



# Patient Temperature Management

Precise warming and cooling of your patients during surgery and in intensive care for speeding up recovery



**HICO**

MEDICAL SYSTEMS

39.0 °C

REPARATURPHASE

39.0 °C

>38°C

**HICO-AQUATHERM 660**

Made in Germany



# Patient Temperature Management



The hypo- and hyperthermia treatment devices HICO-VARIO THERM 550 and 555, HICO-AQUATHERM 660 and HICO-HYPOTHERM 680, combined with suitable HICO water pads, allow user-friendly and efficient control of your patients' temperature - both in perioperative patient warming and in patient cooling, e.g. after resuscitation. Via surface contact with the radiolucent HICO water pads the patient's desired body temperature can be precisely controlled. Due to its good thermal conductivity, water is an ideal medium for the effective and safe transfer of heat and cold.

## Medical-technical expertise for more than 70 years

Founded by Hans Hirtz in 1945, the Cologne-based company Hirtz & Co. KG is run in the fourth generation by the Hirtz family. Today, the company stands for expertise in medical technology sold under the brand name HICO Medical Systems. What started as a wholesale business for medical products and devices has developed - thanks to in-house innovations - into a major medtech company. The product portfolio comprises hypo- and hyperthermia systems, decubitus prevention and treatment solutions as well as inhalation devices.

Since 1997, Hirtz & Co. KG has been certified according to ISO standards and therefore guarantees excellent quality. Today, more than 70 years after the family business was founded, brand products of HICO Medical Systems generate more than 50 % of the company's sales outside Germany. To ensure our future in the market with leading medtech products, Hirtz & Co. KG places great value on well-established development partnerships with leading university hospitals.

## Properties

- Precise water temperature control between 5 and 40 °C depending on the device
- Uniform and safe temperature transfer via HICO water pads
- Low follow-up costs thanks to reusable, easy-to-clean HICO water pads
- Closed, low-noise systems

**5 – 40 °C**

### HICO-VARIO THERM 555

Effective patient temperature management in intensive care units



**15 – 39 °C**

### HICO-VARIO THERM 550

Perfect warming & cooling unit for patients in neonatology and pediatrics



**35 – 39 °C**

### HICO-AQUATHERM 660

High-performance patient warming system for use in surgery



**15 – 35 °C**

### HICO-HYPOTHERM 680

Active cooling system for reducing patient temperature



# HICO-VARIO THERM 555

Effective patient temperature management in intensive care units



HICO-VARIO THERM 555 is the allrounder among the hypo-/hyperthermia systems and appreciated for its reliable warming and cooling of patients in intensive care units and operating rooms. Featuring a water temperature range of 5 to 40 °C, this system covers all areas of application.

## Properties

- Easy and quick start-up of the non-invasive temperature control system
- Optimum temperature transfer via reusable HICO water pads
- Connections for two HICO water pads
- Optional use of Soft-Temp® single-use pads
- Nursing staff has free access to the patients since they are positioned on the water pads.
- Defibrillation-proof device
- Microprocessor-controlled Peltier technology ensures smooth and quiet operation of the powerful system.
- Compact stationary unit, available with a tilt-resistant castor stand



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REF 600001 (230 V)

REF 600021 (115 V)

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Connections for 2 pads

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Dimensions W x H x D  
approx. 20 x 60 x 51 cm

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Weight approx. 25 kg (empty)

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Noise emission  
approx. 45 dB(A)

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[www.hico.de/en/hico-variotherm-555.html](http://www.hico.de/en/hico-variotherm-555.html)

# HICO-VARIOTHERM 550

Perfect warming & cooling unit for patients in neonatology and pediatrics



HICO-VARIOTHERM 550 combines the advantages of HICO warming & cooling systems in one space-saving device. The resulting unit covers a temperature range of 15 to 39 °C and is suitable for different areas of application in neonatology and pediatrics.

## Properties

- Easy warming & cooling of patients through surface contact with HICO water pads
- Optimum temperature transfer through reusable HICO water pads
- Connection for one HICO water pad
- Optional use of Soft-Temp® single-use pads
- Nursing staff has free access to the patients since they are positioned on the water pads.
- Closed, hygienic system with low-noise Peltier technology
- Space-saving device, available with a tilt-resistant 5-castor stand



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REF 540001 (230 V)

REF 540021 (115 V)

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Connection for 1 pad

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Dimensions W x H x D  
approx. 20 x 29 x 44 cm

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Weight approx. 17 kg (empty)

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Noise emission  
approx. 50 dB(A)

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# HICO-AQUATHERM 660

High-performance patient warming system for use in surgery



Being ideally suited for use as a warming system in operating rooms, HICO-AQUATHERM 660 minimizes the drop in patient temperature. Two heating pads protect the patient perioperatively against hypothermia. The water temperature is adjustable within a range of 35 to 39 °C. As a result, there will be fewer wound infections, fewer cardiological complications and less hemorrhaging. Moreover, less time spent in the recovery room ensures a more efficient and economical course of surgery.

