Institute of Applied Medical Research

IRATHERM® 1000M

Water-Filtered Infrared-A Radiation for Mild and Moderate Whole-Body Hyperthermia in Physical Therapy, Complementary Medicine and Oncology

No. 1 in Whole-Body Hyperthermia with IRA

"Science in Alliance with Nature"

IRATHERM® 1000

for mild (up to 38.5 °C)
and moderate (up to 40.5 °C)
Whole-Body Hyperthermia

Von Ardenne Institute of Applied Medical Research was founded more than 30 years ago to push the boundaries of medical research and honor the lifetime achievements of Prof. Manfred von Ardenne. 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).

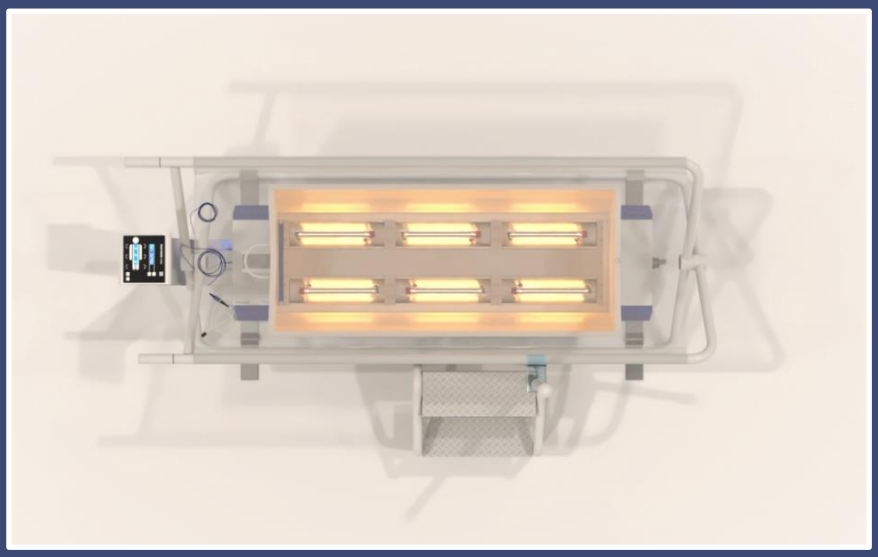
By stimulating the organism's self-healing powers, a wide spectrum of treatment indications is available, from prophylactic medicine and environmental medicine to the treatment of chronic diseases and malignant processes.

IRATHERM® 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.

Intended use

- Activate blood circulation
- Relief muscle fatique, muscle stiffness, and muscle pain

Monitoring with IRAcom® and IRAsoft 5.0



Hardware and Software for Monitoring

- 3 temperatures
- ear pulse
- oxygen saturation
- 6 special radiators
- data log
- print and data export

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 (up to 39 °C in approx. 45 min)
- high lying comfort
- permanent and all-round access to the patient
- cost and time-saving cleaning after therapy session
- user-friendly monitoring

