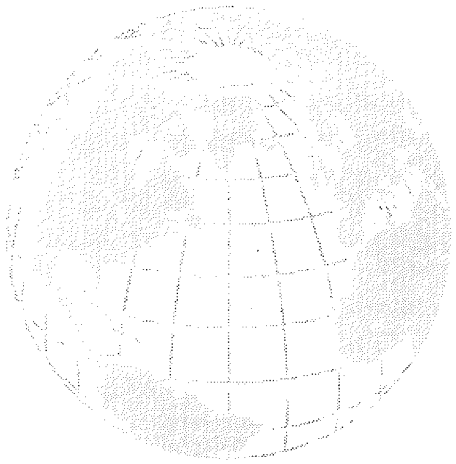


HEALTHCARE PRODUCT hpcs COMPARISON SYSTEM

December 1994

Warmers, Radiant, Infant, Mobile; Stationary

Scope of this Product Comparison

This Product Comparison covers freestanding, modular, and permanently mounted infant radiant warmers to be used in the healthcare facility. Infrared lamps used exclusively for comfort heating and/or for physical therapy are not included.

UMDNS information

This Product Comparison covers the following device terms and product codes as listed in ECRI's Universal Medical Device Nomenclature System™ (UMDNS™):

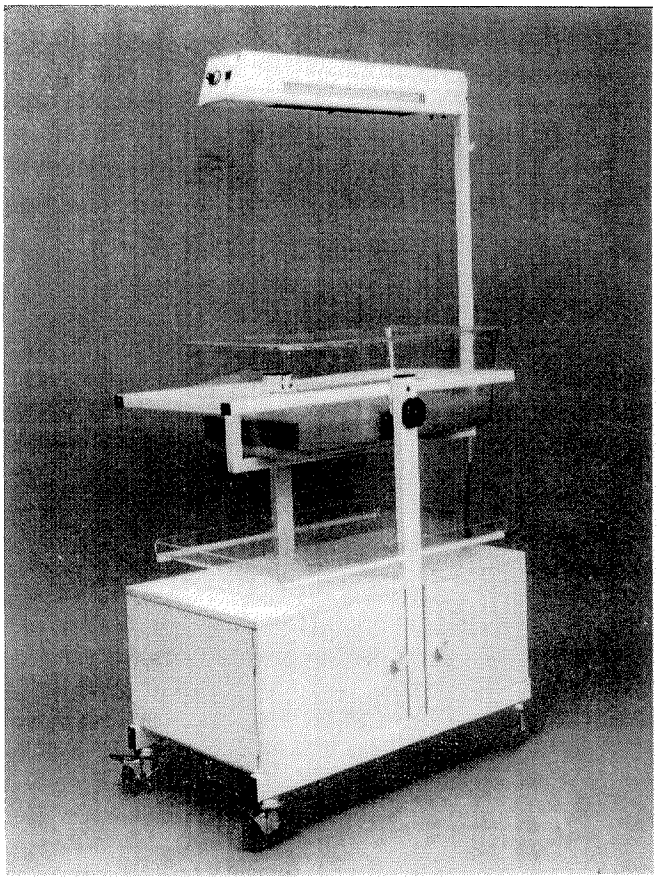
- Warmers, Radiant, Infant, Stationary [17-956]
- Warmers, Radiant, Infant, Mobile [17-433]

Purpose

Infant radiant warmers are commonly used to provide thermal support for newborns in the delivery suite, for critically ill infants who require constant nursing intervention, and for infants undergoing treatment that prolongs exposure to a cool environment.

At birth, an infant emerges from a warm, wet environment into a relatively dry, cool one regulated for the comfort of hospital staff and laboring mothers. Unable to maintain adequate thermal equilibrium, the infant rapidly loses heat through four mechanisms — conduction, convection, radiation, and evaporation. Simple measures, such as drying to minimize evaporative heat loss, swaddling in blankets to minimize convective and conductive heat loss, and close contact with the mother to minimize radiative and conductive heat loss, can be effective in controlling the infant's body temperature.

Nursing care to prevent excessive heat loss is important to the newborn infant's well-being. Prolonged cold stress can overwork heat-producing mechanisms, drain energy reserves, and result in hypoxia, acidosis, hypoglycemia, and, in severe cases, death. While simple measures are adequate for most full-term infants, premature and low-birth-weight infants frequently require thermal support. These infants are particularly vulnerable because of their high surface area/mass ratio,



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immature regulatory systems, and meager energy reserves and insulating subcutaneous fat.

Infant radiant warmers allow direct observation and easy access to the infant while providing uninterrupted warmth. Because of the various risks associated with their use, however, they are not generally accepted as a substitute for incubators for all infants requiring thermal support.

Principles of operation

Infant radiant warmers are overhead heating units. They typically consist of a lamp, a skin temperature sensor, an automatic (servo) control unit, and visual and audible alarms. Some warmers are used exclusively in the manual (nonservo) mode and generally include a heating unit, a timer to limit the heating time, and an alarm to prompt reassessment of the infant's status. Most infant radiant warmers with an automatic mode allow the operator to select the manual mode, as well.

Typical heating elements are quartz tubes or incandescent lamps, which are broadband energy sources that generate a significant amount of radiant energy in the far infrared (IR) wavelength region (longer than three microns, to avoid damaging the infant's retina and cornea). The radiant output of the heating unit is also limited to prevent thermal damage to the infant. The IR energy is readily absorbed by the infant's skin; increased blood flow in the skin then transfers heat to the rest of the body by blood convection (heat exchange between the blood and tissue surfaces) and tissue conduction (heat transfer between adjacent tissue surfaces).

When operated in the servo mode, the heating elements are turned on and off in response to changes in the infant's skin temperature, which are detected by a thermistor sensor applied to the abdomen (or other body area exposed to the radiant heat). Heater power output is controlled by an on-off control or proportional control. An on-off control turns full power on or off, while a proportional control gradually increases or decreases the heater power output as skin temperature varies from the set point.

Most warmers that operate in the manual mode are equipped with an automatic timer and heater power switch that is set by the user and allows the heater to function at a constant power level for a set period of time. In some units, the heater power is set by the manufacturer. Most units alarm after the time period elapses, prompting the operator to reassess the infant's condition and temperature. If the unit is not reset immediately, the heater may remain on for an additional three to five minutes, but will eventually shut down and continue sounding the alarm until it is manually reset. Other units have no alarms, but automatically turn the heater off after the preselected time period. ECRI does not recommend use of manually operated units except for short, closely monitored periods because of the increased danger of overheating or underheating the infant.

Infant radiant warmers are available in four configurations: freestanding, integral bassinet, detachable, and wall or ceiling mounted. Freestanding units are designed for mobility and provide continuous thermal support for infants in conventional bassinets or during diagnostic or therapeutic treatment. The integral bassinet unit provides a total system for continuous thermal support of the sick infant and may also act as a short-term resuscitation platform in the delivery suite or operating room. The detachable unit is essentially a freestanding warmer that can be mounted on an optional bassinet. For mobility, warmers are mounted on casters, which may be equipped with brakes. Wall-mounted units are situated directly over a bassinet or table; some are jointed to allow horizontal movement from a center position, as well as for retractability.

Reported problems

Because warming by far IR energy is more efficient than convective warming with incubators, extreme hyperthermia or burning is a distinct possibility and can result in permanent brain damage, skin burns, or death. Reports of infant radiant warmers overheating patients are not uncommon and are often caused by poor placement and maintenance of the skin temperature sensor, failure and inappropriate operator resetting of alarms, and the unmonitored use of the manual heating mode.

Heat loss due to evaporation (insensible water loss) is a concern, especially for low-birth-weight infants who require high heater output levels. Clinicians prescribe an increase in fluid intake to prevent dehydration, and in some cases, a thin plastic blanket is placed over the infant. The plastic blanket substantially reduces insensible water loss and heat loss by convection, but increases the risk of infant overheating.

When plastic blankets are used, extreme care and frequent assessment of the infant's condition are necessary. ECRI published a report (see the *Health Devices* citation for August 1984) of the fatal overheating of a very low-birth-weight infant; the radiant warmer's temperature sensor was adhering to the plastic thermal blanket rather than to the infant's skin. (Some radiant warmers are designed to signal when a sensor fails or is pulled from the infant's skin.)

Accurate urine output measurements can be critical for managing the fluid and electrolyte balance of sick neonates. Significant evaporation from open regular diapers during radiant warming, especially at high power, may lead to inaccurately low measurements. Closed regular or superabsorbent diapers have been shown to reduce the amount of evaporation.

Heat loss by convection occurs in nurseries heated and cooled with forced-air ducts. Infants warmed in an open bassinet or on a table are exposed to convective air currents, which are cooler than the infant's body temperature. Using barriers that surround the infant helps to reduce the effects of air currents.

