregulation

Our Giraffe Carestation solution is designed with innovative features that help you provide a neutral thermal environment for infants.

1. **Comfort zone** to provide thermal guidance for setting and activating the desired temperature.
2. **Clinical trends** length up to **94 hours(4 days)** assist the caregiver in reviewing thermoregulation data for detection of early signs of sepsis.
3. **Uninterrupted uniform heat** provided by the Giraffe OmniBed™ Carestation during transition from incubator to warmer.
4. **Preventing air boost** to improve open-door thermal performance, the air curtain can be activated in advance before opening the canopy to prevent heat loss, the speed of the air curtain increases from **10 to 30 cm per second** to protect the baby from heat loss when either panel is opened to support thermal stability.
5. **Cascade control algorithm** designed to minimize baby's temperature swings.
  - GE HealthCare patented algorithm;
  - Adjust Environmental air temperature in small increments;
  - Avoid overshooting of desired baby skin temperature and remain close to Neutral Thermal Environment;
  - Assesses baby's reaction before any temperature change
6. **Heated internal components** during open bed mode to support transition to closed bed mode.
7. **Radiant heater** in Giraffe OmniBed Carestation placed inside canopy and shielded when in incubator mode.
8. **Warm-up mode** default setting at 100% for rapid preparation of bed.
9. **Giraffe Shuttle** for intra-hospital transport. One baby. One bed. A combined structure with Giraffe Carestation to convert it into a mobile NICU.

# Thermoregulation

**10. Preheat mode** default setting at 25%, with silenced alarms, for admission preparation.

**11. Servo humidity system** for added thermal support and skin protection designed with universal precautions and sterility in mind to protect against infection.

- Without internal tubing reduce contamination risk and make faster cleaning by 1 hour. Frontal refill system during running incubator with high visibility. Reduce waste by eliminating the external plastic bottles.

**12. In-bed scale** to reduce time out of the heated environment.

- Preserve clean environment during tilt, weight, x-ray and other manipulations

**13. Smart alarms** to allow quick alerts to maintain desired thermal environment.

- Smart alarms with tone, light and text defining criticality

**14. Double wall construction** with actively heated inner walls.

- maintains higher inner-wall temperature and provides protected airflow in between the walls, reducing babies evaporation and also reduce wall condensation in high humidity set up;
- Portholes at mattress level to better support arms
- Skin temperature monitoring with baby on or off the bed.
- Sealing portholes prevent loss heating when operate through them : 0,2°C decrease in air temperature in infant chamber when portholes are open\* (vs 1,4°C for single wall).

**15. Preventing condensation** thanks to the double wall that provide clear view of the baby.

**16. GE HealthCare's innovative** recessed heater head with hourglass Heat Profile bathes the baby in soothing warmth, keeping the caregiver cool and comfortable while providing uniform coverage across the mattress.

**17. Porthole seals** to avoid airflow leakage.

**18. Skin temperature** monitoring on or off the bed



\*Bhatt DH, Carlos CG, Parikh AN, White R, Seri I, and Ramanathan R. Prevalence of transitional hypothermia in newborn infants on admission to newborn intensive care units. Pediatric Academic Society Meeting, 5/7/2007, E-PAS2007:617933.23

# Touch

Our Giraffe Carestation solution is designed with innovative features that help you minimize negative handling of the baby.

