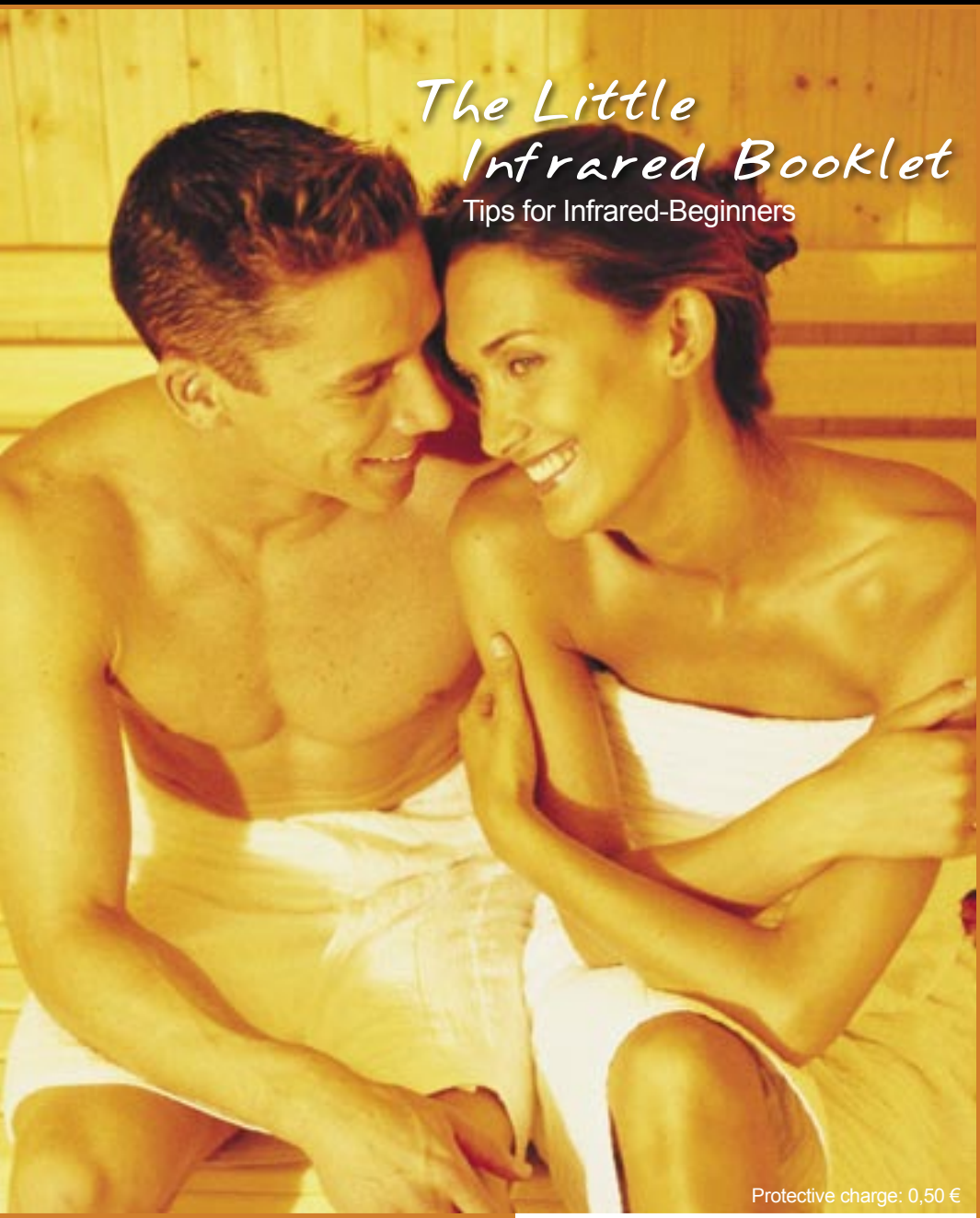
emotion of sauna

EOS

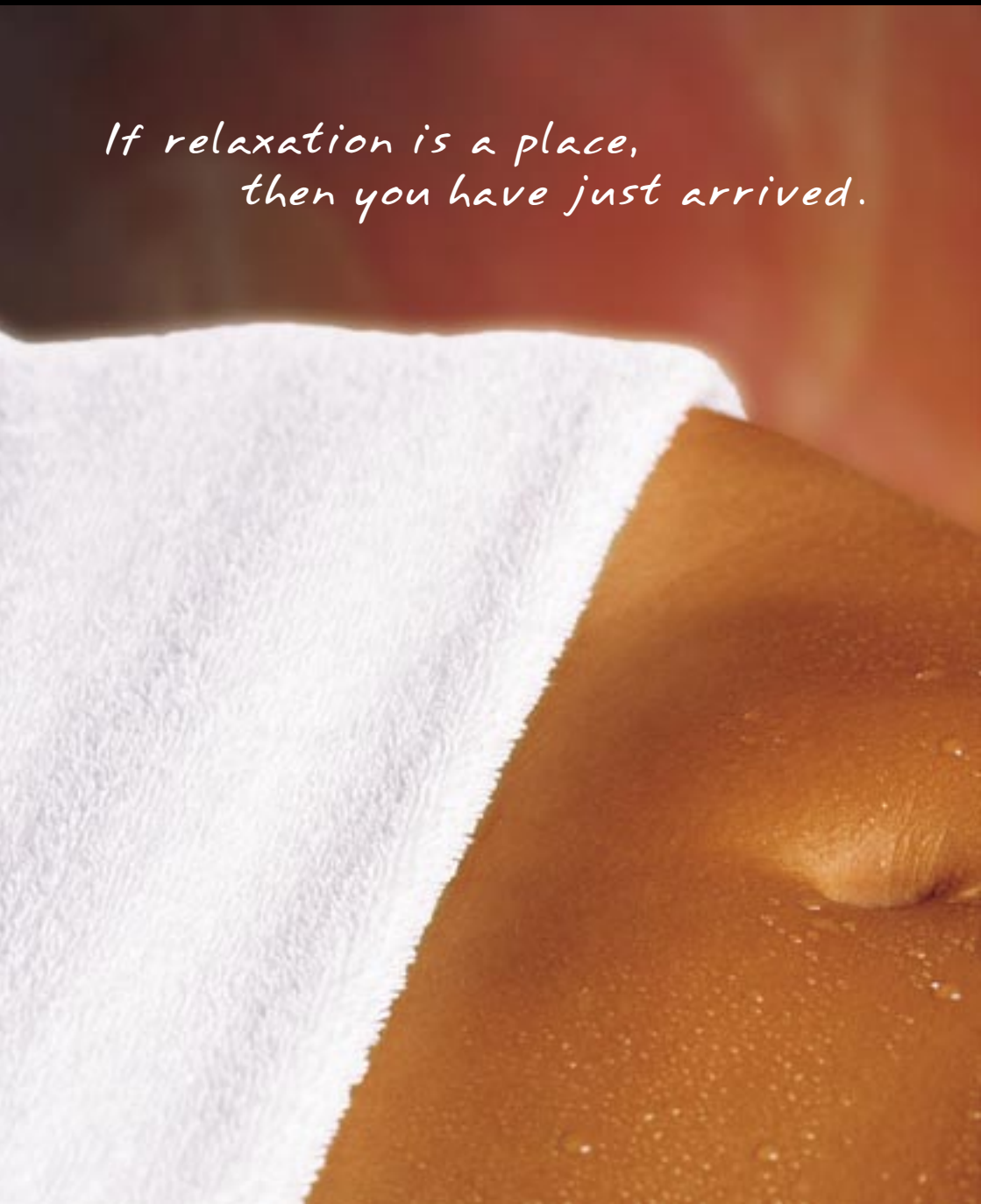


The Little Infrared Booklet

Tips for Infrared-Beginners

Protective charge: 0,50 €

GÜNTHER GRUPPE


If relaxation is a place,
then you have just arrived.

The little Infrared-Booklet - Tips for Infrared-Beginners

The little Infrared-Booklet - Tips for Infrared-Beginners

1. Preface

Infrared heat booths are becoming increasingly popular, primarily because they are instantly ready for operation and do not need much space. Nevertheless, there are still some uncertainties in connection to infrared radiation and prospective benefits. Between the glorification as “miracle cure” and the designation as “useless artefact” there is much to be discussed about the pros and cons of infrared heat booths, in comparison with traditional saunas.