Other problems with radiant warmers include failures within the unit. Mechanical failure of the heater support mechanism or the heating source can put the infant in contact with a hot surface or material that has fallen onto the mattress. Electronic circuit failure can result from metal particles falling onto a circuit board, failure of a solder run to a metal chassis support, and contaminated solder flux. In addition, fires can result from flammable objects (e.g., oxygen hoses, drapes) placed close to a radiant heat source, arcing in a laminated plastic canopy, or heat aging of wire insulation.

ECRI has published a radiant warmer checklist (see the citation from the *Health Devices Inspection and Preventive Maintenance System* below). This checklist can help users detect many of the potential problems with infant radiant warmers as early as possible, before they cause patient or staff injury.

Purchase considerations

Units can be equipped with a variety of features, including a skin temperature display, power-on indicator light, percent power indicator, pitch and frequency adjustment for audible alarms, temperature sensor malfunction and power-failure alarms, and self-check capabilities to verify the correct functioning of the electronics and components. Several units have timers that are used during the periodic assessment of the newborn's physiologic status (e.g., heart rate, respiration) to determine its Apgar score, which is useful as a predictive measure of neonatal difficulties. Options include phototherapy lights, resuscitation equipment packages, x-ray cassette holders, and attractive cabinetry for use in homelike birthing suites.

Stage of development

Infant radiant warmers were first used as an adjunct to incubator therapy for infants requiring thermal support and accessibility for diagnosis and therapy. The technology used in radiant warmers is well established and not expected to change significantly; however, research and development efforts continue to improve on existing safety, control, and alarm features.

Bibliography

Baumgart S. Current concepts and clinical strategies for managing low-birth-weight infants under radiant warmers. *Med Instrum* 1987 Feb; 21(1):23-8.

Baumgart S. Radiant heat loss versus radiant heat gain in premature neonates under radiant warmers. *Biol Neonate* 1990; 57(1):10-20.

Committee on environmental hazards: Infant radiant warmers. *Pediatrics* 1978 Jan; 61(1):113-4.

Darnall RA. The thermophysiology of the newborn infant. *Med Instrum* 1987 Feb; 21(1):16-22.

Hermansen MC, Buches M. Urine output determination from superabsorbent and regular diapers under radiant heat. *Pediatrics* 1988 Mar; 81(3):428-31.

Malin SW, Baumgart S. Optimal thermal management for low birth weight infants nursed under high-powered radiant warmers. *Pediatrics* 1987 Jan; 79(1):47-54.

Standards and guidelines

Association of Women's Health, Obstetric, and Neonatal Nurses. Neonatal thermoregulation [Practice resource]. R6. 1990.

British Standards Institution. Specification for servo-controlled impact radiant warmers. BS 5724:Section 2.25. 1988.

Citations from other ECRI publications

Health Devices

Infant radiant warmers [Evaluation], 1984 May; 13:119-44.

Plastic thermal blankets [Hazard], 1984 Aug; 13:261-3.

Kreiselman Bassinet Resuscitators with radiant heaters [Hazard], 1985 Aug; 14:325-6.

JH Emerson Model 96-HTB Heat Lamps [Hazard], 1985 Sep-Oct; 14:347-8.

High-risk equipment, 1988 Feb; 17:48-53.

Health Devices Alerts

This Product Comparison cites *Health Devices Alerts* (*HDA*) abstracts published within the last four years. The numbers refer to the Accession Numbers by which abstracts are listed in *HDA*.

22510 The U.K. Department of Health reviewed three previously evaluated radiant infant warmers and briefly described a fourth unit to be evaluated in the future. The units are compared, and their advantages

and disadvantages are discussed. Appendixes include a discussion of points to consider when purchasing a radiant warmer, a glossary, an update listing of changes made to previously evaluated units, and a summary of hazards related to this type of device. **Source:** The Department of Health, Scottish Home and Health Department, Welsh Office and Department of Health and Social Services (Northern Ireland). Infant radiant warmers: Review issue. *Evaluation* 1992 Jul; (134):1-16.

25470 FDA Class II Recall Nos. Z-677/682-4 of Hill-Rom infant radiant warmers. If the heater contacts are not cleaned regularly, there is potential for arcing due to fretting corrosion. This can result in small pieces of molten metal falling onto the bed and/or patient. Hill-Rom states that all customers have received parts with the appropriate instructions to effect modifications. **Source:** *FDA Enforcement Rep* 1994 May 4; Distributor.

Health Devices Inspection and Preventive Maintenance System

Radiant warmers. 419-0590; 1990.

Hospital Risk Control

Unshielded radiant heat sources [Risk analysis], 1985; 2:5:11.

High-risk equipment problems [Risk analysis], 1987; 1:5:16.

Vendor information

Air-Shields

The Birthing Room Warmer is marketed in the United States; all other models are marketed worldwide

Air-Shields [172372]
5-9 Devlin St Suite 402 Ground Floor
Ryde, NSW 2112
Australia
Phone: 61 (02) 8096622
Fax: 61 (02) 8092911
Asia / Pacific sales

Air-Shields Inc [173131]
330 Jacksonville Rd
Hatboro PA 19040-2211
Phone: (610) 675-5200, (800) 523-5756
Fax: (610) 675-8346
International sales

Air-Shields UK [184497]
Cranbourne House
Bessemer Rd
Basingstoke, Hampshire RG21 3NB
England
Phone: 44 (0256) 29141
Fax: 44 (0256) 844293
European sales

Ameda/Egnell

Marketed worldwide

Ameda AG Medizin Technik [139467]
Baarerstrasse 75
CH-6300 Zug 2
Switzerland
Phone: 41 (042) 234353
Fax: 41 (042) 224112
International sales

Ameda/Egnell Corp [104942]
755 Industrial Dr
Cary IL 60013-1993
Phone: (708) 639-2900, (800) 323-8750
Fax: (708) 639-7895
North American sales

Bio MS

Bio MS [151537]
Parc d'activites Pau Pyrenees
L'echangeur
F-64000 Pau
France
Phone: 33 (059) 029400
Fax: 33 (059) 022688

Draeger

Marketed worldwide except in Japan and the United States

Draegerwerk AG [139322]
Moislinger Allee 53-55
Postfach 1339
D-23558 Lubeck 1
Germany
Phone: 49 (0451) 8820
Fax: 49 (0451) 8822080

Fanem

Marketed in Africa, Asia, Central America, Europe, and South America

Fanem Fabr de Apars Nac de Eletomedicina Ltda [174321]
Avenida General Ataliba Leonel 1790
Caixa Postal 2836
02033-020 Sao Paulo-SP
Brazil
Phone: 55 (011) 2991700
Fax: 55 (011) 2902493

Fisher & Paykel

Marketed worldwide except in the United States

Fisher & Paykel Healthcare
Div Fisher & Paykel Ltd [151622]
25 Carbine Rd
PO Box 14-348
Auckland (Panmore)
New Zealand
Phone: 64 (09) 5705655
Fax: 64 (09) 5709500
International sales

Fisher & Paykel Healthcare (European Sales)
Div Fisher & Paykel Ltd [184866]
The Valley Centre
Gordon Rd
High Wycombe, Buckinghamshire HPB 6EQ
England
Phone: 44 (0494) 464333
Fax: 44 (0494) 464888

Hill-Rom

Hill-Rom Co Inc
A Hillenbrand Industry [101318]
1069 State Rd 46 E
Batesville IN 47006-9164
Phone: (812) 934-7777, (800) 445-3730
Fax: (812) 934-7191

J H Emerson

Marketed worldwide

J H Emerson Co [101244]
22 Cottage Park Ave
Cambridge MA 02140-1606
Phone: (617) 864-1414, (800) 252-1414
Fax: (617) 868-0841

K Takaoka

Marketed worldwide

K Takaoka Ind e Com Ltda [152442]
Avenida Bosque da Saude 512
04142-081 Sao Paulo-SP
Brazil
Phone: 55 (011) 2757199
Fax: 55 (011) 5797313

Ohmeda

Marketed worldwide

Ohmeda Medical Systems Div
A BOC Health Care Co [101912]
PO Box 7550
Madison WI 53707-7550
Phone: (608) 221-1551, (800) 345-2700
Fax: (608) 222-9147

Stryker Adel

Marketed worldwide

Adel Medical Ltd
Sub Stryker Corp [103697]
16700 SE 120th Ave
Clackamas OR 97015
Phone: (503) 657-6550, (800) 327-0770
Fax: (503) 655-0658

Stryker Europe BV
Medical Div [151073]
Postbus 118
NL-5400 AC Ulden
The Netherlands
Phone: 31 (04132) 61555
Fax: 31 (04132) 52320
European sales

