

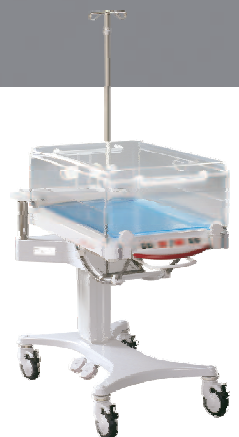


# VARIOTHERM



Warming is **life**

Resuscitation  
Intensive care  
Warming therapy  
Phototherapy



VARIOTHERM



THERMOCARE

It is most important for all new born and preterm infants to have a warm and cosy environment and as much contact with their parents as possible. The infant care systems Variotherm and Thermocare have been specifically designed for these conditions, allowing full access for the necessary diagnostic, therapeutic and nursing procedures to be carried out.

Equipped with under-pad heating device the unit is used as warming bed for the thermal support, application of oxygen and for keeping the baby warm during phototherapy. Upgraded with an infra-red radiant warmer and specific accessories is suitable as

resuscitation unit in the delivery room or operation theatre as well as for intensive care of small preterm infants. VARIO THERM devices have low perspex walls and are intended to be used as open care systems whereas THERMOCARE devices are designed as closed systems with high perspex walls and canopy.

The range of base devices and accessories is fully compatible and with the modular design principle the user can choose whichever system is required for the best application in the baby unit, delivery room and intensive care unit.

## The components

The sturdy trolley is fitted with four large anti-static castors, all of them can be kickstopped in any position. Additional bumpers avoid damage to the device and the furniture. The large electrically powered height adjustment facility allows the user to adjust the patient area to a comfortable working level. The operating foot pedals can be mounted either to the front or/and at the side of the device.

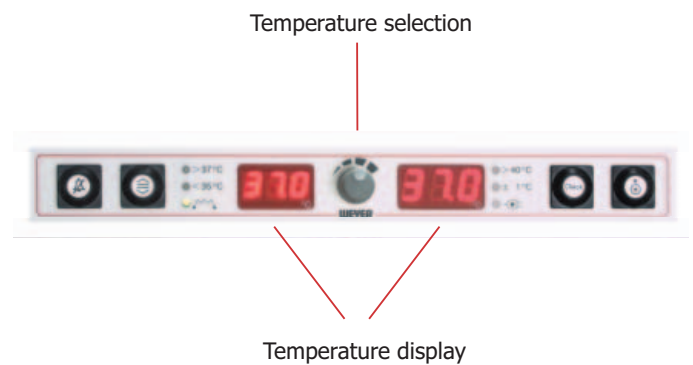
For storing accessories a shelf or two large drawers can be integrated in the trolley. In addition an oxygen or/and compressed air bottle can be fitted at the rear of the trolley.

The patient area can be brought into the required tilting position very quickly by one hand. Raised sides prevent the infant from trundling out of the bassinet.

All perspex walls can be folded down and up again by one hand. Tubings and leads are fed through the grommets in the rear wall. Two perspex safety side walls which are part of the basic configuration of the device secure the patient when the side walls are folded down. In case of side walls folded up these safety walls improve the thermal conditions, similar to the well-known double-wall effect. During treatment they can be retracted into the bassinet.

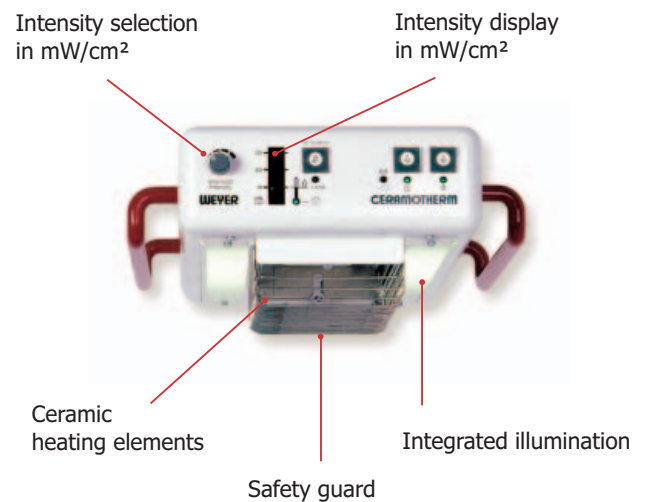


The comfortable conductive under-pad heating device with anti-decubitus gel pad warms up even hypothermic infants quickly and efficiently. The standard temperature selection range of 35° to 37° can be increased via safety lock to 30° to 38.5°. Selected and actual temperature are displayed as well as the residual heat when the device is switched-off. Alarms are provided for high and low temperature, system faults and power failure. A separate safety circuit switches off the heating in the case of fault.



