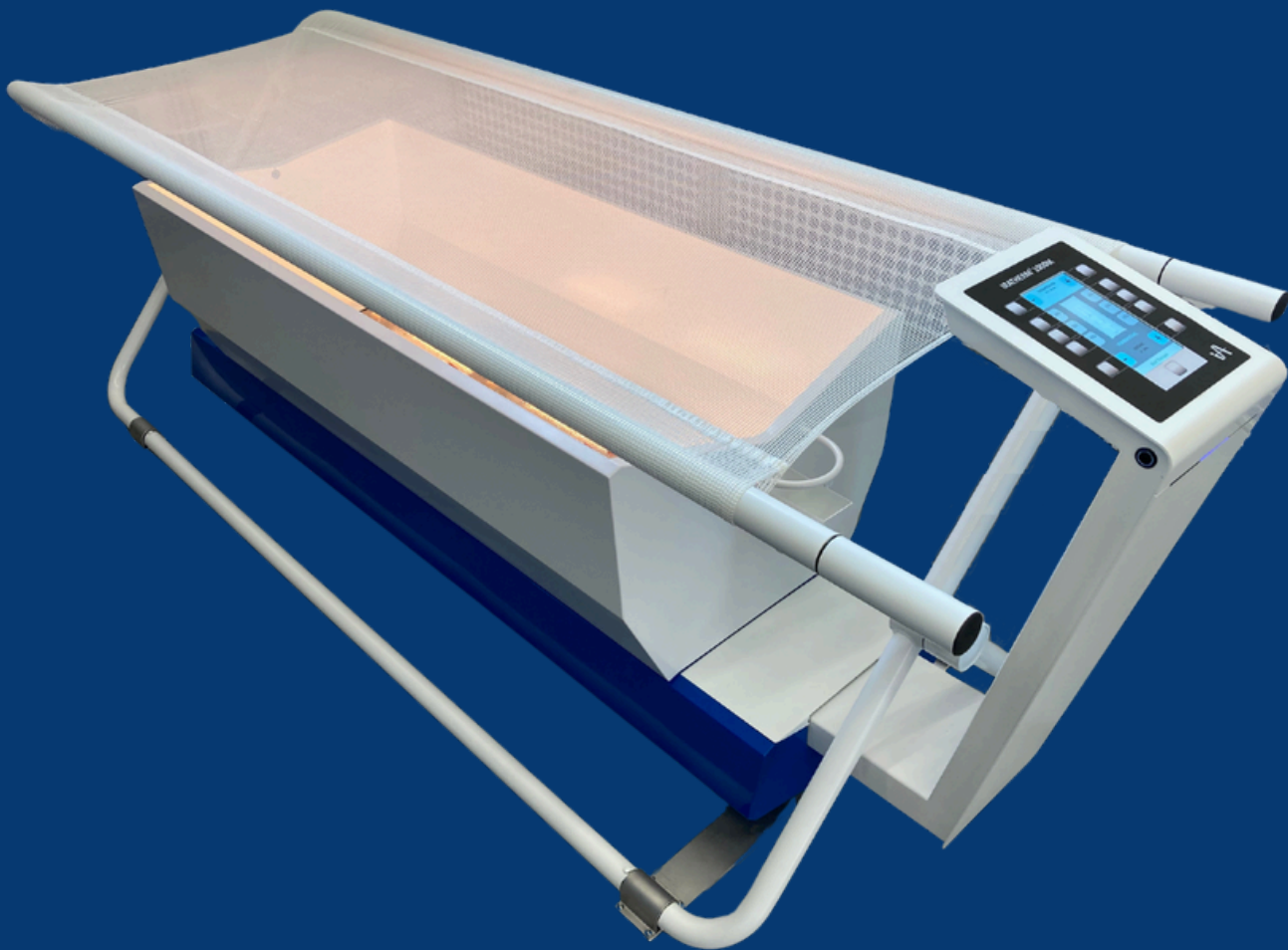


No.