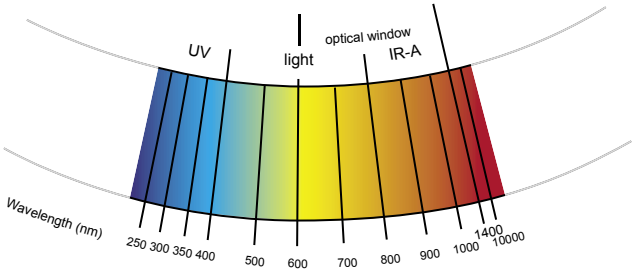
With this guidebook, we would like to clarify some facts about infrared radiation, in particular, what can this radiation do and what not. Furthermore, we want to show that sauna and infrared booth must not be competitors and want to contribute to eliminate some established prejudices and myths.

2. General Advice

2.1 What is Infrared Radiation?

All sun rays reach our planet as so called global radiation after they have been weakened at the entry into the earth's atmosphere. This radiation will be divided into UV radiation, visible light and infrared radiation, short IR radiation. But it is not only the sun that generates IR radiation. Because every "warm" object – and this is every object with a temperature above absolute zero (approx. -273 degree Celsius) – emits IR radiation. The warmer an object is, the more energy in the form of IR radiation it emits and the shorter is the wave length of the radiation.

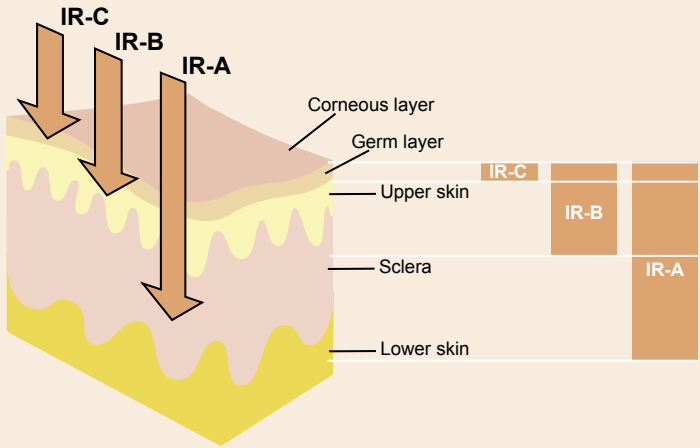
IR rays are not visible for the human eye but will be perceived by our skin as heat. Thus, it is commonly referred to as heat radiation. This effect is also commonly known: If we are in the sun, we are warm. In the shade, however, it is instantly feeling colder, even though the air temperature is equal for both conditions, in the sun and in the shade. However, for the warming of the air the IR radiation is not responsible.



2.2 How does it work?

	IR A	IR B	IR C
Radiation	Short wave radiation	Medium wave radiation	Long wave radiation
Skin depth	Sub-skin Subcutis	Upper skin Dermis/Epidermis	Upper skin Epidermis
Effect	Depth warming	Warming of the upper skin	Warming of the upper skin

It must be differentiated between IR-A (short wave IR = 0,76 – 1,4 µm), IR-B (medium wave IR = 1,4 – 3 µm) and IR-C (long wave IR = 3,0 – 10 µm). One sub-range of the short wave IR-A radiation contains the largest amount of energy and can, in contrast to the medium and long wave IR-A and IR-B radiation, reach into the sub-skin.



By means of the depth warming rays ((IR-A) the body temperature will be built up from inside (jogging effect), it causes an even more intensive sweating and a more efficient purification.

By comparison, the long wave (IR-C) and/or the medium wave (IR-B) rays warm only the upper skin layer.

3. Fields of application

IR radiation will be used in various ways. It will be applied in medicinal areas as well as for athletes and for relaxation purposes. However, it is a basic principle that you should ask your doctor in the case of physical problems before you start to use IR radiation.

Advantages of the IR radiation at a glance:

- The warming process dilates the lymph channels and activates the perspiration.
- Relaxed tissue will better be supplied with blood causing a more effective degeneration of scars, sprains, contusions, wounds and inflammations.
- For the after-treatment of sports injuries or muscle pains after the workout IR radiation is beneficial.
- In the case of rheumatism or lumbago positive effects can be achieved.
- The better blood circulation can optimise the transport of oxygen in the body.
- Even for the skin and possible skin impurities the better blood circulation can have positive effects.
- Metabolism and circulation will be activated.
- IR rays can be beneficial for the prevention of heart and circulation diseases.
- Relaxation, stress elimination and sense of well-being will be enhanced.
- IR radiation causes processes that will purify the body and reduce acidic levels.