## Properties

- Active patient warming system for use in operating rooms
- Optimum heat transfer through reusable HICO water pads
- Connections for two HICO water pads
- Optional use of Soft-Temp® single-use pads
- No heat radiated to the surgical team
- Free access of the surgical team to the patients since they are positioned on water pads
- System is rapidly ready for use thanks to a short warm-up time
- Small and handy unit, can be supplied with a tilt-resistant 5-caster stand



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REF 590001 (230 V)

REF 590020 (115 V)

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Connections for 2 pads

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Dimensions W x H x D  
approx. 20 x 29 x 33 cm

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Weight approx. 7 kg (empty)

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Noise emission  
approx. 35 dB(A)

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[www.hico.de/en/hico-aquatherm-660.html](http://www.hico.de/en/hico-aquatherm-660.html)

# HICO-HYPOTHERM 680

Active cooling system for reducing patient temperature



HICO-HYPOTHERM 680 ensures perfect cooling of the patient. The active hypothermia system reduces the patient's body temperature through surface contact with HICO water pads. Water temperatures are adjustable within a range of 15 to 35 °C.

## Properties

- Mild hypothermia achieved by positioning the patient on a reusable HICO water pad
- Connection for one HICO water pad
- Optional use of Soft-Temp® single-use pads
- Precise water temperature control
- Space-saving device, can be supplied with a tilt-resistant 5-castor stand



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REF 530001 (230 V)

REF 530021 (115 V)

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Connection for 1 pad

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Dimensions W x H x D  
approx. 20 x 29 x 44 cm

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Weight approx. 17 kg (empty)

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Noise emission  
approx. 50 dB(A)

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# HICO water pads

Essential accessories for ensuring optimum patient temperature control



Water pads (multi-use)

Due to the good thermal conductivity of water, HICO water pads allow the effective and safe transfer of heat and cold to the patient.

## Properties

- Uniform distribution of temperature across the entire pad surface thanks to the unique honeycomb structure
- Radiolucent, lightweight, robust and elastic
- Free of latex and phthalates
- Easy cleaning of the multi-use pads by standard wipe disinfection
- High operational safety as HICO water pads are free of electrical connections



Soft-Temp®



Head wrap for cooling





VARIO THERM 555

VARIO THERM 550

AQUA THERM 660

HYPOTHERM 680

### Water pads (multi-use)

•	•	•	•	Water pad – Cover	60 x 70 cm	REF 550025
•	•	•	•	Water pad – Cover	120 x 70 cm	REF 550026
•	•	•	•	Water pad – Intensive	170 x 50 cm	REF 550046
•	•	•	•	Water pad – Intensive	92 x 50 cm	REF 550047
•	•	•	•	Water pad – Surgery	170 x 35 cm	REF 550048
•	•	•	•	Water pad – Surgery	92 x 35 cm	REF 550049
•	•	•	•	Water pad – Baby	50 x 30 cm	REF 550044
•	•	•	•	Cover – For water pad baby		REF 310040
•	•		•	Cooling cuff – Type A	38 x 26 cm	REF 550081
•	•		•	Pack – Type A		REF 550091
•	•		•	Cooling cuff – Type D	27 x 11 cm	REF 550084
•	•		•	Pack – Type D		REF 550094

### Water pads (single-use)

•	•	•	•	Soft-Temp®	152 x 61 cm	REF 550060
•	•	•	•	Soft-Temp®	76 x 61 cm	REF 550061
•	•	•	•	Soft-Temp®	51 x 36 cm	REF 550063
•	•		•	Head wrap for cooling	adjustable to patient's head	REF 550089
•	•		•	Cooling vest	adjustable to patient size	REF 550087

# Further accessories

VARIO THERM 555

VARIO THERM 550

AQUATHERM 660

HYPOTHERM 680

## Castor stands and brackets

•	•	•	Tilt-resistant safety stand (4-castors)	REF 602810
	•	•	5-castor stand, incl. vertical bar and support plate	REF 530002
		•	5-castor stand, incl. vertical bar and clamping bracket	REF 590002
		•	Clamping bracket for securing the device to the 5-castor stand, wall rail or operating table	REF 592900

## Hose extensions

	•	•	•	Hose extension (3 m), incl. quick-release couplings, for connecting device and HICO water pad	REF 550022
•	•	•	•	Hose extension (3 m), incl. quick-release couplings, for connecting device and single-use pads	REF 550069
•				Insulated hose extension (2 m), incl. quick-release couplings, for connecting device and HICO water pad	REF 600022

## Disinfection

•	•	•	•	Sanosil S003 – Disinfectant solution consisting of two basic ingredients (hydrogen peroxide and silver) for use as water additive in all HICO devices and water pads	REF 830111
•	•	•	•	Sanosil test strips – Quick determination of the Sanosil disinfectant concentration in liquids. 100 strips/sales unit	REF 830112