For resuscitation and intensive care it is necessary to use an infra-red radiant warmer in addition to the under-pad heating device. The radiant heat is distributed evenly over the patient area, built-in fluorescent lamps with natural light colour provide a dazzle-free illumination.

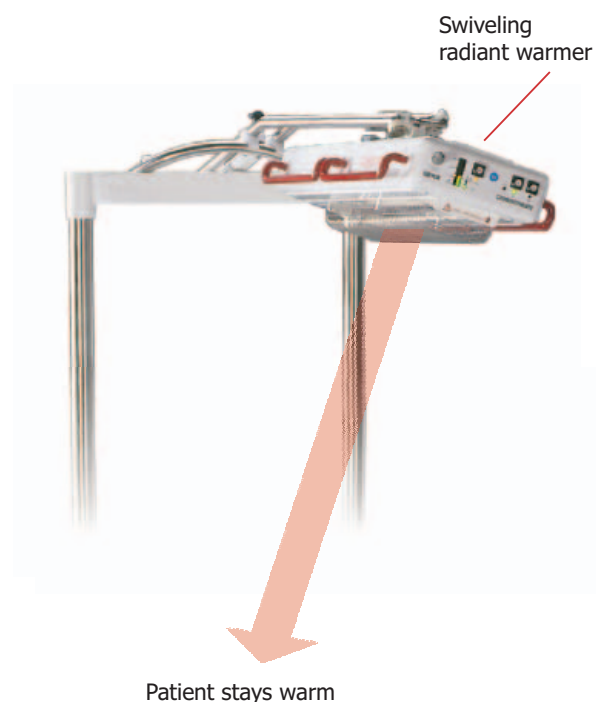
The radiation intensity can be selected according to the individual treatment situation. Especially in combination with the under-pad heating device often a low intensity selection is sufficient, thus reducing the transepidermal humidity losses in the patient.



Both the selected radiation intensity as well as the actually emitted intensity are displayed defined in mW/cm². When comparing to the patient's physical values taken in regular intervals, important conclusions can be drawn on his requirement of heat and his metabolism. The attained information contributes to a clear diagnosis and successful treatment. When the radiant warmer is switched off the residual heat will be displayed until the heating elements have cooled-off.

Visual and audible alarm is provided for deviation between selected and actual intensity as well as for system faults and power failure. In case of high intensity selection after 15 minutes of operation a visual and audible alarm is released and the intensity output is automatically reduced to a safe value. When the user confirms the high intensity selection by pushbutton, the radiant warmer will continue to operate with the high intensity for the next 15 minutes. If patients are monitored, the automatic intensity reduction can be switched-off temporarily.

For taking X-ray, or in order to reduce the heat exposure to the staff, the radiant warmer can be swiveled away, whereas, however, the radiation is still focussed on the patient.



Any accessories which are required according to the prevailing application are fixed at the high-grade steel tube assembly or at an instrument rail.

## The base devices



Order No. WY2030

Warming bed with conductive under-pad heating device for the warming care of infants. Oxygen therapy is possible by supplying oxygen into the interior at a concentration of 40 % or via oxygen headbox.

### **THERMOCARE K**

Order No. **WY2030**

- Electrically powered height-adjustment
- 4 fold-down perspex walls 250 mm high
- 1 perspex canopy
- 2 perspex safety side walls, retractable into the bassinet
- 1 instrument and monitor shelf at the rear side of the device
- 4 take-off sockets 230 V for connecting additional devices



With perspex walls 170 mm high  
Order No. WY2043

With perspex walls 250 mm high  
and canopy (no picture)  
Order No. WY2032

Infant care system with conductive under-pad heating device and swiveling infra-red radiant warmer CERAMOTHERM 2200 for the resuscitation and intensive care of unclothed infants. Oxygen therapy is possible by supplying oxygen into the interior at a concentration of 40 % (THERMOCARE KCE) or via oxygen headbox.