4. Sweating

Even if we often perceive it as unpleasing: Sweating is a is purely natural and vitally important process that decisively contributes to our well-being. As a matter of fact, our body's perspiration system has the regulating function of an "air conditioning unit": As soon as our body starts to heat due to external thermal conditions or due to physical labour and, thus, needs cooling, the perspiratory glands in our skin start to work. With this perspiratory liquid (normally approx 1-2 litres a day, with excessive physical workout up to 1,5 litres an hour) our body excretes toxins and other metabolic waste products that have toxic effects. Thus, it is obvious: Sweating is healthy!

5. Differences between IR-heat cabin and sauna

	IR-heat cabin	Sauna
Operating requirements	Earth contact type plug, 230 Volt connection	Depending on sauna type up to 400 Volt three phase current
Heating period	0-20 minutes depending on device	45-60 minutes
Functionality	IR-radiation reaches skin and penetrates it, ambient air will be heated only insignificantly	Strong convection, heated air heats the body, high IR-C radiant heat.
Temperature	Approx. 30-50° Celsius	Approx. 70-110° Celsius
Resting time	Approx. 20-30 minutes, depending on sauna round, max. 60 minutes	Repeatedly approx. 15 minutes
Swimming rounds	1-2	Approx. 3
Necessary time	Approx. 20-60 minutes	With 3 rounds and rest period approx. 2 hours
Shower	According to needs lukewarm to cold	Cold
Applications	• Flavours • Coloured light • Music/acoustic	• Aromatic treatment (flavours, herbs, honey etc.) • Coloured light • Music/acoustic
Effects (with regular usage)	Heats and relaxes muscles, dilates lymph channels	„cold-hot“ change trains vessels and strengthens the immune system

6. Some myths, we would like to clear

• Do I have to choose between IR-heat cabin and sauna?
No. IR heat booths and sauna differ in intentions and kinds of application. They fulfil needs of different target groups and/or partly needs of the same target group, but at different times. Sauna-bathing and the stay in an IR heat booth do not compete and do not exclude each other. Both applications rather complement one another.

- **Do I lose weight with IR radiation?**

Without any doubt, IR radiation and the warming of the skin gently activate the human metabolism. It is likewise right that sweating causes reductions in weight. But it is not appropriate to refer to IR radiation as a “fat burner”. The reduction in weight caused by ullage will be refilled by drinking.

- **Is IR radiation dangerous?**

No, only such devices or radiators that exclusively generate IR-A radiation should be reserved for therapeutical usages by trained healthcare personnel. This is important since this form of radiation can penetrate the skin so extensively that it virtually “by-passes” the protective mechanisms of our body, which could cause an increase of the core temperature (hyperthermia).

7. What kind of different devices and radiators are there?

- **How comes IR radiation into being?**

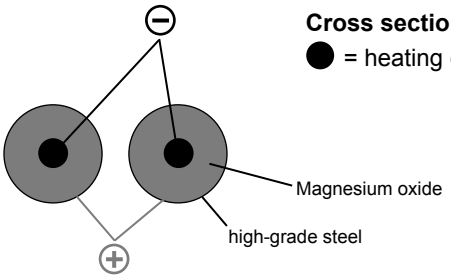
Normally, a metal object will be heated by means of electricity. Due to the integration into quarry sand or magnesium oxide, which is sheathed with steel or ceramics, the IR heating element will be created. There are also electrical flat radiators.


Flat IR-heaters

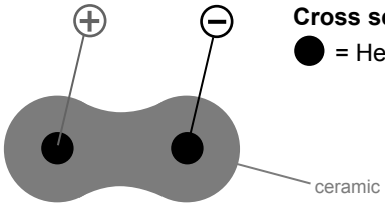

Vitae-IR lamp

Today, there are various types of radiators that are common:

Magnesium Oxide radiator:
Magnesium Oxide radiators are made of a bent high-grade steel with magnesium oxide filling and a heating wire in their centre.