Device	VARIOTHERM 555	VARIOTHERM 550	AQUATHERM 660	HYPOTHERM 680
<b>Article No. (REF)</b>	600001 (230 V) / 600021 (115 V)	540001 (220 V/230 V) / 540021 (115 V)	590001 (220/230 V) / 590020 (115 V)	530001 (220 V/230 V) / 530021 (115 V)
<b>Nominal voltage</b>	230 VAC 50 Hz / 115 VAC 60 Hz	230 VAC 50/60 Hz / 115 VAC 50/60 Hz / 220 VAC 60 Hz	230 VAC 50/60 Hz / 115 VAC 50/60 Hz / 220 VAC 60 Hz	230 VAC 50/60 Hz / 115 VAC 50/60 Hz / 220 VAC 60 Hz
<b>Power input</b>	440 W	320 W	530 W (230 V) / 560 W (115 V)	320 W
<b>Current consumption</b>	approx. 1.9 A (230 V) / 3.8 A (115 V)	approx. 1.5 A (220 V/230 V) / 3 A (115 V)	approx. 2.3 A (220 V/230 V) / 4.6 A (115 V)	approx. 1.5 A (220 V/230 V) / 3 A (115 V)
<b>Nominal temperature range</b>	5 – 40 °C	15 – 39 °C	35 – 39 °C	15 – 35 °C
<b>Safety shutdown</b>	approx. 4 °C and 41.1 – 41.5 °C  (autonomous safety-shutdown) This results in a max. surface temperature on the pad < 41°C	41.1 – 41.5 °C	41.1 – 41.5 °C	41.1 – 41.5 °C
<b>Correction value</b>	0.5 °C (water temp. – temp. display)			
<b>Sensor element</b>	2 x NTC 5K	2 x NTC 5K	2 x NTC 5K	2 x NTC 5K
<b>Pump capacity</b>	max. 7 l/min, max. 0.36 bar	max. 5.5 l/min, max. 0.21 bar	max. 19 l/min, max. 0.34 bar	max. 5.5 l/min, max. 0.21 bar
<b>Warm-up time</b>	approx. 5 – 10 min (20 – 37 °C)	approx. 5 – 10 min (20 – 37 °C)	approx. 5 – 10 min (20 – 37 °C)	----
<b>Cool-down time</b>	approx. 5 – 10 min (20 – 10 °C)	approx. 5 – 10 min (20 – 15 °C)	----	approx. 5 – 10 min (20 – 15 °C)
<b>Fuse rating</b>	2 x T 3.15 A; L 250 V (230 V) / 2 x T 6.3 A; L 250 V (115 V)	2 x T 3.15 A; L 250 V (220 V/230 V) / 2 x T 5 A; L 250 V (115 V)	2 x T 3.15 A; L 250 V (220 V/230 V) / 2 x T 5 A; L 250 V (115 V)	2 x T 3.15 A; L 250 V (220 V/230 V) / 2 x T 5 A; L 250 V (115 V)
<b>Class/type of protection (IEC 60601-1)</b>	I, BF (defibrillation protected)			
<b>IP protection class (IEC 60529)</b>	IP X1 (drip proof)			
<b>Mains supply</b>	Must comply with the requirements of VDE 0100 Part 710:2012-10 „Electrical safety in medical environments“			
<b>Risk class (93/42/EEC)</b>	II b	II b	II b	II a
<b>Ambient temperature</b>	10 – 30 °C	10 – 30 °C	10 – 30 °C	10 – 30 °C
<b>Relative humidity</b>	approx. 30 – 70 %	approx. 30 – 70 %	approx. 30 – 70 %	approx. 30 – 70 %
<b>Transport/storage temperature</b>	3 – 60 °C	3 – 60 °C	3 – 60 °C	3 – 60 °C
<b>Air pressure</b>	700 – 1060 mbar	700 – 1060 mbar	700 – 1060 mbar	700 – 1060 mbar
<b>Tank volume</b>	approx. 1.0/2.0 l (min./max.)	approx. 0.5/0.8 l (min./max.)	approx. 0.7/1.4 l (min./max.)	approx. 0.5/1.0 l (min./max.)
<b>Heat exchanger tank volume</b>	1.5 l	----	----	----
<b>Coolant</b>	water-glycol mixture	----	----	----
<b>Permissible height difference</b>	max. 1 m (unit/water pad)			
<b>Dimensions W x H x D</b>	approx. 20 x 60 x 51 cm	approx. 20 x 29 x 44 cm	approx. 20 x 29 x 33 cm	approx. 20 x 29 x 44 cm
<b>Weight</b>	approx. 25 kg (empty)	approx. 17 kg (empty)	approx. 7 kg (empty)	approx. 17 kg (empty)
<b>Noise emission</b>	approx. 45 dB(A)	approx. 50 dB(A)	approx. 35 dB(A)	approx. 50 dB(A)
<b>Alarm level</b>	> 55 dB(A)	> 55 dB(A)	> 55 dB(A)	> 55 dB(A)
<b>Test basis</b>	Medical product directive 93/42/EEC, DIN EN 60601-1, DIN EN 60601-1-2, DIN EN 80601-2-35			
<b>UMDNS code</b>	12-068	12-068	17-648	12-078





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