### **THERMOCARE KCE**

Order No. **WY2032**

- Electrically powered height-adjustment
- 4 fold-down perspex walls 250 mm high
- 1 perspex canopy
- 2 perspex safety side walls, retractable into the bassinet
- 4 take-off sockets 230 V for connecting additional devices

### **VARIOTHERM REA-KCE**

Order No. **WY2043**

- Electrically powered height-adjustment
- 4 fold-down perspex walls 170 mm high
- 2 perspex safety side walls, retractable into the bassinet
- 4 take-off sockets 230 V for connecting additional devices



Order No. WY2041

Infant care system with unheated bassinet and static infra-red radiant warmer CERAMOTHERM 1200.

### **VARIOTHERM REA-C**

Order No. **WY2041**

- Static patient level
- 4 fold-down perspex walls 170 mm high
- 2 perspex safety side walls, retractable into the bassinet
- 3 take-off sockets 230 V for connecting additional devices

## Upgrade items and accessories

### Order No. Upgrade of base devices

	<u>For all base devices</u>
WY2060	Shelf for the trolley with raised sides and instrument rail 25 x 10 mm at the front-end, or optionally:
WY2061	Drawer unit for the trolley with 2 drawers, top designed as shelf, with raised sides and instrument rail 25 x 10 mm at the front-end.
WY2067	High-grade steel infusion pole Ø 25 mm, 600 mm long, fixed at the instrument and monitor shelf
WY2068	High-grade steel infusion pole Ø 25 mm, height-adjustable, fixed at the instrument and monitor shelf
WY2075	High-grade steel infusion pole Ø 25 mm, height-adjustable, fixed at the high-grade steel tube Ø 40 mm
	<u>For WY2032, WY2043, WY2041</u>
WY2062	High-grade steel instrument rail 25 x 10 mm, straight, for fixing devices and components at the high-grade steel tube Ø 40 mm
WY2065	High-grade steel instrument rail 25 x 10 mm, cranked, for fixing large devices and components at the high-grade steel tube Ø 40 mm
WY2063	Instrument and monitor shelf 420 x 280 mm, fixed at the high-grade steel tube Ø 40 mm
WY1003	DIGITIME Apgar-Timer, fixed at the high-grade steel tube Ø 40 mm
WY1004	APGAR-DIGITEMP Temperature monitor with high and low temperature alarm and integrated Apgar-Timer, fixed at the high-grade steel tube Ø 40 mm

### Suction

WY1620	Suction unit for compressed air operation, for connection to central pipeline clamp, fixed at the instrument rail 25 x 10 mm
WY0226	MINIVAC ACU suction unit for battery operation
WY0242	Holder for fixing order No. WY0226 at the instrument rail 25 x 10 mm

### Oxygen supply

WY1604	Precision oxygen flowmeter for connection to central pipeline, fixed at the instrument rail 25 x 10 mm
WY1621	Precision oxygen flowmeter, with bubble humidifier, for connection to central pipeline, fixed at the instrument rail 25 x 10 mm
WY1471	Suction and insufflation assembly, compact unit, with suction unit for compressed air operation, oxygen/air blender, oxygen/air flowmeter and oxygen flowmeter, for connection to central pipeline, fixed at the instrument rail 25 x 10 mm
WY1421	Oxygen distributor with 3 take-off sockets, fixed at the instrument rail 25 x 10 mm
WY1425	Compressed air distributor with 3 take-off sockets, fixed at the instrument rail 25 x 10 mm
WY2066	Holder for oxygen bottle 10 l
WY1610	Oxygen bottle 10 l, filled, 200 bar
M1119	Holder for oxygen or/and compressed air bottle 2 x 3 l
WY1611	Pressure regulator with connection R 3/4" and tube connection 5 bar
WY1612	Pressure regulator with connection R 3/4" and take-off socket 5 bar

### Oxygen therapy

WY1627	OXYDOME oxygen headbox, L = 270 mm, W = 270 mm, H = 180 mm
WY1628	IGLOO oxygen hood, L = 380 mm, W = 325 mm, H = 210 mm

### Manual resuscitation

WY1465	Baby-resuscitation bag with paediatric valve, incl. 1 each face mask size 0 and 1
WY1466	PEEP-valve 0 to 10 mbar for resuscitation bag

## Phototherapy



For treatment of the neonatal hyperbilirubinemia the phototherapy device BILI-COMPACT delivers the high-effective "Blue-BAM spectrum by 10 energy saving bulbs. By the high utilization of intensity the treatment times are shortened considerably.