Stryker Medical Corp
Patient Handling Div [106542]
6300 Sprinkle Rd
Kalamazoo MI 49001-8701
Phone: (616) 329-2100, (800) 869-0770
Fax: (616) 329-2213
International sales

Stryker Pacific [184863]
Suite 2501 Citibank Tower Citibank Plaza
3 Garden Rd
Hong Kong
Phone: 852 8404400
Fax: 852 8046303

Viamed

Marketed worldwide except in the United States

Viamed Ltd [153295]
15 Station Rd
Cross Hills
Keighley, West Yorkshire BD20 7DT
England
Phone: 44 (0535) 634542
Fax: 44 (0535) 635582

Weyer

Marketed worldwide

Weyer GmbH [183773]
Herrenhoehe 4
D-51515 Kuerten
Germany
Phone: 49 (02207) 96980
Fax: 49 (02207) 4750

Yon Don

Marketed worldwide

Yon Don Enterprise Co Ltd [163236]
2F No 34 Ln 80
Nan Kang Rd Sec 3
Taipei
Taiwan
Fax: 886 (02) 7865539

Note: *The following companies either (1) did not provide us with any product information in time for publication or (2) have not confirmed or revised their specifications for the last two updates of this report. Their addresses are listed as a service to our readers.*

Giacomo Bertocchi SNC [151077]
Via de Berenzani 8 a/b/c
Nuova Zona Industriale
Casella Postale 115
I-26100 Cremona CR
Italy
Phone: 39 (0372) 460626
Fax: 39 (0372) 471533
Markets the GB 52 INCUWARMER

Gigante Recem-Nascido Ind Com e Repres Ltda [174377]
Rua Americo Reis 604
14075-620 Ribeirao Preto-SP
Brazil
Phone: 55 (016) 6284344
Fax: 55 (016) 6280501

Seward Medical Systems Ltd [157878]
Caradog House
Cleppa Park
Newport, Gwent NP1 9UG
Wales
Phone: 44 (0633) 810770
Fax: 44 (0633) 810498
Markets the Guardian 2400 radiant warmer

About the chart specifications

The following terms are used in the chart:

Heat control, type: Radiant heat output is controlled automatically by using a skin temperature sensor or manually by adjusting the electrical power to the heater.

Temperature: Adjustable automatic or manual temperature setting range.

Set point display: Manner in which the selected temperature setting is displayed.

Alarms, manual mode: When a skin temperature sensor is not used, the heater usually operates for 15 minutes. In most units, the heater automatically turns off after 15 minutes, and a continuous alarm signals the operator to reassess the infant's condition and to reactivate the manual mode if desired. One model also has an alarm that sounds a one-second beep every 30 seconds when the heater has been in operation longer than 10 minutes.

Sidewall height, cm (in): Side panel height measured from the base of the mattress.

H × W × D, cm (in): When more than one height is available, the dimensions are separated by commas to indicate distinct settings or by hyphens to indicate a range of settings.

Abbreviations:

CSA — Canadian Standards Association

EN — European Norm

FS — Freestanding

IEC — International Electrotechnical Commission

ISO — International Organization for Standardization

UL — Underwriters Laboratories

WM — Wall mount

Note: The data in the charts derive from vendors' specifications and have not been verified through independent testing by ECRI or any other agency. Because test methods vary, different products' specifications are not always comparable. Moreover, products and specifications are subject to frequent changes. ECRI is not responsible for the quality or validity of the information presented or for any adverse consequences of acting on such information.

When reading the charts, keep in mind that, unless otherwise noted, the list price does not reflect vendor discounts. And although we try to indicate which features and characteristics are standard and which are not, some may be optional, at additional cost.

For a more detailed discussion of the chart data, please see the Policy Statement on the back of the title page in Volume 1 of the *HPCS* binders, as well as "How to Use the *Healthcare Product Comparison System*," located behind the "About *HPCS*" tab in the same volume.

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Our full-time staff includes a wide range of specialists in healthcare technology, hospital administration, financial analysis, risk management, and information and computer science, as well as hospital planners, attorneys, physicists; biomedical, electrical, electronic, chemical, mechanical, and registered engineers; physicians; basic medical scientists; epidemiologists and biostatisticians; and writers, editors, and communications specialists.

Underlying ECRI's knowledge base in healthcare technology are its integrity and objectivity. ECRI accepts no financial support from medical product manufacturers, and no employee may own stock in or consult for a medical equipment or pharmaceutical company.

The scope of ECRI's resources extends far beyond technology. ECRI keeps healthcare professionals, manufacturers, legal professionals, information specialists, and others aware of the changing trends in healthcare, healthcare standards and regulations, and the best ways to handle environmental and occupational health and safety issues. ECRI also advises on management issues related to healthcare cost containment, accreditation, risk management, human resources, quality of care, and other complex topics.

ECRI has more than 35 publications, databases, software, and services to fulfill the growing need for healthcare information and decision support. They focus on three primary areas: healthcare technology, healthcare risk and quality management, and healthcare environmental management.

Product Comparison Chart

MODEL	AIR-SHIELDS IICS90 Large Bed Fixed Height	AIR-SHIELDS IICS90 Large Bed Variable Height	AIR-SHIELDS IICS90 Standard Bed Fixed Height	AIR-SHIELDS IICS90 Standard Bed Variable Height
WHERE MARKETED	Worldwide	Worldwide	Worldwide	Worldwide
CONFIGURATION	Integral bassinet	Integral bassinet	Integral bassinet	Integral bassinet
CONTROL UNIT				
Heat control, type	Automatic or manual	Automatic or manual	Automatic or manual	Automatic or manual
Range, °C	34-37.9	34-37.9	34-37.9	34-37.9
Heater indicator	Horizontal LED bar	Horizontal LED bar	Horizontal LED bar	Horizontal LED bar
TEMPERATURE				
Set-point display	Digital, thumbwheel	Digital, thumbwheel	Digital, thumbwheel	Digital, thumbwheel
Skin-temp display	Digital	Digital	Digital	Digital
Range, °C	25-40	25-40	25-40	25-40
ALARMS	Yes	Yes	Yes	Yes
Temperature				
Type	Audible and visual	Audible and visual	Audible and visual	Audible and visual
Tone	Variable *	Variable *	Variable *	Variable *
Trigger, ±°C from set point	1 or 0.5 optional	1 or 0.5 optional	1 or 0.5 optional	1 or 0.5 optional
Manual mode	After 10 min, 1 sec chirp every 30 sec; 15 min, heater off, continuous alarm	After 10 min, 1 sec chirp every 30 sec; 15 min, heater off, continuous alarm	After 10 min, 1 sec chirp every 30 sec; 15 min, heater off, continuous alarm	After 10 min, 1 sec chirp every 30 sec; 15 min, heater off, continuous alarm
Sensor disconnect	Audible and visual	Audible and visual	Audible and visual	Audible and visual
Power failure	Audible and visual	Audible and visual	Audible and visual	Audible and visual
SELF-CHECK FEATURES	Automatic test sequence (on start-up)	Automatic test sequence (on start-up)	Automatic test sequence (on start-up)	Automatic test sequence (on start-up)

Colons separate data on similar models of a device.
* Volume varies with time of alarm.

This is the first of two pages covering the above model(s). These specifications continue onto the next page.