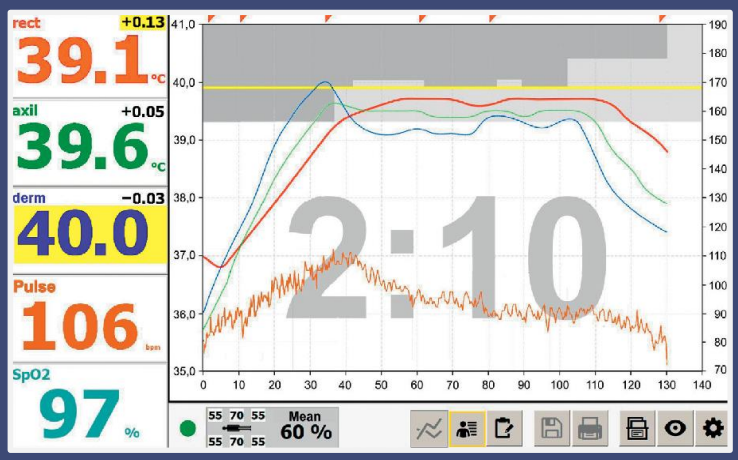
IRAcom®

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

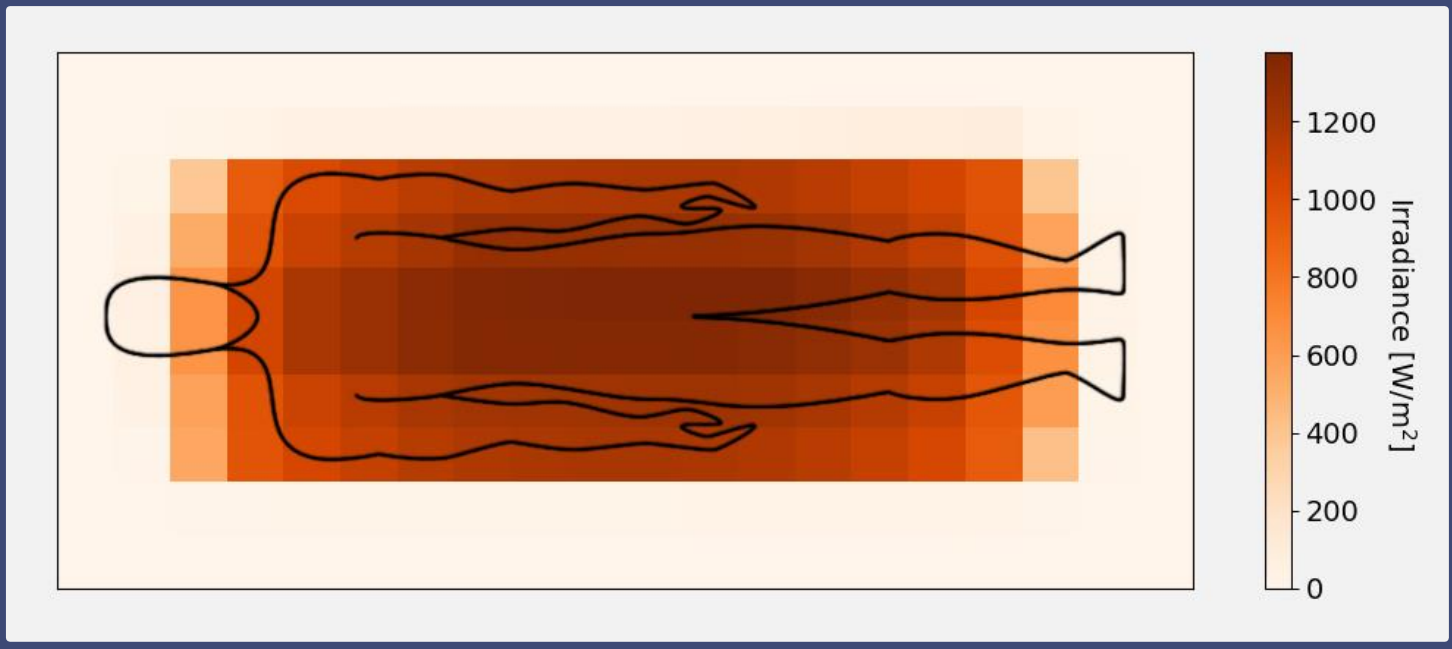
The purpose of the IRAcom® is to collect and provide various information, such as temperatures, pulse, oxygen saturation and radiator power. Via a standard serial interface relevant data is continuously transferred to a PC and displayed within the IRAsoft 5.0 environment.

IRAsoft 5.0

Software for comprehensive visualization of the hyperthermia sessions.
It is used for recording, processing and displaying multiple treatment parameters.
Exemplarily, the current therapy time, up to three different temperatures, pulse and oxygen saturation as well as temperature gradients will be shown.
Provision of data export function to also allow further external analysis.



Exceptional homogeneity of the irradiance in the patient level



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Technical Data: IRATHERM®1000M

Water-filtered infrared-A radiation	780 until 1400 nm wavelength
Full spectrum radiation	400 until 1900 nm wavelength
Irradiance	0 - 1400 W/m²
Power consumption	6.9 kW three-phase current, 400/230 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

Manufacturer
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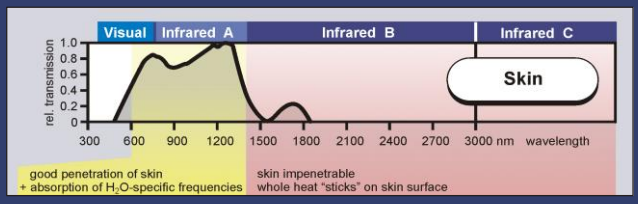
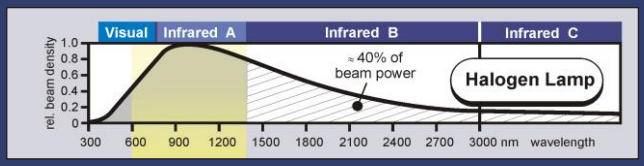
Why Use Water-Filtered Infrared-A Radiation?