The device operates in complete silence and practically no heat is emitted in the direction of the patient. Therefore it can just be placed on the canopy of warming bed THERMOCARE K, order No. WY2030. It is also possible to place it on incubators with suitable canopy (up to 5° slant, load approx. 5 kg), without influencing the temperature control.

For care systems with radiant warmer and without canopy the phototherapy device BILI-COMPACT is used with a height-adjustable stand which is mobile on four antistatic castors, two of them can be kickstopped. The flexible swivel head allows to precisely direct the Blue-BAM radiation to the patient. Thus it can be brought very close to him and the usual radiation stray is minimized.

### **BILI-COMPACT**

Phototherapy device with 10 energy-saving fluorescent lamps Blue BAM/PL9/52, wave length spectrum 460 nm, integrated operating hour counter, handles

Order No. **WY1816**



Mobile stand, bottom side of the device height-adjustable to 1315 to 1675 mm, rotation of device 360°, vertical adjustment  $\pm 45^\circ$

Order No. **WY2003**



## Technical data

	THERMOCARE K	THERMOCARE KCE	VARIOTHERM REA-KCE	VARIOTHERM REA-C
<b>General data</b>				
<u>Base device</u>				
Depth	1140 mm	1140 mm	1140 mm	1140 mm
Width	585 mm	585 mm	585 mm	585 mm
Height	1090 to 1390 mm	1830 to 2130 mm	1830 to 2130 mm	1860 mm
Weight	70 kg	90 kg	90 kg	80 kg
Height adjustment, range	300 mm	300 mm	300 mm	-
Castors Ø 125 mm / kickstop	4 / 4	4 / 4	4 / 4	4 / 4
Bumpers Ø 70 mm	4	4	4	4
<u>Patient area</u>				
Depth	760 mm	760 mm	760 mm	760 mm
Width	480 mm	480 mm	480 mm	480 mm
Level	850 to 1150 mm	850 to 1150 mm	850 to 1150 mm	960 mm
Head up/feet down	0 to 20°	0 to 20°	0 to 20°	0 to 20°
Feet down/head up	0 to 10°	0 to 10°	0 to 10°	0 to 10°
<u>Under-pad heating device</u>				
Gel pad, conductive	Yes	Yes	Yes	No
Pad, non-conductive	No	No	No	Yes
Perspex walls, fold-down	4 / 250 mm high	4 / 250 mm high	4 / 170 mm high	4 / 170 mm high
Perspex canopy	Yes	Yes	No	No
Safety perspex side walls, retractable	2	2	2	2
<u>Tube assembly with radiant warmer</u>	-	CERAMOTHERM 2200	CERAMOTHERM 2200	CERAMOTHERM 1200
Radiant warmer swiveling	-	Yes	Yes	No
<b>Operating and performance data</b>				
Operating voltage / power supply	~230 V / 50 Hz	~230 V / 50 Hz	~230 V / 50 Hz	~230 V / 50 Hz
Max. power input				
- without additional devices	650 W / 2.8 A	1550 W / 6.7 A	1550 W / 6.7 A	900 W / 3.9 A
- with additional devices	2300 W / 10 A	2300 W / 10 A	2300 W / 10 A	1650 W / 7.2 A
Take-off sockets for additional devices				
	1 x 500 W	1 x 200 W	1 x 200 W	1 x 500 W
	1 x 900 W	1 x 50 W	1 x 50 W	1 x 200 W
	1 x 200 W	2 x 250 W	2 x 250 W	1 x 50 W
	1 x 50 W			
<u>Under-pad heating device</u>				
Self-test	Yes	Yes	Yes	-
Temperature selection:				
Standard range	35°C to 37°C	35°C to 37°C	35°C to 37°C	-
Extended range	30°C to 38.5°C	30°C to 38.5°C	30°C to 38.5°C	-
Temperature selection display	Yes	Yes	Yes	-
Actual temperature/residual heat display	Yes	Yes	Yes	-
Alarm for temperature deviation ± 1°C	Yes	Yes	Yes	-
Safety cut-off at 40°C	Yes	Yes	Yes	-
Power failure alarm	Yes	Yes	Yes	-
<u>Radiant warmer</u>				
Heating elements, ceramic	-	2 x 400 W	2 x 400 W	2 x 400 W
Wave length spectrum	-	1500 to 6800 nm	1500 to 6800 nm	1500 to 6800 nm
Illumination	-	2 x 18 W	2 x 18 W	2 x 18 W
Self-test	-	Yes	Yes	Yes
Intensity selection	-	2 to 22 mW/cm <sup>2</sup>	2 to 22 mW/cm <sup>2</sup>	2 to 22 mW/cm <sup>2</sup>
Intensity selection display	-	Yes	Yes	Yes
Actual intensity / residual heat display	-	Yes	Yes	No
Alarm for intensity deviation ± 2 mW/cm <sup>2</sup>	-	Yes	Yes	-
Alarm / automatic intensity reduction after 15 minutes > 10 mW/cm <sup>2</sup> , can be switched-off temporarily	-	Yes	Yes	Yes
Power failure alarm	-	Yes	Yes	Yes