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in
Whole-Body
Hyperthermia
with
wIRA

Water-Filtered
Infrared-A Radiation
for Whole-Body Hyperthermia

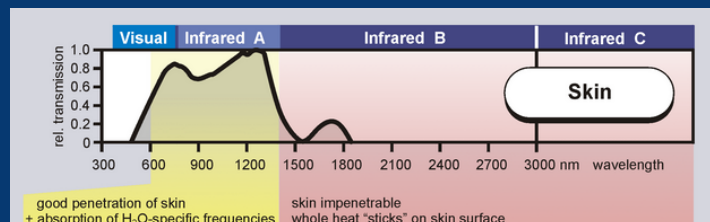


IRATHERM[®] 1000M

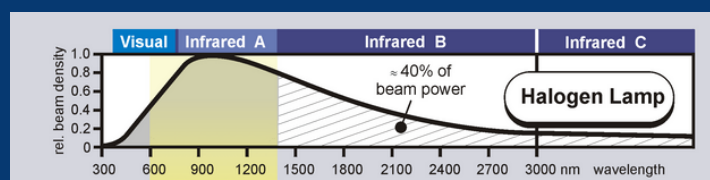


Water-filtered infrared-A radiation - working principle and benefits

The spectral transmission of skin starts at a long wave visual light of about 600 nm wavelength (see “Visual”) and passes the whole infrared-A until its upper long wave limit of about 1.400 nm wavelength. In contrast to that, the skin is nearly impenetrable to heat radiation from the spectral regions of infrared-B and infrared-C. Therefore, one can speak of “deep-acting heat” in the case of infrared-A heat radiation, whereas with infrared-B and infrared-C radiation we speak only of “surface heat”.



Red light lamps or halogen lamps are well-known and powerful heat radiators. The latter mostly operates on higher power. The following presentation of spectral distribution of a halogen lamp shows that its heat radiation contains 40% of the unwanted, skin-straining infrared-B and infrared-C radiation.



Water-filtered Infrared-A radiation, as generated by special IRATHERM®-radiators, is a type of heat radiation ideally suited to human skin. Using water-filtered infrared-A radiation the IRATHERM® allows a much higher irradiation level than that of commercial infrared or halogen lamps at same skin tolerance.

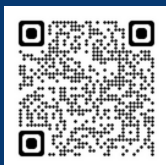
Water-filtered infrared-A is heat radiation similar to natural sun radiation because natural sun radiation is formed with the help of the humid atmosphere of the earth. Over thousands of years, our biggest organ, the skin, has adapted itself very well to water-filtered heat radiation.

Physiological Effects

- Increased perfusion in organs and tissues
- Accelerated metabolism
- Stimulation of the hormonal system
- Activation of the immune system
- Reduction in muscle tone
- Enhanced nerve conduction

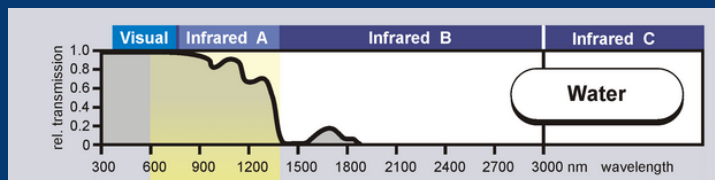
Von Ardenne Institute of Applied Medical Research was founded about 40 years ago to push the boundaries of medical research and honor the lifetime achievements of Prof. Manfred von Ardenne.

Learn more about our History:

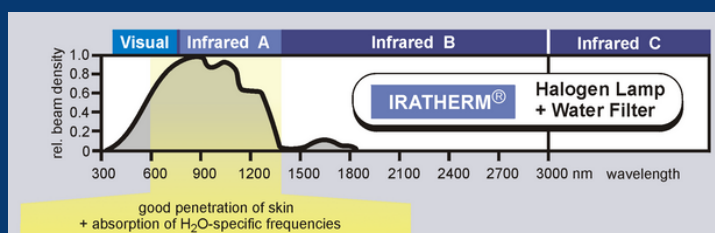


Water is the appropriate choice of filter to eliminate infrared-B and infrared-C radiation because water, similar to skin, has a selective transmission of infrared radiation.

This property results from the fact that the skin of an adult consists to 75% of water. Just like skin, water is a good transmitter of infrared-A radiation. While infrared-B and infrared-C are nearly completely absorbed, only small absorption bands (near 950 nm and 1,150 nm) are given in the spectral region of infrared-A.



By placing a water filter in front of a halogen lamp, the result is a heat radiation, with a spectral distribution nearly equal to the spectral transmission of the skin.



Our Institute is well-known for its pioneering work in research, development and distribution of whole-body hyperthermia devices using water-filtered infrared-A radiation (wIRA).

IRATHERM®1000M reproduces equivalently that part of infrared sun radiation, which can be used to warm up the body: skin-friendly and very well tolerable. Mild and moderate whole-body hyperthermia can increase the microcirculation, speed up the metabolism, reduce muscle tone, and activates the immune system in a similar way to natural fever.