Product Comparison Chart

MODEL	AIR-SHIELDS IICS90 Large Bed Fixed Height	AIR-SHIELDS IICS90 Large Bed Variable Height	AIR-SHIELDS IICS90 Standard Bed Fixed Height	AIR-SHIELDS IICS90 Standard Bed Variable Height
RADIANT HEAT SOURCE	600 W quartz	600 W quartz	600 W quartz	600 W quartz
EXAMINATION LIGHT	≥100 ft candles	≥100 ft candles	≥100 ft candles	≥100 ft candles
CASTERS Brakes	4 2	4 4	4 2	4 4
MATTRESS L x W, cm (in) Sidewall height, cm (in) Height from floor, cm (in) Distance from heat source, cm (in)	Yes 74.9 x 59.6 (29.5 x 23.5) 15 (6) 97 (38.25), 103 (40.5) 86 (34)	Yes 75 x 59.7 (29.5 x 23.5) 15 (6) 93-125 (37-49) 86 (34)	Yes 65.5 x 52 (25.8 x 20.5) 15 (6) 97 (38.25), 103 (40.5) 86 (34)	Yes 65.5 x 52 (25.8 x 20.5) 15 (6) 93-125 (37-49) 86 (34)
H x W x D cm (in)	201 (max) x 71 x 116.8 (79 x 28 x 46)	221 (max) x 71 x 124.5 (87 x 28 x 49)	201 (max) x 71 x 116.8 (79 x 28 x 46)	221 (max) x 71 x 124.5 (87 x 28 x 49)
WEIGHT, kg (lb)	84 (185)	184.6 (407)	84 (185)	184.6 (407)
INPUT VOLTAGE, VAC	100/120/240	100/120/240	100/120/240	100/120/240
LIST PRICE	$9,500-12,000	$9,500-12,000	$9,500-12,000	$9,500-12,000
YEAR FIRST SOLD/ INSTALLED	1989	1989	1989	1989
OTHER SPECIFICATIONS	Warmer head rotates to either side while continuing to supply heat; bassinet tilts 0-10° in either Trendelenburg or reverse Trendelenburg; one shelf and organizer panel; optional phototherapy, resuscitation packages, in-bed scales, remote alarm module, x-ray tray, shelves, IV pole, and drawers.	Warmer head rotates to either side while continuing to supply heat; bassinet tilts 0-10° in either Trendelenburg or reverse Trendelenburg; two shelves, remote alarm module, and organizer panel; optional phototherapy, resuscitation packages, in-bed scales, x-ray tray, shelves, IV pole, and drawers.	Warmer head rotates to either side while continuing to supply heat; bassinet tilts 0-10° in either Trendelenburg or reverse Trendelenburg; one shelf and organizer panel; optional phototherapy, resuscitation packages, in-bed scales, remote alarm module, x-ray tray, shelves, IV pole, and drawers.	Warmer head rotates to either side while continuing to supply heat; bassinet tilts 0-10° in either Trendelenburg or reverse Trendelenburg; two shelves, remote alarm module, and organizer panel; optional phototherapy, resuscitation packages, in-bed scales, x-ray tray, shelves, IV pole, and drawers.

Colons separate data on similar models of a device.

Product Comparison Chart

MODEL	AIR-SHIELDS Freestanding Warmer	AIR-SHIELDS Wall-Mounted Warmer	AIR-SHIELDS Wall-Mounted IICS	AIR-SHIELDS IICS Delivery Room
WHERE MARKETED	Worldwide	Worldwide	Worldwide	Worldwide
CONFIGURATION	Freestanding	Wall mounted	Integral bassinet	Integral bassinet
CONTROL UNIT				
Heat control, type	Automatic or manual	Automatic or manual	Automatic or manual	Automatic or manual
Range, °C	34-37.9	34-37.9	34-37.9 *	34-37.9 *
Heater indicator	Horizontal LED bar	Horizontal LED bar	Horizontal LED bar	Horizontal LED bar
TEMPERATURE				
Set-point display	Digital, thumbwheel	Digital, thumbwheel	Digital, thumbwheel	Digital, thumbwheel
Skin-temp display	Digital	Digital	Digital	Digital
Range, °C	25-40	25-40	25-40	25-40
ALARMS	Yes	Yes	Yes	Yes
Temperature				
Type	Audible and visual	Audible and visual	Audible and visual	Audible and visual
Tone	Variable **	Variable **	Variable **	Variable **
Trigger, ±°C from set point	1 or 0.5 optional	1 or 0.5 optional	1 or 0.5 optional	1 or 0.5 optional
Manual mode	After 10 min, 1 sec chirp every 30 sec; 15 min, heater off, continuous alarm	After 10 min, 1 sec chirp every 30 sec; 15 min, heater off, continuous alarm	After 10 min, 1 sec chirp every 30 sec; 15 min, heater off, continuous alarm	After 10 min, 1 sec chirp every 30 sec; 15 min, heater off, continuous alarm
Sensor disconnect	Audible and visual	Audible and visual	Audible and visual	Audible and visual
Power failure	Audible and visual	Audible and visual	Audible and visual	Audible and visual
SELF-CHECK FEATURES	Automatic test sequence (on start-up)	Automatic test sequence (on start-up)	Automatic test sequence (on start-up)	Automatic test sequence (on start-up)

Colons separate data on similar models of a device.
* Resolution of 0.1°C.
** Volume varies with time of alarm.

This is the first of two pages covering the above model(s). These specifications continue onto the next page.

Product Comparison Chart

MODEL	AIR-SHIELDS Freestanding Warmer	AIR-SHIELDS Wall-Mounted Warmer	AIR-SHIELDS Wall-Mounted IICS	AIR-SHIELDS IICS Delivery Room
RADIANT HEAT SOURCE	600 W quartz	600 W quartz	600 W quartz	600 W quartz
EXAMINATION LIGHT	≥100 ft candles	≥100 ft candles	≥100 ft candles	≥100 ft candles
CASTERS Brakes	3 2	No NA	No NA	4 2
MATTRESS L x W, cm (in)	No NA	No NA	Yes 65.5 x 52 (25.8 x 20.5)	Yes 65.5 x 52 (25.8 x 20.5)
Sidewall height, cm (in)	NA	NA	15 (6)	15 (6)
Height from floor, cm (in)	NA	NA	Custom	97 (38.25), 102 (40.2)
Distance from heat source, cm (in)	86 (34)	86 (34)	86 (34)	86 (34)
H x W x D cm (in)	195 (max) x 71 x 98 (77 x 28 x 38.6) *	Varies x 32 x 97 (varies x 12.6 x 38)	Varies x 56 x 116.8 (varies x 22 x 46)	201 (max) x 71 x 116.8 (79 x 28 x 46)
WEIGHT, kg (lb)	42 (92)	20 (44)	56 (124)	84 (185)
INPUT VOLTAGE, VAC	100/120/240	100/120/240	100/120/240	100/120/240
LIST PRICE	$5,000-8,000	$5,000-8,000	$5,000-8,000	$7,000-10,000
YEAR FIRST SOLD/ INSTALLED	1983	1984	1989	1994
OTHER SPECIFICATIONS	Optional phototherapy.	Optional phototherapy.	Optional phototherapy.	Warmer head rotates to either side while continuing to supply heat; bassinet has 3-position tilting mechanism; optional resuscitation packages; optional monitor shelves, IV pole, x-ray tray, Apgar timer, instrument tray, and drawers.

Colons separate data on similar models of a device.
* Adjustable height to three positions for use with all commonly used carts on the market.

Product Comparison Chart

MODEL	AIR-SHIELDS Delivery Room Warmer	AIR-SHIELDS Birthing Room Warmer	AIR-SHIELDS Resuscitaire Radiant Warmer	AMEDA/EGNELL AMENIC MNC Open Care Unit
WHERE MARKETED	Worldwide	North America	Worldwide	Worldwide
CONFIGURATION	Integral bassinet	Detachable	Integral bassinet	Integral bassinet
CONTROL UNIT				
Heat control, type	Manual or prewarm	Automatic or manual	Prewarm, automatic or manual	Manual
Range, °C	NA	34-37.9	34-38	50-100%, 6 steps
Heater indicator	Horizontal LED bar	Horizontal LED bar	Horizontal LED bar	LED bar
TEMPERATURE				
Set-point display	NA	Digital, thumbwheel	Digital	NA
Skin-temp display	Digital	Digital	Digital	NA
Range, °C	25-40	25-40	25-40	NA
ALARMS	Yes, high temp	Yes	Yes	No
Temperature				
Type	Audible and visual	Audible and visual	Audible and visual	NA
Tone	No	Yes	Yes	NA
Trigger, ±°C from set point	When skin temp exceeds 38.5	1 or 0.5 optional	1	NA
Manual mode	After 11 min, 1 sec chirp every 30 sec; 17 min, heater off, continuous alarm	After 10 min, 1 sec chirp every 30 sec; 15 min, heater off, continuous alarm	After 10 min, 1 sec chirp every 30 sec; 15 min, heater off, continuous alarm	NA
Sensor disconnect	NA	Audible and visual	Audible and visual	NA
Power failure	Audible and visual	Audible and visual	Audible and visual	NA
SELF-CHECK FEATURES	Automatic test sequence (on start-up)	Automatic test sequence (on start-up)	Series of diagnostic tests to confirm proper operation of system	None

Colons separate data on similar models of a device.

This is the first of two pages covering the above model(s). These specifications continue onto the next page.