1. **One-touch canopy lift and foot pedal** converts the Giraffe OmniBed Carestation into a radiant warmer without disturbing the baby.
2. **Bi-directional mattress** brings the baby closer to promote swaddling, Kangaroo Care, and to assist in rotating the mattress for clinical procedures. Enable fast interventions and reduce infection risk.
3. **Baby Susan mattress** with full 360° rotation for procedural ease.
4. **Pressure diffusing mattress** to support skin management and pressure redistribution.
5. **Sealed mattress** that is water resistant thanks to thermal sealing, helping us in getting conformance to high level disinfection.
6. **X-ray without moving the baby**—large canopy surface, x-ray tray, radiolucent mattress and wide opening between canopy and mattress to accept digital x-ray imaging.
7. **Hands-Free alarm silence** allowing caregiver to quickly silence the alarms while providing care inside the canopy with universal precautions.
8. **Smooth and continuous tilt** minimizing stimulation to the baby. The tilt is kept inside the canopy to prevent cross-contamination and to help minimize infection risks.
9. **Giraffe Shuttle** for intra-hospital transport, enables one baby one bed solution that reduce baby stress by reducing number of touches.<sup>7</sup>
  - An innovative workflow that enables **25%** shorter transport time from L&D to NICU<sup>8</sup>, and higher admissions temperatures by nearly 0,5°C<sup>8</sup>
10. **In-bed scale** with reweigh to reduce transfers in and out of the bed, calculating last weight difference.
11. **Smart touch screen** with different natural backgrounds to help create a calm environment. Automatic block for cleaning with gloves. Essential baby data with big font size - to see from distance. Intuitive screen display may help reduce mistakes developed based on input from human factors.



## Why minimizing touch matters

Exposure to excessive handling in neonatal ICUs may have an adverse impact on neurodevelopment in medically challenged newborns.<sup>9,10,11</sup> While some types of touch are needed and/or may be beneficial to the infant, most handling is considered stressful. Evidence suggests even routine procedures can cause significant physiological instability and excessive handling may exacerbate acute pain responses. The goal is to minimize stressful touches by reducing the need to move or reposition the baby for required procedures.

# Sound

Our Giraffe Carestation solution is designed with unique features to help you keep noise at levels that help promote normal growth and development.

1. **Alarm speaker** placed low, beneath the body of the bed, that is away from the baby and the soft xylophone tone that well accepted by babies to reduce stress.
2. **Adjustable alarm volume** to maximize alert while minimizing sound, 52 dBA is measure at the lowest.\*
3. **Smart alarms** disabled during pre-heat mode.
4. **Alarm defaults** designed to minimize nuisance alarms during transitions.
5. **Hands free alarm silence** allows caregiver to quickly silence the alarms while providing care inside the canopy and maintaining a quiet environment.
6. **Low noise fan** for a 40 dB reduced operating noise within the bed.
7. **Hood cover** to dampen external noise, up to 12 dB noise attenuation with the double wall design.



## Why sound matters in the NICU

Responses to loud noises (> recommended 45 dB) in the NICU have been linked to physiological response (hypoxemia) in infants.<sup>12,13,14</sup> In addition, exposure to noise and other environmental factors in the NICU may disrupt the normal growth and development of medically challenged (and preterm) infants.<sup>15</sup> The AAP publishes guidelines for NICU acoustical design outlining the suggested sound levels for equipment, voice and background noises.<sup>15</sup>

\*All these are measured at test room which complies to ISO 3743 Hard Walled Testing Room Requirements. The incubator and warmer standard requires at least 65dba on high volume setting and 50 dba on low volume setting at 3m from the device and no more than 80 dBA at the mattress.

# Light

Our Giraffe Carestation solution is designed with innovative features that help you easily manage light levels to help minimize infant stress.

1. **Visual alarm indicator** placed out of baby's field of vision.
2. **Giraffe exam LED light** with adjustable arm for appropriate lighting distance, with duration of 50000 hours.
3. **Giraffe exam LED light: 30 000 lux from 50 centimeter distance.**
4. **Hood cover** to minimize impact of overhead lighting, even in open mode, with flexible viewing arrangements. The hood cover use materials that are fire resistant, quilted 100% polyester fabric, 100% polyester batting, all 3-layer materials rating conforming to flammability rating Title 16, CFR 1610, Class 1 Standard for the Flammability of Clothing Textiles.
5. **Screen brightness control** — Selectable, low, medium, and high viewing.
6. **The 360°-visible white light alarm indicator** that doesn't reach babies.

## Why light levels matter for baby

Evidence suggests that light levels should be dimmed for at least part of the day for some infants to facilitate diurnal cycle development in mature infants.<sup>16,17</sup> Continuous bright light has been related to infant stress, indicated by increased activity levels, decreased sleep, and bradycardia.<sup>18</sup> Cycled light has the potential to promote circadian rhythm, with benefits that include hormonal regulation, activity-rest cyclicity and vital sign regulation.<sup>19</sup> Light reduction is optimal in reducing stress, retinal protection and promoting sleep.