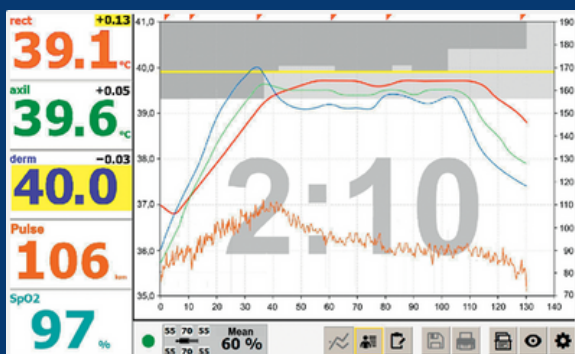


IRATHERM® 1000M Highlights

- solely skin-tolerable, water-filtered infrared-A heat radiation (wIRA)
- uniform irradiance across the entire patient
- rapid increase in body-core temperature ($> 38.5^{\circ}\text{C}$ in 40 min)
- high lying comfort
- permanent and all-round access to the patient
- cost and time-saving cleaning after therapy session
- user-friendly monitoring

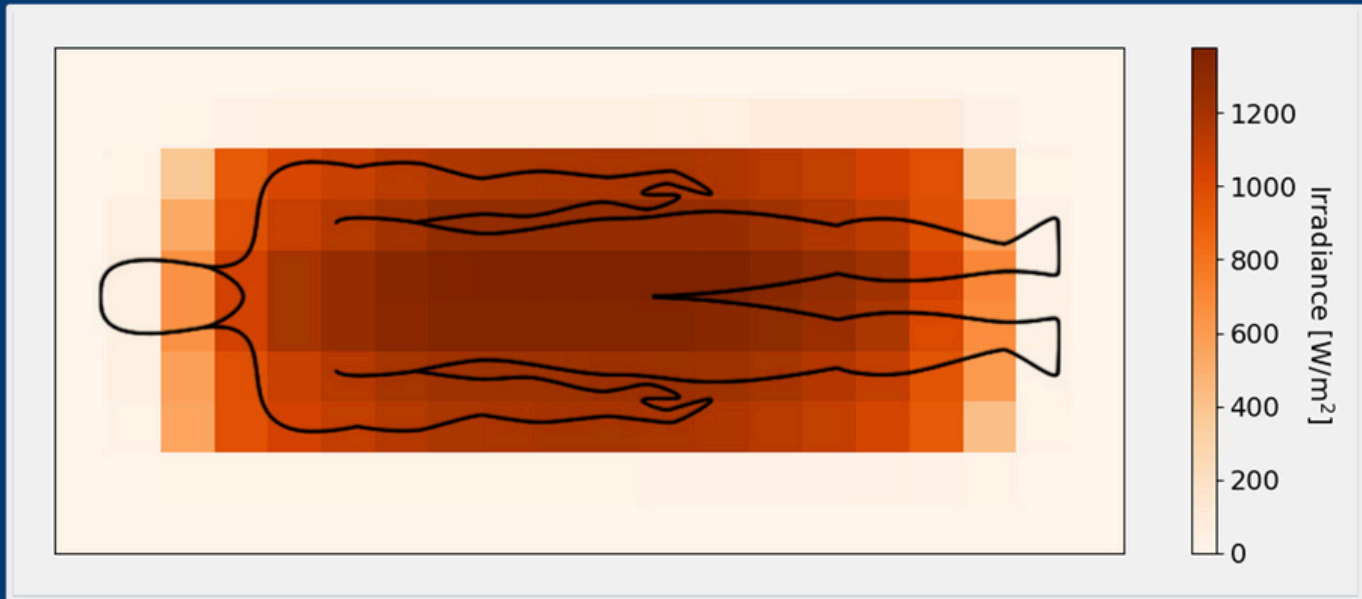
Fully integrated transducer hardware in IRATHERM®1000M for signal processing.

The purpose is to collect and provide various information. Via standard serial interface, relevant data is continuously transferred to a PC and displayed within IRAsoft environment.



IRAsoft

Spezialised software for comprehensive visualization of the hyperthermia sessions. It is used for recording, processing and displaying multiple treatment parameters. The current therapy time, up to three different temperatures, ear pulse and oxygen saturation as well as temperature gradients can be displayed. The software allows the provision of data export function for further external analysis.



Technical Data IRATHERM® 1000M

water-filtered infrared-A radiation (wIRA)	780 until 1400 nm wavelength
Full spectrum radiation	400 until 1900 nm wavelength
Irradiance	0 - 1400 W / m ²
Power consumption	6.9 kW / 9.6 A / 3x 10 A / 400 V / 230 V
Cooling-water consumption	min. 4 l / min.
Dimensions (L x W x H)	250 cm x 100 cm x 85 cm
Weight	140 kg

Contact Information

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