Product Comparison Chart

MODEL	AIR-SHIELDS Delivery Room Warmer	AIR-SHIELDS Birthing Room Warmer	AIR-SHIELDS Resuscitaire Radiant Warmer	AMEDA/EGNELL AMENIC MNC Open Care Unit
RADIANT HEAT SOURCE	450 W quartz	600 W quartz	600 W quartz	2 x 325 W ceramic
EXAMINATION LIGHT	≥100 ft candles	≥100 ft candles	≥100 ft candles	50 W quartz halogen
CASTERS Brakes	4 2	3 2	4 Yes	4 2
MATTRESS L x W, cm (in) Sidewall height, cm (in) Height from floor, cm (in) Distance from heat source, cm (in)	Yes 65.5 x 52 (25.8 x 20.5) 15 (6) 97 (38.25), 102 (40.2) 86 (34)	Yes 61 x 45.7 (24 x 18) 15 (6) 97.8 (38.5) 86 (34)	Yes 66 x 53.3 (26 x 21) 15 (6) 100 (39.4) 89 (35)	Yes 60 x 76 (23.5 x 30) 15 (6) 88-118 (34.5-46.5) 80 (31.5)
H x W x D cm (in)	201 (max) x 71 x 116.8 (79 x 28 x 46)	195.6 x 71 x 140 (77 x 28 x 55) complete system	188 x 72.4 x 112 (74 x 28.5 x 44)	183-213 x 75 x 125 (72-84 x 29.5 x 49)
WEIGHT, kg (lb)	84 (185)	70.3 (155) warmer; 97.5 (215) bassinet	91 (200)	130 (286.7)
INPUT VOLTAGE, VAC	100/120/240	100/120/240	100/120/240	110-120/220-240
LIST PRICE	$7,000-10,000	$7,000-10,000	$9,500-12,000	$7,000-8,000
YEAR FIRST SOLD/ INSTALLED	1994	1993	1994	1994
OTHER SPECIFICATIONS	Apgar timer is standard; bassinet has 3-position tilting mechanism; optional resuscitation packages; optional monitor shelves, IV pole, x-ray tray, instrument tray, and drawers.	Six custom finishes; bassinet cart detaches from warmer; continuously adjustable mattress tilt; standard x-ray tray; standard Apgar timer; pull-through drawers; optional resuscitation unit and monitor shelves.	Warmer head rotates to either side while continuing to supply heat; bassinet tilts to 5 and 10° Trendelenburg; std Apgar timer; resuscitation module (suction, primary and auxiliary patient O_2 supply); resuscitation equipment storage compartment and slide-through drawer; optional blender, AutoBreath, x-ray tray, instrument tray, monitor shelves, and IV pole.	X-ray tray, cabinet, ±10° tilt; resuscitation equipment; monitoring unit mounts; IV pole; accessories rail.

Colons separate data on similar models of a device.

Product Comparison Chart

MODEL	AMEDA/EGNELL	AMEDA/EGNELL	AMEDA/EGNELL	BIO MS *
	AMENIC Open Intensive Care Unit	MNC-Radiant Heater	MSP Radiant Heater	M 100
WHERE MARKETED	Worldwide	Worldwide	Worldwide	Not specified
CONFIGURATION	Integral bassinet	Freestanding, wall or ceiling mounted	Freestanding or wall mounted	Integral bassinet
CONTROL UNIT				
Heat control, type	Automatic or manual	Manual	Automatic	Not specified
Range, °C	34-37.9	50-100%, 6 steps	30-39.9	35-38
Heater indicator	Vertical LED bar, 0-100%	LED bar	Pilot light	Not specified
TEMPERATURE				
Set-point display	Numerals on switch	NA	Numerals on switch	Digital
Skin-temp display	LCD display	NA	Analog meter	Digital
Range, °C	0-99.9	NA	30-39.9	30-39
ALARMS	Yes	No	Yes	Yes
Temperature				
Type	Audible and visual	NA	Audible and visual	Audible and visual
Tone	Alternating	NA	Continuous	Not specified
Trigger, ±°C from set point	0.5	NA	0.5-1.5	Not specified
Manual mode	After 10 min, 1 sec alarm every 30 sec; 15 min, heater off, continuous alarm	NA	NA	Not specified
Sensor disconnect	Audible and visual	NA	Audible and visual	Audible and visual
Power failure	Audible and visual	NA	Audible and visual	Audible and visual
SELF-CHECK FEATURES	Yes	None	None	Not specified

Colons separate data on similar models of a device.

* Specifications were derived from product literature; they were not approved by the vendor.

This is the first of two pages covering the above model(s). These specifications continue onto the next page.

Product Comparison Chart

MODEL	AMEDA/EGNELL AMENIC Open Intensive Care Unit	AMEDA/EGNELL MNC-Radiant Heater	AMEDA/EGNELL MSP Radiant Heater	BIO MS * M 100
RADIANT HEAT SOURCE	600 W quartz	2 x 325 W ceramic	650 W quartz	Two 600 VA shielded heating elements
EXAMINATION LIGHT	50 W halogen	50 W quartz halogen	Two 15 W fluorescent	Two 18 VA neon light tubes
CASTERS Brakes	4 Not specified	4 Not specified	4 None	4 Yes
MATTRESS L x W, cm (in)	Yes 60 x 76 (23.5 x 30)	No NA	No NA	Yes Not specified
Sidewall height, cm (in)	Not specified	NA	NA	Not specified
Height from floor, cm (in)	88-118 (34.5-46.5)	Not specified	NA	94.5 (37.2) standard version
Distance from heat source, cm (in)	80 (31.5)	152-167 (59.8-65.7)	80 (31.5)	Not specified
H x W x D cm (in)	183-213 x 75 x 125 (72-84 x 29.5 x 49)	8 x 25 x 71 (3.1 x 9.8 x 28)	61x20x10 (24x8x4) freestanding; 10x20x10 (4x8x4) wall mounted	178 x 100 x 65 (70 x 39.4 x 25.6) standard version
WEIGHT, kg (lb)	200 (441)	7.8 (17.2)	12 (28) FS; 8 (18) WM	106 (233.7) standard version
INPUT VOLTAGE, VAC	110-120/220-230	110-120/220-240	110/220	220 ±10%
LIST PRICE	Not specified	$2,000-2,400	$3,000-3,250 (FS); $3,000-3,100 (WM)	Not specified
YEAR FIRST SOLD/ INSTALLED	1987	1990	1987	Not specified
OTHER SPECIFICATIONS	X-ray tray, cabinet, ±10° tilt; opt O_2 tank holder, phototherapy and resuscitation packages, additional shelves, monitor trays, IV pole, accessories rail.	None specified.	Pivot allows turning of freestanding unit; wall-mounted unit is retractable; resuscitation system optional.	Optional accessories include MR 410 heating humidifier, storage unit with 3 drawers and cabinet; swivel tray, instrument trays, monitor tray, lower tray, IV pole, tube-holder arm, bottle holder for 2 bottles, document holder, oxygen hoods, bare gas distribution panel, vacuum regulator, O_2/air flowmeter with bubble humidifier, suction device w/1 L jar, manual resuscitators/holders.

Colons separate data on similar models of a device.
* Specifications were derived from product literature; they were not approved by the vendor.

Product Comparison Chart

MODEL	BIO MS *	DRAEGER	FANEM	FISHER & PAYKEL
	M 100 REA	Babytherm 8000	BA-51 TS Infant Care System	IW703 Wall-Mount Radiant Warmer
WHERE MARKETED	Not specified	Worldwide, except in Japan and the USA	Africa, Asia, Central America, Europe, South America	Worldwide, except USA
CONFIGURATION	Integral bassinet	Integral bassinet (heated gel mattress and radiant warmer)	Integral bassinet	Wall mounted
CONTROL UNIT				
Heat control, type	Not specified	See footnote **	Automatic or manual	Manual
Range, °C	35-38	35-37 radiant warm; 30-38.5 mattress	25-38.5	NA
Heater indicator	Not specified	LED	Horizontal LED bar	Single LED
TEMPERATURE				
Set-point display	Digital	Digital	Digital	NA
Skin-temp display	Digital	Digital	Digital	NA
Range, °C	30-39	33-38 warmer; 5-45 mattress	20-45.5	NA
ALARMS	Yes	Yes	Yes, high and low	No
Temperature				
Type	Audible and visual	Audible and visual	Audible and visual	NA
Tone	Not specified	Variable	Variable (different frequencies)	NA
Trigger, ±°C from set point	Not specified	±0.5 warmer; ±1 mattress	1 (optional 0.5)	NA
Manual mode	Not specified	15 min, continuous alarm	After 10 min, alarm; 15 min, heater off	NA
Sensor disconnect	Audible and visual	Audible and visual	Audible and visual	NA
Power failure	Audible and visual	Audible	Optional	NA
SELF-CHECK FEATURES	Not specified	Simulated alarm (on start-up)	Microprocessor, start-up and complete checkup	Overtemperature protection

Colons separate data on similar models of a device.

* Specifications were derived from product literature; they were not approved by the vendor.

** The radiant warmer has manual or servo control; the heated gel mattress has servo control.

This is the first of two pages covering the above model(s). These specifications continue onto the next page.