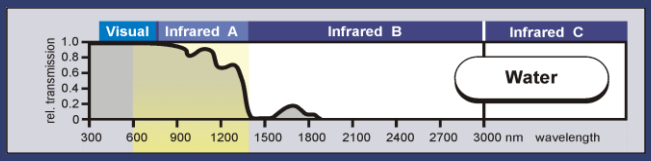
The spectral transmission of skin starts at a long wave visual light of about 600 nm wavelength (see “Visual”) and passes the whole infrared-A until its upper long wave limit of about 1.400 nm wavelength. In contrast to that, the skin is nearly impenetrable to heat radiation from the spectral regions 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”.



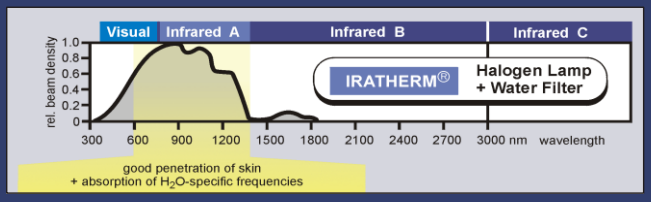
Red light lamps or halogen lamps are well-known and powerful heat radiators. The latter mostly operates on higher power. The following presentation of spectral distribution of a halogen lamp shows that its heat radiation contains 40% of the unwanted, skin–straining infrared-B and infrared–C radiation.



Water 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.



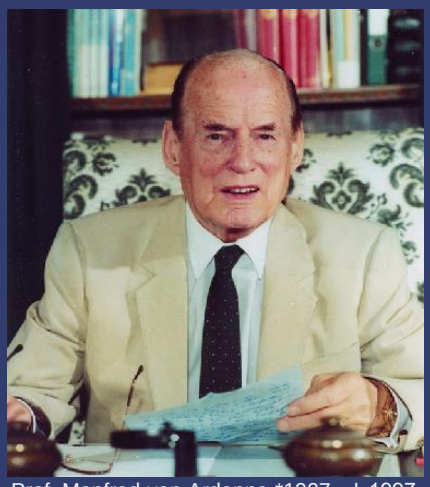
By placing a water filter in front of a halogen lamp, the result is a heat radiation, with a spectral distribution nearly equal to the spectral transmission of the skin.



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.

Tradition in Science Engineering Medicine



Prof. Manfred von Ardenne *1907 - † 1997

1931	World premiere of fully electronic television
1934	Electronic spectral photometer
1934	Invention of night vision device (image converter)
1937	Invention of scanning electron microscope of high resolution
1939	Universal electron microscope of high resolution
1957	Swallow-able intestinal transmitter, signaling pressure and pH
1962	Operating room with electronic patient supervision
1965	Two-chamber bath tub for extreme whole-body hyperthermia
1966	Heat exchanger for extracorporeal hyperthermia for regional perfusion
1967	Sensibilization of tumor cells against hyperthermia via over-acidification
1970	systemic Cancer Multistep Therapy (sCMT)
1972	Oxygen Multistep Therapy (O_2MT)
1978	27 MHz high-frequency hyperthermia with systemic and added local application
1987	Whole-body hyperthermia with water-filtered infrared-A radiation (IRATHERM®-principle)
1992	IRATHERM®2000 for extreme whole-body hyperthermia (until 42.5 °C)
1994	IRATHERM®1000 for mild and moderate whole-body hyperthermia (up to 40.5 °C)
2003	IRAcom® monitoring for mild and moderate whole-body hyperthermia
2011	IRAboard for the multivariant use of IRATHERM®1000 as a patient couch
2017	IRAsoft software for mild and moderate whole-body hyperthermia