## Skin-to-skin care

Our Giraffe Carestation solution is designed with innovative features that promote family-centered developmental support and facilitate skin-to-skin care.

1. **Adjustable height** to accommodate seated access, from 81 cm-111 cm (floor to bed without mattress)
2. **Pass-through drawer** that allows parents seated access even in a wheelchair.
3. **Family-centric away screen and themes** allow parents and family members to understand their babies' care status. And 11 themes to choose from, create home-like environment that reduce the stress.
4. **All-view display** with high visibility to patient data and alarms.
5. **Side panels** can be completely removed to aid in transition to parent for Kangaroo Care.
6. **Bi-directional translating mattress** to bring the baby closer and promote swaddling for Kangaroo Care ease.
7. **Baby Susan mattress** with full 360° rotation to offer gentle transfer.
8. **30% of the tray** with mattress can be taken out from the incubator, easier for any possible procedure or care needed
9. **Air boost** to improve open-door thermal performance with friendly reminders/prompts to activate (example weighing screen).
10. **Air mode and manual mode** to maintain bed temperature while baby is held.
11. **Skin temperature monitoring** ability during Kangaroo Care.
12. **The 3 layers Giraffe Diffusing Mattress**, is water resistant and has gone through seal strength testing to ensure a tight seal.



## Why skin-to-skin care is important to baby and mother

The skin-to-skin care method is defined as: 'Early, prolonged, and continuous skin-to-skin contact between a mother and her newborn, low birth-weight infant (<2500 g, viz. preterm and/or low birth-weight infant), both in hospital and after early discharge, with (ideally) exclusive breastfeeding, and proper follow-up'.<sup>20</sup> Skin-to-skin care has been shown to improve physiological response and decrease pain response in preterm and very preterm infants.<sup>21</sup> Additional observed benefits for mothers include reductions in stress and increased mother-baby bonding.<sup>22</sup>

# Caregiver experience

Our Giraffe Carestation solution is designed with intuitive features that help lighten the caregiver's load, allowing them to focus on the patient and the family.

1. **10.4" color display** with full touch screen user interface without extra buttons or knobs, all view display and high visibility to vital signs and alarms.
2. **Away screen** - better visibility with large numeric of 60 pts of critical parameters from a distance.
3. **Hands free alarm silencing** without touching the display during a procedure and eliminating negative stimulation to the baby.
4. **Giraffe Shuttle: One Bed. One Baby.** The Giraffe Shuttle easily docks to the Giraffe Carestation for intra-hospital transport.
5. **Activation of comfort zone** with the touch of a button.
6. **Easy-view trending** to quickly follow changes in thermoregulation, humidity, servo oxygen and weights.
7. **Connectivity capabilities** allow communication with electronic healthcare records and hospital information systems; it is equipped for future updates and upgrades.
8. **Ergonomic design** with an elevating base, removable doors, and pass through drawer. Create an open space under the incubator for easy access of mom's chair.
9. **Servo oxygen** with calibration notification and ease of calibration (if servo oxygen system installed in purchased device).

## Why the caregiver experience matters in the NICU

As medical device technology continues to advance, it becomes increasingly important to design devices, interfaces, and interactions in a way that supports caregivers' skills. By supporting an intuitive workflow that emphasizes family interaction and by providing trusted, reliable performance, the Giraffe Carestation solution empowers clinicians to send babies home safe, healthy, and as quickly as possible.



# Knowledge is power

Watch, listen, and learn about current topics in perinatal care from experts by visiting our educational website, Clinical View — a resource by clinicians for clinicians. Visit [clinicalview.gehealthcare.com](http://clinicalview.gehealthcare.com).



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Not all products or features are available in all markets. Full product technical specifications are available upon request. Contact a GE HealthCare Representative for more information. Please visit [www.gehealthcare.com](http://www.gehealthcare.com). Data subject to change.

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