Product Comparison Chart

MODEL	BIO MS *	DRAEGER	FANEM	FISHER & PAYKEL
	M 100 REA	Babytherm 8000	BA-51 TS Infant Care System	IW703 Wall-Mount Radiant Warmer
RADIANT HEAT SOURCE	Two 600 VA shielded heating elements	600 W ceramic	650 W quartz	600 W ceramic
EXAMINATION LIGHT	Two 18 VA neon light tubes	35 W halogen	9 W fluorescent	Two 18 W fluorescent (color corrected)
CASTERS	4	2	4	No
Brakes	Yes	Not specified	2	NA
MATTRESS	Yes	Yes	Yes	No
L x W, cm (in)	Not specified	75 x 49 (29.5 x 19.3)	69 x 48 (27.2 x 18.9)	NA
Sidewall height, cm (in)	Not specified	15 (6) or 23 (9); 7 (2.8) inner walls	15 (6)	NA
Height from floor, cm (in)	94.5 (37.2) standard version	103 (40.6) fixed **	197 (77.6)	NA
Distance from heat source, cm (in)	Not specified	75 (29.5)	85 (33.5)	65 (25.6) minimum
H x W x D cm (in)	178 x 100 x 65 (70 x 39.4 x 25.6) standard version	210 max x 131 x 75 (82.7 max x 51.6 x 29.5)	197 x 72 x 118 (77.6 x 28.3 x 46.5)	11 x 76 x 39 (4.3 x 29.9 x 15.4)
WEIGHT, kg (lb)	109 (240.3) standard version	116 (255.8)	95 (209.5)	16 (35.3)
INPUT VOLTAGE, VAC	220 ±10%	110-120/220-240	110/220	115/230
LIST PRICE	Not specified	Not specified	$3,000-4,600	Not specified
YEAR FIRST SOLD/ INSTALLED	Not specified	1994	1993 (with micro-processor panel)	1992
OTHER SPECIFICATIONS	Optional accessories include MR 410 heating humidifier, storage unit with 3 drawers and cabinet; swivel tray, instrument trays, monitor tray, lower tray, IV pole, tube-holder arm, bottle holder for 2 bottles, document holder, O_2 hoods.	Drawers and shelves; meets requirements of IEC 601-2-21 and ISO 9001, EN 46001 (radiant warmer); IEC 601-2-35 and ISO 9001, EN 46001 (heated mattress).	Optional photo-therapy unit, resuscitation kit with double or triple outlet adapter, monitor shelves.	None specified.

Colons separate data on similar models of a device.
* Specifications were derived from product literature; they were not approved by the vendor.
** Variable heights include 88-118 cm (34.6-46.5 in) or 93-123 cm (36.6-48.4 in).

Product Comparison Chart

MODEL	FISHER & PAYKEL	FISHER & PAYKEL	HILL-ROM	HILL-ROM
	IW817 Mobile Radiant Warmer	IW820 Infant Care Centre	FSW 1250	STABILET 1500
WHERE MARKETED	Worldwide, except USA	Worldwide, except USA	Not specified	Not specified
CONFIGURATION	Freestanding	Integral bassinet	Detachable	Integral bassinet
CONTROL UNIT				
Heat control, type	Automatic or manual (opt servo control)	Automatic or manual (opt servo control)	Automatic or manual	Automatic or manual
Range, °C	32-37	32-37	35-38	35-38
Heater indicator	Single LED	Single LED	LED, 0-100% power	LED, 0-100% power
TEMPERATURE				
Set-point display	Analog and digital LED	Analog and digital LED	Dial	Dial
Skin-temp display	Digital LED	Digital LED	Digital LED	Digital LED
Range, °C	Displays 5-61	Displays 5-61	31-40	31-40
ALARMS	Yes	Yes	Yes	Yes
Temperature				
Type	Audible and visual	Audible and visual	Audible and visual	Audible and visual
Tone	ISO draft std audio alarm/gliding tone	ISO draft std audio alarm/gliding tone	Continuous	Continuous
Trigger, ±°C from set point	1	1	0.5	0.5
Manual mode	After 12 min, audible intermittent beep; 15 min, cont alarm, heater off	After 12 min, audible intermittent beep; 15 min, cont alarm, heater off	18-60 min, depending on power output	18-60 min, depending on power output
Sensor disconnect	Audible and visual	Audible and visual	Audible and visual	Audible and visual
Power failure	NA	NA	Audible	Audible
SELF-CHECK FEATURES	Continuous	Continuous	Probe fault, over 39°C, heater	Probe fault, over 39°C, heater

Colons separate data on similar models of a device.

This is the first of two pages covering the above model(s). These specifications continue onto the next page.

Product Comparison Chart

MODEL	FISHER & PAYKEL IW817 Mobile Radiant Warmer	FISHER & PAYKEL IW820 Infant Care Centre	HILL-ROM FSW 1250	HILL-ROM STABILET 1500
RADIANT HEAT SOURCE	600 W ceramic	600 W ceramic	760 W quartz	760 W quartz
EXAMINATION LIGHT	Two 18 W fluorescent (color corrected)	Two 18 W fluorescent (color corrected)	Two 15 W fluorescent	Two 15 W fluorescent
CASTERS Brakes	4 4	4 2	4 each * 2 each *	4 2 (front)
MATTRESS L x W, cm (in)	No NA	Yes 66 x 54 (26 x 21.3)	Yes 67 x 57 (26.5 x 22.5)	Yes 67 x 57 (26.5 x 22.5)
Sidewall height, cm (in)	NA	12 (4.7)	16 (6.3)	16 (6.3)
Height from floor, cm (in)	NA	98 (38.6)	93 (36.5)	95 (37.5)
Distance from heat source, cm (in)	65 (25.6) minimum	87 (34.3)	76 (30)	76 (30)
H x W x D cm (in)	213 (max) x 79 x 59 (83.9 x 31.1 x 23.2)	196 x 68 x 90 (77.2 x 26.8 x 35.4)	175 x 71 x 107 (69 x 28 x 46)	180 x 61 x 99 (71 x 24 x 39)
WEIGHT, kg (lb)	24 (52.9)	90 (198.5)	~74 (163.2) each **	128.8 (284)
INPUT VOLTAGE, VAC	115/230	115/230	110-120	105-125
LIST PRICE	Not specified	Not specified	$3,250 (bassinet), $4,900 (warmer)	$8,800
YEAR FIRST SOLD/ INSTALLED	1990	1991	Not specified	Not specified
OTHER SPECIFICATIONS	None specified.	Bed tilts ±5° to ±10°; swivel head; 3-drawer storage unit; the following are optional: photo-therapy, x-ray tray, resuscitation equipment, monitor shelves, O_2 cylinder, and timer.	Apgar timer, x-ray cassette tray, multiposition warmer, 3 drawers, chart rack, dropleaf work surface, auto switch (manual to servo), accessory racks, oak or cherry finish.	Apgar timer, x-ray cassette tray, auto switching from manual to servo control, drawer, multiposition warmer, equipment rail, optional phototherapy, resuscitation, extra drawers and shelves.

Colons separate data on similar models of a device.
* Bassinet and warmer.
** Bassinet weighs 162 lb; warmer weighs 164 lb.

Product Comparison Chart

MODEL	HILL-ROM	J H EMERSON	J H EMERSON	K TAKAOKA
	STABILET 2000	96-DL:96-SL: 96-TDL	Resuscitation Crib	4005
WHERE MARKETED	Not specified	Worldwide	Worldwide	Worldwide
CONFIGURATION	Integral bassinet	Freestanding or wall mounted	Integral bassinet	Not specified
CONTROL UNIT				
Heat control, type	Automatic or manual	Manual	Manual	Manual
Range, °C	35-38	NA	NA	Not specified
Heater indicator	LED, 0-100% power	No	No	Digital
TEMPERATURE				
Set-point display	Dial	NA	NA	Not specified
Skin-temp display	Digital LED	NA	NA	Not specified
Range, °C	31-40	NA	NA	Not specified
ALARMS	Yes	No	No	No
Temperature				
Type	Audible and visual	NA	NA	NA
Tone	Continuous	NA	NA	NA
Trigger, ±°C from set point	0.5	NA	NA	NA
Manual mode	18-60 min, depending on power output	NA	NA	NA
Sensor disconnect	Audible and visual	NA	NA	NA
Power failure	Audible	NA	NA	NA
SELF-CHECK FEATURES	Probe fault, over 39°C, low O_2, heater	None	None	None

Colons separate data on similar models of a device.

This is the first of two pages covering the above model(s). These specifications continue onto the next page.