## Technical data (continued)

	THERMOCARE K	THERMOCARE KCE	VARIOTHERM REA-KCE	VARIOTHERM REA-C
<b>Colours</b>				
Trolley	White RAL 9002	White RAL 9002	White RAL 9002	White RAL 9002
Bassinet	White RAL 9010	White RAL 9010	White RAL 9010	White RAL 9010
Radiant warmer	-	White RAL 9010	White RAL 9010	White RAL 9010
<b>Classification</b>				
Protection class	1	1	1	1
Device type	B	B	B	B
MDD class	IIa	IIb	IIb	IIa
<b>Standards</b>				
EN 60601 (edition 1996)	Yes	Yes	Yes	Yes
EN 60601-2-35 *, 1997-12	Yes	Yes	Yes	-
EN 60601-2-21**, 1995-12 resp. modification A1 1998-01	-	Yes	Yes	Yes
<b>Maintenance</b>				
Inspection	Annual	Annual	Annual	Annual
Preventive maintenance	Annual	Annual	Annual	Annual

\* Particular requirements for the safety of blankets, pads and mattresses, intended for heating in medical use

\*\* Particular requirements for the safety of infant radiant warmers

BILI-COMPACT	
<b>General data</b>	
Depth	525 mm
Width	220 mm
Height	90 mm
Weight	4.8 kg
Minimum distance to the patient pad	200 mm
Equipment of lamps (energy-saving fluorescent lamps)	10 pieces
<b>Performance and operating data</b>	
Operating voltage / power supply	~ 230 V / 50 Hz
Max. power input	140 W / 0.6 A
Wave length spectrum	460 nm
Bilirubin-effective radiation intensity $E_{irr}$ at distance to patient pad	
350 mm	16 W/m <sup>2</sup>
250 mm	20 W/m <sup>2</sup>
200 mm	30 W/m <sup>2</sup>
Irradiated area at distance to patient pad	
350 mm	400 x 700 mm
200 mm	300 x 600 mm

<b>Colours</b>	
Phototherapy device	White RAL 9010
Base of mobile stand	White RAL 9002
<b>Technical data mobile stand</b>	
Depth	560 mm
Width	560 mm
Height	1535 to 1935 mm
Weight	16 kg
Necessary underpin height	> 95 mm
Castors Ø 52 mm / kickstop	4 / 2
Bottom side of device height-adjustable	1315 to 1675 mm
<b>Classification</b>	
Protection class	1
Device type	B
MDD class	IIa
<b>Standards</b>	
	EN 60601 (edition 1996)
<b>Maintenance</b>	
Inspection (recommended)	Annual
Preventive maintenance (recommended)	Annual