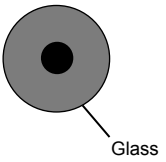


Ceramics radiators:
These radiators are the most popular ones and consist of a ceramic body in which a heating element was cast in. The ceramic body prevents an annealing to the outer sections. Furthermore, this ceramic body avoids that the heating element, which becomes soft during the operation, will not slump down, as it is usual for ceramic pipe heating elements, causing damages of the radiator due to short circuits. This method allows unlimited product life that can only be affected by mechanical damages.



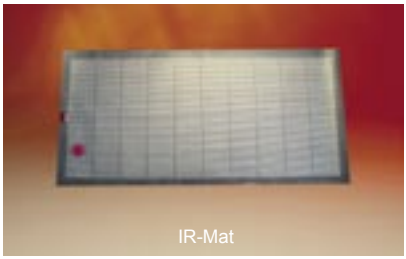
Cross section ceramics radiators
● = Heating element

Vitae radiators:
Modern vitae radiators come close to – in contrast to other radiator types that only work with IR-B and IR-C – the natural IR radiation of the sun. They cover the entire IR spectrum since they generate also a minimum amount of IR-A rays. Here, the fraction of IR-B rays has been increased so that the natural heat receptors of our skin work as “early warning system” and thus indicate an overheating of the body early enough.
Naturally provided that the visitor of the IR heat cabin “listens” to his or her body and its signals. Moreover, vitae radiators have the advantage that they do not require any preheating times, but instantly radiate heat and “supply power”.



Cross section Vitae radiators
● = Heating element

Panel or flat IR-heaters:
Panel or flat IR-heaters will commonly installed behind the wall and will thus spread their rays equally. But they also need a longer preheating period and have, altogether, long wave rays.
Moreover, these flat IR heating systems work exclusively with IR-C rays that do not go into the skin so deeply. A common type of this flat IR heater is the infrared mat.
Infrared mats (also referred to as IR heating foils) are available in many variations, e.g. one of these consists of a polyester foil with aluminium heating element and thermostat.
They can be installed as wall, ceiling or floor heating behind the wall or clearly visible in the cabin. The heat will be spread within large areas and emitted via the wood of the cabin.


IR-Mat

8. What IR-device suits you best?
The “classic device” is the magnesium oxide radiator, the ceramics radiator has the advantage that it has an unlimited life time. The ceramics layer protects the heating element within.
If the user prefers that he must not preheat his or her booth, but that he or she can use the IR heat booth absolutely spontaneously “at the push of the button”, the vitae radiator will probably the appropriate device. Furthermore, this radiator is the only one device which comes close to the natural IR radiation of the sun.
If, on the other hand, it is important to the user that the IR source is not visible and that the heat will be spread within large areas, he or she will certainly chose the IR mats which can be installed behind the cabin walls.

9. How-to manual: Some operating tips

Visiting your IR heat cabin, there are still some tips to increase your relaxation:

- Take time for yourself. Regard the way to your IR heat booth as time purposefully invested in your own well being.
- Preheat the booth a little, in order to make sure that the temperature is comfortably warm when you enter.
- It is advisable to have a shower and wipe off afterwards before you use the booth.
- Position opposite to a heater, since the heat radiation is emitted horizontally from the heat source. Sit comfortably.
- You should use a towel as underlay. Even if you e.g. lean at the booth wall with your back, you should also use a towel.
- In order to achieve an overall penetration of the IR rays, change your sitting position from time to time.
- Do not, without suitable eye protection, look directly into the IR radiator.
- The ideal stay in an IR heat booth takes 15-40 minutes. However, you should always rely on your own perceptions and feelings, always depending on your state of health.
- Take care that you drink enough after your stay in the booth, at best isotonic beverages.
- In the end, it is your personal feeling that decides on the dosage and “the rules” – and thus on the pleasure.

10. Closing words

We hope that this guidebook could clear some things about infrared and what infrared is able to do or where respective limits are. Furthermore, we wanted to show that sauna and infrared booth must not be competitors.
Even if you have become an infrared professional for yourself after continuous visits, you will still explore even more individual proceedings that give much pleasure to you.

Have fun with your infrared device!

EOS-WERKE GÜNTHER GmbH
Adolf-Weiß-Straße 43
35759 Driedorf-Mademühlen, Germany
Telefon: +49 (0)2775 82-0
Telefax: +49 (0)2775 82-431
info@eos-werke.de
www.eos-werke.de

Your sauna and infrared expert:

EOS 07 / 06 – B05006