Product Comparison Chart

MODEL	HILL-ROM STABILET 2000	J H EMERSON 96-DL:96-SL: 96-TDL	J H EMERSON Resuscitation Crib	K TAKAOKA 4005
RADIANT HEAT SOURCE	760 W quartz	500 W incandescent	500 W incandescent	600 W
EXAMINATION LIGHT	Two 15 W fluorescent	Incandescent bulbs for adequate light	No	Yes
CASTERS Brakes	4 2 (front)	4 Optional	4 Optional	4 Not specified
MATTRESS L x W, cm (in) Sidewall height, cm (in) Height from floor, cm (in) Distance from heat source, cm (in)	Yes 67 x 57 (26.5 x 22.5) 16 (6.3) 95 (37.5) 76 (30)	No NA NA 159 (62.6) down; 210 (82.7) up 71 (28)	Yes 65 x 33 (25.5 x 13) 4-18 (1.5-7) * 107 (42) 71 (28)	Yes 67 x 44 (26.4 x 17.3) 15 (6) 96 (37.8) 82 (32.3)
H x W x D cm (in)	180 x 61 x 99 (71 x 24 x 39)	210 (max) x 61 x 61 (82.7 x 24 x 24)	196 x 46 x 89 (77 x 18 x 35)	185 x 50 x 80 (72.8 x 19.7 x 31.5)
WEIGHT, kg (lb)	134 (295)	11.3 (24.9)	34 (75)	85 (187.4)
INPUT VOLTAGE, VAC	110-120	110/220	110	110; 220 optional
LIST PRICE	$12,263	$785-995	$4,000	Not specified
YEAR FIRST SOLD/ INSTALLED	Not specified	1969	1969	Not specified
OTHER SPECIFICATIONS	O_2 flowmeter, tank manifold, manometer, suction, Apgar timer, x-ray cassette tray, multiposition warmer, auto switch from manual to servo; optional O_2 blender, monitor shelves.	New added safety features include solid-state 15 min timer and dimmer control; safe distance measuring tape built-in; off/on continuous and dimmer models are available.	Tilting bassinet, aspirator and resuscitator included, two 250 W infrared bulbs enclosed in screening, optional manual timer and dimmer control.	Four O_2 outlets; pressure regulator; automatic and manual resuscitators; aspirator; flowmeter; 2 drawers; shelf; 3 electrical outlets.

Colons separate data on similar models of a device.
* Sidewall height increases in size from the foot area to around the head area.

Product Comparison Chart

MODEL	OHMEDA IWS 3000: IWS 4000	OHMEDA IWS 3050	OHMEDA IWS 3100: IWS 3150	OHMEDA IWS 3300
WHERE MARKETED	Worldwide	Worldwide	Worldwide	Worldwide
CONFIGURATION	Freestanding	Wall-mounted heater	Wall-mounted heater w/rails:Wall-mounted heater w/rails, bed	Integral bassinet
CONTROL UNIT				
Heat control, type	Microprocessor servo or manual	Microprocessor servo or manual	Microprocessor servo or manual	Microprocessor servo or manual
Range, °C	35-37.5	35-37.5	35-37.5	35-37.5
Heater indicator	Vertical LED bar, 5% increments	Vertical LED bar, 5% increments	Vertical LED bar, 5% increments	Vertical LED bar, 5% increments
TEMPERATURE				
Set-point display	Digital LED	Digital LED	Digital LED	Digital LED
Skin-temp display	Digital LED	Digital LED	Digital LED	Digital LED
Range, °C	30-40	30-40	30-40	30-40
ALARMS				
Temperature	Yes	Yes	Yes	Yes
Type	Audible and visual	Audible and visual	Audible and visual	Audible and visual
Tone	Progressive *	Progressive *	Progressive *	Progressive *
Trigger, ±°C from set point	Factory set at 1, adjustable to 0.5	Factory set at 1, adjustable to 0.5	Factory set at 1, adjustable to 0.5	Factory set at 1, adjustable to 0.5
Manual mode	Single tone after 12 min, at 25% power; 3 min, two-tone alarm, heater off	Single tone after 12 min, at 25% power; 3 min, two-tone alarm, heater off	Single tone after 12 min, at 25% power; 3 min, two-tone alarm, heater off	Single tone after 12 min, at 25% power; 3 min, two-tone alarm, heater off
Sensor disconnect	Audible and visual	Audible and visual	Audible and visual	Audible and visual
Power failure	Audible and visual; cannot be silenced	Audible and visual; cannot be silenced	Audible and visual; cannot be silenced	Audible and visual; cannot be silenced
SELF-CHECK FEATURES	Power-up checks: calibration, control system, software, solid-state relay gives simulated alarm. Continuous checks: calibration, software, solid-state relay, audible alarms, voltage out of range, error codes for service tech troubleshooting	Power-up checks: calibration, control system, software, solid-state relay gives simulated alarm. Continuous checks: calibration, software, solid-state relay, audible alarms, voltage out of range, error codes for service tech troubleshooting	Power-up checks: calibration, control system, software, solid-state relay gives simulated alarm. Continuous checks: calibration, software, solid-state relay, audible alarms, voltage out of range, error codes for service tech troubleshooting	Power-up checks: calibration, control system, software, solid-state relay gives simulated alarm. Continuous checks: calibration, software, solid-state relay, audible alarms, voltage out of range, error codes for service tech troubleshooting

Colons separate data on similar models of a device.
* Progressive alarm begins with a single-tone user prompt; if it is not silenced in 30 sec, it progresses to a more urgent two-tone alarm.

This is the first of two pages covering the above model(s). These specifications continue onto the next page.

Product Comparison Chart

MODEL	OHMEDA IWS 3000: IWS 4000	OHMEDA IWS 3050	OHMEDA IWS 3100: IWS 3150	OHMEDA IWS 3300
RADIANT HEAT SOURCE	540 W cal rod	540 W cal rod	NA	540 W cal rod
EXAMINATION LIGHT	50 W quartz halogen, 100 ft candles	50 W quartz halogen, 100 ft candles	NA	50 W quartz halogen, 100 ft candles
CASTERS **Brakes**	4 2 lockable	No NA	No NA	4 2 lockable
MATTRESS **L x W, cm (in)**	No NA	No NA	NA:Yes NA:64 x 46 (25.2 x 18.1)	Yes 64 x 46 (25.2 x 18.1)
Sidewall height, cm (in)	NA	NA	NA:Not specified	15 (6)
Height from floor, cm (in)	NA	NA	NA:Varies with installation	101.6 (40)
Distance from heat source, cm (in)	NA	NA	68.6 (27):NA	68.6 (27)
H x W x D cm (in)	185 x 66 x 114 (72.8 x 26 x 44.9): 185 x 76 x 132 (72.8 x 30 x 52)	Variable x 45.7 x 84 (variable x 18 x 33.1)	Variable x 55 x 84 (variable x 21.7 x 33.1) *	185 x 66 x 104 (72.8 x 26 x 40.9)
WEIGHT, kg (lb)	75 (165.4): 80 (176.4)	18 (39.7)	34 (75):50 (110.3)	96-128 (211.7-282.2)
INPUT VOLTAGE, VAC	100/120/220/240	Not specified	Not specified	100/120/220/240
LIST PRICE	$5,295-6,450	$5,090	$5,300:$8,840-9,870	$9,080-10,110
YEAR FIRST SOLD/ INSTALLED	1986:1993	1993	1993	1986
OTHER SPECIFICATIONS	No x-ray tray; no chest drainage hanger; no in-bed scale; no drawer accessories; contact Ohmeda for applicable accessories.	Apgar timer is standard.	Apgar timer, x-ray tray, and chest drainage hanger are standard; optional accessories include phototherapy, in-bed scale, RS232 serial port, suction/O_2 therapy, IV pole, IV pump mount, ventilator mount, monitor shelf, instrument shelf, front drawer module, and rotating drawer module.	Apgar timer, x-ray tray, and chest drainage hanger are standard; optional accessories include phototherapy, in-bed scale, RS232 serial port, suction/O_2 therapy, IV pole, IV pump mount, ventilator mount, monitor shelf, instrument shelf, front drawer module, and rotating drawer module.

Colons separate data on similar models of a device.
* The width and depth of Model IWS 3150 measure 55 x 91 cm (21.7 x 35.8 in); the height is variable.

Product Comparison Chart

MODEL	OHMEDA IWS 3500	OHMEDA IWS 4300	OHMEDA IWS 4400	STRYKER ADEL 986 Infant Warmer
WHERE MARKETED	Worldwide	Worldwide	Worldwide	Worldwide
CONFIGURATION	Detachable bassinet	Integral bassinet	Integral bassinet, elevating base	Integral bassinet
CONTROL UNIT				
Heat control, type	Microprocessor servo or manual	Microprocessor servo or manual	Microprocessor servo or manual	Automatic
Range, °C	35-37.5	35-37.5	35-37.5	35.5-37.5
Heater indicator	Vertical LED bar, 5% increments	Vertical LED bar, 5% increments	Vertical LED bar, 5% increments	LED display
TEMPERATURE				
Set-point display	Digital LED	Digital LED	Digital LED	Digital
Skin-temp display	Digital LED	Digital LED	Digital LED	Digital
Range, °C	30-40	30-40	30-40	32-40
ALARMS	Yes	Yes	Yes	Yes
Temperature				
Type	Audible and visual	Audible and visual	Audible and visual	Audible and visual
Tone	Progressive *	Progressive *	Progressive *	Fixed
Trigger, ±°C from set point	Factory set at 1, adjustable to 0.5	Factory set at 1, adjustable to 0.5	Factory set at 1, adjustable to 0.5	1.0
Manual mode	Single tone after 12 min, at 25% power; 3 min, two-tone alarm, heater off	Single tone after 12 min, at 25% power; 3 min, two-tone alarm, heater off	Single tone after 12 min, at 25% power; 3 min, two-tone alarm, heater off	NA
Sensor disconnect	Audible and visual	Audible and visual	Audible and visual	Audible and visual
Power failure	Audible and visual; cannot be silenced	Audible and visual; cannot be silenced	Audible and visual; cannot be silenced	Audible and visual
SELF-CHECK FEATURES	Power-up checks: calibration, control system, software, solid-state relay gives simulated alarm. Continuous checks: calibration, software, solid-state relay, audible alarms, voltage out of range, error codes for service tech troubleshooting	Power-up checks: calibration, control system, software, solid-state relay gives simulated alarm. Continuous checks: calibration, software, solid-state relay, audible alarms, voltage out of range, error codes for service tech troubleshooting	Power-up checks: calibration, control system, software, solid-state relay gives simulated alarm. Continuous checks: calibration, software, solid-state relay, audible alarms, voltage out of range, error codes for service tech troubleshooting	Diagnostic self-check every 6 sec

Colons separate data on similar models of a device.

* Progressive alarm begins with a single-tone user prompt; if it is not silenced in 30 sec, it progresses to a more urgent two-tone alarm.

This is the first of two pages covering the above model(s). These specifications continue onto the next page.

Product Comparison Chart

MODEL	OHMEDA IWS 3500	OHMEDA IWS 4300	OHMEDA IWS 4400	STRYKER ADEL 986 Infant Warmer
RADIANT HEAT SOURCE	540 W cal rod	540 W cal rod	540 W cal rod	NA
EXAMINATION LIGHT	50 W quartz halogen, 100 ft candles	50 W quartz halogen, 100 ft candles	50 W quartz halogen, 100 ft candles	Optional
CASTERS Brakes	6 2 on bassinet	4 2 lockable	4 2 lockable	4 2 standard
MATTRESS L x W, cm (in) Sidewall height, cm (in) Height from floor, cm (in) Distance from heat source, cm (in)	Yes 64 x 46 (25.2 x 18.1) 20.3 (8) 102 (40.2) 68.6 (27)	Yes 74 x 60 (29.1 x 23.6) 15 (6) 101.6 (40) 68.6 (27)	Yes 74 x 60 (29.1 x 23.6) 15 (6) 98.4-118 (38.7-46.5) 68.8 (27.1)	Yes 36 x 60 (14.2 x 23.6) 16 (6.3) Enclosed in unit NA
H x W x D cm (in)	185 x 62 x 95 (72.8 x 24.4 x 37.4)	185 x 76 x 114 (72.8 x 29.9 x 44.9)	183-203 x 76 x 114 (72-80 x 29.9 x 44.9)	109.2 x 78.7 x 58.4 (43 x 31 x 23)
WEIGHT, kg (lb)	97.5 (215)	101-133 (222.7-293.3)	91-123 (200.7-271.2)	75 (165.4)
INPUT VOLTAGE, VAC	100/120/220/240	100/120/220/240	100/120/220/240	120/240
LIST PRICE	$5,840-5,895; $3,295-4,200 bsnt	$9,570-10,600	$11,135-12,165	$4,995
YEAR FIRST SOLD/ INSTALLED	1988	1993	1993	Not specified
OTHER SPECIFICATIONS	No scale; no x-ray tray; no chest drainage hanger; all other accessories are available; custom stains are available for wooden bassinet.	Apgar timer, x-ray tray, and chest drainage hanger are standard; optional accessories include phototherapy, in-bed scale, RS232 serial port, suction/O_2 therapy, IV pole, IV pump mount, ventilator mount, monitor shelf, instrument shelf, front drawer module, and rotating drawer module.	Apgar timer, x-ray tray, and chest drainage hanger are standard; optional accessories include phototherapy, in-bed scale, RS232 serial port, suction/O_2 therapy, IV pole, IV pump mount, ventilator mount, monitor shelf, instrument shelf, front drawer module, and rotating drawer module.	Blanket warmer; drawers and shelves; Trendelenburg; reverse Trendelenburg; CSA certified and UL listed.

Colons separate data on similar models of a device.

Product Comparison Chart

MODEL	VIAMED	WEYER	WEYER	YON DON
	TC400 Thermacot	Ceramotherm 1 and 2	Thermocare: Variotherm	YD-IC-SCN
WHERE MARKETED	Worldwide, except USA	Worldwide	Worldwide	Worldwide
CONFIGURATION	Integral bassinet	No bassinet	Integral bassinet	Integral bassinet
CONTROL UNIT				
Heat control, type	Manual	Manual	Automatic or manual	Automatic or manual
Range, °C	Not specified	30-98% intensity, infinitely variable (mechanical)	30-98% intensity, infinitely variable (mechanical) *	25-37
Heater indicator	Lamp	LED	LED	Horizontal LED bar (1-10 segments)
TEMPERATURE				
Set-point display	NA	NA	Automatic:NA	Digital
Skin-temp display	NA	NA	Servo control: Digital **	Digital
Range, °C	NA	NA	30-38	32-39.9
ALARMS	No	No	Automatic:Yes	Yes
Temperature				
Type	NA	NA	Audible and visual	Audible and visual
Tone	NA	NA	No, but can be set by service engineer	Not specified
Trigger, ±°C from set point	NA	NA	Not specified	Not specified
Manual mode	NA	NA	Not specified	Reset every 15 min
Sensor disconnect	NA	NA	Not specified	Audible and visual
Power failure	Visual	NA	Automatic:Audible and visual	Audible
SELF-CHECK FEATURES	None	None	None	None

Colons separate data on similar models of a device.
* The range is 30-38°C with an automatic set-point mechanism.
** Servo control is available as an option to automatic control.

This is the first of two pages covering the above model(s). These specifications continue onto the next page.

Product Comparison Chart

MODEL	VIAMED TC400 Thermacot	WEYER Ceramotherm 1 and 2	WEYER Thermocare: Variotherm	YON DON YD-IC-SCN
RADIANT HEAT SOURCE	400 W infrared	One 600 W or two 400 W ceramic	Two 400 W ceramic	700 W
EXAMINATION LIGHT	NA	Two 11 W fluor and two 18 W fluorescent	Two 18 W fluorescent	40 W
CASTERS Brakes	4 2	4, Models 1883, 1892 2	4 4	4 4
MATTRESS L x W, cm (in) Sidewall height, cm (in) Height from floor, cm (in) Distance from heat source, cm (in)	Yes 65.9 x 34 (25.9 x 13.4) Not specified 100 (39.4) 80 (31.5)	No NA NA Depends on model Depends on model	Yes 48 x 76 (18.9 x 29.9) 20 (7.9):13 (5.1) 190 (74.8) 80 (31.5)	Yes 78 x 52 (30.7 x 12.1) Not specified 185 (72.8) 75 (29.5)
H x W x D cm (in)	Not specified	Depends on model	190 x 55 x 90 (74.8 x 21.7 x 35.4)	104 x 56 x 185 (40.9 x 22 x 72.8)
WEIGHT, kg (lb)	25 (55.1)	6-30 (13.2-66.2), depending on model	70-120 (154.4-264.6)	70 (154.4)
INPUT VOLTAGE, VAC	120/240	230; 110 optional	230; 110 optional	110/220
LIST PRICE	$1,500	DM 2,000-4,000	DM 8,500-30,000	Not specified
YEAR FIRST SOLD/ INSTALLED	1989	1984	1978	1982
OTHER SPECIFICATIONS	Manually controlled; creates approximate maximum temperature 10°C above ambient; 0-15° tilt; also available as wall-mounted unit and freestanding unit without bassinets.	None specified.	X-ray tray; photo-therapy; resuscitation equipment; monitor tray; drawers or shelves, depending on model; mattress heating device is standard with Models 1830, 1831, 1832, and 1843; electrical height adjustment; pneumatic respirator.	None specified.

Colons separate data on similar models of a device.

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